2011 Mississippi Curriculum Framework

Postsecondary Paramedic

(Program CIP: 51.0904 – Emergency Medical Technology/Technician)

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Standards in this document are based on information from the following organizations:

National EMS Educational Standards	U.S. Department of Transportation. (2009). *National EMS Educational Standards*. Washington, DC: Author.
Related Academic Standards	CTB/McGraw-Hill LLC. (2005). *Tests of adult basic education, forms 7 and 8.* Monterey, CA: Author. Reproduced with permission of CTB/McGraw-Hill LLC. TABE is a registered trademark of The McGraw-Hill Companies, Inc. Copyright 2005 by CTB/McGraw-Hill LLC. Reproduction of this material is permitted for educational purposes only.
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Preface

Paramedic Research Synopsis

Like Emergency Medical Technicians (EMTs), paramedics are trained to care for patients in the field and while transporting patients to the hospital. They manage many emergencies including cardiac, respiratory, and trauma events. Paramedics conduct more extensive patient care than EMTs. They are licensed to administer medication, perform and interpret electrocardiograms (EKGs), perform endotracheal intubations, and use other complex biomedical equipment.

Specific resources listed at the end of each course were considered during the revision process and were especially useful in providing insight into trends and issues in the field. These references are suggested for use by instructors and students during the study of the topics outlined.

Industry advisory team members from schools or colleges throughout the state were asked to give input related to changes to be made to the curriculum framework. Specific comments related to soft skills needed in this program included time management, empathy, trustworthiness, integrity, reliability, and dedication. Occupational-specific skills stated included patient assessment and field diagnosis, developing treatment plans, providing BLS and ALS care, oxygen administration, airway care, IV therapy, drug dosing, and ECG recognition. Safety practices emphasized included body substance isolation, universal precautions, safe driving practices, lifting, scene safety, and recognition of a potential HAZ-MAT scene.

Needs of the Future Workforce
The Paramedic program is designed to prepare students for paramedic licensure. EMTs and paramedics combined held about 212,000 jobs in 2009. About 20% of them worked for hospitals. 29% worked for local governments, and about 45% worked for ambulance services (US Bureau of Labor Statistics, 2010).

EMT-Paramedic Employment Projections and Earnings
Employment of EMTs and paramedics is expected to grow slower than average in the United States, 5%, and much slower than average in Mississippi, 1% (EMSI, 2010). Job prospects will be best for those in metropolitan areas. Demand is expected to increase with aging populations and patient overcrowding in emergency departments (US Bureau of Labor Statistics, 2010).

Finance and Accounting Employment Projections and Earnings

Region	2010 Jobs	2019 Jobs	Change	% Change	Median Hourly Earnings
Regional Total	1,700	1,710	10	1%	$12.33
National Total	212,378	223,735	11,357	5%	$14.12

Source: EMSI Complete Employment - 1st Quarter 2010

Curriculum
The following national standards were referenced in each course of the curriculum:

- CTB/McGraw-Hill LLC *Tests of Adult Basic Education, forms 7 and 8* Academic Standards
- *21st Century Skills*

- U.S. Department of Transportation. (2009). *National EMS Educational Standards*. Washington, DC: Author.

Industry and instructor comments, along with current research, were considered by the curriculum revision team during the revision process, and changes were made as needed and appropriate. Many of the skills and topics noted in the research were already included in the curriculum framework. Specific changes made to the curriculum during the 2010 revision meeting included the following:

- Competencies and objectives were reviewed to ensure accuracy and appropriateness.
- Competencies and objectives were added in consideration of amended national standards.
- The course title was changed to Paramedic from EMT-Paramedic.
- The course abbreviation was changed from EMT to EMS.
- The term "pre-hospital" was dropped from all course titles.
- Fundamentals of Pre-hospital Care was renamed Introduction to EMS Systems.
- Airway Management and Ventilation was renamed Airway: Management, Respiration, and Oxygenation, and it is now 4 sch (EMS 1314).
- Patient Assessment is now 4 sch (EMS 1414).
- EMS Clinical Internship I was renamed EMS Practicum I.
- Pharmacology is now 4 sch (EMS 1614).
- Pre-hospital Medical Care was renamed Medical.
- EMS Clinical Internship II and EMS Field Internship I were combined to make EMS Practicum II, a 5-sch course (EMS 1525).
- Pre-hospital OB/GYN and Pre-hospital Pediatrics were combined to form Maternal/Child Emergencies, and it is a 4-sch course (EMS 2414).
- EMS Field Internship II was renamed EMS Practicum III, and it is 5 sch (EMS 2565).
- EMS Team Management was renamed EMS Operations, and it is now 2 sch (EMS 2912).
- EMS Special Considerations was renamed EMS Special Patient Populations, and it is now a 2-sch course (EMS 1422).

Assessment

Students will be assessed using the *National Registry of Emergency Medical Technicians-Paramedic Exam*.

Professional Learning

It is suggested that instructors participate in professional learning related to the following concepts:

- How to use the program Blackboard site
- Differentiated instruction – To learn more about differentiated instruction, please go to http://www.paec.org/teacher2teacher/additional_subjects.html, and click on Differentiated Instruction. Work through this online course, and review the additional resources.

Foreword

As the world economy continues to evolve, businesses and industries must adopt new practices and processes in order to survive. Quality and cost control, work teams and participatory management, and an infusion of technology are transforming the way people work and do business. Employees are now expected to read, write, and communicate effectively; think creatively, solve problems, and make decisions; and interact with each other and the technologies in the workplace. Vocational–technical programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact local career–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provides students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide career and technical educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Referenced throughout the courses of the curriculum are the 21st Century Skills, which were developed by the Partnership for 21st Century Skills, a group of business and education organizations concerned about the gap between the knowledge and skills learned in school and those needed in communities and the workplace. A portion of the 21st Century Skills addresses learning skills needed in the 21st century, including information and communication skills, thinking and problem-solving skills, and interpersonal and self-directional skills. The need for these types of skills has been recognized for some time, and the 21st Century Skills are adapted in part from the 1991 report from the U.S. Secretary of Labor's Commission on Achieving Necessary Skills (SCANS). Another important aspect of learning and working in the 21st century involves technology skills. The International Society for Technology in Education, developer of the National Educational Technology Standards (NETS), was a strategic partner in the Partnership for 21st Century Skills.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses that focuses on the development of occupational competencies. Each career–technical course in this sequence has been written using a common format, which includes the following components:

- Course Name – A common name that will be used by all community and junior colleges in reporting students

- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students

- Classification – Courses may be classified as the following:
    - Vocational–technical core – A required vocational–technical course for all students

  - Area of concentration (AOC) core – A course required in an area of concentration of a cluster of programs
  - Vocational–technical elective – An elective vocational–technical course
  - Related academic course – An academic course that provides academic skills and knowledge directly related to the program area
  - Academic core – An academic course that is required as part of the requirements for an associate's degree

- Description – A short narrative that includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course

- Corequisites – A listing of courses that may be taken while enrolled in the course

- Competencies and Suggested Objectives – A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
  - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
  - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
  - Activities that implement components of the Mississippi Tech Prep initiative, including integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
  - Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15-semester-credit-hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:
    - 3 semester credit hours — Math/Science Elective
    - 3 semester credit hours — Written Communications Elective
    - 3 semester credit hours — Oral Communications Elective
    - 3 semester credit hours — Humanities/Fine Arts Elective
    - 3 semester credit hours — Social/Behavioral Science Elective

  It is recommended that courses in the academic core be spaced out over the entire length of the program so that students complete some academic and career–technical courses each semester. Each community or junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their areas.

In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

- Adding new competencies and suggested objectives
- Revising or extending the suggested objectives for individual competencies
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the State Board for Community and Junior Colleges [SBCJC] of the change)

In addition, the curriculum framework as a whole may be customized by doing the following:

- Resequencing courses within the suggested course sequence
- Developing and adding a new course that meets specific needs of industries and other clients in the community or junior college district (with SBCJC approval)
- Utilizing the technical elective options in many of the curricula to customize programs

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Program Description

The paramedic is an allied health professional whose primary focus is to provide advanced emergency medical care for critical and emergent patients who access the emergency medical system. This individual possesses the complex knowledge and skills necessary to provide patient care and transportation. Paramedics function as part of a comprehensive EMS response, under medical oversight. Paramedics perform interventions with the basic and advanced equipment typically found on an ambulance. The paramedic is a link from the scene into the health-care system.

Paramedics possess the knowledge, skills, and attitudes consistent with the expectations of the public and the profession. Paramedics recognize that they are an essential component of the continuum of care and serve as linkages among health resources.

Paramedics strive to maintain high quality, reasonable cost health care by delivering patients directly to appropriate facilities. As an advocate for patients, paramedics seek to be proactive in affecting long-term health care by working in conjunction with other provider agencies, networks, and organizations. The emerging roles and responsibilities of the paramedic include public education, health promotion, and participation in injury and illness prevention programs. As the scope of service continues to expand, the paramedic will function as a facilitator of access to care, as well as an initial treatment provider.

Paramedics are responsible and accountable to medical direction, the public, and their peers. Paramedics recognize the importance of research and actively participate in the design, development, evaluation, and publication of research. Paramedics seek to take part in life-long professional development and peer evaluation, and they assume an active role in professional and community organizations.

The paramedic training program is a postsecondary program drawing its students from individuals already possessing a valid EMT state certification and having Anatomy and Physiology I with a grade of C or better. Students must complete Anatomy and Physiology II with a grade of C or better to be eligible to complete the program. Each student must be 18 years or older and possess a high school diploma or GED certificate.

Classroom instruction is comprehensive including a working knowledge of all anatomy, physiology, and pathophysiological processes as well as competency-based instruction in assessment and management skills required for treatment of life-threatening problems in the adult, pediatric, and geriatric patient. Clinical internship requires participation in care of patients in a hospital emergency department that provides medical control to ALS providers in the field and, according to availability, CCU, ICU, labor and delivery suite, operating room, psychiatric ward, pediatric ward, and geriatric ward. Field internship is done with an ambulance service and/or rescue service providing advanced life support services to the community.

To be eligible to take the National Registry’s Exam as a paramedic, the student must complete Anatomy and Physiology I and II, the EMT program, and all paramedic courses. Students must complete the following academic courses to obtain an Associate of Applied Science degree:

3 sch	Social Science/Behavioral Science
3 sch	Written Communications Elective
3 sch	Oral Communications Elective
3 sch	Fine Arts/Humanities Elective
3 sch	Math/Science Elective (Anatomy and Physiology II satisfies this requirement.)

This training program is sanctioned by the Mississippi State Board of Health. The course meets or exceeds those standards established by the National Highway Traffic Safety Administration/U.S. Department of Transportation.

Suggested Course Sequence*
Degree Program

National registered EMT is a prerequisite (by state law and national standards) for entrance into this program. Human Anatomy and Physiology I is a prerequisite, and Anatomy and Physiology II may be taken as a corequisite. Students must obtain state EMT certification after admission into the program if not held previously.

FIRST YEAR

2 sch	Introduction to EMS Systems (EMS 1122)
4 sch	Airway: Management, Respiration, and Oxygenation (EMS 1314)
4 sch	Patient Assessment (EMS 1414)
3 sch	EMS Practicum I (EMS 1513)
4 sch	Pharmacology (EMS 1614)
17 sch	

5 sch	Cardiology (EMS 1825)
4 sch	Trauma (EMS 2714)
5 sch	EMS Practicum II (EMS 1525)
3 sch	Written Communications Elective
4 sch	Math/Science Elective**
21 sch	

SECOND YEAR

3 sch	Oral Communications
5 sch	Medical (EMS 2855)
4 sch	Maternal/Child Emergencies (EMS 2414)
12 sch	

2 sch	EMS Operations (EMS 2912)
2 sch	EMS Special Patient Populations (EMS 1422)
3 sch	Social/Behavioral Science Elective
3 sch	Fine Arts/Humanities Elective
5 sch	EMS Practicum III (EMS 2555)
15 sch	

* Students who lack entry-level skills in math, English, science, and so forth will be provided related studies.

** It is suggested that the Math/Science Elective be Anatomy and Physiology II (BIO 2524) for this program.

Suggested Course Sequence*
Certificate Program with Degree Option

National registered EMT is a prerequisite (by state law and national standards) for entrance into this program. Human Anatomy and Physiology I and Anatomy and Physiology II may be taken as a pre-requisite or corequisite. Students must obtain state EMT certification after admission into the program if not held previously.

Term 1

2 sch	Introduction to EMS Systems (EMS 1122)
4 sch	Airway: Management, Respiration, and Oxygenation (EMS 1314)
4 sch	Patient Assessment (EMS 1414)
3 sch	EMS Practicum I (EMS 1513)
4 sch	Pharmacology (EMS 1614)
17 sch	

Term 2

5 sch	Cardiology (EMS 1825)
5 sch	Medical (EMS 2855)
5 sch	EMS Practicum II (EMS 1525)
4 sch	Trauma (EMS 2714)
19 sch	

Term 3

4 sch	Maternal/Child Emergencies (EMS 2414)
5 sch	EMS Practicum III (EMS 2565)
2 sch	EMS Operations(EMS 2912)
2 sch	EMS Special Patient Populations (EMS 1422)
13 sch	

Term 4

3 sch	Oral Communications
3 sch	Social/Behavioral Science Elective
3 sch	Fine Arts/Humanities Elective
4 sch	Math/Science Elective**
3 sch	Written Communications Elective
16 sch	

* Students who lack entry-level skills in math, English, science, and so forth will be provided related studies.

** It is suggested that the Math/Science Elective be Anatomy and Physiology II (BIO 2524) for this program.

Paramedic Courses

Course Name: Introduction to EMS Systems

Course Abbreviation: EMS 1122

Classification: Vocational–Technical Core

Description: This course introduces the student to the EMS systems, roles, and responsibilities of the paramedic, well-being of the paramedic, illness and injury prevention, medical/legal issues, ethical issues, therapeutic communications, and life span development. This course was formerly taught as Fundamentals of Pre-hospital Care (EMT 1122). (2 sch: 1-hr lecture, 2-hr lab)

Corequisite: None

Competencies and Suggested Objectives
1. Discuss roles and responsibilities within an EMS system and how these roles and responsibilities differ from other levels of providers. (EMS1, EMS14) a. Define terms associated with an EMS system. b. Describe key historical events that influenced the development of national Emergency Medical Services (EMS) systems. c. Identify national groups important to the development, education, and implementation of EMS. d. Differentiate among the four nationally recognized levels of EMS training/education, leading to licensure/certification/registration. e. Describe the attributes of a paramedic as a health-care professional. f. Describe the state's recognized levels of EMS training/education, leading to licensure/ certification. g. Explain the state's paramedic licensure/certification, recertification, and reciprocity requirements. h. Evaluate the importance of maintaining one's paramedic license/certification. i. Describe the benefits of paramedic continuing education. j. List the state's current state requirements for paramedic education. k. Discuss the role of national associations and of a national registry agency. l. Discuss current issues within the state impacting EMS. m. Discuss the roles of various EMS standard setting agencies. n. Identify the standards (components) of an EMS system as defined by the National Highway Traffic Safety Administration. o. Describe how professionalism applies to the paramedic while on and off duty. p. Describe examples of professional behaviors in the following areas: integrity, empathy, self-motivation, appearance and personal hygiene, self-confidence, communications, time management, teamwork and diplomacy, respect, patient advocacy, and careful delivery of service. q. Provide examples of activities that constitute appropriate professional behavior for a paramedic. r. Describe the importance of quality EMS research to the future of EMS.

s. Identify the benefits of paramedics' teaching in their communities.
t. Describe what is meant by "citizen involvement in the EMS system."
u. Analyze how the paramedic can benefit the health-care system by supporting primary care to patients in the out-of-hospital setting.
v. List the primary and additional responsibilities of paramedics.
w. Describe the role of the EMS physician in providing medical direction.
x. Describe the benefits of medical direction, both online and off-line.
y. Describe the process for the development of local policies and protocols.
z. Provide examples of local protocols.
aa. Discuss pre-hospital and out-of-hospital care as an extension of the physician.
bb. Describe the relationship between a physician on the scene, the paramedic on the scene, and the EMS physician providing online medical direction.
cc. Describe the components of continuous quality improvement.
dd. Analyze the role of continuous quality improvement with respect to continuing medical education and research.
ee. Define the role of the paramedic relative to the safety of the crew, the patient, and bystanders.
ff. Identify local health-care agencies and transportation resources for patients with special needs.
gg. Describe the role of the paramedic in health education activities related to illness and injury prevention.
hh. Describe the importance and benefits of research.
ii. Explain the EMS provider's role in data collection.
jj. Explain the basic principles of research.
kk. Describe a process of evaluating and interpreting research.
ll. Advocate the benefits of working toward the goal of total personal wellness.
mm. Serve as a role model for other EMS providers in regard to a total wellness lifestyle.
nn. Value the need to assess the paramedic's lifestyle.
oo. Challenge himself or herself to each wellness concept in his or her role as a paramedic.
pp. Defend the need to treat each patient as an individual, with respect and dignity.
qq. Assess the paramedic's prejudices related to the various aspects of cultural diversity.
rr. Improve personal physical well-being through achieving and maintaining proper body weight, regular exercise, and proper nutrition.
ss. Practice stress management techniques.
tt. Defend the need to respect the emotional needs of dying patients and their families.
uu. Practice the use of personal safety precautions in all scene situations.
vv. Serve as a role model for other EMS providers relative to body substance isolation practices.

2. Comprehend the importance of personal wellness in EMS, and serve as a healthy role model for peers. (EMS1, EMS14)
   a. Discuss the concept of wellness and its benefits.
   b. Define the components of wellness.
   c. Describe the role of the paramedic in promoting wellness.
   d. Discuss the components of wellness associated with proper nutrition.

e. List principles of weight control.
f. Discuss how cardiovascular endurance, muscle strength, and flexibility contribute to physical fitness.
g. Describe the impact of shift work on circadian rhythms.
h. Discuss how periodic risk assessments and knowledge of warning signs contribute to cancer and cardiovascular disease prevention.
i. Differentiate proper from improper body mechanics for lifting and moving patients in emergency and nonemergency situations.
j. Describe the problems that a paramedic might encounter in a hostile situation and the techniques used to manage the situation.
k. Given a scenario involving arrival at the scene of a motor vehicle collision, assess the safety of the scene, and propose ways to make the scene safer.
l. List factors that contribute to safe vehicle operations.
m. Describe the considerations that should be used when operating an emergency vehicle.
n. Discuss the concept of “due regard for the safety of all others” while operating an emergency vehicle.
o. Describe the equipment available for self-protection when confronted with a variety of adverse situations.
p. Describe the benefits and methods of smoking cessation.
q. Describe the three phases of the stress response.
r. List factors that trigger the stress response.
s. Discuss the interrelationships between stress, coping, and illness.
t. Differentiate between normal/healthy and detrimental reactions to anxiety and stress.
u. Describe the common physiological and psychological effects of stress.
v. Identify causes of stress in EMS.
w. Describe behavior that is a manifestation of stress in patients and those close to them and how this relates to paramedic stress.
x. Describe the defense mechanisms and management techniques commonly used to deal with stress.
y. Describe the components of stress management.
z. Provide examples of situations in which stress management would likely be beneficial to paramedics.
aa. Given a scenario involving a stressful situation, formulate a strategy to help cope with the stress.
bb. Describe the stages of the grieving process (Kubler-Ross).
cc. Describe the needs of the paramedic when dealing with death and dying.
dd. Describe the unique challenges for paramedics in dealing with the needs of children and other special populations related to their understanding or experience of death and dying.
ee. Discuss the importance of universal precautions and body substance isolation practices.
ff. Describe the steps to take for personal protection from airborne and bloodborne pathogens.
gg. Given a scenario in which equipment and supplies have been exposed to body

substances, plan for the proper cleaning, disinfection, and disposal of the items.

hh. Explain what is meant by an exposure, and describe principles for management.

ii. Advocate the benefits of working toward the goal of total personal wellness.

jj. Serve as a role model for other EMS providers in regard to a total wellness lifestyle.

kk. Value the need to assess the paramedic's lifestyle.

ll. Challenge himself or herself to each wellness concept in his /her role as a paramedic.

mm. Defend the need to treat each patient as an individual, with respect and dignity.

nn. Assess the paramedic's prejudices related to the various aspects of cultural diversity.

oo. Improve personal physical well-being through achieving and maintaining proper body weight, regular exercise, and proper nutrition.

pp. Promote and practice stress management techniques.

qq. Defend the need to respect the emotional needs of end-of-life patients and their families.

rr. Advocate and practice the use of personal safety precautions in all scene situations.

ss. Advocate and serve as a role model for other EMS providers relative to body substance isolation practices.

tt. Demonstrate safe methods for lifting and moving patients in emergency and nonemergency situations.

uu. Demonstrate the proper procedures to take for personal protection from disease.

3. Apply fundamental knowledge of principles of public health and epidemiology including public health emergencies, health promotion, and illness and injury prevention. (EMS1, EMS6)

a. Describe the incidence, morbidity, and mortality of unintentional and alleged unintentional events.

b. Identify the human, environmental, and socioeconomic impact of unintentional and alleged unintentional events.

c. Identify health hazards and potential crime areas within the community.

d. Identify local municipal and community resources available for physical and socioeconomic crises.

e. List the general and specific environmental parameters that should be inspected to assess a patient's need for preventative information and direction.

f. Identify the role of EMS in local municipal and community prevention programs.

g. Identify the local prevention programs that promote safety for all age populations.

h. Identify patient situations where the paramedic can intervene in a preventative manner.

i. Document primary and secondary injury prevention data.

j. Defend tenets of prevention in terms of personal safety and wellness.

k Defend tenets of prevention for patients and communities being served.

l. Demonstrate effective documentation as one justification for funding of prevention programs.

m. Demonstrate personal commitment to success of prevention programs.

n. Demonstrate the use of protective equipment appropriate to the environment and scene.

4. Discuss the legal issues that impact decisions made in the out-of-hospital environment. (EMS1)

a. Differentiate between legal and ethical responsibilities.
b. Describe the basic structure of the legal system in the United States.
c. Differentiate between civil and criminal law as it pertains to the paramedic.
d. Explain the importance of laws pertinent to the paramedic.
e. Differentiate between licensure and certification as they apply to the paramedic.
f. List the specific problems or conditions encountered while providing care that a paramedic is required to report.
g. Identify in each instance to whom the report is to be made.
h. Define terms associated with legal and ethical issues.
i Differentiate between the scope of practice and the standard of care for paramedic practice.
j. Discuss the concept of medical direction, including off-line medical direction and online medical direction, and its relationship to the standard of care of a paramedic.
k. Describe the four elements that must be present in order to prove negligence.
l. Given a scenario in which a patient is injured while a paramedic is providing care, determine whether the four components of negligence are present.
m. Given a scenario, demonstrate patient care behaviors that would protect the paramedic from claims of negligence.
n. Explain the concept of liability as it might apply to paramedic practice, including physicians providing medical direction and paramedic supervision of other care providers.
o. Discuss the legal concept of immunity, including Good Samaritan statutes and governmental immunity, as it applies to the paramedic.
p. Explain the importance and necessity of patient confidentiality and the standards for maintaining patient confidentiality that apply to the paramedic, including HIPAA considerations.
q. Differentiate among expressed, informed, implied, and involuntary consent.
r. Given a scenario in which a paramedic is presented with a conscious patient in need of care, describe the process used to obtain consent.
s. Identify the steps to take if a patient refuses care.
t. Given a scenario, demonstrate appropriate patient management and care techniques in a refusal of care situation.
u. Describe what constitutes abandonment.
v. Identify the legal issues involved in the decision not to transport a patient or to reduce the level of care being provided during transportation.
w. Describe how hospitals are selected to receive patients based on patient need and hospital capability and the role of the paramedic in such selection.
x. Differentiate between assault and battery.
y. Describe how to avoid assault and battery.
z. Describe the conditions under which the use of force, including restraint, is acceptable.
aa. Explain the purpose of advance directives relative to patient care and how the paramedic should care for a patient who is covered by an advance directive.
bb. Discuss the responsibilities of the paramedic relative to resuscitation efforts for patients who are potential organ donors.
cc. Describe the actions that the paramedic should take to preserve evidence at a crime

	or accident scene.
dd.	Describe the importance of providing accurate documentation (oral and written) in substantiating an incident.
ee.	Describe the characteristics of a patient care report required to make it an effective legal document.
ff.	Given a scenario, prepare a patient care report, including an appropriately detailed narrative.
gg.	Demonstrate the need to show respect for the rights and feelings of patients.
hh.	Assess the paramedic's personal commitment to protecting patient confidentiality.
ii.	Given a scenario involving a new employee, explain the importance of obtaining consent for adults and minors.
jj.	Discuss personal beliefs about withholding or stopping patient care.
kk.	Explain the value of advance medical directives.
5.	Explain the role that ethics plays in decision making in the out-of-hospital environment. (EMS)1
a.	Define ethics.
b.	Distinguish between ethical and moral decisions.
c.	Identify the premise that should underlie the paramedic's ethical decisions in out-of hospital care.
d.	Analyze the relationship between the law and ethics in EMS.
e.	Compare and contrast the criteria that may be used in allocating scarce EMS resources.
f.	Identify the issues surrounding the use of advance directives in making a pre-hospital resuscitation decision.
g.	Describe the state's necessary criteria to honor an advance directive.
h.	Describe the patient's autonomy in the decision-making process.
i.	Discuss the following ethical positions:
	(1) The paramedic is accountable to the patient.
	(2) The paramedic is accountable to the medical director.
	(3) The paramedic is accountable to the EMS system.
	(4) The paramedic is accountable for fulfilling the standard of care.
j.	Given a scenario, discuss a paramedic's actions concerning a patient who is treated against his or her wishes.
k.	Given a scenario, discuss a paramedic's actions in a situation where a physician orders therapy the paramedic feels to be detrimental to the patient's best interests.
l.	Describe confidentiality and HIPAA requirements.
6.	Integrate the principles of therapeutic communication to effectively communicate with any patient while providing care. (EMS1, EMS5)
a.	Define communication.
b.	Identify internal and external factors that affect a patient/bystander interview conducted by a paramedic.
c.	Restate the strategies for developing patient rapport.
d.	Provide examples of open-ended and closed or direct questions.
e.	Discuss common errors made by paramedics when interviewing patients.
f.	Identify the nonverbal skills that are used in patient interviewing.
g.	Restate the strategies for developing patient rapport.

h. Summarize the methods to assess mental status based on interview techniques.
i. Discuss the strategies for interviewing a patient who is unmotivated to talk.
j. Differentiate the strategies a paramedic uses when interviewing a patient who is hostile compared to one who is cooperative.
k. Summarize developmental considerations of various age groups that influence patient interviewing.
l. Restate unique interviewing techniques necessary to employ with patients who have special needs.
m. Discuss interviewing considerations used by paramedics in cross-cultural communications.
n. Serve as a model for an effective communication process.
o. Explain the importance of external factors of communication.
p. Demonstrate the proper responses to patient communication.
q. Demonstrate professional nonverbal behaviors.
r. Demonstrate the development of proper patient rapport.
s. Explain strategies to obtain patient information.
t. Demonstrate professional behaviors in communicating with patients in special situations.
u. Demonstrate professional behaviors in communication with patients from different cultures.
v. Explain the importance of patient confidentiality and HIPAA requirements.

7. Integrate the physiological, psychological, and sociological changes throughout human development with assessment and communication strategies for patients of all ages. (EMS1, EMS5)

a. Compare the physiological and psychosocial characteristics of an infant with those of an early adult.
b. Compare the physiological and psychosocial characteristics of a toddler with those of an early adult.
c. Compare the physiological and psychosocial characteristics of a pre-school child with those of an early adult.
d. Compare the physiological and psychosocial characteristics of a school-aged child with those of an early adult.
e. Compare the physiological and psychosocial characteristics of an adolescent with those of an early adult.
f. Summarize the physiological and psychosocial characteristics of an early adult.
g. Compare the physiological and psychosocial characteristics of a middle-aged adult with those of an early adult.
h. Compare the physiological and psychosocial characteristics of a person in late adulthood with those of an early adult.
i. Explain the uniqueness of infants, toddlers, pre-school children, school-aged children, adolescents, early adulthood, middle-aged people, and late adulthood physiological and psychosocial characteristics.

8. Outline an accepted format for dissemination of patient information in verbal form, either in person or over the radio. (EMS1, EMS3, EMS9)

a. Identify the importance of communications when providing EMS.
b. Identify the role of verbal, written, and electronic communications in the provision

of EMS.

c. Describe the phases of communications necessary to complete a typical EMS event.
d. Identify the importance of proper terminology when communicating during an EMS event.
e. Identify the importance of proper verbal communications during an EMS event.
f. List factors that impede effective verbal communications.
g. List factors that enhance verbal communications.
h. Identify the importance of proper written communications during an EMS event.
i. List factors that impede effective written communications.
j. List factors that enhance written communications.
k. Explain the importance of the legal status of written communications related to an EMS event.
l. State the importance of data collection during an EMS event.
m. Identify technology used to collect and exchange patient and/or scene information electronically.
n. Recognize the legal status of patient medical information exchanged electronically.
o. Identify the components of the local EMS communications system, and describe their function and use.
p. Identify and differentiate among the following communications systems:
   (1) Simplex
   (2) Multiplex
   (3) Duplex
   (4) Trunked
   (5) Digital communications
   (6) Cellular telephone
   (7) Facsimile
   (8) Computer
q. Identify the components of the local dispatch communications system, and describe their function and use.
r. Describe the functions and responsibilities of the Federal Communications Commission.
s. Describe how an EMS dispatcher functions as an integral part of the EMS team.
t. List appropriate information to be gathered by the Emergency Medical Dispatcher.
u. Identify the role of Emergency Medical Dispatch in a typical EMS event.
v. Identify the importance of pre-arrival instructions in a typical EMS event.
w. Describe the purpose of verbal communication of patient information to the hospital.
x. Describe information that should be included in patient assessment information verbally reported to medical direction.
y. Diagram a basic model of communications.
z. Organize a list of patient assessment information in the correct order for electronic transmission to medical direction according to the format used locally.
aa. Utilize proper terminology when describing a patient or patient condition.
bb. Demonstrate the ability to use the local dispatch communications system.
cc. Demonstrate the ability to use a radio.
dd. Demonstrate the ability to use the biotelemetry equipment used locally.

9. Effectively document the essential elements of patient assessment, care, and transport. (EMS3, EMS9)
   a. Identify the general principles regarding the importance of EMS documentation and ways in which documents are used.
   b. Utilize medical terminology correctly.
   c. List appropriate and accurate medical abbreviations and acronyms.
   d. Record all pertinent administrative information.
   e. Explain the role of documentation in agency reimbursement.
   f. Analyze the documentation for accuracy and completeness, including spelling.
   g. Eliminate extraneous or nonprofessional information from all communications.
   h. Describe the differences between subjective and objective elements of documentation.
   i. Evaluate a finished document for errors and omissions.
   j. Evaluate a finished document for proper use and spelling of abbreviations and acronyms.
   k. Evaluate the confidential nature of an EMS report.
   l. Describe the potential consequences of illegible, incomplete, or inaccurate documentation.
   m. Describe the special considerations concerning patient refusal of transport.
   n. Record pertinent information using a consistent narrative format.
   o. Explain how to properly record direct patient or bystander comments.
   p. Describe the special considerations concerning mass casualty incident documentation.
   q. Apply the principles of documentation to computer charting, as access to this technology becomes available.
   r. Record the pertinent, reportable clinical data of each patient interaction.
   s. Record “pertinent negative” clinical findings.
   t. Correct errors and omissions, using proper procedures as defined under local protocol.
   u. Revise documents, when necessary, using locally-approved procedures.
   v. Demonstrate responsibility for self-assessment of all documentation.
   w. Demonstrate proper completion of an EMS event record used locally.
   x. Demonstrate the relevance and importance of properly completed documentation.
   y. Discuss the common negative attitudes toward the task of documentation.

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS3 Medical Terminology
EMS5 Life Span Development
EMS6 Public Health
EMS9 Assessment
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

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Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

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Course Name: Airway: Management, Respiration, and Oxygenation

Course Abbreviation: EMS 1314

Classification: Vocational–Technical Core

Description: This course will provide the student with the essential knowledge to attain an airway and manage the respiratory system using advanced techniques. This course was previously taught as Airway Management and Ventilation (EMT 1315) (4 sch: 1-hr lecture, 6-hr lab)

Corequisite: Introduction to EMS Systems (EMS 1122) and Anatomy and Physiology II (BIO 2524)

Competencies and Suggested Objectives
1. Apply and integrate comprehensive knowledge of anatomy, physiology, and pathophysiology into the care of a patient with airway or ventilation problems. (EMS2, EMS3, EMS4, EMS8, EMS9, EMS11)
2. Explain how to establish and maintain a patent airway. (EMS8, EMS9, EMS10, EMS11, EMS12, EMS13) a. Explain the primary objective of airway maintenance. b. Identify commonly neglected pre-hospital skills related to airway. c. Identify the anatomy of the upper and lower airway. d. Describe the functions of the upper and lower airway. e. Explain the differences between adult and pediatric airway anatomy. f. Define gag reflex. g. Explain the relationship between pulmonary circulation and respiration. h. List the concentration of gases that comprise atmospheric air. i. Describe the measurement of oxygen in the blood. j. Describe the measurement of carbon dioxide in the blood. k. Describe peak expiratory flow. l. List the factors that cause decreased oxygen concentrations in the blood. m. List the factors that increase and decrease carbon dioxide production in the body. n. Define atelectasis. o. Define FiO2. p. Differentiate between hypoxia and hypoxemia. q. Describe the voluntary and involuntary regulation of respiration. r. Describe the modified forms of respiration. s. Define normal respiratory rates and tidal volumes for the adult, child, and infant. t. List the factors that affect respiratory rate and depth. u. Explain the risk of infection to EMS providers associated with ventilation. v. Define pulsus paradoxes. w. Explain the implications of partial airway obstruction with good and poor air exchange. x. Describe airway maintenance devices typically found in the home-care environment. y. Describe devices that provide or enhance alveolar ventilation in the home-care

setting.

z. List modes of artificial ventilation and an out-of-hospital situation where each might be employed.

aa. Define complete airway obstruction.

bb. Describe causes of upper airway obstruction.

cc. Describe causes of respiratory distress.

dd. Describe manual airway maneuvers.

ee. Describe the Sellick (cricoid pressure) maneuver.

ff. Describe complete airway obstruction maneuvers.

gg. Explain the purpose for suctioning the upper airway.

hh. Identify types of suction equipment.

ii. Describe the indications for suctioning the upper airway.

jj. Identify types of suction catheters, including hard or rigid catheters and soft catheters.

kk. Identify techniques of suctioning the upper airway.

ll. Identify special considerations of suctioning the upper airway.

mm. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique of tracheobronchial suctioning in the intubated patient.

nn. Describe the use of an oral and nasal airway.

oo. Identify special considerations of tracheobronchial suctioning in the intubated patient.

pp. Define gastric distention.

qq. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for inserting a nasogastric tube and an orogastric tube.

rr. Identify special considerations of gastric decompression.

ss. Describe the indications, contraindications, advantages, disadvantages, complications, and technique for inserting an oropharyngeal and nasopharyngeal airway.

tt. Describe the indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient by the following:

(1) Mouth-to-mouth
(2) Mouth-to-nose
(3) Mouth-to-mask
(4) One person bag-valve-mask
(5) Two person bag-valve-mask
(6) Three person bag-valve-mask
(7) Flow-restricted, oxygen-powered ventilation device

uu. Explain the advantage of the two-person method when ventilating with the bag-valve-mask.

vv. Compare the ventilation techniques used for an adult patient to those used for pediatric patients.

ww. Describe indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient with an automatic transport ventilator (ATV).

xx. Explain safety considerations of oxygen storage and delivery.
yy. Identify types of oxygen cylinders and pressure regulators (including a high pressure regulator and a therapy regulator).
zz. List the steps for delivering oxygen from a cylinder and regulator.
aaa. Describe the use, advantages, and disadvantages of an oxygen humidifier.
bbb. Describe the indications, contraindications, advantages, disadvantages, complications, liter flow range, and concentration of delivered oxygen for supplemental oxygen delivery devices.
ccc. Discuss tracheostomy, stoma, and tracheostomy tube.
ddd. Demonstrate the insertion of a new inner cannula and/or the use of an endotracheal tube to temporarily maintain an airway in a tracheostomy patient.
eee. Summarize a laryngectomy.
fff. Define how to ventilate with a patient with a stoma, including mouth-to-stoma and bag-valve-mask-to-stoma ventilation.
ggg. Describe the special considerations in airway management and ventilation for patients with facial injuries.
hhh. Describe the special considerations in airway management and ventilation for the pediatric patient.
iii. Differentiate endotracheal intubation from other methods of advanced airway management.
jjj. Describe the indications, contraindications, advantages, disadvantages, and complications of endotracheal intubation.
kkk. Describe laryngoscopy for the removal of a foreign body airway obstruction.
lll. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for direct laryngoscopy.
mmm. Describe visual landmarks for direct laryngoscopy.
nnn. Describe use of cricoid pressure during intubation.
ooo. Describe indications, contraindications, advantages, disadvantages, complications, equipment, and technique for digital endotracheal intubation.
ppp. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for using a dual lumen airway.
qqq. Describe the indications, contraindications, advantages, disadvantages, complications, and equipment for rapid sequence intubation with neuromuscular blockade.
rrr. Identify neuromuscular blocking drugs and other agents used in rapid sequence intubation.
sss. Describe the indications, contraindications, advantages, disadvantages, complications, and equipment for sedation during intubation.
ttt. Identify sedative agents used in airway management.
uuu. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for nasotracheal intubation.
vvv. Describe the indications, contraindications, advantages, disadvantages, and complications for performing an open crichothyrotomy.
www. Describe the equipment and technique for performing an open cricothyrotomy.
xxx. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for transtlaryngeal catheter ventilation

(needle cricothyrotomy).

yyy. Describe methods of assessment for confirming correct placement of an endotracheal tube.

zzz. Describe methods for securing an endotracheal tube.

aaaa. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for extubation.

bbbb. Describe methods of endotracheal intubation in the pediatric patient.

cccc. Discuss the need to oxygenate and ventilate a patient.

dddd. Discuss the necessity of establishing and/or maintaining patency of a patient's airway.

eeee. Demonstrate standard precautions to defend against infectious and communicable diseases.

3. Demonstrate how to maintain a patent airway. (EMS8, EMS9, EMS10, EMS11, EMS12, EMS13)

a. Perform body substance isolation (BSI) procedures during basic airway management, advanced airway management, and ventilation.

b. Perform pulse oximetry.

c. Perform end-tidal CO2 detection.

d. Perform peak expiratory flow testing.

e. Perform manual airway maneuvers, including the following:
   (1) Opening the mouth
   (2) Head-tilt/chin-lift maneuver
   (3) Jaw-thrust without head-tilt maneuver
   (4) Modified jaw-thrust maneuver

f. Perform manual airway maneuvers for pediatric patients, including the following:
   (1) Opening the mouth
   (2) Head-tilt/chin-lift maneuver
   (3) Jaw-thrust without head-tilt maneuver
   (4) Modified jaw-thrust maneuver

g. Perform the Sellick maneuver (cricoid pressure).

h. Perform complete airway obstruction maneuvers, including the following:
   (1) Heimlich maneuver
   (2) Finger sweep
   (3) Chest thrusts
   (4) Removal with Magill forceps

i. Demonstrate suctioning the upper airway by selecting a suction device, catheter, and technique.

j. Perform tracheobronchial suctioning in the intubated patient by selecting a suction device, catheter, and technique.

k. Demonstrate insertion of a nasogastric tube.

l. Demonstrate insertion of an orogastric tube.

m. Perform gastric decompression by selecting a suction device, catheter, and technique.

n. Demonstrate insertion of an oropharyngeal airway.

o. Demonstrate insertion of a nasopharyngeal airway.

p. Demonstrate ventilating a patient by the following techniques:
   (1) Mouth-to-mask ventilation

(2) One-person bag-valve-mask
(3) Two-person bag-valve-mask
(4) Three person bag-valve-mask
(5) Flow-restricted, oxygen-powered ventilation device
(6) Automatic transport ventilator
(7) Mouth-to-stoma
(8) Bag-valve-mask-to-stoma ventilation

q. Ventilate a pediatric patient using the one- and two-person techniques.
r. Perform ventilation with a bag-valve-mask with an in-line small-volume nebulizer.
s. Perform oxygen delivery from a cylinder and regulator with an oxygen delivery device.
t. Perform oxygen delivery with an oxygen humidifier.
u. Deliver supplemental oxygen to a breathing patient using the following devices:
(1) Nasal cannula
(2) Simple face mask
(3) Partial rebreather mask
(4) Nonrebreather mask
(5) Venturi mask
(6) BiPAP/CPAP

v. Perform stoma suctioning.
w. Perform retrieval of foreign bodies from the upper airway.
x. Perform assessment to confirm correct placement of the endotracheal tube.
y. Intubate the trachea by the following methods:
(1) Orotracheal intubation
(2) Nasotracheal intubation

z. Perform airway care utilizing multi-lumen, single lumen, and supraglottic airways.
aa. Discuss the implications of digital intubation, transillumination, and open cricothyrotomy.
aa. Secure an endotracheal tube.
bb. Perform endotracheal intubation in the pediatric patient.
cc. Perform transtracheal catheter ventilation (needle cricothyrotomy).
dd. Perform extubation.
ee. Perform replacement of a tracheostomy tube through a stoma.
ff. Perform and interpret waveform capnography.

4. Integrate a comprehensive knowledge of the causes and pathophysiology into the management of shock or respiratory failure or arrest with an emphasis on early intervention to prevent arrest. EMS2, EMS4, EMS8, EMS9, EMS11

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS8 Airway Management, Respiration, and Artificial Ventilation

EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation

CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

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Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

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Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: Patient Assessment

Course Abbreviation: EMS 1414

Classification: Vocational–Technical Core

Description: This course will teach comprehensive history taking and physical exam techniques. (4 sch: 1-hr lecture, 6-hr lab)

Corequisite: Introduction to EMS Systems (EMS 1122) and Anatomy and Physiology II (BIO 2524)

Competencies and Suggested Objectives
1. Apply and integrate comprehensive knowledge of anatomy, physiology, and pathophysiology related to patient assessment across the life span. (EMS2, EMS4, EMS5, EMS9)
2. Integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression, utilizing the following components: (EMS2, EMS4, EMS5, EMS9) • Scene size-up • Primary assessment • Vital signs • History taking • Secondary assessment • Monitoring devices • Reassessment a. Using the techniques of examination, demonstrate the assessment of a medical and trauma patient.
3. Apply and integrate complex depth and comprehensive breadth of scene management. (EMS9) a. Recognize hazards/potential hazards. b. Describe common hazards found at the scene of a trauma and a medical patient. c. Determine hazards found at the scene of a medical or trauma patient. d. Differentiate safe from unsafe scenes. e. Describe methods to make an unsafe scene safe. f. Discuss common mechanisms of injury/nature of illness. g. Predict patterns of injury based on mechanism of injury. h. Discuss the reason for identifying the total number of patients at the scene. i. Organize the management of a scene following size-up. j. Explain the reasons for identifying the need for additional help or assistance. k. Explain the rationale for crew members to evaluate scene safety prior to entering. l. Given visual scenarios, identify potential hazards. m. Demonstrate the scene size-up.
4. Apply and integrate complex depth and comprehensive breadth of primary assessment. (EMS9) a. Summarize the reasons for forming a general impression of the patient. b. Discuss methods of assessing mental status.

c. Categorize levels of consciousness in the adult, infant, and child.
d. Differentiate between assessing the altered mental status in the adult, child, and infant patient.
e. Discuss methods of assessing the airway in the adult, child, and infant patient.
f. State reasons for management of the cervical spine once the patient has been determined to be a trauma patient.
g. Analyze a scene to determine if spinal precautions are required.
h. Describe methods used for assessing if a patient is breathing.
i. Differentiate between a patient with adequate and inadequate minute ventilation.
j. Distinguish between methods of assessing breathing in the adult, child, and infant patient.
k. Compare the methods of providing airway care to the adult, child, and infant patient.
l. Describe the methods used to locate and assess a pulse.
m. Differentiate between locating and assessing a pulse in an adult, a child, and an infant patient.
n. Discuss the need for assessing the patient for external bleeding.
o. Describe normal and abnormal findings when assessing skin color.
p. Describe normal and abnormal findings when assessing skin temperature.
q. Describe normal and abnormal findings when assessing skin condition.
r. Explain the reason for prioritizing a patient for care and transport.
s. Identify patients who require expeditious transport.
t. Describe the evaluation of a patient's perfusion status based on findings in the initial assessment.
u. Integrate appropriate treatment and procedures.
v. Describe and demonstrate the assessment of baseline vital signs.
w. Explain the importance of forming a general impression of the patient.
x. Explain the value of performing a primary assessment.
y. Demonstrate a caring attitude when performing an initial assessment.
z. Demonstrate the techniques for assessing mental status.
aa. Demonstrate the techniques for assessing the airway.
bb. Demonstrate the techniques for assessing if the patient is breathing.
cc. Demonstrate the techniques for assessing if the patient has a pulse.
dd. Demonstrate the techniques for assessing the patient for external bleeding.
ee. Demonstrate the techniques for assessing the patient's skin color, temperature, and condition.
ff. Demonstrate the ability to prioritize patients.

5. Apply and integrate complex depth and comprehensive breadth of history taking. (EMS9)
a. Describe the techniques of history taking.
b. Discuss the importance of using open-ended questions.
c. Describe the use of facilitation, reflection, clarification, empathetic responses, confrontation, and interpretation.
d. Differentiate among facilitation, reflection, clarification, sympathetic responses, confrontation, and interpretation.
e. Describe the structure and purpose of a health history.
f. Describe how to obtain a comprehensive health history.

g. List the components of a comprehensive history of an adult patient.
h. Demonstrate the importance of empathy when obtaining a health history.
i. Demonstrate the importance of confidentiality when obtaining a health history.

6. Apply and integrate complex depth and comprehensive breadth of secondary assessment. (EMS9)

a. Define the terms inspection, palpation, percussion, and auscultation.
b. Describe the techniques of inspection, palpation, percussion, and auscultation.
c. Describe the evaluation of mental status.
d. Evaluate the importance of a general survey.
e. Describe the examination of skin, hair, and nails.
f. Differentiate between normal and abnormal findings of the assessment of the skin.
g. Describe the importance of abnormal findings of the assessment of the skin.
h. Describe the examination of the head and neck.
i. Differentiate between normal and abnormal findings of the scalp examination.
j. Describe the normal and abnormal assessment findings of the skull.
k. Describe the assessment of visual acuity.
l. Explain the rationale for the use of an ophthalmoscope.
m. Describe the examination of the eyes.
n. Distinguish between normal and abnormal assessment findings of the eyes.
o. Explain the rationale for the use of an otoscope.
p. Describe the examination of the ears.
q. Differentiate between normal and abnormal assessment findings of the ears.
r. Describe the examination of the nose.
s. Differentiate between normal and abnormal assessment findings of the nose.
t. Describe the examination of the mouth and pharynx.
u. Differentiate between normal and abnormal assessment findings of the mouth and pharynx.
v. Describe the examination of the neck.
w. Differentiate between normal and abnormal assessment findings of the neck.
x. Describe the survey of the thorax and respiration.
y. Describe the examination of the posterior chest.
z. Describe percussion of the chest.
aa. Differentiate among the percussion notes and their characteristics.
bb. Differentiate among the characteristics of breath sounds.
cc. Describe the examination of the anterior chest.
dd. Differentiate between normal and abnormal assessment findings of the chest examination.
ee. Describe special examination techniques related to the assessment of the chest.
ff. Describe the examination of the arterial pulse including rate, rhythm, and amplitude.
gg. Distinguish between normal and abnormal findings of arterial pulse.
hh. Describe the assessment of jugular venous pressure and pulsations.
ii. Distinguish between normal and abnormal examination findings of jugular venous pressure and pulsations.
jj. Describe the examination of the heart and blood vessels.
kk. Differentiate between normal and abnormal assessment findings of the heart and

blood vessels.

ll. Describe the auscultation of the heart.

mm. Differentiate between the characteristics of normal and abnormal findings associated with the auscultation of the heart.

nn. Describe special examination techniques of the cardiovascular examination.

oo. Describe the examination of the abdomen.

pp. Differentiate between normal and abnormal assessment findings of the abdomen.

qq. Describe auscultation of the abdomen.

rr. Distinguish between normal and abnormal findings of the auscultation of the abdomen.

ss. Describe the examination of the female genitalia.

tt. Differentiate between normal and abnormal assessment findings of the female genitalia.

uu. Describe the examination of the male genitalia.

vv. Differentiate between normal and abnormal findings of the male genitalia.

ww. Describe the examination of the anus and rectum.

xx. Distinguish between normal and abnormal findings of the anus and rectum.

yy. Describe the examination of the peripheral vascular system.

zz. Differentiate between normal and abnormal findings of the peripheral vascular system.

aaa. Describe the examination of the musculoskeletal system.

bbb. Differentiate between normal and abnormal findings of the musculoskeletal system.

ccc. Describe the examination of the nervous system.

ddd. Differentiate between normal and abnormal findings of the nervous system.

eee. Describe the assessment of the cranial nerves.

fff. Differentiate between normal and abnormal findings of the cranial nerves.

ggg. Describe the general guidelines of recording examination information.

hhh. Discuss the considerations of examination of an infant or child.

iii. Demonstrate a caring attitude when performing physical examination skills.

jjj. Discuss the importance of a professional appearance and demeanor when performing physical examination skills.

kkk. Discuss the limitations of conducting a physical exam in the out-of-hospital environment.

lll. Demonstrate the examination of skin, hair, and nails.

mmm. Demonstrate the examination of the head and neck.

nnn. Demonstrate the examination of the eyes.

ooo. Demonstrate the examination of the ears.

ppp. Demonstrate the assessment of visual acuity.

qqq. Demonstrate the examination of the nose.

rrr. Demonstrate the examination of the mouth and pharynx.

sss. Demonstrate the examination of the neck.

ttt. Demonstrate the examination of the thorax and ventilation.

uuu. Demonstrate the examination of the posterior chest.

vvv. Demonstrate auscultation of the chest.

www. Demonstrate percussion of the chest.

xxx. Demonstrate the examination of the anterior chest.

yyy. Demonstrate special examination techniques related to the assessment of the chest.
zzz. Demonstrate the examination of the arterial pulse including location, rate, rhythm, and amplitude.
aaaa. Demonstrate the assessment of jugular venous pressure and pulsations.
bbbb. Demonstrate the examination of the heart and blood vessels.
cccc. Demonstrate special examination techniques of the cardiovascular examination.
dddd. Demonstrate the examination of the abdomen.
eeee. Demonstrate auscultation of the abdomen.
ffff. Demonstrate the external visual examination of the female genitalia.
gggg. Demonstrate the examination of the male genitalia.
hhhh. Demonstrate the examination of the peripheral vascular system.
iiii. Demonstrate the examination of the musculoskeletal system.
jjjj. Demonstrate the examination of the nervous system.

7. Apply and integrate fundamental depth and foundational breadth in the use of monitoring devices.(EMS9, EMS10, EMS11, EMS12)
   a. Explain the benefit of continuous ECG monitoring.
   b. Demonstrate the use of continuous ECG monitoring.
   c. Explain the benefit of 12 lead ECG interpretation.
   d. Demonstrate the use of 12 lead ECG interpretation.
   e. Explain the benefit of carbon dioxide monitoring.
   f. Demonstrate the use of carbon dioxide monitoring.
   g. Explain the benefit of obtaining basic blood chemistry
   h. Demonstrate obtaining basic blood chemistry.
   i. Interpret basic blood chemistry results.
   j. Interpret arterial blood gases.

8. Apply and integrate complex depth and comprehensive breadth of reassessment. (EMS9)
   a. Discuss the reasons for repeating the primary assessment as part of the ongoing assessment.
   b. Describe orthostatic vital signs, and evaluate their usefulness in assessing a patient in shock.
   c. Apply the techniques of physical examination to the medical patient.
   d. Differentiate between the assessment that is performed for a patient who is unresponsive or has an altered mental status and other medical patients requiring assessment.
   e. Discuss the reasons for reconsidering the mechanism of injury.
   f. Apply the techniques of physical examination to the trauma patient.
   g. Describe the components of the reassessment.
   h. Describe trending of assessment components.
   i. Discuss medical identification devices/systems.
   j. Demonstrate to others how patients' situations affect your evaluation of mechanism of injury or illness.
   k. Identify the feelings that patients with medical conditions might be experiencing.
   l. Explain the rationale for the feelings that these patients might be experiencing.
   m. Demonstrate a caring attitude when performing a physical examination.
   n. Recognize the feelings that patients might experience during assessment.
   o. Explain the value of trending assessment components to other health professionals

who assume care of the patient.
9. Demonstrate clinical decision making as it applies to patient assessment. (EMS9, EMS10, EMS11, EMS12) a. Differentiate between critical life-threatening, potentially life-threatening, and non-life-threatening patient presentations. b. Evaluate the benefits and shortfalls of protocols, standing orders, and patient care algorithms. c. Define the components, stages, and sequences of the critical-thinking process for paramedics. d. Apply the fundamental elements of critical thinking for paramedics. e. Describe the effects of the "fight or flight" response and the positive and negative effects on a paramedic's decision making.

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)

A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P., (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: EMS Special Patient Populations

Course Abbreviation: EMS 1422

Classification: Vocational–Technical Core

Description: This course will provide a comprehensive overview of providing care for the patient with special needs. This course was previously taught as Special Considerations (EMT 1423). (2 sch: 1-hr lecture, 2-hr lab)

Prerequisite: All first semester courses

Competencies and Suggested Objectives
1. Explain the pathophysiological principles and the assessment findings to formulate and implement a treatment plan for the geriatric patient. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
a. Discuss population demographics demonstrating the rise in elderly population in the U.S.
b. Discuss society's view of aging and the social, financial, and ethical issues facing the elderly.
c. Assess the various living environments of elderly patients.
d. Describe the local resources available to assist the elderly, and create strategies to refer at-risk patients to appropriate community services.
e. Discuss issues facing society concerning the elderly.
f. Discuss common emotional and psychological reactions to aging to include causes and manifestations.
g. Apply the pathophysiology of multi-system failure to the assessment and management of medical conditions in the elderly patient.
h. Discuss the problems with mobility in the elderly, and develop strategies to prevent falls.
i. Discuss the implications of problems with sensation to communication and patient assessment.
j. Discuss the problems with continence and elimination, and develop communication strategies to provide psychological support.
k. Discuss factors that may complicate the assessment of the elderly patient.
l. Describe principles that should be employed when assessing and communicating with the elderly.
m. Compare the assessment of a young patient with that of an elderly patient.
n. Discuss common complaints of elderly patients.
o. Compare the pharmacokinetics of an elderly patient to that of a young adult.
p. Discuss the impact of polypharmacy and medication non-compliance on patient assessment and management.
q. Discuss drug distribution, metabolism, and excretion in the elderly patient.
r. Discuss medication issues of the elderly including polypharmacy, dosing errors, and increased drug sensitivity.
s. Discuss the use and effects of commonly prescribed drugs for the elderly patient.

t. Discuss the normal and abnormal changes with age of the pulmonary system.
u. Describe the epidemiology of pulmonary diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
v. Compare and contrast the pathophysiology of pulmonary diseases in the elderly with that of a younger adult, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
w. Discuss the assessment of the elderly patient with pulmonary complaints, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
x. Identify the need for intervention and transport of the elderly patient with pulmonary complaints.
y. Develop a treatment and management plan of the elderly patient with pulmonary complaints, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
z. Discuss the normal and abnormal cardiovascular system changes with age.
aa. Describe the epidemiology for cardiovascular diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
bb. Compare and contrast the pathophysiology of cardiovascular diseases in the elderly with that of a younger adult, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
cc. Discuss the assessment of the elderly patient with complaints related to the cardiovascular system, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
dd. Identify the need for intervention and transportation of the elderly patient with cardiovascular complaints.
ee. Develop a treatment and management plan of the elderly patient with cardiovascular complaints, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
ff. Discuss the normal and abnormal changes with age of the nervous system.
gg. Describe the epidemiology for nervous system diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with cerebral vascular disease, delirium, dementia, Alzheimer’s disease, and Parkinson’s disease.
hh. Compare and contrast the pathophysiology of nervous system diseases in the elderly with that of a younger adult, including cerebral vascular disease, delirium, dementia, Alzheimer’s disease, and Parkinson’s disease.
ii. Discuss the assessment of the elderly patient with complaints related to the nervous system, including cerebral vascular disease, delirium, dementia, Alzheimer’s disease, and Parkinson’s disease.
jj. Identify the need for intervention and transportation of the patient with complaints related to the nervous system.
kk. Develop a treatment and management plan of the elderly patient with complaints related to the nervous system, including cerebral vascular disease, delirium,

dementia, Alzheimer's disease, and Parkinson's disease.

ll. Discuss the normal and abnormal changes of the endocrine system with age.

mm. Describe the epidemiology for endocrine diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with diabetes and thyroid diseases.

nn. Compare and contrast the pathophysiology of diabetes and thyroid diseases in the elderly with that of a younger adult.

oo. Discuss the assessment of the elderly patient with complaints related to the endocrine system, including diabetes and thyroid diseases.

pp. Identify the need for intervention and transportation of the patient with endocrine problems.

qq. Develop a treatment and management plan of the elderly patient with endocrine problems, including diabetes and thyroid diseases.

rr. Discuss the normal and abnormal changes of the gastrointestinal system with age.

ss. Discuss the assessment of the elderly patient with complaints related to the gastrointestinal system.

tt. Identify the need for intervention and transportation of the patient with gastrointestinal complaints.

uu. Execute a treatment and management plan of the elderly patient with gastrointestinal problems.

vv. Discuss the assessment and management of an elderly patient with GI hemorrhage and bowel obstruction.

ww. Compare and contrast the pathophysiology of GI hemorrhage and bowel obstruction in the elderly with that of a young adult.

xx. Discuss the normal and abnormal changes with age related to toxicology.

yy. Discuss the assessment of the elderly patient with complaints related to toxicology.

zz. Identify the need for intervention and transportation of the patient with toxicological problems.

aaa. Execute a treatment and management plan of the elderly patient with toxicological problems.

bbb. Describe the epidemiology in the elderly, including the incidence, morbidity/mortality, risk factors, and prevention strategies, for patients with drug toxicity.

ccc. Compare and contrast the pathophysiology of drug toxicity in the elderly with that of a younger adult.

ddd. Discuss the assessment findings common in elderly patients with drug toxicity.

eee. Discuss the management/considerations when treating an elderly patient with drug toxicity.

fff. Describe the epidemiology for drug and alcohol abuse in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.

ggg. Compare and contrast the pathophysiology of drug and alcohol abuse in the elderly with that of a younger adult.

hhh. Discuss the assessment findings common in elderly patients with drug and alcohol abuse.

iii. Discuss the management/considerations when treating an elderly patient with drug and alcohol abuse.

jjj. Discuss the normal and abnormal changes of thermoregulation with age.
kkk. Discuss the assessment of the elderly patient with complaints related to thermoregulation.
lll. Identify the need for intervention and transportation of the patient with environmental considerations.
mmm. Execute a treatment and management plan of the elderly patient with environmental considerations.
nnn. Compare and contrast the pathophysiology of hypothermia and hyperthermia in the elderly with that of a younger adult.
ooo. Discuss the assessment findings and management plan for elderly patients with hypothermia and hyperthermia.
ppp. Discuss the normal and abnormal psychiatric changes of age.
qqq. Describe the epidemiology of depression and suicide in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.
rrr. Compare and contrast the psychiatry of depression and suicide in the elderly with that of a younger adult.
sss. Discuss the assessment of the elderly patient with psychiatric complaints, including depression and suicide.
ttt. Identify the need for intervention and transport of the elderly psychiatric patient.
uuu. Develop a treatment and management plan of the elderly psychiatric patient, including depression and suicide.
vvv. Discuss the normal and abnormal changes of the integumentary system with age.
www. Describe epidemiology for pressure ulcers in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.
xxx. Compare and contrast the pathophysiology of pressure ulcers in the elderly with that of a younger adult.
yyy. Discuss the assessment of the elderly patient with complaints related to the integumentary system, including pressure ulcers.
zzz. Identify the need for intervention and transportation of the patient with complaints related to the integumentary system.
aaaa. Develop a treatment and management plan of the elderly patient with complaints related to the integumentary system, including pressure ulcers.
bbbb. Discuss the normal and abnormal changes of the musculoskeletal system with age.
cccc. Describe the epidemiology for osteoarthritis and osteoporosis, including incidence, morbidity/mortality, risk factors, and prevention strategies.
dddd. Compare and contrast the pathophysiology of osteoarthritis and osteoporosis with that of a younger adult.
eeee. Discuss the assessment of the elderly patient with complaints related to the musculoskeletal system, including osteoarthritis and osteoporosis.
ffff. Identify the need for intervention and transportation of the patient with musculoskeletal complaints.
gggg. Develop a treatment and management plan of the elderly patient with musculoskeletal complaints, including osteoarthritis and osteoporosis.
hhhh. Describe the epidemiology for trauma in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with orthopedic injuries, burns, and head injuries.

iiii. Compare and contrast the pathophysiology of trauma in the elderly with that of a younger adult, including orthopedic injuries, burns, and head injuries.
jjjj. Discuss the assessment findings common in elderly patients with traumatic injuries, including orthopedic injuries, burns, and head injuries.
kkkk. Discuss the management/considerations when treating an elderly patient with traumatic injuries, including orthopedic injuries, burns, and head injuries.
llll. Identify the need for intervention and transport of the elderly patient with trauma.
mmmm. Demonstrate appropriate interactions with the elderly that convey respect for their position in life.
nnnn. Recognize the emotional need for independence in the elderly while simultaneously attending to their apparent acute dependence.
oooo. Recognize and appreciate the many impediments to physical and emotional well-being in the elderly.
pppp. Recognize and appreciate the physical and emotional difficulties, particularly the patient with Alzheimer's disease.
qqqq. Demonstrate the ability to assess a geriatric patient.
rrrr. Demonstrate the ability to adjust an assessment to a geriatric patient.
ssss. Discuss aging and the immune function in the elderly, including herpes zoster.
tttt. Discuss the effect of aging on the mechanisms of self-defense.

2. Discuss the assessment findings to formulate a field impression, and implement a treatment plan for the patient who has sustained abuse or assault. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)

a. Discuss the incidence of abuse and assault.
b. Describe the categories of abuse.
c. Discuss examples of domestic abuse.
d. Discuss examples of elder abuse.
e. Discuss examples of child abuse.
f. Discuss examples of sexual assault.
g. Describe the characteristics associated with the profile of the typical abuser of a domestic partner.
h. Describe the characteristics associated with the profile of the typical abuser of the elderly.
i. Describe the characteristics associated with the profile of the typical abuser of children.
j. Describe the characteristics associated with the profile of the typical assailant of sexual assault.
k. Identify the profile of the "at-risk" domestic partners.
l. Identify the profile of the "at-risk" elderly.
m. Identify the profile of the "at-risk" child.
n. Discuss the assessment and management of the abused patient.
o. Discuss the legal aspects associated with abuse situations.
p. Identify community resources that are able to assist victims of abuse and assault.
q. Discuss the documentation associated with the abused and assaulted patient.
r. Demonstrate sensitivity to the abused patient.
s. Recognize the behavior of the abused patient.
t. Recognize the emotional state of the abused patient.

u. Recognize the value of nonverbal communication with the abused patient.
v. Demonstrate reassurance, empathy, and compassion with the abused patient.
w. Recognize the concerns expressed by the abused patient.
x. Recognize the concerns expressed by the sexually assaulted patient.
y. Demonstrate the ability to assess a domestic partner, an elder, or a child abused patient.
z. Demonstrate the ability to assess a sexually assaulted patient.

3. Explain the pathophysiological and psychosocial principles to adapt the assessment and treatment plan for diverse patients and those who face physical, mental, social, and financial challenges. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
   a. Describe the various etiologies and types of hearing impairments.
   b. Recognize the patient with a hearing impairment.
   c. Plan for accommodations that may be needed in order to properly manage the patient with a hearing impairment.
   d. Describe the various etiologies of visual impairments.
   e. Recognize the patient with a visual impairment.
   f. Plan for accommodations that may be needed in order to properly manage the patient with a visual impairment.
   g. Describe the various etiologies and types of speech impairments.
   h. Recognize the patient with speech impairment.
   i. Plan for accommodations that may be needed in order to properly manage the patient with speech impairment.
   j. Describe the various etiologies of bariatrics.
   k. Plan for accommodations that may be needed in order to properly manage the bariatric patient.
   l. Describe paraplegia/quadriplegia.
   m. Plan for accommodations that may be needed in order to properly manage the patient with paraplegia/quadriplegia.
   n. Define mental illness.
   o. Describe the various etiologies of mental illness.
   p. Recognize the presenting signs of the various mental illnesses.
   q. Plan for accommodations that may be needed in order to properly manage the patient with a mental illness.
   r. Define the term “developmentally disabled.”
   s. Recognize the patient with a developmental disability.
   t. Plan for accommodations that may be needed in order to properly manage the patient with a developmental disability.
   u. Describe Down syndrome.
   v. Recognize the patient with Down syndrome.
   w. Plan for accommodations that may be needed in order to properly manage the patient with Down syndrome.
   x. Describe the various etiologies of emotional impairment.
   y. Recognize the patient with an emotional impairment.
   z. Plan for accommodations that may be needed in order to properly manage the patient with an emotional impairment.
   aa. Define emotional/cognitive impairment.

bb. Recognize the patient with an emotional or cognitive impairment.
cc. Plan for accommodations that may be needed in order to properly manage patients with an emotional or cognitive impairment.
dd. Discuss the following diseases/illnesses to include signs/symptoms and management of the following:
(1) Arthritis
(2) Cancer
(3) Cerebral palsy
(4) Cystic fibrosis
(5) Multiple sclerosis
(6) Muscular dystrophy
(7) Myasthenia gravis
(8) Poliomyelitis
(9) Spina bifida
(10) Patients with a previous head injury
ee. Define cultural diversity.
ff. Recognize a patient who is culturally diverse populations.
gg. Plan for accommodations that may be needed in order to properly manage a patient who is culturally diverse populations.
hh. Identify a patient that is terminally ill.
ii. Plan for accommodations that may be needed in order to properly manage a patient who is terminally ill.
jj. Identify a patient with a communicable disease.
kk. Recognize the presenting signs of a patient with a communicable disease.
ll. Plan for accommodations that may be needed in order to properly manage a patient with a communicable disease.
mm. Recognize sign(s) of financial impairments.
nn. Plan for accommodations that may be needed in order to properly manage the patient with a financial impairment.

4. Discuss the pathophysiological principles and the assessment findings to formulate a field impression, and implement a treatment plan for the acute deterioration of a chronic care patient. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
a. Compare and contrast the primary objectives of the ALS professional and the home-care professional.
b. Identify the importance of home health care medicine as related to the ALS level of care.
c. Differentiate between the role of EMS provider and the role of the home-care provider.
d. Compare and contrast the primary objectives of acute care, home care, and hospice care.
e. Summarize the types of home health care available in your area and the services provided.
f. Discuss the aspects of home care that result in enhanced quality of care for a given patient.
g. Discuss the aspects of home care that have a potential to become a detriment to the quality of care for a given patient.

h. List complications commonly seen in the home-care patients that result in their hospitalization.
i. Compare the cost, mortality, and quality of care for a given patient in the hospital versus the home-care setting.
j. Discuss the significance of palliative care programs as related to a patient in a home health care setting.
k. Define hospice care, comfort care, and DNR/DNAR as they relate to local practice, law, and policy.
l. List the stages of the grief process, and relate them to an individual in hospice care.
m. List pathologies and complications typical to home-care patients.
n. Given a home-care scenario, predict complications requiring ALS intervention.
o. Given a series of home-care scenarios, determine which patients should receive follow-up home care and which should be transported to an emergency care facility.
p. List vascular access devices found in the home-care setting.
q. Recognize standard central venous access devices utilized in home health care.
r. Describe the basic universal characteristics of central venous catheters.
s. Describe the basic universal characteristics of implantable injection devices.
t. List devices found in the home-care setting that are used to empty, irrigate, or deliver nutrition or medication to the GI/GU tract.
u. Describe complications of assessing each of the airway, vascular access, and GI/GU devices described above.
v. Given a series of scenarios, demonstrate the appropriate ALS interventions.
w. Given a series of scenarios, demonstrate interaction and support with the family members/support persons for a patient who has died.
x. Describe common complications with central venous access and implantable drug administration ports in the out-of-hospital setting.
y. Describe the indications and contraindications for urinary catheter insertion in an out-of-hospital setting.
z. Identify the proper anatomy for placement of urinary catheters in males and females.
aa. Identify failure of GI/GU devices found in the home-care setting.
bb. Identify failure of ventilatory devices found in the home-care setting.
cc. Identify failure of vascular access devices found in the home-care setting.
dd. Identify failure of drains.
ee. Differentiate between home care and acute care as preferable situations for a given patient scenario.
ff. Discuss the relationship between local home-care treatment protocols/SOPs and local EMS protocols/SOPs.
gg. Discuss differences in the ability of individuals to accept and cope with their own impending death.
hh. Discuss the rights of the terminally ill.
ii. Give in the paramedic’s own words the role of the home-care professional in patient care along the life-span continuum.
jj. Recognize the patient’s desire to remain in the home setting.
kk. Recognize the patient’s desire to accept or deny hospice care.

ll. Recognize the uses of long-term venous access in the home health setting, including but not limited to the following:
   (1) Chemotherapy
   (2) Home pain management
   (3) Nutrition therapy
   (4) Congestive heart therapy
   (5) Antibiotic therapy

mm. Observe for an infected or otherwise complicated venous access point.

nn. Demonstrate the proper technique for drawing blood from a central venous line.

oo. Demonstrate the method of accessing vascular access devices found in the home health-care setting.

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations

A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

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Course Name: EMS Practicum I

Course Abbreviation: EMS 1513

Classification: Vocational–Technical Core

Description: This course will provide clinical training on the skills and knowledge obtained in the classroom. This will be a supervised activity carried out in the clinical and field setting at approved sites. This course was formerly taught as Clinical Internship I (EMT 1513). (3 sch: 9-hr clinical)

Corequisites: Introduction to EMS Systems (EMS 1122), Airway: Management, Respiration, and Oxygenation (EMS 1314), and Patient Assessment (EMS 1415)

Competencies and Suggested Objectives
1. Practice EMT skills. (EMS1) a. Measure, interpret, and record vital signs. b. Perform patient assessment. c. Perform spinal immobilization. d. Utilize infection control techniques. e. Perform splinting. f. Perform airway placement. g. Perform suctioning. h. Perform patient handling/lifting. i. Perform hemorrhage control. j. Perform oxygen administration. k. Perform documentation. l. Transmit radio report. m. Perform CPR. n. Administer medication.
2. Practice limited paramedic skills. (EMS7, EMS9, EMS10, EMS11, EMS12) a. Perform endotracheal intubation. b. Perform BIAD. c. Perform comprehensive patient assessment. d. Perform vascular access, fluid administration, and blood draw.

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS7 Pharmacology
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
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Web Sites

FISDAP (1997*).* FISDAP: Paramedic student field internship and hospital clinical tracking software [Software]. Available from https://www.fisdap.net/.

Course Name: EMS Practicum II

Course Abbreviation: EMS 1525

Classification: Vocational–Technical Core

Description: This course will provide clinical and field training on the skills and knowledge obtained in classroom. This will be a supervised activity carried out in the clinical and field setting at approved site. This course was previously taught as EMS Clinical Internship II and now incorporates EMS Field Internship I (EMT 2552). (5 sch: 9-hr clinical, 6-hr field clinical)

Prerequisite: EMS Practicum I (EMS 1513)

Competencies and Suggested Objectives
1. Demonstrate professional behavior. (EMS1, EMS3, EMS4) a. Perform behaviors within the integrity of the profession. b. Perform the following behaviors with empathy as related to the profession: (1) Self-motivation (2) Appearance and personal hygiene (3) Self-confidence (4) Communication (5) Time management (6) Team work with diplomacy (7) Respect (8) Patient advocacy (9) Careful delivery of service
2. Perform EMT skills in the clinical setting. (EMS1, EMS2, EMS3, EMS5, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14) a. Measure, interpret, and record vital signs. b. Perform patient assessment. c. Perform spinal immobilization. d. Utilize infection control technique. e. Perform splinting. f. Perform MAST application. g. Perform airway placement. h. Perform suctioning. i. Perform patient handling/lifting. j. Perform hemorrhage control. k. Perform oxygen administration. l. Perform documentation. m. Transmit radio report. n. Perform CPR.
3. Perform paramedic skills in the clinical setting. (EMS1, EMS2, EMS3, EMS5, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14) a. Perform endotracheal intubation. b. Perform BIAD.

c. Perform comprehensive patient assessment.
d. Perform venous access.
e. Perform cardiopulmonary arrest management, including CPR, airway and ventilatory management, electrical therapy, pharmacological therapy, and decision-making skills.

4. Practice ACLS skills in the clinical setting. (EMS4, EMS7, EMS8, EMS11)
   a. Practice medication administration.
   b. Practice ACLS skills.
   c. Practice defibrillation.
   d. Perform comprehensive advanced level patient assessment throughout the life span.

5. Perform comprehensive advanced level patient assessment and management for the medical patient in critical care units. (EMS1, EMS2, EMS3, EMS5, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
   a. Perform 12-cardiac monitoring.
   b. Perform synchronized cardioversion.
   c. Perform transcutaneous pacing.
   d. Perform thrombolytic monitoring.
   e. Perform glucose determination.

6. Perform paramedic activities in the field setting. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)
   a. Measure, interpret, and record vital signs.
   b. Perform patient assessment.
   c. Perform spinal immobilization.
   d. Utilize infection control techniques.
   e. Perform splinting.
   f. Perform MAST application.
   g. Perform airway placement.
   h. Perform suctioning.
   i. Perform esophageal airway.
   j. Implement intravenous therapy.
   k. Perform defibrillation.
   l. Perform patient handling/lifting.
   m. Perform hemorrhage control.
   n. Perform oxygen administration.
   o. Perform documentation.
   p. Transmit radio report.
   q. Perform CPR.
   r. Perform medication administration (all methods).
   s. Perform advanced airway/breathing techniques.
   t. Perform glucose monitoring.
   u. Perform transcutaneous pacing.
   v. Practice arrhythmia recognition.
   w. Perform intra-osseous infusion.
   x. Follow childbirth procedures.
   y. Perform 12-lead EKG.
   z. Monitor thrombolytic transport.
   aa. Perform nasogastric tube.

bb. Perform orogastric tube.
cc. Perform CPAP/BiPAP.
dd. Access central venous devices.
ee. Perform pulse oximetry.
ff. Perform end tidal capnography.

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
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M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)

A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
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Web Sites

FISDAP (1997*)*. FISDAP: Paramedic student field internship and hospital clinical tracking software [Software]. Available from https://www.fisdap.net/.

Course Name: Pharmacology

Course Abbreviation: EMS 1614

Classification: Vocational–Technical Core

Description: This course will teach comprehensive pharmodynamics and pharmacokinetics. This course was formerly taught as Pre-hospital Pharmacology (EMT 1613). (4 sch: 2-hr lecture, 4-hr lab)

Corequisite: Introduction to EMS Systems (EMS 1122) and Anatomy and Physiology II (BIO 2524)

Competencies and Suggested Objectives
1. Explain the pathophysiological principles of pharmacology and the assessment findings to formulate a field impression and implement a pharmacologic management plan. a. Describe historical trends in pharmacology. (EMS7, EMS9, EMS10, EMS11, EMS12) b. Differentiate among the chemical, generic (nonproprietary), and trade (proprietary) names of a drug. c. List the four main sources of drug products. d. Describe how drugs are classified. e. List the authoritative sources for drug information. f. List legislative acts controlling drug use and abuse in the United States. g. Differentiate among Schedule I, II, III, IV, and V substances. h. List examples of substances in each schedule. i. Discuss standardization of drugs. j. Discuss investigational drugs, including the Food and Drug Administration (FDA) approval process and the FDA classifications for newly approved drugs. k. Discuss special consideration in drug treatment with regard to pregnant, pediatric, and geriatric patients. l. Discuss the paramedic's responsibilities and scope of management pertinent to the administration of medications. m. Discuss the specific anatomy and physiology pertinent to pharmacology with additional attention to autonomic pharmacology. n. Describe general properties of drugs. o. Describe liquid and solid drug forms. p. Differentiate routes of drug administration. q. Differentiate between enteral and parenteral routes of drug administration. r. Describe mechanisms of drug action. s. Differentiate the phases of drug activity, including the pharmaceutical, pharmacokinetic, and pharmacodynamic phases. t. Describe the processes called pharmacokinetics and pharmocodynamics including theories of drug action, drug-response relationship, factors altering drug responses, predictable drug responses, iatrogenic drug responses, and unpredictable adverse drug responses. u. Differentiate among drug interactions. v. Discuss considerations for storing and securing medications.

w. List the component of a drug profile by classification.
x. Describe drugs that the paramedic may administer according to local protocol.
y. Assess the pathophysiology of a patient's condition by identifying classifications of drugs.
z. Demonstrate the proper technique for obtaining a history by identifying classifications of drugs.
aa. Discuss the necessity for the administration of medications by a paramedic to affect positive therapeutic effect.
bb. Explain drug education through identification of drug classifications. (At a minimum, the state-approved drug list for paramedics must be covered.)

2. Integrate pathophysiological principles of pharmacology and assessment findings to formulate a field impression and implement a pharmacologic management plan. (EMS7, EMS9, EMS10, EMS11, EMS12)
   a. Integrate pathophysiological principles of pharmacology with patient assessment.
   b. Synthesize patient history information and assessment findings to form a field impression.
   c. Synthesize a field impression to implement a pharmacologic management plan.

3. Demonstrate vascular access and medication administration. (EMS7, EMS9, EMS10, EMS11, EMS12)
   a. Explain the specific anatomy and physiology pertinent to medication administration.
   b. Demonstrate mathematical equivalents.
   c. Differentiate temperature readings between the Centigrade and Fahrenheit scales.
   d. Discuss formulas as a basis for performing drug calculations.
   e. Discuss applying basic principles of mathematics to the calculation of problems associated with medication dosages.
   f. Demonstrate mathematical conversions from the household system to the metric system.
   g. Describe the indications, equipment needed, technique used, precautions, and general principles of peripheral venous or external jugular cannulation.
   h. Describe the indications, equipment needed, technique used, precautions, and general principles of intraosseous needle placement and infusion in all patients.
   i. Describe the indications, equipment needed, technique used, precautions, and general principles of management of indwelling catheters and implanted central IV ports in all patients.
   j. Discuss legal aspects affecting medication administration.
   k. Discuss the "six rights" of drug administration, and correlate these with the principles of medication administration.
   l. Discuss medical asepsis and the differences between clean and sterile techniques.
   m. Describe the use of universal precautions and body substance isolation (BSI) procedures when administering a medication.
   n. Differentiate among the different dosage forms of oral medications.
   o. Describe the equipment needed and general principles of administering oral medications.
   p. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the inhalation route.
   q. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the intranasal route.

r. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the gastric tube.
s. Describe the indications, equipment needed, techniques used, precautions, and general principles of rectal medication administration.
t. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering and monitoring thrombolytic medication.
u. Differentiate among the different parenteral routes of medication administration.
v. Describe the equipment needed, techniques used, complications, and general principles for the preparation and administration of parenteral medications.
w. Differentiate among the different percutaneous routes of medication administration.
x. Describe disposal of contaminated items and sharps.
y. Synthesize a pharmacologic management plan including medication administration.
z. Integrate pathophysiological principles of medication administration with patient management.
aa. Explain the paramedic standards of medication administration.
bb. Explain the universal precautions and body substance isolation (BSI).
cc. Formulate a pharmacologic management plan for medication administration.
dd. Demonstrate medical asepsis techniques.
ee. Perform as a role-model for advocacy while performing medication administration.
ff. Perform as a role-model for disposing contaminated items and sharps.
gg. Use universal precautions and body substance isolation (BSI) procedures during medication administration.
hh. Demonstrate cannulation of peripheral or external jugular veins.
ii. Demonstrate intraosseous needle placement and infusion.
jj. Demonstrate accessing indwelling catheters and implanted central IV ports.
kk. Demonstrate clean technique during medication administration.
ll. Demonstrate administration of oral medications.
mm. Demonstrate administration of medications by the inhalation route.
nn. Demonstrate administration of medications by the intranasal route.
oo. Demonstrate administration of medications by the gastric tube.
pp. Demonstrate rectal administration of medications.
qq. Demonstrate the preparation, administration, and maintenance of thrombolytic medications.
qq. Demonstrate preparation and administration of parenteral medications.
rr. Demonstrate preparation and techniques for obtaining a blood sample.
ss. Demonstrate the disposal of contaminated items and sharps.

STANDARDS

National EMS Educational Standards

EMS7 Pharmacology
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
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Course Name: Cardiology

Course Abbreviation: EMS 1825

Classification: Vocational–Technical Core

Description: This class will teach a comprehensive approach to the care of patients with acute and complex cardiovascular compromise. This course was previously named Pre-hospital Cardiology (EMT 1825). (5 sch: 2-hr lecture, 6-hr lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)
a. Describe the incidence, morbidity, and mortality of cardiovascular disease.
b. Discuss prevention strategies that may reduce the morbidity and mortality of cardiovascular disease.
c. Identify the risk factors most predisposing to coronary artery disease.
d. Describe the anatomy of the heart, including the position in the thoracic cavity, layers of the heart, chambers of the heart, and location and function of cardiac valves.
e. Identify the major structures of the vascular system.
f. Identify the factors affecting venous return.
g. Identify and define the components of cardiac output.
h. Identify phases of the cardiac cycle.
i. Identify the arterial blood supply to any given area of the myocardium.
j. Compare and contrast the coronary arterial distribution to the major portions of the cardiac conduction system.
k. Identify the structure and course of all divisions and subdivisions of the cardiac conduction system.
l. Describe how the heart's pacemaking control, rate, and rhythm are determined.
m. Explain the physiological basis of conduction delay in the AV node.
n. Define the functional properties of cardiac muscle.
o. Define the events comprising electrical potential.
p. List the most important ions involved in myocardial action potential and their primary function in this process.
q. Describe the events involved in the steps from excitation to contraction of cardiac muscle fibers.
r. Describe the clinical significance of Starling's law.
s. Identify the structures of the autonomic nervous system (ANS).
t. Identify the effect of the ANS on heart rate, rhythm, and contractility.
u. Give examples of positive and negative inotropism, chronotropism, and dromotropism.
v. Discuss the pathophysiology of cardiac disease and injury.

w. Describe the details of inspection, auscultation, and palpation specific to the cardiovascular system.
x. Define pulse deficit, pulsus paradoxus, and pulsus alternans.
y. Identify the normal characteristics of the point of maximal impulse (PMI).
z. Differentiate between the heart sounds.
aa. Relate heart sounds to hemodynamic events in the cardiac cycle.
bb. Describe the differences between normal and abnormal heart sounds.
cc. Describe the components of the focused history as they relate to the patient with cardiovascular compromise.
dd. Explain the purpose of ECG monitoring.
ee. Describe how ECG wave forms are produced.
ff. Compare the electrophysiological and hemodynamic events occurring throughout the entire cardiac cycle with the various ECG wave forms, segments, and intervals.
gg. Identify how heart rates, durations, and amplitudes may be determined from ECG recordings.
hh. Relate the cardiac surfaces or areas represented by the ECG leads.
ii. Given an ECG, identify the arrhythmia.
jj. Identify the limitations to the ECG.
kk. Differentiate among the primary mechanisms responsible for producing cardiac arrhythmias.
ll. Describe a systematic approach to the analysis and interpretation of cardiac arrhythmias.
mm. Describe the arrhythmias originating in the sinus node, AV junction, atria, and ventricles.
nn. Describe the arrhythmias originating or sustained in the AV junction.
oo. Describe the abnormalities originating within the bundle branch system.
pp. Describe the process of differentiating wide QRS complex tachycardias.
qq. Recognize the pitfalls in the differentiation of wide QRS complex tachycardias.
rr. Describe the conditions of pulseless electrical activity.
ss. Describe the phenomena of reentry, aberration, and accessory pathways.
tt. Identify the ECG changes characteristically produced by electrolyte imbalances, and specify the clinical implications.
uu. Identify patient situations where ECG rhythm analysis is indicated.
vv. Recognize the changes on the ECG that may reflect evidence of myocardial ischemia and injury.
ww. Recognize the limitations of the ECG in reflecting evidence of myocardial ischemia and injury.
xx. Compare abnormal ECG findings with clinical interpretation.
yy. Identify the major therapeutic objectives in the treatment of the patient with any arrhythmia.
zz. Identify the major mechanical, pharmacological, and electrical therapeutic interventions.
aaa. Based on field impressions, identify the need for rapid intervention for the patient in cardiovascular compromise.
bbb. Describe the incidence, morbidity, and mortality associated with myocardial conduction defects.

ccc. Describe the epidemiology, morbidity and mortality, and pathophysiology of angina pectoris.
ddd. Describe the assessment parameters to be evaluated in a patient with angina pectoris.
eee. Identify what is meant by the OPQRST of chest pain assessment.
fff. List other clinical conditions that may mimic signs and symptoms of coronary artery disease and angina pectoris.
ggg. Identify the ECG findings in patients with angina pectoris.
hhh. Identify the paramedic responsibilities associated with management of the patient with angina pectoris.
iii. Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the anticipated clinical problems according to their life-threatening potential.
jjj. Describe the epidemiology, morbidity, and mortality of myocardial infarction.
kkk. List the mechanisms by which an MI may be produced by traumatic and nontraumatic events.
lll. Identify the primary hemodynamic changes produced in myocardial infarction.
mmm. Describe the assessment parameters to be evaluated in a patient with a suspected myocardial infarction.
nnn. Identify the anticipated clinical presentation of a patient with a suspected acute myocardial infarction.
ooo. Differentiate the characteristics of the pain/discomfort occurring in angina pectoris and acute myocardial infarction.
ppp. Identify the ECG changes characteristically seen during evolution of an acute myocardial infarction.
qqq. Identify the most common complications of an acute myocardial infarction.
rrr. Define the term “cardiac arrest.”
sss. Identify the characteristics of patient population at risk for developing cardiac arrest from cardiac causes.
ttt. Identify noncardiac causes of cardiac arrest.
uuu. Describe the arrhythmias seen in cardiac arrest.
vvv. Identify the critical actions necessary in caring for the patient with cardiac arrest.
www. Explain how to confirm asystole using the 3-lead ECG.
xxx. Define the terms defibrillation and synchronized cardioversion.
yyy. Specify the methods of supporting the patient with a suspected ineffective implanted defibrillation device.
zzz. Describe the most commonly used pharmacological agents in the managements of cardiac arrest in terms of therapeutic effects.
aaaa. Identify resuscitation.
bbbb. Identify circumstances and situations where resuscitation efforts would not be initiated.
cccc. Identify the inclusion and exclusion criteria for termination of resuscitation efforts.
dddd. Identify communication and documentation protocols with medical direction and law enforcement used for termination of resuscitation efforts.
eeee. Based on the pathophysiology and clinical evaluation of the patient with chest pain, characterize the clinical problems according to their life-threatening potential.
ffff. Apply knowledge of the epidemiology of cardiovascular disease to develop

	prevention strategies.
gggg.	Integrate pathophysiological principles into the assessment of a patient with cardiovascular disease.
hhhh.	Apply knowledge of the epidemiology of cardiovascular disease to develop prevention strategies.
iiii.	Integrate pathophysiological principles into the assessment of a patient with cardiovascular disease.
jjjj.	Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with cardiovascular disease.
kkkk.	Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the clinical problems according to their life-threatening potential.
llll.	Integrate pathophysiological principles to the assessment of a patient with chest pain.
mmmm.	Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with angina pectoris.
nnnn.	Formulate a treatment plan based on the field impression for the patient with chest pain.
oooo.	Integrate pathophysiological principles to the assessment of a patient with a suspected myocardial infarction.
pppp.	Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with a suspected myocardial infarction.
qqqq.	Formulate a treatment plan based on the field impression for the suspected myocardial infarction patient.
rrrr.	Integrate the pathophysiological principles to the assessment of the patient with cardiac arrest.
ssss.	Synthesize assessment findings to formulate a rapid intervention for a patient in cardiac arrest.
tttt.	Synthesize assessment findings to formulate the termination of resuscitative efforts for a patient in cardiac arrest.
uuuu.	Integrate pathophysiological principles to the assessment and field management of a patient with chest pain.
vvvv.	Demonstrate the sense of urgency for initial assessment and intervention in the patient with cardiac compromise.
wwww.	Discuss patient situations where ECG rhythm analysis is indicated.
xxxx.	Based on the pathophysiology and clinical evaluation of the patient with acute myocardial infarction, list the clinical problems according to their life-threatening potential.
yyyy.	Discuss the measures that may be taken to prevent or minimize complications in the patient with a suspected myocardial infarction.
zzzz.	Demonstrate the urgency in rapid determination of and rapid intervention of patients in cardiac arrest.
aaaaa.	Discuss the possibility of termination of resuscitative efforts in the out-of-hospital setting.
2. Demonstrate the pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)	

a. Demonstrate how to set and adjust the ECG monitor settings to varying patient situations.
b. Demonstrate a working knowledge of various ECG lead systems.
c. Demonstrate how to record an ECG.
d. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines, including the following:
   (1) Cardiopulmonary resuscitation
   (2) Defibrillation
e. Complete a communication patch with medical direction and law enforcement used for termination of resuscitation efforts.
f. Demonstrate how to evaluate major peripheral arterial pulses.

3. Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with chronic cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)
   a. Identify the clinical indications for transcutaneous and permanent artificial cardiac pacing.
   b. Describe the components and the functions of a transcutaneous pacing system.
   c. Explain what each setting and indicator on a transcutaneous pacing system represents and how the settings may be adjusted.
   d. Describe the techniques of applying a transcutaneous pacing system.
   e. Describe the characteristics of an implanted pacemaking system.
   f. Describe artifacts that may cause confusion when evaluating the ECG of a patient with a pacemaker.
   g. List the possible complications of pacing.
   h. List the causes and implications of pacemaker failure.
   i. Identify additional hazards that interfere with artificial pacemaker function.
   j. Recognize the complications of artificial pacemakers as evidenced on ECG.
   k. List the characteristics of a patient eligible for thrombolytic therapy.
   l. Describe the “window of opportunity” as it pertains to reperfusion of a myocardial injury or infarction.
   m. Based on the pathophysiology and clinical evaluation of the patient with a suspected acute myocardial infarction, list the anticipated clinical problems according to their life-threatening potential.
   n. Specify the measures that may be taken to prevent or minimize complications in the patient suspected of myocardial infarction.
   o. Describe the most commonly used cardiac drugs in terms of therapeutic effect and dosages, routes of administration, side effects, and toxic effects.
   p. Describe the epidemiology, morbidity, and mortality of heart failure.
   q. Define the principal causes and terminology associated with heart failure.
   r. Identify the factors that may precipitate or aggravate heart failure.
   s. Describe the physiological effects of heart failure.
   t. Define the term “acute pulmonary edema,” and describe its relationship to left ventricular failure.
   u. Define preload, afterload, and left ventricular end-diastolic pressure, and relate each to the pathophysiology of heart failure.

v. Differentiate between early and late signs and symptoms of left ventricular failure and those of right ventricular failure.
w. Explain the clinical significance of paroxysmal nocturnal dyspnea.
x. Explain the clinical significance of edema of the extremities and sacrum.
y. List the interventions prescribed for the patient in acute congestive heart failure.
z. Describe the most commonly used pharmacological agents in the management of congestive heart failure in terms of therapeutic effect, dosages, routes of administration, side effects, and toxic effects.
aa. Define the term “cardiac tamponade.”
bb. List the mechanisms by which cardiac tamponade may be produced by traumatic and nontraumatic events.
cc. Identify the limiting factor of pericardial anatomy that determines intrapericardiac pressure.
dd. Identify the clinical criteria specific to cardiac tamponade.
ee. Describe how to determine if pulsus paradoxus, pulsus alternans, or electrical alternans is present.
ff. Identify the paramedic responsibilities associated with management of a patient with cardiac tamponade.
gg. Describe the incidence, morbidity, and mortality of hypertensive emergencies.
hh. Define the term “hypertensive emergency.”
ii. Identify the characteristics of the patient population at risk for developing a hypertensive emergency.
jj. Explain the essential pathophysiological defect of hypertension in terms of Starling’s law of the heart.
kk. Identify the progressive vascular changes associate with sustained hypertension.
ll. Describe the clinical features of the patient in a hypertensive emergency.
mm. Rank the clinical problems of patients in hypertensive emergencies according to their sense of urgency.
nn. From the priority of clinical problems identified, state the management responsibilities for the patient with a hypertensive emergency.
oo. Identify the drugs of choice for hypertensive emergencies, rationale for use, clinical precautions, and disadvantages of selected antihypertensive agents.
pp. Correlate abnormal findings with clinical interpretation of the patient with a hypertensive emergency.
qq. Define the term “cardiogenic shock.”
rr. Describe the major systemic effects of reduced tissue perfusion caused by cardiogenic shock.
ss. Explain the primary mechanisms by which the heart may compensate for a diminished cardiac output, and describe their efficiency in cardiogenic shock.
tt. Differentiate progressive stages of cardiogenic shock.
uu. Identify the clinical criteria for cardiogenic shock.
vv. Describe the characteristics of patients most likely to develop cardiogenic shock.
ww. Describe the most commonly used pharmacological agents in the management of cardiogenic shock in terms of therapeutic effects, dosages, routes of administration, side effects, and toxic effects.
xx. Correlate abnormal findings with clinical assessment of the patient in cardiogenic

shock.

yy. Identify the paramedic responsibilities associated with management of a patient in cardiogenic shock.

zz. Describe the incidence, morbidity, and mortality of vascular disorders.

aaa. Describe the pathophysiology of vascular disorders.

bbb. List the traumatic and nontraumatic causes of vascular disorders.

ccc. Define the terms “aneurysm,” “claudication,” and “phlebitis.”

ddd. Identify the peripheral arteries most commonly affected by occlusive disease.

eee. Identify the major factors involved in the pathophysiology of aortic aneurysm.

fff. Recognize the usual order of signs and symptoms that develop following peripheral artery occlusion.

ggg. Identify the clinical significance of claudication and presence of arterial bruits in a patient with peripheral vascular disorders.

hhh. Describe the clinical significance of unequal arterial blood pressure readings in the arms.

iii. Recognize the signs and symptoms of dissecting thoracic or abdominal aneurysm.

jjj. Describe the significant elements of the patient history in a patient with vascular disease.

kkk. Identify the hemodynamic effects of vascular disorders.

lll. Identify the complications of vascular disorders.

mmm. Identify the paramedic’s responsibilities associated with management of patients with vascular disorders.

nnn. Formulate a treatment plan based on the field impression for the patient with vascular disorders.

ooo. Differentiate among signs and symptoms of cardiac tamponade, hypertensive emergencies, cardiogenic shock, and cardiac arrest.

ppp. Integrate pathophysiological principles to the assessment of a patient in need of a pacemaker.

qqq. Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient in need of a pacemaker.

rrr. Formulate a treatment plan based on field impression for the patient in need of a pacemaker.

sss. Integrate pathophysiological principles to the assessment of the patient with heart failure.

ttt. Synthesize assessment findings and patient history information to form a field impression of the patient with heart failure.

uuu. Formulate a treatment plan based on the field impression for the heart failure patient.

vvv. Integrate pathophysiological principles to the assessment of a patient with cardiac tamponade.

www. Synthesize assessment findings and patient history information to form a field impression of the patient with cardiac tamponade.

xxx. Formulate a treatment plan based on the field impression for the patient with cardiac tamponade.

yyy. Integrate pathophysiological principles to the assessment of the patient with a hypertensive emergency.

zzz. Synthesize assessment findings and patient history information to form a field impression of the patient with a hypertensive emergency.
aaaa. Formulate a treatment plan based on the field impression for the patient with a hypertensive emergency.
bbbb. Integrate pathophysiological principles to the assessment of the patient with cardiogenic shock.
cccc. Synthesize assessment findings and patient history information to form a field impression of the patient with cardiogenic shock.
dddd. Formulate a treatment plan based on the field impression for the patient with cardiogenic shock.
eeee. Integrate pathophysiological principles to the assessment of a patient with vascular disorders.
ffff. Synthesize assessment findings and patient history to form a field impression for the patient with vascular disorders.
gggg. Recognize the sense of urgency necessary to protect the window of opportunity for reperfusion in the patient with suspected myocardial infarction.
hhhh. Recognize the application of transcutaneous pacing system.
iiii. Recognize the urgency in identifying pacemaker malfunction.
jjjj. Discuss the urgency based on the severity of the patient's clinical problems in a hypertensive emergency.
kkkk. From the priority of clinical problems identified, state the management responsibilities for the patient with a hypertensive emergency.
llll. Based on the pathophysiology and clinical evaluation of the patient with vascular disorders, characterize the clinical problems according to their life-threatening potential.
mmmm. Recognize the sense of urgency in identifying peripheral vascular occlusion.
nnnn. Recognize the sense of urgency in recognizing signs of aortic aneurysm.
oooo. Describe infectious diseases of the heart, to include endocarditis and pericarditis.

4. Demonstrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatments plan for the patient with chronic cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)
   a. Apply a transcutaneous pacing system.
   b. Given the model of a patient with signs and symptoms of heart failure, position the patient to afford comfort and relief.
   c. Demonstrate how to determine if pulsus paradoxus, pulsus alternans, or electrical alternans is present.
   d. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines, including the following:
      (1) Cardiopulmonary resuscitation
      (2) Defibrillation
      (3) Synchronized cardioversion
      (4) Transcutaneous pacing
      (5) Mechanical CPR devices
      (6) External carotid massage

5. Demonstrate correct application and interpretation of 12-lead ECGs. (EMS2, EMS3, EMS4, EMS10)

a. Perform a 12-lead ECG.
b. Identify the 12-lead ECG changes characteristically seen during an acute myocardial infarction including anterior MI, septal MI, lateral MI, inferior MI, posterior MI, right ventricular infarction, STEMI, and any combination of the MIs together.
c. Identify the 12-lead ECG changes caused by an old myocardial infarction.
d. Identify the 12-lead ECG changes seen with bundle branch blocks.
e. Identify the 12-lead ECG changes seen with fascicular blocks.
f. Identify the 12-lead ECG changes seen with atrial enlargement.
g. Identify the 12-lead ECG changes seen with ventricular enlargement.
h. Identify the 12-lead ECG changes commonly seen with electrolyte abnormalities.
i. Identify the 12-lead ECG changes commonly seen with drug effects.
j. Identify the electrical axis seen on 12-lead ECGs.
k. Identify the 12-lead ECG effects commonly seen with hypothermia.
l. Identify the 12-lead ECG effects seen with WPW pattern and syndrome.
m. Identify the 12-lead ECG effects seen with LGL syndrome.
n. Identify a prolonged QT interval on a 12-lead ECG.
o. Identify an Osborn wave on a 12-lead ECG.
p. Discuss causes and treatments of ECG abnormalities.

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)

M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

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Course Name: Maternal/Child Emergencies

Course Abbreviation: EMS 2414

Classification: Vocational–Technical Core

Description: This course will provide a detailed understanding of the anatomic structures, physiology, and pathophysiology encountered when providing care in gynecological and obstetrical emergencies as well as pediatric emergencies. The course was previously divided into Pre-hospital OB/GYN (EMT 2412) and Pre-hospital Pediatrics (EMT 2423). (4 sch: 3-hr lecture, 2-hr lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Explain the anatomy and physiology of the female reproductive system to the assessment and management of a patient experiencing normal or abnormal labor. (EMS2, EMS3, EMS7, EMS8, EMS9, EMS13)
a. Review the anatomic structures and physiology of the reproductive system.
b. Identify the normal events of pregnancy.
c. Describe how to assess an obstetrical patient.
d. Identify the stages of labor and the paramedic's role in each stage.
e. Differentiate between normal and abnormal delivery.
f. Describe complications associated with pregnancy and delivery, including hyperemesis gravidarum.
g. Identify predelivery emergencies.
h. State indications of an imminent delivery.
i. Explain the use of the contents of an obstetrics kit.
j. Differentiate the management of a patient with predelivery emergencies from a normal delivery.
k. State the steps in the predelivery preparation of the mother.
l. Demonstrate body substance isolation as it relates to childbirth.
m. State the steps to assist in the delivery of a newborn.
n. Describe how to care for the newborn.
o. Describe how and when to cut the umbilical cord.
p. Discuss the steps in the delivery of the placenta.
q. Describe the management of the mother post-delivery, including postpartum depression.
r. Summarize neonatal resuscitation procedures.
s. Describe the procedures for handling abnormal deliveries.
t. Describe the procedures for handling complications of pregnancy.
u. Describe the procedures for handling maternal complications of labor.
v. Describe special considerations when meconium is present in amniotic fluid or during delivery.
w. Describe special considerations of a premature baby.
x. Recognize the need for treating two patients (mother and baby).

y. Recognize the importance of maintaining a patient's modesty and privacy during assessment and management.
z. Demonstrate serving as a role model for other EMS providers when discussing or performing the steps of childbirth.
aa. Demonstrate how to assess an obstetric patient.
bb. Demonstrate how to provide care for a patient with the following:
(1) Excessive vaginal bleeding
(2) Abdominal pain
(3) Hypertensive crisis
cc. Demonstrate how to prepare the obstetric patient for delivery.
dd. Demonstrate how to assist in the normal cephalic delivery of the fetus.
ee. Demonstrate how to deliver the placenta.
ff. Demonstrate how to provide post-delivery care of the mother.
gg. Demonstrate how to assist with abnormal deliveries.
hh. Demonstrate how to care for the mother with delivery complications.

2. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for a neonatal patient. (EMS2, EMS3, EMS7, EMS8, EMS9, EMS11, EMS13)

a. Define the term newborn.
b. Define the term neonate.
c. Identify important antepartum factors that can affect childbirth.
d. Identify important intrapartum factors that can term the newborn high risk.
e. Discuss fetal and neonatal immune function.
f. Identify the factors that lead to premature birth and low birth weight newborns.
g. Distinguish between primary and secondary apnea.
h. Discuss pulmonary perfusion and asphyxia.
i. Identify the primary signs utilized for evaluating a newborn during resuscitation.
j. Formulate an appropriate treatment plan for providing initial care to a newborn.
k. Identify the appropriate use of the APGAR score in caring for a newborn.
l. Calculate the APGAR score given various newborn situations.
m. Determine when ventilatory assistance is appropriate for a newborn.
n. Prepare appropriate ventilation equipment, adjuncts, and technique for a newborn.
o. Determine when chest compressions are appropriate for a newborn.
p. Discuss appropriate chest compression techniques for a newborn.
q. Assess patient improvement due to chest compressions and ventilations.
r. Determine when endotracheal intubation is appropriate for a newborn.
s. Discuss appropriate endotracheal intubation techniques for a newborn.
t. Assess patient improvement due to endotracheal intubation.
u. Identify complications related to endotracheal intubation for a newborn.
v. Determine when vascular access is indicated for a newborn.
w. Discuss the routes of medication administration for a newborn.
x. Determine when blow-by oxygen delivery is appropriate for a newborn.
y. Discuss appropriate blow-by oxygen delivery devices and technique for a newborn.
z. Assess patient improvement due to assisted ventilations.
aa. Determine when an orogastric tube should be inserted during positive-pressure

	ventilation.
bb.	Discuss the signs of hypovolemia in a newborn.
cc.	Discuss the initial steps in resuscitation of a newborn.
dd.	Assess patient improvement due to blow-by oxygen delivery.
ee.	Discuss the effects maternal narcotic usage has on the newborn.
ff.	Determine the appropriate treatment for the newborn with narcotic depression.
gg.	Discuss appropriate transport guidelines for a newborn.
hh.	Determine appropriate receiving facilities for low and high risk newborns.
ii.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for meconium aspiration.
jj.	Discuss the pathophysiology of meconium aspiration.
k.	Discuss the assessment findings associated with meconium aspiration.
ll.	Discuss the management/treatment plan for meconium aspiration.
mm.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for apnea in the neonate.
nn.	Discuss the pathophysiology of apnea in the neonate.
oo.	Discuss the assessment findings associated with apnea in the neonate.
pp.	Discuss the management/treatment plan for apnea in the neonate.
qq.	Describe the epidemiology, pathophysiology, assessment findings, and management/treatment plan for diaphragmatic hernia.
rr.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for bradycardia in the neonate.
ss.	Discuss the pathophysiology of bradycardia in the neonate.
tt.	Discuss the assessment findings associated with bradycardia in the neonate.
uu.	Discuss the management/treatment plan for bradycardia in the neonate.
vv.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for premature infants.
ww.	Discuss the pathophysiology of premature infants.
xx.	Discuss the assessment findings associated with premature infants.
yy.	Discuss the management/treatment plan for premature infants.
zz.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for respiratory distress/cyanosis in the neonate.
aaa.	Discuss the pathophysiology of respiratory distress/cyanosis in the neonate.
bbb.	Discuss the assessment findings associated with respiratory distress/cyanosis in the neonate.
ccc.	Discuss the management/treatment plan for respiratory distress/cyanosis in the neonate.
ddd.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for seizures in the neonate.
eee.	Discuss the pathophysiology of seizures in the neonate.
fff.	Discuss the assessment findings associated with seizures in the neonate.
ggg.	Discuss the management/treatment plan for seizures in the neonate.
hhh.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for fever in the neonate.
iii.	Discuss the pathophysiology of fever in the neonate.
jjj.	Discuss the assessment findings associated with fever in the neonate.

kkk.	Discuss the management/treatment plan for fever in the neonate.
lll.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for hypothermia in the neonate.
mmm.	Discuss the pathophysiology of hypothermia in the neonate.
nnn.	Discuss the assessment findings associated with hypothermia in the neonate.
ooo.	Discuss the management/treatment plan for hypothermia in the neonate.
ppp.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for hypoglycemia in the neonate.
qqq.	Discuss the pathophysiology of hypoglycemia in the neonate.
rrr.	Discuss the assessment findings associated with hypoglycemia in the neonate.
sss.	Discuss the management/treatment plan for hypoglycemia in the neonate.
ttt.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for vomiting in the neonate.
uuu.	Discuss the pathophysiology of vomiting in the neonate.
vvv.	Discuss the assessment findings associated with vomiting in the neonate.
www.	Discuss the management/treatment plan for vomiting in the neonate.
xxx.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for diarrhea in the neonate.
yyy.	Discuss the pathophysiology of diarrhea in the neonate.
zzz.	Discuss the assessment findings associated with diarrhea in the neonate.
aaaa.	Discuss the management/treatment plan for diarrhea in the neonate.
bbbb.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for common birth injuries in the neonate.
cccc.	Discuss the pathophysiology of common birth injuries in the neonate.
dddd.	Discuss the assessment findings associated with common birth injuries in the neonate.
eeee.	Discuss the management/treatment plan for common birth injuries in the neonate.
ffff.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for cardiac arrest in the neonate.
gggg.	Discuss the pathophysiology of cardiac arrest in the neonate.
hhhh.	Discuss the assessment findings associated with cardiac arrest in the neonate.
iiii.	Discuss the management/treatment plan for cardiac arrest in the neonate.
jjjj.	Discuss the pathophysiology of post arrest management of the neonate.
kkkk.	Discuss the assessment findings associated with post arrest situations in the neonate.
llll.	Discuss the management/treatment plan to stabilize the post arrest neonate.
mmmm.	Demonstrate and advocate appropriate interaction with a newborn/neonate that conveys respect for the position in life.
nnnnn.	Recognize the emotional impact of newborn/neonate injuries/illnesses on parents/guardians.
oooo.	Recognize and appreciate the physical and emotional difficulties associated with separation of the parent/guardian and a newborn/neonate.
pppp.	Recognize the concerns expressed by parents/guardians.
qqqq.	Recognize the need for reassurance, empathy, and compassion for the parent/guardian.
rrrr.	Demonstrate preparation of a newborn resuscitation area.

ssss. Demonstrate appropriate assessment technique for examining a newborn.
tttt. Demonstrate appropriate assisted ventilations for a newborn.
uuuu. Demonstrate appropriate endotracheal intubation technique for a newborn.
vvvv. Demonstrate appropriate meconium aspiration suctioning technique for a newborn.
wwww. Demonstrate appropriate insertion of an orogastric tube.
xxxx. Demonstrate needle chest decompression for a newborn or neonate.
yyyy. Demonstrate appropriate chest compression and ventilation technique for a newborn.
zzzz. Demonstrate appropriate techniques to improve or eliminate endotracheal intubation complications.
aaaaa. Demonstrate vascular access cannulation techniques for a newborn.
bbbbb. Demonstrate the initial steps in resuscitation of a newborn.
ccccc. Demonstrate blow-by oxygen delivery for a newborn.

3. Explain the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the pediatric patient. (EMS2, EMS3, EMS5, EMS7, EMS8, EMS9, EMS11, EMS13)

a. Discuss the paramedic's role in the reduction of infant and childhood morbidity and mortality from acute illness and injury.
b. Identify methods/mechanisms that prevent injuries to infants and children.
c. Describe Emergency Medical Services for Children (EMSC).
d. Discuss how an integrated EMSC system can affect patient outcome.
e. Identify key growth and developmental characteristics of infants and children and their implications.
f. Identify key anatomical and physiological characteristics of infants and children and their implications.
g. Describe techniques for successful assessment of infants and children.
h. Describe techniques for successful treatment of infants and children.
i. Identify the common responses of families to acute illness and injury of an infant or child.
j. Describe techniques for successful interaction with families of acutely ill or injured infants and children.
k. Outline differences in adult and childhood anatomy and physiology.
l. Identify "normal" age group related vital signs.
m. Discuss the appropriate equipment utilized to obtain pediatric vital signs.
n. Determine appropriate airway adjuncts for infants and children.
o. Discuss complications of improper utilization of airway adjuncts with infants and children.
p. Discuss appropriate ventilation devices for infants and children.
q. Discuss complications of improper utilization of ventilation devices with infants and children.
r. Discuss appropriate endotracheal intubation equipment for infants and children.
s. Identify complications of improper endotracheal intubation procedure in infants and children.
t. List the indications and methods for gastric decompression for infants and children.

u. Define respiratory distress.
v. Define respiratory failure.
w. Define respiratory arrest.
x. Differentiate between upper airway obstruction and lower airway disease.
y. Describe the general approach to the treatment of children with respiratory distress, failure, or arrest from upper airway obstruction or lower airway disease.
z. Discuss the pathophysiology and epidemiology of the following:
- Pertussis
- Bronchopulmonary dysplasia
- Hydrocephalus and ventricular shunts

aa. Discuss the common causes of hypoperfusion in infants and children.
bb. Evaluate the severity of hypoperfusion in infants and children.
cc. Identify the major classifications of pediatric cardiac rhythms.
dd. Discuss the primary etiologies of cardiopulmonary arrest in infants and children.
ee. Discuss age appropriate vascular access sites for infants and children.
ff. Discuss the appropriate equipment for vascular access in infants and children.
gg. Identify complications of vascular access for infants and children.
hh. Describe the primary etiologies of altered level of consciousness in infants and children.
ii. Identify common lethal mechanisms of injury in infants and children.
jj. Discuss anatomical features of children that predispose or protect them from certain injuries.
kk. Describe aspects of infant and children airway management that are affected by potential cervical spine injury.
ll. Identify infant and child trauma patients who require spinal immobilization.
mm. Discuss fluid management and shock treatment for the infant and child trauma patient.
nn. Determine when pain management and sedation are appropriate for infants and children.
oo. Define child abuse.
pp. Define child neglect.
qq. Define sudden infant death syndrome (SIDS).
rr. Discuss the parent/caregiver responses to the death of an infant or child.
ss. Define children with special health-care needs.
tt. Define technology-assisted children.
uu. Discuss basic cardiac life support (CPR) guidelines for infants and children.
vv. Identify appropriate parameters for performing infant and child CPR.
ww. Integrate advanced life support skills with basic cardiac life support for infants and children.
xx. Discuss the indications, dosage, route of administration, and special considerations for medication administration in infants and children.
yy. Discuss appropriate transport guidelines for infants and children.
zz. Discuss appropriate receiving facilities for low and high risk infants and children.
aaa. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for respiratory distress/failure in infants and children.

bbb.	Discuss the pathophysiology of respiratory distress/failure in infants and children.
ccc.	Discuss the assessment findings associated with respiratory distress/failure in infants and children.
ddd.	Discuss the management/treatment plan for respiratory distress/failure in infants and children.
eee.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for hypoperfusion in infants and children.
fff.	Discuss the pathophysiology of hypoperfusion in infants and children.
ggg.	Discuss the assessment findings associated with hypoperfusion in infants and children.
hhh.	Discuss the management/treatment plan for hypoperfusion in infants and children.
iii.	Describe the epidemiology, including the incidence, morbidity/ mortality, risk factors, and prevention strategies for cardiac dysrhythmias in infants and children.
jjj.	Discuss the pathophysiology of cardiac dysrhythmias in infants and children.
kkk.	Discuss the assessment findings associated with cardiac dysrhythmias in infants and children.
lll.	Discuss the management/treatment plan for cardiac dysrhythmias in infants and children.
mmm.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for neurological emergencies in infants and children.
nnn.	Discuss the pathophysiology of neurological emergencies in infants and children.
ooo.	Discuss the assessment findings associated with neurological emergencies in infants and children.
ppp.	Discuss the management/treatment plan for neurological emergencies in infants and children.
qqq.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for trauma in infants and children.
rrr.	Discuss the pathophysiology of trauma in infants and children.
sss.	Discuss the assessment findings associated with trauma in infants and children.
ttt.	Discuss the management/treatment plan for trauma in infants and children.
uuu.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for abuse and neglect in infants and children.
vvv.	Discuss the pathophysiology of abuse and neglect in infants and children.
www.	Discuss the assessment findings associated with abuse and neglect in infants and children.
xxx.	Discuss the management/treatment plan for abuse and neglect in infants and children, including documentation and reporting.
yyy.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for SIDS infants.
zzz.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for children with special health-care needs including technology assisted children.
aaaa.	Discuss the pathophysiology of children with special health-care needs including technology-assisted children.

bbbb.	Discuss the assessment findings associated for children with special health-care needs including technology assisted children.
cccc.	Discuss the management/treatment plan for children with special health-care needs including technology-assisted children.
dddd.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for SIDS infants.
eeee	Discuss the pathophysiology of SIDS in infants.
ffff.	Discuss the assessment findings associated with SIDS infants.
gggg.	Discuss the management/treatment plan for SIDS in infants.
hhhh.	Demonstrate and advocate appropriate interactions with the infant/child that convey an understanding of the developmental stage.
iiii.	Recognize the emotional dependence of the infant/child to the parent/guardian.
jjjj.	Recognize the emotional impact of the infant/child injuries and illnesses on the parent/guardian.
kkkk.	Recognize the physical and emotional difficulties associated with separation of the parent/guardian of a special needs child.
llll.	Demonstrate the ability to provide reassurance, empathy, and compassion for the parent/guardian.
mmmm.	Demonstrate the appropriate approach for treating infants and children.
nnnn.	Demonstrate appropriate intervention techniques with families of acutely ill or injured infants and children.
oooo.	Demonstrate an appropriate assessment for different developmental age groups.
pppp.	Demonstrate an appropriate technique for measuring pediatric vital signs.
qqqq.	Demonstrate the use of a length-based resuscitation device for determining equipment sizes, drug doses, and other pertinent information for a pediatric patient.
rrrr.	Demonstrate the appropriate approach for treating infants and children with respiratory distress, failure, and arrest.
ssss.	Demonstrate proper technique for administering blow-by oxygen to infants and children.
tttt.	Demonstrate the proper utilization of a pediatric non-rebreather oxygen mask.
uuuu.	Demonstrate the proper technique for suctioning of infants and children.
vvvv.	Demonstrate appropriate use of airway adjuncts with infants and children.
wwww.	Demonstrate appropriate use of ventilation devices for infants and children.
xxxx.	Demonstrate endotracheal intubation procedures in infants and children.
yyyy.	Demonstrate appropriate treatment/management of intubation complications for infants and children.
zzzz.	Demonstrate appropriate needle cricothyroidotomy in infants and children.
aaaaa.	Demonstrate proper placement of a gastric tube in infants and children.
bbbbb.	Demonstrate an appropriate technique for insertion of peripheral intravenous catheters for infants and children.
ccccc.	Demonstrate an appropriate technique for administration of intramuscular, inhalation, subcutaneous, rectal, endotracheal, and oral medication for infants and children.
ddddd.	Demonstrate an appropriate technique for insertion of an intraosseous line for infants and children.

eeeee.	Demonstrate appropriate interventions for infants and children with a partially obstructed airway.
fffff.	Demonstrate age appropriate basic airway clearing maneuvers for infants and children with a completely obstructed airway.
ggggg.	Demonstrate proper technique for direct larnyngoscopy and foreign body retrieval in infants and children with a completely obstructed airway.
hhhhh.	Demonstrate appropriate airway and breathing control maneuvers for infant and child trauma patients.
iiiii.	Demonstrate appropriate treatment of infants and children requiring advanced airway and breathing control.
jjjjj.	Demonstrate appropriate immobilization techniques for infant and child trauma patients.
kkkkk.	Demonstrate appropriate treatment of infants and children with head injuries.
lllll.	Demonstrate appropriate treatment of infants and children with chest injuries.
mmmmm.	Demonstrate appropriate treatment of infants and children with abdominal injuries.
nnnnn.	Demonstrate appropriate treatment of infants and children with extremity injuries.
ooooo.	Demonstrate appropriate treatment of infants and children with burns.
ppppp.	Demonstrate appropriate parent/caregiver interviewing techniques for infant and child death situations.
qqqqq.	Demonstrate proper infant CPR.
rrrrr.	Demonstrate proper child CPR.
sssss.	Demonstrate proper techniques for performing infant and child defibrillation and synchronized cardioversion.

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS11 Shock and Resuscitation
EMS13 Special Patient Populations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: EMS Practicum III

Course Abbreviation: EMS 2565

Classification: Vocational–Technical Core

Description: This course will provide advanced clinical and field experiences in the skills and knowledge obtained in the classroom with an emphasis on leadership skills. These will be supervised activities carried out in the clinical and out-of-hospital field setting at approved sites with an approved preceptor. This course was previously called EMS Field Internship II (EMT 2564). (5 sch)

Prerequisite: EMS Practicum II (EMS 1553)

Competencies and Suggested Objectives
1. Coordinate the following paramedic activities. a. Measure, interpret, and record vital signs. b. Perform patient assessment and emergency care throughout the life span, to include OB. c. Perform spinal immobilization. d. Utilize infection control techniques. e. Perform splinting. f. Perform MAST application. g. Perform airway placement. h. Perform suctioning. i. Perform esophageal airway. j. Implement intravenous therapy. k. Perform defibrillation. l. Perform patient handling/lifting. m. Perform hemorrhage control. n. Perform oxygen administration. o. Perform documentation. p. Transmit radio report. q. Perform CPR. r. Perform medication administration (all methods). s. Perform advanced airway/breathing techniques. t. Perform glucose monitoring. u. Perform transcutaneous pacing. v. Practice arrhythmia recognition. w. Perform intra-osseous infusion. x. Follow childbirth procedures. y. Perform 12-lead EKG. z. Monitor thrombolytic transport. aa. Perform nasogastric tube. bb. Perform orogastric tube. cc. Perform CPAP/BiPAP.

dd. Access central venous devices. ee. Perform pulse oximetry. ff. Perform end tidal capnography.
2. Exemplify professional behavior. a. Perform behaviors within the integrity of the profession. b. Perform behaviors with empathy as related to the profession. c. Practice self-motivation. d. Demonstrate professional appearance and personal hygiene. e. Demonstrate self-confidence. f. Utilize effective communication. g. Utilize time management skills. h. Practice team work with diplomacy. i. Demonstrate respect. j. Practice patient advocacy. k. Perform careful delivery of service.

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS6 Public Health
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)

M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
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S1 Vowel (short, long)
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S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

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Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Web Sites

FISDAP (1997*).* FISDAP: Paramedic student field internship and hospital clinical tracking software [Software]. Available from https://www.fisdap.net/.

Course Name: Trauma

Course Abbreviation: EMS 2714

Classification: Vocational–Technical Core

Description: This course will provide advanced instruction in the integration of pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for a suspected trauma patient. This course was previously called Pre-hospital Trauma (EMT 2714). (4 sch: 2-hr lecture, 4-hr lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Discuss the principles of kinematics to enhance the patient assessment and predict the likelihood of injuries based on the patient's mechanism of injury. (EMS4, EMS11, EMS12) a. Describe the components of a comprehensive trauma system. b. Describe the role of and differences between levels of trauma centers. c. Describe the criteria for transport to a trauma center. d. Describe the criteria and procedure for air medical transport. e. Define energy and force as they relate to trauma. f. Define laws of motion and energy, and understand the role that increased speed has on injuries. g. Describe each type of impact and its effect on unrestrained victims (e.g., "down and under," "up and over," compression, and deceleration). h. Describe the pathophysiology of the head, spine, thorax, and abdomen that results from the above forces. i. Describe the kinematics of penetrating injuries. j. List the motion and energy considerations of mechanisms other than motor vehicle crashes. k. Define the role of kinematics as an additional tool for patient assessment.
2. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with shock or hemorrhage. (EMS2, EMS4, EMS9, EMS12) a. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for shock and hemorrhage. b. Discuss the anatomy and physiology of the cardiovascular system. c. Predict shock and hemorrhage based on mechanism of injury. d. Discuss the various types and degrees of shock and hemorrhage. e. Discuss the pathophysiology of hemorrhage and shock. f. Discuss the assessment findings associated with hemorrhage and shock. g. Identify the need for intervention and transport of the patient with hemorrhage or shock. h. Discuss the treatment plan and management of hemorrhage and shock. i. Discuss the management of external hemorrhage. j. Differentiate between controlled and uncontrolled hemorrhage.

k. Differentiate between the administration rate and amount of IV fluid in a patient with controlled versus uncontrolled hemorrhage.
l. Relate internal hemorrhage to the pathophysiology of compensated and decompensated hemorrhagic shock.
m. Relate internal hemorrhage to the assessment findings of compensated and decompensated hemorrhagic shock.
n. Discuss the management of internal hemorrhage.
o. Define shock based on aerobic and anaerobic metabolism.
p. Describe the incidence, morbidity, and mortality of shock.
q. Describe the body's physiologic response to changes in perfusion.
r. Describe the effects of decreased perfusion at the capillary level.
s. Discuss the cellular ischemic phase related to hemorrhagic shock.
t. Discuss the capillary stagnation phase related to hemorrhagic shock.
u. Discuss the capillary washout phase related to hemorrhagic shock.
v. Discuss the assessment findings of hemorrhagic shock.
w. Relate pulse pressure changes to perfusion status.
x. Relate orthostatic vital sign changes to perfusion status.
y. Define compensated and decompensated hemorrhagic shock.
z. Discuss the pathophysiological changes associated with compensated shock.
aa. Discuss the assessment findings associated with compensated shock.
bb. Identify the need for intervention and transport of the patient with compensated shock.
cc. Discuss the treatment plan and management of compensated shock.
dd. Discuss the pathophysiological changes associated with decompensated shock.
ee. Discuss the assessment findings associated with decompensated shock.
ff. Identify the need for intervention and transport of the patient with decompensated shock.
gg. Discuss the treatment plan and management of the patient with decompensated shock.
hh. Differentiate between compensated and decompensated shock.
ii. Relate external hemorrhage to the pathophysiology of compensated and decompensated hemorrhagic shock.
jj. Relate external hemorrhage to the assessment findings of compensated and decompensated hemorrhagic shock.
kk. Differentiate among the normotensive, hypotensive, or profoundly hypotensive patient.
ll. Differentiate among the administration of fluid in the normotensive, hypotensive, or profoundly hypotensive patient.
mm. Discuss the physiologic changes associated with the pneumatic anti-shock garment (PASG).
nn. Discuss the indications and contraindications for the application and inflation of the PASG.
oo. Apply epidemiology to develop prevention strategies for hemorrhage and shock.
pp. Integrate the pathophysiological principles to the assessment of a patient with hemorrhage or shock.
qq. Synthesize assessment findings and patient history information to form a field

impression for the patient with hemorrhage or shock.

rr. Formulate a treatment plan based on the field impression for the hemorrhage or shock patient.

ss. Demonstrate the assessment of a patient with signs and symptoms of hemorrhagic shock.

tt. Demonstrate the management of a patient with signs and symptoms of hemorrhagic shock.

uu. Demonstrate the assessment of a patient with signs and symptoms of compensated hemorrhagic shock.

vv. Demonstrate the management of a patient with signs and symptoms of compensated hemorrhagic shock.

ww. Demonstrate the assessment of a patient with signs and symptoms of decompensated hemorrhagic shock.

xx. Demonstrate the management of a patient with signs and symptoms of decompensated hemorrhagic shock.

yy. Demonstrate the assessment of a patient with signs and symptoms of external hemorrhage.

zz. Demonstrate the management of a patient with signs and symptoms of external hemorrhage.

aaa. Demonstrate the assessment of a patient with signs and symptoms of internal hemorrhage.

bbb. Demonstrate the management of a patient with signs and symptoms of internal hemorrhage.

3. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with soft tissue trauma. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of soft tissue injures.

b. Describe the layers of the skin, specifically the following:
   (1) Epidermis and dermis (cutaneous)
   (2) Superficial fascia (subcutaneous)
   (3) Deep fascia

c. Identify the major functions of the integumentary system.

d. Identify the skin tension lines of the body.

e. Predict soft tissue injuries based on mechanism of injury.

f. Discuss the pathophysiology of wound healing, including the following:
   (1) Homeostasis
   (2) Inflammation phase
   (3) Epithelialization
   (4) Neovascularization
   (5) Collagen synthesis

g. Discuss the pathophysiology of soft tissue injuries.

h. Differentiate between the following types of closed soft tissue injuries:
   (1) Contusion
   (2) Hematoma
   (3) Crush injuries

i. Discuss the assessment findings associated with closed soft tissue injuries.

j. Discuss the management of a patient with closed soft tissue injuries.
k. Discuss the pathophysiology of open soft tissue injuries.
l. Differentiate between the following types of open soft tissue injuries:
   (1) Abrasions
   (2) Lacerations
   (3) Major arterial lacerations
   (4) Avulsions
   (5) Impaled objects
   (6) Amputations
   (7) Incisions
   (8) Crush injuries
   (9) Blast injuries
   (10) Penetrations/ punctures
m. Discuss the incidence, morbidity, and mortality of blast injuries.
n. Predict blast injuries based on mechanism of injury, including the following:
   (1) Primary
   (2) Secondary
   (3) Tertiary
o. Discuss types of trauma, including the following:
   (1) Blunt
   (2) Penetrating
   (3) Barotrauma
   (4) Burns
p. Discuss the pathophysiology associated with blast injuries.
q. Discuss the effects of an explosion within an enclosed space on a patient.
r. Discuss the assessment findings associated with blast injuries.
s. Identify the need for rapid intervention and transport of the patient with a blast injury.
t. Discuss the management of a patient with a blast injury.
u. Discuss the pathophysiology, assessment, and management of high pressure injection injuries.
v. Discuss the incidence, morbidity, and mortality of crush injuries.
w. Define the following conditions:
   (1) Crush injury
   (2) Crush syndrome
   (3) Compartment syndrome
x. Discuss the mechanisms of injury in a crush injury.
y. Discuss the effects of reperfusion and rhabdomyolysis on the body.
z. Discuss the assessment findings associated with crush injuries.
aa. Identify the need for rapid intervention and transport of the patient with a crush injury.
bb. Discuss the management of a patient with a crush injury.
cc. Discuss the pathophysiology of hemorrhage associated with soft tissue injuries, including the following:
   (1) Capillary
   (2) Venous

(3) Arterial

dd. Discuss the assessment findings associated with open soft tissue injuries.

ee. Discuss the assessment of hemorrhage associated with open soft tissue injuries.

ff. Differentiate between the various management techniques for hemorrhage control of open soft tissue injuries, including the following:
- (1) Direct pressure
- (2) Pressure dressing
- (3) Tourniquet application

gg. Demonstrate timely and appropriate tourniquet use for refractory external bleeding.

hh. Differentiate between the types of injuries requiring the use of an occlusive versus non-occlusive dressing.

ii. Identify the need for rapid assessment, intervention, and appropriate transport for the patient with a soft tissue injury.

jj. Discuss the management of the soft tissue injury patient.

kk. Define and discuss the following:
- (1) Dressings
  - (a) Sterile
  - (b) Non-sterile
  - (c) Occlusive
  - (d) Non-occlusive
  - (e) Adherent
  - (f) Non-adherent
  - (g) Absorbent
  - (h) Non-absorbent
  - (i) Wet
  - (j) Dry
- (2) Bandages
  - (a) Absorbent
  - (b) Non-absorbent
  - (c) Adherent
  - (d) Non-adherent
  - (e) Tourniquet

ll. Discuss the possible complications of an improperly applied dressing, bandage, or tourniquet.

mm. Discuss the assessment of wound healing.

nn. Discuss the management of wound healing.

oo. Discuss the pathophysiology of wound infection.

pp. Discuss the assessment of wound infection.

qq. Discuss the management of wound infection.

rr. Integrate pathophysiological principles to the assessment of a patient with a soft tissue injury.

ss. Formulate treatment priorities for patients with soft tissue injuries in conjunction with the following:
- (1) Airway/face/neck trauma
- (2) Thoracic trauma (open/closed)
- (3) Abdominal trauma

tt. Synthesize assessment findings and patient history information to form a field impression for the patient with soft tissue trauma.
uu. Formulate a treatment plan based on the field impression for the patient with soft tissue trauma.
vv. Defend the rationale explaining why immediate life threats must take priority over wound closure.
ww. Defend the management regimens for various soft tissue injuries.
xx. Defend why immediate life-threatening conditions take priority over soft tissue management.
yy. Explain the importance of a thorough assessment for patients with soft tissue injuries.
zz. Attend to the feelings that the patient with a soft tissue injury may experience.
aaa. Explain the importance of good follow-up care for patients receiving sutures.
bbb. Discuss the value of the written report for soft tissue injuries, in the continuum of patient care.
ccc. Demonstrate the assessment and management of a patient with signs and symptoms of soft tissue injury, including the following:
(1) Contusion
(2) Hematoma
(3) Crushing
(4) Abrasion
(5) Laceration
(6) Avulsion
(7) Amputation
(8) Impaled object
(9) Penetration/puncture
(10) Blast

4. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the management plan for the patient with a burn injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the anatomy and physiology pertinent to burn injuries.
b. Describe the epidemiology, including incidence, mortality/morbidity, risk factors, and prevention strategies for the patient with a burn injury.
c. Describe the pathophysiologic complications and systemic complications of a burn injury.
d. Identify types of burn injuries, including a thermal burn, an inhalation burn, chemical burn, an electrical burn, and a radiation exposure.
e. Describe the depth classifications of burn injuries, including a superficial burn, a partial-thickness burn, a full-thickness burn, and other depth classifications described by local protocol.
f. Describe methods for determining body surface area percentage of a burn injury including the “rules of nines,” the “rules of palms,” and other methods described by local protocol.
g. Describe the severity of a burn including a minor burn, a moderate burn, a severe burn, and other severity classifications described by local protocol.

h. Differentiate criteria for determining the severity of a burn injury between a pediatric patient and an adult patient.
i. Describe special considerations for a pediatric patient with a burn injury.
j. Discuss considerations that impact management and prognosis of the burn injured patient.
k. Discuss mechanisms of burn injuries.
l. Discuss conditions associated with burn injuries, including trauma, blast injuries, airway compromise, respiratory compromise, and child abuse.
m. Describe the management of a burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.
n. Describe the epidemiology of a thermal burn injury.
o. Describe the specific anatomy and physiology pertinent to a thermal burn injury.
p. Describe the pathophysiology of a thermal burn injury.
q. Describe the depth classifications of a thermal burn injury.
r. Describe the severity of a thermal burn injury.
s. Describe considerations that impact management and prognosis of the patient with a thermal burn injury.
t. Discuss mechanisms of burn injury and conditions associated with a thermal burn injury.
u. Describe the management of a thermal burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
v. Describe the epidemiology of an inhalation burn injury.
w. Describe the specific anatomy and physiology pertinent to an inhalation burn injury.
x. Describe the pathophysiology of an inhalation burn injury.
y. Differentiate between supraglottic and infraglottic inhalation injuries.
z. Describe the depth classifications of an inhalation burn injury.
aa. Describe the severity of an inhalation burn injury.
bb. Describe considerations that impact management and prognosis of the patient with an inhalation burn injury.
cc. Discuss mechanisms of burn injury and conditions associated with an inhalation burn injury.
dd. Describe the management of an inhalation burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
ee. Describe the epidemiology of a chemical burn injury and a chemical burn injury to the eye.
ff. Describe the specific anatomy and physiology pertinent to a chemical burn injury and a chemical burn injury to the eye.
gg. Describe the pathophysiology of a chemical burn injury, including types of chemicals and their burning processes and a chemical burn injury to the eye.
hh. Describe the depth classifications of a chemical burn injury.
ii. Describe the severity of a chemical burn injury.

jj. Describe considerations that impact management and prognosis of the patient with a chemical burn injury and a chemical burn injury to the eye.
kk. Discuss mechanisms of burn injury and conditions associated with a chemical burn injury.
ll. Describe the management of a chemical burn injury and a chemical burn injury to the eye, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
mm. Describe the epidemiology of an electrical burn injury.
nn. Describe the specific anatomy and physiology pertinent to an electrical burn injury.
oo. Describe the pathophysiology of an electrical burn injury.
pp. Describe the depth classifications of an electrical burn injury.
qq. Describe the severity of an electrical burn injury.
rr. Describe considerations that impact management and prognosis of the patient with an electrical burn injury.
ss. Discuss mechanisms of burn injury and conditions associated with an electrical burn injury.
tt. Describe the management of an electrical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
uu. Describe the epidemiology of a radiation exposure.
vv. Describe the specific anatomy and physiology pertinent to a radiation exposure.
ww. Describe the pathophysiology of a radiation exposure, including the types and characteristics of ionizing radiation.
xx. Describe the depth classifications of a radiation exposure.
yy. Describe the severity of a radiation exposure.
zz. Describe considerations that impact management and prognosis of the patient with a radiation exposure.
aaa. Discuss mechanisms of burn injury associated with a radiation exposure.
bbb. Discuss conditions associated with a radiation exposure.
ccc. Describe the management of a radiation exposure, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
ddd. Integrate pathophysiological principles to the assessment of a patient with a thermal burn injury.
eee. Integrate pathophysiological principles to the assessment of a patient with an inhalation burn injury.
fff. Integrate pathophysiological principles to the assessment of a patient with a chemical burn injury.
ggg. Integrate pathophysiological principles to the assessment of a patient with an electrical burn injury.
hhh. Integrate pathophysiological principles to the assessment of a patient with a radiation exposure.
iii. Synthesize patient history information and assessment findings to form a field impression for the patient with a thermal burn injury.
jjj. Synthesize patient history information and assessment findings to form a field

impression for the patient with an inhalation burn injury.

kkk. Synthesize patient history information and assessment findings to form a field impression for the patient with a chemical burn injury.

lll. Synthesize patient history information and assessment findings to form a field impression for the patient with an electrical burn injury.

mmm. Synthesize patient history information and assessment findings to form a field impression for the patient with a radiation exposure.

nnn. Formulate a management plan based on the field impression for the patient with a thermal burn injury.

ooo. Formulate a management plan based on the field impression for the patient with an inhalation burn injury.

ppp. Formulate a management plan based on the field impression for the patient with a chemical burn injury.

qqq. Formulate a management plan based on the field impression for the patient with an electrical burn injury.

rrr. Formulate a management plan based on the field impression for the patient with a radiation exposure.

sss. Explain the changes of a patient's self-image associated with a burn injury.

ttt. Explain the impact of managing a burn injured patient.

uuu. Demonstrate empathy for a burn injured patient.

vvv. Assess safety at a burn injury incident.

www. Predict mortality and morbidity based on the pathophysiology and assessment findings of a patient with a burn injury.

xxx. Discuss the sense of urgency in burn injuries.

yyy. Perform as a role-model for universal precautions and body substance isolation (BSI).

zzz. Demonstrate body substance isolation procedures during assessment and management of patients with a burn injury.

aaaa. Perform assessment of a patient with a burn injury.

bbbb. Perform management of a thermal burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

cccc. Perform management of an inhalation burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

dddd. Perform management of a chemical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

eeee. Perform management of an electrical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

ffff. Perform management of a radiation exposure, including airway and ventilation,

circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

5. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the trauma patient with a suspected head injury. (EMS2, EMS4, EMS9, EMS12)
   a. Describe the incidence, morbidity, and mortality of facial injuries.
   b. Explain facial anatomy and relate physiology to facial injuries.
   c. Predict facial injuries based on mechanism of injury.
   d. Predict other injuries commonly associated with facial injuries based on mechanism of injury.
   e. Differentiate between the following types of facial injuries, highlighting the defining characteristics of each:
      (1) Eye
      (2) Ear
      (3) Nose
      (4) Throat
      (5) Mouth
   f. Integrate pathophysiological principles to the assessment of a patient with facial injury.
   g. Differentiate between facial injuries based on the assessment and history.
   h. Formulate a field impression for a patient with a facial injury based on the assessment findings.
   i. Develop a patient management plan for a patient with a facial injury based on the field impression
   j. Explain the pathophysiology of eye injuries.
   k. Relate assessment findings associated with eye injuries to pathophysiology.
   l. Integrate pathophysiological principles to the assessment of a patient with an eye injury.
   m. Formulate a field impression for a patient with an eye injury based on the assessment findings.
   n. Develop a patient management plan for a patient with an eye injury based on the field impression.
   o. Describe and demonstrate eye irrigation with a Morgan lens.
   p. Explain the pathophysiology of ear injuries.
   q. Relate assessment findings associated with ear injuries to pathophysiology.
   r. Integrate pathophysiological principles to the assessment of a patient with an ear injury.
   s. Formulate a field impression for a patient with an ear injury based on the assessment findings.
   t. Develop a patient management plan for a patient with an ear injury based on the field impression.
   u. Explain the pathophysiology of nose injuries.
   v. Relate assessment findings associated with nose injuries to pathophysiology.
   w. Integrate pathophysiological principles to the assessment of a patient with a nose injury.

x. Formulate a field impression for a patient with a nose injury based on the assessment findings.
y. Develop a patient management plan for a patient with a nose injury based on the field impression.
z. Explain the pathophysiology of throat injuries.
aa. Relate assessment findings associated with throat injuries to pathophysiology.
bb. Integrate pathophysiological principles to the assessment of a patient with a throat injury.
cc. Formulate a field impression for a patient with a throat injury based on the assessment findings.
dd. Develop a patient management plan for a patient with a throat injury based on the field impression.
ee. Explain the pathophysiology of mouth injuries.
ff. Relate assessment findings associated with mouth injuries to pathophysiology.
gg. Integrate pathophysiological principles to the assessment of a patient with a mouth injury.
hh. Formulate a field impression for a patient with a mouth injury based on the assessment findings.
ii. Develop a patient management plan for a patient with a mouth injury based on the field impression.
jj. Describe the incidence, morbidity, and mortality of head injuries.
kk. Explain anatomy, and relate physiology of the CNS to head injuries.
ll. Predict head injuries based on mechanism of injury.
mm. Distinguish between head injury and brain injury.
nn. Explain the pathophysiology of head/brain injuries.
oo. Explain the concept of increasing intracranial pressure (ICP).
pp. Explain the effect of increased and decreased carbon dioxide on ICP.
qq. Explain the process involved with each of the levels of increasing ICP.
rr. Relate assessment findings associated with head/brain injuries to the pathophysiologic process.
ss. Classify head injuries (mild, moderate, severe) according to assessment findings.
tt. Identify the need for rapid intervention and transport of the patient with a head/brain injury.
uu. Describe and explain the general management of the head/brain injury patient, including pharmacological and non-pharmacological treatment.
vv. Analyze the relationship between carbon dioxide concentration in the blood and management of the airway in the head/brain injured patient.
ww. Explain the pathophysiology of diffuse axonal injury.
xx. Relate assessment findings associated with concussion and moderate and severe diffuse axonal injury to pathophysiology.
yy. Develop a management plan for a patient with a moderate and severe diffuse axonal injury.
zz. Explain the pathophysiology of skull fracture.
aaa. Relate assessment findings associated with skull fracture to pathophysiology.
bbb. Develop a management plan for a patient with a skull fracture.
ccc. Explain the pathophysiology of cerebral contusion.

ddd. Relate assessment findings associated with cerebral contusion to pathophysiology.
eee. Develop a management plan for a patient with a cerebral contusion.
fff. Explain the pathophysiology, assessment findings, and management plan for a patient with an intracranial hemorrhage, including the following:
(1) Epidural
(2) Subdural
(3) Intracerebral
(4) Subarachnoid
ggg. Describe the various types of helmets and their purposes.
hhh. Relate priorities of care to factors determining the need for helmet removal in various field situations including sports related incidents.
iii. Develop a management plan for the removal of a helmet for a head injured patient.
jjj. Integrate the pathophysiological principles to the assessment of a patient with head/brain injury.
kkk. Differentiate between the types of head/brain injuries based on the assessment and history.
lll. Formulate a field impression for a patient with a head/brain injury based on the assessment findings.
mmm. Develop a patient management plan for a patient with a head/brain injury based on the field impression.

6. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a suspected spinal injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of spinal injuries in the trauma patient.
b. Describe the following anatomy and physiology of structures related to spinal injuries:
(1) Cervical
(2) Thoracic
(3) Lumbar
(4) Sacrum
(5) Coccyx
(6) Head
(7) Brain
(8) Spinal cord
(9) Nerve tract(s)
(10) Dermatomes
c. Predict spinal injuries based on mechanism of injury.
d. Describe the pathophysiology of spinal injuries.
e. Explain traumatic and nontraumatic spinal injuries.
f. Describe the assessment findings associated with spinal injuries.
g. Describe the management of spinal injuries.
h. Identify the need for rapid intervention and transport of the patient with spinal injuries.
i. Integrate the pathophysiological principles to the assessment of a patient with a spinal injury.

j. Differentiate between spinal injuries based on the assessment and history.
k. Formulate a field impression based on the assessment findings.
l. Develop a patient management plan based on the field impression.
m. Describe the pathophysiology of traumatic spinal injury related to the following:
    (1) Spinal shock
    (2) Spinal neurogenic shock
    (3) Quadriplegia/paraplegia
    (4) Incomplete cord injury/cord syndromes
        (a) Central cord syndrome
        (b) Anterior cord syndrome
        (c) Brown-Sequard syndrome
        (d) Cauda equina syndrome
n. Describe the assessment findings associated with traumatic spinal injuries.
o. Describe the management of traumatic spinal injuries.
p. Integrate pathophysiological principles to the assessment of a patient with a traumatic spinal injury.
q. Differentiate between traumatic and nontraumatic spinal injuries based on the assessment and history.
r. Formulate a field impression for traumatic spinal injury based on the assessment findings.
s. Develop a patient management plan for traumatic spinal injury based on the field impression.
t. Describe the pathophysiology of nontraumatic spinal injury, including the following:
    (1) Low back pain
    (2) Herniated intervertebral disk
    (3) Spinal cord tumors
u. Describe the assessment findings associated with nontraumatic spinal injuries.
v. Describe the management of nontraumatic spinal injuries.
w. Integrate pathophysiological principles to the assessment of a patient with nontraumatic spinal injury.
x. Differentiate between traumatic and nontraumatic spinal injuries based on the assessment and history.
y. Formulate a field impression for nontraumatic spinal injury based on the assessment findings.
z. Develop a patient management plan for nontraumatic spinal injury based on the field impression.
aa. Recognize the need for a thorough assessment when determining the proper management modality for spine injuries.
bb. Recognize the implications of failing to properly immobilize a spine injured patient.
cc. Demonstrate a clinical assessment to determine the proper management modality for a patient with a suspected traumatic spinal injury.
dd. Demonstrate a clinical assessment to determine the proper management modality for a patient with a suspected nontraumatic spinal injury.
ee. Demonstrate immobilization of the urgent and non-urgent patient with assessment findings of spinal injury from the following presentations:

(1) Supine
(2) Prone
(3) Semi-prone
(4) Sitting
(5) Standing

ff. Demonstrate documentation of suspected spinal cord injury to include the following:
(1) General area of spinal cord involved
(2) Sensation
(3) Dermatomes
(4) Motor function
(5) Area(s) of weakness

gg. Demonstrate preferred methods for stabilization of a helmet from a potentially spine injured patient.

hh. Demonstrate helmet removal techniques.

ii. Demonstrate alternative methods for stabilization of a helmet from a potentially spine injured patient.

jj. Demonstrate documentation of assessment before spinal immobilization.

kk. Demonstrate documentation of assessment during spinal immobilization.

ll. Demonstrate documentation of assessment after spinal immobilization.

7. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for a patient with a thoracic injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of thoracic injuries in the trauma patient.

b. Discuss the anatomy and physiology of the organs and structures related to thoracic injuries.

c. Predict thoracic injuries based on mechanism of injury.

d. Discuss the types of thoracic injuries.

e. Discuss the pathophysiology of thoracic injuries.

f. Discuss the assessment findings associated with thoracic injuries.

g. Discuss the management of thoracic injuries.

h. Identify the need for rapid intervention and transport of the patient with thoracic injuries.

i. Discuss the pathophysiology of specific chest wall injuries, including the following:
(1) Rib fracture
(2) Flail segment
(3) Sternal fracture

j. Discuss the assessment findings associated with chest wall injuries.

k. Identify the need for rapid intervention and transport of the patient with chest wall injuries.

l. Discuss the management of chest wall injuries.

m. Discuss the pathophysiology of injury to the lung, including the following:
(1) Simple pneumothorax
(2) Open pneumothorax
(3) Tension pneumothorax

(4) Hemothorax
(5) Hemopneumothorax
(6) Pulmonary contusion

n. Discuss the assessment findings associated with lung injuries.
o. Discuss the management of lung injuries, to include assisting in the insertion of a chest tube as well as monitoring and management of a chest tube.
p. Identify the need for rapid intervention and transport of the patient with lung injuries.
q. Discuss the pathophysiology of myocardial injuries, including the following:
(1) Pericardial tamponade
(2) Myocardial contusion
(3) Myocardial rupture
(4) Commotio cordis

r. Discuss the assessment findings associated with myocardial injuries.
s. Discuss the management of myocardial injuries.
t. Identify the need for rapid intervention and transport of the patient with myocardial injuries.
u. Discuss the pathophysiology of vascular injuries, including injuries to the following:
(1) Aorta
(2) Vena cava
(3) Pulmonary arteries/veins

v. Discuss the assessment findings associated with vascular injuries.
w. Discuss the management of vascular injuries.
x. Identify the need for rapid intervention and transport of the patient with vascular injuries.
y. Discuss the pathophysiology of diaphragmatic injuries.
z. Discuss the assessment findings associated with diaphragmatic injuries.
aa. Discuss the management of diaphragmatic injuries.
bb. Identify the need for rapid intervention and transport of the patient with diaphragmatic injuries.
cc. Discuss the pathophysiology of esophageal injuries.
dd. Discuss the assessment findings associated with esophageal injuries.
ee. Discuss the management of esophageal injuries.
ff. Identify the need for rapid intervention and transport of the patient with esophageal injuries.
gg. Discuss the pathophysiology of tracheo-bronchial injuries.
hh. Discuss the assessment findings associated with tracheo-bronchial injuries.
ii. Discuss the management of tracheo-bronchial injuries.
jj. Identify the need for rapid intervention and transport of the patient with tracheo-bronchial injuries.
kk. Discuss the pathophysiology of traumatic asphyxia.
ll. Discuss the assessment findings associated with traumatic asphyxia.
mm. Discuss the management of traumatic asphyxia.
nn. Identify the need for rapid intervention and transport of the patient with traumatic asphyxia.

oo. Integrate the pathophysiological principles to the assessment of a patient with thoracic injury.
pp. Differentiate between thoracic injuries based on the assessment and history.
qq. Formulate a field impression based on the assessment findings.
rr. Develop a patient management plan based on the field impression.
ss. Recognize the need for the use of a thorough assessment to determine a differential diagnosis and treatment plan for thoracic trauma.
tt. Recognize the need for a thorough scene survey to determine the forces involved in thoracic trauma.
uu. Recognize the implications of failing to properly diagnose thoracic trauma.
vv. Recognize the implications of failing to initiate timely interventions to patients with thoracic trauma.
ww. Demonstrate a clinical assessment for a patient with suspected thoracic trauma.
xx. Demonstrate the following techniques of management for thoracic injuries:
(1) Needle decompression
(2) Fracture stabilization
(3) Elective intubation
(4) ECG monitoring
(5) Oxygenation and ventilation

8. Explain the pathophysiologic principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with suspected abdominal trauma. (EMS2, EMS4, EMS9, EMS12)
a. Describe the epidemiology, including the morbidity/mortality and prevention strategies for a patient with abdominal trauma.
b. Describe the anatomy and physiology of organs and structures related to abdominal injuries.
c. Predict abdominal injuries based on blunt and penetrating mechanisms of injury.
d. Describe open and closed abdominal injuries.
e. Explain the pathophysiology of abdominal injuries.
f. Describe the assessment findings associated with abdominal injuries.
g. Identify the need for rapid intervention and transport of the patient with abdominal injuries based on assessment findings.
h. Describe the management of abdominal injuries.
i. Integrate the pathophysiological principles to the assessment of a patient with abdominal injury.
j. Differentiate between abdominal injuries based on the assessment and history.
k. Formulate a field impression for patients with abdominal trauma based on the assessment findings.
l. Develop a patient management plan for patients with abdominal trauma based on the field impression.
m. Describe the epidemiology, including the morbidity/mortality and prevention strategies for solid organ injuries.
n. Explain the pathophysiology of solid organ injuries.
o. Describe the assessment findings associated with solid organ injuries.
p. Describe the treatment plan and management of solid organ injuries.
q. Describe the epidemiology, including the morbidity/mortality and prevention

strategies for hollow organ injuries.

r. Explain the pathophysiology of hollow organ injuries.
s. Describe the assessment findings associated with hollow organ injuries.
t. Describe the treatment plan and management of hollow organ injuries.
u. Describe the epidemiology, including the morbidity/mortality and prevention strategies for abdominal vascular injuries.
v. Explain the pathophysiology of abdominal vascular injuries.
w. Describe the assessment findings associated with abdominal vascular injuries.
x. Describe the treatment plan and management of abdominal vascular injuries.
y. Describe the epidemiology, including the morbidity/mortality and prevention strategies for pelvic fractures.
z. Explain the pathophysiology of pelvic fractures.
aa. Describe the assessment findings associated with pelvic fractures.
bb. Describe the treatment plan and management of pelvic fractures.
cc. Describe the epidemiology, including the morbidity/mortality and prevention strategies for other related abdominal injuries.
dd. Explain the pathophysiology of other related abdominal injuries.
ee. Describe the assessment findings associated with other related abdominal injuries.
ff. Describe the treatment plan and management of other related abdominal injuries.
gg. Apply the epidemiologic principles to develop prevention strategies for abdominal injuries.
hh. Integrate the pathophysiological principles to the assessment of a patient with abdominal injuries.
ii. Differentiate between abdominal injuries based on the assessment and history.
jj. Formulate a field impression based upon the assessment findings for a patient with abdominal injuries.
kk. Develop a patient management plan for a patient with abdominal injuries, based upon field impression.
ll. Recognize the need for the use of a thorough assessment to determine a differential diagnosis and treatment plan for abdominal trauma.
mm. Recognize the need for the use of a thorough scene survey to determine the forces involved in abdominal trauma.
nn. Recognize the implications of failing to properly diagnose abdominal trauma and initiate timely interventions to patients with abdominal trauma.
oo. Demonstrate a clinical assessment to determine the proper treatment plan for a patient with suspected abdominal trauma.
pp. Demonstrate the proper use of PASG in a patient with suspected abdominal trauma.
qq. Demonstrate the proper use of PASG in a patient with suspected pelvic fracture.

9. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with a musculoskeletal injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of musculoskeletal injuries.
b. Discuss the anatomy and physiology of the musculoskeletal system.
c. Predict injuries based on the mechanism of injury, including the following:
   (1) Direct
   (2) Indirect

(3) Pathologic

d. Discuss the types of musculoskeletal injuries:
   (1) Fracture (open and closed)
   (2) Dislocation/ fracture
   (3) Sprain
   (4) Strain

e. Discuss the pathophysiology of musculoskeletal injuries.
f. Discuss the assessment findings associated with musculoskeletal injuries.
g. List the six “Ps” of musculoskeletal injury assessment.
h. List the primary signs and symptoms of extremity trauma.
i. List other signs and symptoms that can indicate less obvious extremity injury.
j. Discuss the need for assessment of pulses, motor, and sensation before and after splinting.
k. Identify the need for rapid intervention and transport when dealing with musculoskeletal injuries.
l. Discuss the management of musculoskeletal injuries.
m. Discuss the general guidelines for splinting.
n. Explain the benefits of cold application for musculoskeletal injury.
o. Explain the benefits of heat application for musculoskeletal injury.
p. Describe age-associated changes in the bones.
q. Discuss the pathophysiology of open and closed fractures.
r. Discuss the relationship between volume of hemorrhage and open or closed fractures.
s. Discuss the assessment findings associated with fractures.
t. Discuss the management of fractures.
u. Discuss the usefulness of the pneumatic anti-shock garment (PASG) in the management of fractures.
v. Describe the special considerations involved in femur fracture management.
w. Discuss the pathophysiology of dislocations.
x. Discuss the assessment findings of dislocations.
y. Discuss the out-of-hospital management of dislocation/fractures, including splinting and realignment.
z. Explain the importance of manipulating a knee dislocation/fracture with an absent distal pulse.
aa. Describe the procedure for reduction of a shoulder, finger, or ankle dislocation/fracture.
bb. Discuss the pathophysiology of sprains.
cc. Discuss the assessment findings of sprains.
dd. Discuss the management of sprains.
ee. Discuss the pathophysiology of strains.
ff. Discuss the assessment findings of strains.
gg. Discuss the management of strains.
hh. Discuss the pathophysiology of a tendon injury.
ii. Discuss the assessment findings of tendon injury.
jj. Discuss the management of a tendon injury.
kk. Integrate the pathophysiological principles to the assessment of a patient with a

musculoskeletal injury.

ll. Differentiate between musculoskeletal injuries based on the assessment findings and history.

mm. Formulate a field impression of a musculoskeletal injury based on the assessment findings.

nn. Develop a patient management plan for the musculoskeletal injury based on the field impression.

oo. Recognize the use of a thorough assessment to determine a working diagnosis and treatment plan for musculoskeletal injuries.

pp. Recognize the use of pain management in the treatment of musculoskeletal injuries.

qq. Demonstrate a clinical assessment to determine the proper treatment plan for a patient with a suspected musculoskeletal injury.

rr. Demonstrate the proper use of fixation, soft, and traction splints for apatient with a suspected fracture.

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS4 Pathophysiology
EMS9 Assessment
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)

A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: Medical

Course Abbreviation: EMS 2855

Classification: Vocational–Technical Core

Description: This course will provide a detailed understanding of the anatomic structures, physiology, and pathophysiology encountered when providing care in medical emergencies involving pulmonary, allergy and anaphylaxis, gastroenterology, renal urology, and hematology. This course was previously called Pre-hospital Medical Care (EMT 2855). (5 sch: 2-hr lecture, 6-hr lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory problems. (EMS2, EMS4, EMS9, EMS10) a. Discuss the epidemiology of pulmonary diseases and conditions. b. Identify and describe the function of the structures located in the upper and lower airway. c. Discuss the physiology of ventilation and respiration. d. Identify common pathological events that affect the pulmonary system. e. Discuss abnormal assessment findings associated with pulmonary diseases and conditions. f. Compare various airway and ventilation techniques used in the management of pulmonary diseases. g. Review the pharmacological preparations that paramedics use for management of respiratory diseases and conditions. h. Review the pharmacological preparations used in managing patients with respiratory diseases that may be prescribed by physicians. i. Review the use of equipment used during the physical examination of patients with complaints associated with respiratory diseases and conditions. j. Identify the epidemiology, anatomy, physiology, pathophysiology, assessment findings, and management for the following respiratory diseases and conditions: (1) Adult respiratory distress syndrome (2) Bronchial asthma (3) Chronic bronchitis (4) Emphysema (5) Pneumonia (6) Pulmonary edema (7) Pulmonary thromboembolism (8) Neoplasms of the lung (9) Upper respiratory infections (10) Spontaneous pneumothorax (11) Hyperventilation syndrome

k. Demonstrate the assessment and treatment of patients with respiratory diseases.
l. Recognize the critical nature of accurate field impressions of patients with respiratory diseases and conditions.
m. Demonstrate proper use of airway and ventilation devices.
n. Conduct a history and patient assessment for patients with pulmonary diseases and conditions.
o. Demonstrate the application of a CPAP/BiPAP unit.

2. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic, anaphylactic, or anaphylactoid reaction. (EMS2, EMS4, EMS9, EMS10)
   a. Define allergic reaction.
   b. Define anaphylaxis.
   c. Describe the incidence, morbidity, and mortality of anaphylaxis.
   d. Identify the risk factors most predisposing to anaphylaxis.
   e. Discuss the anatomy and physiology of the organs and structures related to anaphylaxis.
   f. Describe the prevention of anaphylaxis and appropriate patient education.
   g. Discuss the pathophysiology of allergy and anaphylaxis.
   h. Describe the common methods of entry of substances into the body.
   i. Define natural and acquired immunity.
   j. Define antigens and antibodies.
   k. List common antigens most frequently associated with anaphylaxis.
   l. Discuss the formation of antibodies in the body.
   m. Describe physical manifestations in anaphylaxis.
   n. Differentiate manifestations of an allergic reaction from anaphylaxis.
   o. Recognize the signs and symptoms related to anaphylaxis.
   p. Differentiate among the various treatment and pharmacological interventions used in the management of anaphylaxis.
   q. Integrate the pathophysiological principles of the patient with anaphylaxis.
   r. Correlate abnormal findings in assessment with the clinical significance in the patient with anaphylaxis.
   s. Develop a treatment plan based on field impression in the patient with allergic reaction and anaphylaxis.
   t. Describe the factors that precipitate disease in the human body.
   u. Discuss analyzing disease risk.
   v. Describe aging as a risk factor for disease.
   w. Discuss familial diseases and associated risk factors.
   x. Define the characteristics of the immune response.
   y. Discuss induction of the immune system.
   z. Discuss transplant-related problems and collagen vascular disease.
   aa. Describe the inflammation response.
   bb. Discuss the role of mast cells as part of the inflammation response.
   cc. Discuss the cellular components of inflammation.
   dd. Describe the systemic manifestations of the inflammation response.
   ee. Describe the resolution and repair from inflammation.
   ff. Discuss hypersensitivity.

gg.	Describe deficiencies in immunity and inflammation.
hh.	Define anaphylactic shock

3. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterologic problem. (EMS2, EMS4, EMS9, EMS10)

a.	Describe the incidence, morbidity, and mortality of gastrointestinal emergencies.
b.	Identify the risk factors most predisposing to gastrointestinal emergencies.
c.	Discuss the anatomy and physiology of the organs and structures related to gastrointestinal diseases.
d.	Discuss the pathophysiology of inflammation and its relationship to acute abdominal pain.
e.	Define somatic pain as it relates to gastroenterology.
f.	Define visceral pain as it relates to gastroenterology.
g.	Define referred pain as it relates to gastroenterology.
h.	Differentiate between hemorrhagic and non-hemorrhagic abdominal pain.
i.	Discuss the signs and symptoms of local inflammation relative to acute abdominal pain.
j.	Discuss the signs and symptoms of peritoneal inflammation relative to acute abdominal pain.
k.	List the signs and symptoms of general inflammation relative to acute abdominal pain.
l.	Based on assessment findings, differentiate between local, peritoneal, and general inflammation as they relate to acute abdominal pain.
m.	Describe the questioning technique and specific questions the paramedic should ask when gathering a focused history in a patient with abdominal pain.
n.	Describe the technique for performing a comprehensive physical examination on a patient complaining of abdominal pain.
o.	Define upper gastrointestinal bleeding.
p.	Discuss the pathophysiology of upper gastrointestinal bleeding.
q.	Recognize the signs and symptoms related to upper gastrointestinal bleeding.
r.	Describe the management for upper gastrointestinal bleeding.
s.	Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with upper GI bleeding.
t.	Define lower gastrointestinal bleeding.
u.	Discuss the pathophysiology of lower gastrointestinal bleeding.
v.	Recognize the signs and symptoms related to lower gastrointestinal bleeding.
w.	Describe the management for lower gastrointestinal bleeding.
x.	Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with lower GI bleeding.
y.	Define acute gastroenteritis.
z.	Discuss the pathophysiology of acute gastroenteritis.
aa.	Recognize the signs and symptoms related to acute gastroenteritis.
bb.	Describe the management for acute gastroenteritis.
cc.	Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute gastroenteritis.

dd. Define colitis.
ee. Discuss the pathophysiology of colitis.
ff. Recognize the signs and symptoms related to colitis.
gg. Describe the management for colitis.
hh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with colitis.
ii. Define gastroenteritis.
jj. Discuss the pathophysiology of gastroenteritis.
kk. Recognize the signs and symptoms related to gastroenteritis.
ll. Describe the management for gastroenteritis.
mm. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with gastroenteritis.
nn. Define diverticulitis.
oo. Discuss the pathophysiology of diverticulitis.
pp. Recognize the signs and symptoms related to diverticulitis.
qq. Describe the management for diverticulitis.
rr. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with diverticulitis.
ss. Define appendicitis.
tt. Discuss the pathophysiology of appendicitis.
uu. Recognize the signs and symptoms related to appendicitis.
vv. Describe the management for appendicitis.
ww. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with appendicitis.
xx. Define peptic ulcer disease.
yy. Discuss the pathophysiology of peptic ulcer disease.
zz. Recognize the signs and symptoms related to peptic ulcer disease.
aaa. Describe the management for peptic ulcer disease.
bbb. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with peptic ulcer disease.
ccc. Define bowel obstruction.
ddd. Discuss the pathophysiology of bowel obstruction.
eee. Recognize the signs and symptoms related to bowel obstruction.
fff. Describe the management for bowel obstruction.
ggg. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with bowel obstruction.
hhh. Define Crohn’s disease.
iii. Discuss the pathophysiology of Crohn’s disease.
jjj. Recognize the signs and symptoms related to Crohn’s disease.
kkk. Describe the management for Crohn’s disease.
lll. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with Crohn’s disease.
mmm. Define pancreatitis.
nnn. Discuss the pathophysiology of pancreatitis.
ooo. Recognize the signs and symptoms related to pancreatitis.
ppp. Describe the management for pancreatitis.

qqq. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with pancreatitis.
rrr. Define esophageal varices.
sss. Discuss the pathophysiology of esophageal varices.
ttt. Recognize the signs and symptoms related to esophageal varices.
uuu. Describe the management for esophageal varices.
vvv. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with esophageal varices.
www. Define hemorrhoids.
xxx. Discuss the pathophysiology of hemorrhoids.
yyy. Recognize the signs and symptoms related to hemorrhoids.
zzz. Describe the management for hemorrhoids.
aaaa. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with hemorrhoids.
bbbb. Discuss the pathophysiology of the following:
- Rectal abscess
- Rectal foreign body obstruction
- Mesenteric ischemia

cccc. Define cholecystitis.
dddd. Discuss the pathophysiology of cholecystitis.
eeee. Recognize the signs and symptoms related to cholecystitis.
ffff. Describe the management for cholecystitis.
gggg. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with cholecystitis.
hhhh. Define acute hepatitis.
iiii. Discuss the pathophysiology of acute hepatitis.
jjjj. Recognize the signs and symptoms related to acute hepatitis.
kkkk. Describe the management for acute hepatitis.
llll. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute hepatitis.
mmmm. Integrate pathophysiological principles of the patient with a gastrointestinal emergency.
nnnn. Differentiate between gastrointestinal emergencies based on assessment findings.
oooo. Correlate abnormal findings in the assessment with the clinical significance in the patient with abdominal pain.
pppp. Develop a patient management plan based on field impression in the patient with abdominal pain.

4. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a renal or urologic problem. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, mortality, and risk factors predisposing to urological emergencies.
b. Discuss the anatomy and physiology of the organs and structures related to urogenital diseases.
c. Define referred pain and visceral pain as it relates to urology.
d. Describe the questioning technique and specific questions the paramedic should

utilize when gathering a focused history in a patient with abdominal pain.

e. Describe the technique for performing a comprehensive physical examination of a patient complaining of abdominal pain.
f. Define acute renal failure.
g. Discuss the pathophysiology of acute renal failure.
h. Recognize the signs and symptoms related to acute renal failure.
i. Describe the management for acute renal failure.
j. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute renal failure.
k. Define chronic renal failure.
l. Discuss the pathophysiology of chronic renal failure.
m. Recognize the signs and symptoms related to chronic renal failure.
n. Describe the management for chronic renal failure.
o. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with chronic renal failure.
p. Define renal dialysis.
q. Discuss the common complication of renal dialysis.
r. Define renal calculi.
s. Discuss the pathophysiology of renal calculi.
t. Recognize the signs and symptoms related to renal calculi.
u. Describe the management for renal calculi.
v. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with renal calculi.
w. Define urinary tract infection.
x. Discuss the pathophysiology of urinary tract infection.
y. Recognize the signs and symptoms related to urinary tract infection.
z. Describe the management for a urinary tract infection.
aa. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a urinary tract infection.
bb. Apply the epidemiology to develop prevention strategies for urological emergencies.
cc. Integrate pathophysiological principles to the assessment of a patient with abdominal pain.
dd. Synthesize assessment findings and patient history information to accurately differentiate between pain of a urogenital emergency and that of other origins.
ee. Formulate a treatment plan based on the field impression made in the assessment.
ff. Describe the pathophysiology of rhabdomyolysis including its causes.
gg. Recognize signs and symptoms of rhabdomyolysis.
hh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with rhabdomyolosis.

5. Discuss the pathophysiological principles of the hematopoietic system to formulate a field impression and implement a treatment plan. (EMS2, EMS4, EMS9, EMS10)
   a. Identify the anatomy of the hematopoietic system.
   b. Describe volume and volume-control related to the hematopoietic system.

c. Describe the blood-forming organs.
d. Describe normal red blood cell (RBC) production, function, and destruction.
e. Explain the significance of the hematocrit with respect to red cell size and number.
f. Explain the correlation of the RBC count, hematocrit, and hemoglobin values.
g. Define anemia.
h. Describe normal white blood cell (WBC) production, function, and destruction.
i. Identify the characteristics of the inflammatory process.
j. Identify the difference between cellular and humoral immunity.
k. Identify alterations in immunologic response.
l. Describe the number, normal function, types, and life span of leukocytes.
m. List the leukocyte disorders.
n. Describe platelets with respect to normal function, life span, and numbers.
o. Describe the components of the hemostatic mechanism.
p. Describe the function of coagulation factors, platelets, and blood vessels necessary for normal coagulation.
q. Describe the intrinsic and extrinsic clotting systems with respect to identification of factor deficiencies in each stage.
r. Identify blood groups.
s. Define and describe the management of transfusion reactions.
t. Describe how acquired factor deficiencies may occur.
u. Define fibrinolysis.
v. Identify the components of physical assessment as they relate to the hematologic system.
w. Describe the pathology and clinical manifestations and prognosis associated with the following:
   (1) Anemia
   (2) Leukemia
   (3) Lymphomas
   (4) Polycythemia
   (5) Disseminated intravascular coagulopathy
   (6) Hemophilia
   (7) Sickle cell disease
   (8) Multiple myeloma
x. Integrate pathophysiological principles into the assessment of a patient with hematologic disease.
y. Recognize the sense of urgency for initial assessment and interventions for patients with hematologic crises.
z. Perform an assessment of the patient with hematologic disorder.
aa. Define septic shock.
bb. Utilize the pathophysiology behind septic shock, and formulate a treatment plan for the patient with septic shock.

6. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a neurological problem. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, and mortality of neurological emergencies.
b. Identify the risk factors most predisposing to the nervous system.

c. Discuss the anatomy and physiology of the organs and structures related to nervous system.
d. Discuss the pathophysiology of nontraumatic neurologic emergencies.
e. Discuss the assessment findings associated with nontraumatic neurologic emergencies.
f. Identify the need for rapid intervention and the transport of the patient with nontraumatic emergencies.
g. Discuss the management of nontraumatic neurological emergencies.
h. Discuss the pathophysiology of coma and altered mental status.
i. Discuss the assessment findings associated with coma and altered mental status.
j. Discuss the management/treatment plan of coma and altered mental status.
k. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for seizures.
l. Discuss the pathophysiology of seizures.
m. Discuss the assessment findings associated with seizures.
n. Define seizure.
o. Differentiate the major types of seizures.
p. List the most common causes of seizures.
q. Describe the phases of a generalized seizure.
r. Discuss the pathophysiology of syncope.
s. Discuss the assessment findings associated with syncope.
t. Discuss the management/treatment plan of syncope.
u. Discuss the pathophysiology of headache.
v. Discuss the assessment findings associated with a headache.
w. Discuss the management/treatment plan of a headache.
x. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for neoplasms.
y. Discuss the pathophysiology of neoplasms.
z. Describe the types of neoplasms.
aa. Discuss the assessment findings associated with neoplasms.
bb. Discuss the management/treatment plan of neoplasms.
cc. Define neoplasms.
dd. Recognize the signs and symptoms related to neoplasms.
ee. Correlate abnormal assessment findings with clinical significance in the patient with neoplasms.
ff. Differentiate among the various treatment and pharmacological interventions used in the management of neoplasms.
gg. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with neoplasms.
hh. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for abscess.
ii. Discuss the pathophysiology of abscess.
jj. Discuss the assessment findings associated with abscess.
kk. Discuss the management/treatment plan of abscess.
ll. Define abscess.
mm. Recognize the signs and symptoms related to abscess.

nn. Correlate abnormal assessment findings with clinical significance in the patient with abscess.
oo. Differentiate among the various treatment and pharmacological interventions used in the management of abscess.
pp. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with abscess.
qq. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for stroke and intracranial hemorrhage.
rr. Discuss the pathophysiology of stroke and intracranial hemorrhage.
ss. Describe the types of stroke and intracranial hemorrhage.
tt. Discuss the assessment findings associated with stroke and intracranial hemorrhage.
uu. Discuss the management/treatment plan of stroke and intracranial hemorrhage.
vv. Define stroke and intracranial hemorrhage.
ww. Recognize the signs and symptoms related to stroke and intracranial hemorrhage.
xx. Correlate abnormal assessment findings with clinical significance in the patient with stroke and intracranial hemorrhage.
yy. Differentiate among the various treatment and pharmacological interventions used in the management of stroke and intracranial hemorrhage.
zz. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with stroke and intracranial hemorrhage.
aaa. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for transient ischemic attack.
bbb. Discuss the pathophysiology of transient ischemic attack.
ccc. Discuss the assessment findings associated with transient ischemic attack.
ddd. Discuss the management/treatment plan of transient ischemic attack.
eee. Define transient ischemic attack.
fff. Recognize the signs and symptoms related to transient ischemic attack.
ggg. Correlate abnormal assessment findings with clinical significance in the patient with transient ischemic attack.
hhh. Differentiate among the various treatment and pharmacological interventions used in the management of transient ischemic attack.
iii. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with transient ischemic attack.
jjj. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for degenerative neurological diseases.
kkk. Discuss the pathophysiology of degenerative neurological diseases.
lll. Discuss the assessment findings associated with degenerative neurological diseases.
mmm. Discuss the management/treatment plan of degenerative neurological diseases.
nnn. Define the following:
(1) Muscular dystrophy
(2) Multiple sclerosis
(3) Dystonia
(4) Parkinson’s disease
(5) Trigeminal neuralgia

(6) Bell's palsy
(7) Amyotrophic lateral sclerosis
(8) Peripheral neuropathy
(9) Myoclonus
(10 Spina bifida
(11) Poliomyelitis

ooo. Recognize the signs and symptoms related to degenerative neurological diseases.
ppp. Correlate abnormal assessment findings with clinical significance in the patient with degenerative neurological diseases.
qqq. Differentiate among the various treatment and pharmacological interventions used in the management of degenerative neurological iseases.
rrr. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with degenerative neurological diseases.
sss. Integrate the pathophysiological principles of the patient with a neurological emergency.
ttt. Differentiate between neurological emergencies based on assessment findings.
uuu. Correlate abnormal assessment findings with the clinical significance in the patient with neurological complaints.
vvv. Develop a patient management plan based on field impression in the patient with neurological emergencies.
www. Recognize the feelings of a patient who regains consciousness among strangers.
xxx. Formulate means of conveying empathy to patients whose ability to communicate is limited by their condition.
yyy. Perform an appropriate assessment of a patient with coma or altered mental status.
zzz. Perform a complete neurological examination as part of the comprehensive physical examination of a patient with coma or altered mental status.
aaaa. Manage a patient with a coma or an altered mental status, including the administration of oxygen, oral glucose, 50% dextrose, and narcotic reversal agents.
bbbb. Perform an appropriate assessment of a patient with syncope.
cccc. Manage a patient with syncope.
dddd. Perform an appropriate assessment of a patient with seizures.
eeee. Manage a patient with seizures, including the administration of diazepam or lorazepam.
ffff. Perform an appropriate assessment of a patient with stroke and intracranial hemorrhage or TIA.
gggg. Manage a patient with stroke and intracranial hemorrhage or TIA.
hhhh. Demonstrate an appropriate assessment of a patient with a chief complaint of weakness.

7. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an endocrine problem. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, and mortality of endocrinologic emergencies.
b. Identify the risk factors most predisposing to endocrinologic disease.
c. Discuss the anatomy and physiology of organs and structures related to endocrinologic diseases.

d. Review the pathophysiology of endocrinologic emergencies.
e. Discuss the general assessment findings associated with endocrinologic emergencies.
f. Identify the need for rapid intervention of the patient with endocrinologic emergencies.
g. Discuss the management of endocrinologic emergencies.
h. Describe osmotic diuresis and its relationship to diabetes.
i. Describe the pathophysiology of adult onset diabetes mellitus.
j. Describe the pathophysiology of juvenile onset diabetes mellitus.
k. Describe the effects of decreased levels of insulin on the body.
l. Correlate abnormal findings in assessment with clinical significance in the patient with a diabetic emergency.
m. Discuss the management of diabetic emergencies.
n. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a diabetic emergency.
o. Differentiate between the pathophysiology of normal glucose metabolism and diabetic glucose metabolism.
p. Describe the mechanism of ketone body formation and its relationship to ketoacidosis.
q. Discuss the physiology of the excretion of potassium and ketone bodies by the kidneys.
r. Describe the relationship of insulin to serum glucose levels.
s. Describe the effects of decreased levels of insulin on the body.
t. Describe the effects of increased serum glucose levels on the body.
u. Discuss the pathophysiology of hypoglycemia.
v. Discuss the utilization of glycogen by the human body as it relates to the pathophysiology of hypoglycemia.
w. Describe the actions of epinephrine as it relates to the pathophysiology of hypoglycemia.
x. Recognize the signs and symptoms of the patient with hypoglycemia.
y. Describe the compensatory mechanisms utilized by the body to promote homeostasis relative to hypoglycemia.
z. Describe the management of a responsive hypoglycemic patient.
aa. Correlate abnormal findings in assessment with clinical significance in the patient with hypoglycemia.
bb. Discuss the management of the hypoglycemic patient.
cc. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hypoglycemia.
dd. Discuss the pathophysiology of hyperglycemia.
ee. Recognize the signs and symptoms of the patient with hyperglycemia.
ff. Describe the management of hyperglycemia.
gg. Correlate abnormal findings in assessment with clinical significance in the patient with hyperglycemia.
hh. Discuss the management of the patient with hyperglycemia.

ii. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hyperglycemia.
jj. Discuss the pathophysiology of nonketotic hyperosmolar coma.
kk. Recognize the signs and symptoms of the patient with nonketotic hyperosmolar coma.
ll. Describe the management of nonketotic hyperosmolar coma.
mm. Correlate abnormal findings in assessment with clinical significance in the patient with nonketotic hyperosmolar coma.
nn. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with nonketotic hyperosmolar coma.
oo. Discuss the management of the patient with hyperglycemia.
pp. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hyperglycemia.
qq. Discuss the pathophysiology of diabetic ketoacidosis.
rr. Recognize the signs and symptoms of the patient with diabetic ketoacidosis.
ss. Describe the management of diabetic ketoacidosis.
tt. Correlate abnormal findings in assessment with clinical significance in the patient with diabetic ketoacidosis.
uu. Discuss the management of the patient with diabetic ketoacidosis.
vv. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with diabetic ketoacidosis.
ww. Discuss the pathophysiology of thyrotoxicosis.
xx. Recognize signs and symptoms of the patient with thyrotoxicosis.
yy. Describe the management of thyrotoxicosis.
zz. Correlate abnormal findings in assessment with clinical significance in the patient with thyrotoxicosis.
aaa. Discuss the management of the patient with thyrotoxicosis.
bbb. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with thyrotoxicosis.
ccc. Discuss the pathophysiology of myxedema.
ddd. Recognize signs and symptoms of the patient with myxedema.
eee. Describe the management of myxedema.
fff. Correlate abnormal findings in assessment with clinical significance in the patient with myxedema.
ggg. Discuss the management of the patient with myxedema.
hhh. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with myxedema.
iii. Discuss the pathophysiology of Cushing’s syndrome.
jjj. Recognize signs and symptoms of the patient with Cushing’s syndrome.
kkk. Describe the management of Cushing’s syndrome.
lll. Correlate abnormal findings in assessment with clinical significance in the patient

with Cushing's syndrome.

mmm. Discuss the management of the patient with Cushing's syndrome.

nnn. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with Cushing's syndrome.

ooo. Discuss the pathophysiology of adrenal insufficiency.

ppp. Recognize signs and symptoms of the patient with adrenal insufficiency.

qqq. Describe the management of adrenal insufficiency.

rrr. Correlate abnormal findings in assessment with clinical significance in the patient with adrenal insufficiency.

sss. Discuss the management of the patient with adrenal insufficiency.

ttt. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with adrenal insufficiency.

uuu. Integrate the pathophysiological principles to the assessment of a patient with an endocrinological emergency.

vvv. Differentiate between endocrine emergencies based on assessment and history.

www. Correlate abnormal findings in the assessment with clinical significance in the patient with endocrinologic emergencies.

xxx. Develop a patient management plan based on field impression in the patient with an endocrinologic emergency.

8. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a toxic exposure. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, and mortality of toxic emergencies.

b. Identify the risk factors most predisposing to toxic emergencies.

c. Discuss the anatomy and physiology of the organs and structures related to toxic emergencies.

d. Describe the routes of entry of toxic substances into the body.

e. Discuss the role of the Poison Control Center in the United States.

f. List the toxic substances that are specific to your region.

g. Discuss the pathophysiology of the entry of toxic substances into the body.

h. Discuss the assessment findings associated with various toxidromes.

i. Identify the need for rapid intervention and transport of the patient with a toxic substance emergency.

j. Discuss the management of toxic substances.

k. Define poisoning by ingestion.

l. List the most common poisonings by ingestion.

m. Recognize the signs and symptoms related to the most common poisonings by ingestion.

n. Correlate the abnormal findings in assessment with the clinical significance in the patient with the most common poisonings by ingestion.

o. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by ingestion.

p. Discuss the factors affecting the decision to induce vomiting in a patient with ingested poison.

q. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by ingestion.
r. Define poisoning by inhalation.
s. List the most common poisonings by inhalation.
t. Describe the pathophysiology of poisoning by inhalation.
u. Recognize the signs and symptoms related to the most common poisonings by inhalation.
v. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by inhalation.
w. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by inhalation.
x. Integrate pathophysiological principles and the assessment findings to formulate a field impression for the patient with the most common poisonings by inhalation.
y. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by inhalation.
z. Define poisoning by injection.
aa. List the most common poisonings by injection.
bb. Describe the pathophysiology of poisoning by injection.
cc. Recognize the signs and symptoms related to the most common poisonings by injection.
dd. Correlate the abnormal findings in assessment with the clinical significance in the patient with the most common poisonings by injection.
ee. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by injection.
ff. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by injection.
gg. Define poisoning by surface absorption.
hh. List the most common poisonings by surface absorption.
ii. Describe the pathophysiology of poisoning by surface absorption.
jj. Recognize the signs and symptoms related to the most common poisonings by surface absorption.
kk. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by surface absorption.
ll. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by surface absorption.
mm. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients with the most common poisonings by surface absorption.
nn. Define poisoning by overdose.
oo. List the most common poisonings by overdose.
pp. Describe the pathophysiology of poisoning by overdose.
qq. Recognize the signs and symptoms related to the most common poisonings by overdose.

rr. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by overdose.

ss. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by overdose.

tt. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients with the most common poisonings by overdose.

uu. Define drug abuse.

vv. Discuss the incidence of drug abuse in the United States.

ww. Define the following terms:
- (1) Substance or drug abuse
- (2) Substance or drug dependence
- (3) Tolerance
- (4) Withdrawal
- (5) Addiction

xx. List the most commonly abused drugs (both by chemical names and street names).

yy. Describe the pathophysiology of commonly used drugs.

zz. Recognize the signs and symptoms related to the most commonly abused drugs.

aaa. Correlate the abnormal findings in assessment with the clinical significance in patients using the most commonly abused drugs.

bbb. Differentiate among the various treatments and pharmacological interventions in the management of the most commonly abused drugs.

ccc. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients using the most commonly abused drugs.

ddd. List the clinical uses, street names, pharmacology, assessment finding, and management for patients who have taken the following drugs or been exposed to the following substances:
- (1) Cocaine
- (2) Marijuana and cannabis compounds
- (3) Amphetamines and amphetamine-like drugs
- (4) Barbiturates
- (5) Sedative-hypnotics (including rave drugs)
- (6) Cyanide
- (7) Narcotics/opiates
- (8) Cardiac medications
- (9) Caustics
- (10) Common household substances
- (11) Drugs abused for sexual purposes/sexual gratification
- (12) Carbon monoxide
- (13) Alcohols
- (14) Hydrocarbons
- (15) Psychiatric medications
- (16) Newer antidepressants and serotonin syndromes
- (17) Lithium
- (18) MAO inhibitors

(19) Nonprescription pain medications
  (a) Nonsteroidal anitinflammatory agents
  (b) Salicylates
  (c) Acetaminophen
(20) Theophylline
(21) Metals
(22) Plants and mushrooms

eee. Discuss common causative agents, pharmacology, assessment findings, and management for a patient with food poisoning.
fff. Discuss common offending organisms, pharmacology, assessment findings, and management for a patient with a bite or sting.
ggg. Integrate pathophysiological principles of the patient with a toxic substance exposure.
hhh. Differentiate between toxic substance emergencies based on assessment findings.
iii. Correlate abnormal findings in the assessment with the clinical significance in the patient exposed to a toxic substance.
jjj. Develop a patient management plan based on field impression in the patient exposed to a toxic substance.

9. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with an environmentally induced or exacerbated medical or traumatic condition. (EMS2, EMS4, EMS9, EMS10, EMS12)
   a. Define “environmental emergency.”
   b. Describe the incidence, morbidity, and mortality associated with environmental emergencies.
   c. Identify risk factors most predisposing to environmental emergencies.
   d. Identify environmental factors that may cause illness or exacerbate a pre-existing illness.
   e. Identify environmental factors that may complicate treatment or transport decisions.
   f. List the principal types of environmental illnesses.
   g. Define “homeostasis,” and relate the concept to environmental influences.
   h. Identify normal, critically high, and critically low body temperatures.
   i. Describe several methods of temperature monitoring.
   j. Identify the components of the body’s thermoregulatory mechanism.
   k. Describe the general process of thermal regulation, including substances used and wastes generated.
   l. Describe the body’s compensatory process for overheating.
   m. Describe the body’s compensatory process for excess heat loss.
   n. List the common forms of heat and cold disorders.
   o. List the common predisposing factors associated with heat and cold disorders.
   p. List the common preventative measures associated with heat and cold disorders.
   q. Integrate the pathophysiological principles and complicating factors common to environmental emergencies, and discuss differentiating features between emergent and urgent presentations.
   r. Define heat illness.
   s. Describe the pathophysiology of heat illness.
   t. Identify signs and symptoms of heat illness.

u. List the predisposing factors for heat illness.
v. List measures to prevent heat illness.
w. Discuss the symptomatic variations presented in progressive heat disorders.
x. Relate symptomatic findings to the commonly used terms heat cramps, heat exhaustion, and heatstroke.
y. Correlate the abnormal findings in assessment with their clinical significance in the patient with heat illness.
z. Describe the contribution of dehydration to the development of heat disorders.
aa. Describe the differences between classical and exertional heatstroke.
bb. Define fever, and discuss its pathophysiologic mechanism.
cc. Identify the fundamental thermoregulatory difference between fever and heatstroke.
dd. Discuss how one may differentiate between fever and heatstroke.
ee. Discuss the role of fluid therapy in the treatment of heat disorders.
ff. Differentiate among the various treatments and interventions in the management of heat disorders.
gg. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has dehydration, heat exhaustion, or heatstroke.
hh. Define hypothermia.
ii. Describe the pathophysiology of hypothermia.
jj. List predisposing factors for hypothermia.
kk. List measures to prevent hypothermia.
ll. Identify differences between mild and severe hypothermia.
mm. Describe differences between chronic and acute hypothermia.
nn. List signs and symptoms of hypothermia.
oo. Correlate abnormal findings in assessment with their clinical significance in the patient with hypothermia.
pp. Discuss the impact of severe hypothermia on standard BCLS and ACLS algorithms and transport considerations.
qq. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has either mild or severe hypothermia.
rr. Define frostbite.
ss. Define superficial frostbite (frostnip).
tt. Differentiate between superficial frostbite and deep frostbite.
uu. List predisposing factors for frostbite.
vv. List measures to prevent frostbite.
ww. Correlate abnormal findings in assessment with their clinical significance in the patient with frostbite.
xx. Differentiate among the various treatments and interventions in the management of frostbite.
yy. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with superficial or deep frostbite.
zz. Define near drowning.
aaa. Describe the pathophysiology of near drowning.

bbb. List signs and symptoms of near drowning.
ccc. Describe the lack of significance of fresh versus saltwater immersion, as it relates to near drowning.
ddd. Discuss the incidence of “wet” versus “dry” drownings and the differences in their management.
eee. Discuss the complications and protective role of hypothermia in the context of near drowning.
fff. Correlate the abnormal findings in assessment with the clinical significance in the patient with near drowning.
ggg. Differentiate among the various treatments and interventions in the management of near drowning.
hhh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the near drowning patient.
iii. Define self-contained underwater breathing apparatus (SCUBA).
jjj. Describe the laws of gasses, and relate them to diving emergencies.
kkk. Describe the pathophysiology of diving emergencies.
lll. Define decompression illness (DCI).
mmm. Identify the various forms of DCI.
nnn. Identify the various conditions that may result from pulmonary over-pressure accidents.
ooo. Differentiate among the various diving emergencies.
ppp. List signs and symptoms of diving emergencies.
qqq. Correlate abnormal findings in assessment with their clinical significance in the patient with a diving-related illness.
rrr. Describe the function of the Divers Alert Network (DAN) and how its members may aid in the management of diving-related illnesses.
sss. Differentiate among the various treatments and interventions for the management of diving accidents.
ttt. Describe the specific function and benefit of hyperbaric oxygen therapy for the management of diving accidents.
uuu. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a management plan for the patient who has had a diving accident.
vvv. Define altitude illness.
www. Describe the application of gas laws to altitude illness.
xxx. Describe the etiology and epidemiology of altitude illness.
yyy. List predisposing factors for altitude illness.
zzz. List measures to prevent altitude illness.
aaaa. Define acute mountain sickness (AMS).
bbbb. Define high altitude pulmonary edema (HAPE).
cccc. Define high altitude cerebral edema (HACE).
dddd. Discuss the symptomatic variations presented in progressive altitude illnesses.
eeee. List signs and symptoms of altitude illnesses.
ffff. Correlate abnormal findings in assessment with their clinical significance in the patient with altitude illness.
gggg. Discuss the pharmacology appropriate for the treatment of altitude illnesses.

hhhh. Differentiate among the various treatments and interventions for the management of altitude illness.
iiii. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient who has altitude illness.
jjjj. Integrate the pathophysiological principles of the patient affected by an environmental emergency.
kkkk. Differentiate between environmental emergencies based on assessment findings.
llll. Correlate abnormal findings in the assessment with their clinical significance in the patient affected by an environmental emergency.
mmmm. Develop a patient management plan based on the field impression of the patient affected by an environmental emergency.

10. Explain gynecological principles and assessment findings to formulate a field impression and implement the management plan for the patient experiencing a gynecological emergency. (EMS2, EMS4, EMS9, EMS10)
    a. Review the anatomic structures and physiology of the female reproductive system.
    b. Identify the normal events of the menstrual cycle.
    c. Describe how to assess a patient with a gynecological complaint.
    d. Explain how to recognize a gynecological emergency.
    e. Describe the general care for any patient experiencing a gynecological emergency.
    f. Describe the pathophysiology, assessment, and management of specific gynecological emergencies.
    g. Recognize the importance of maintaining a patient's modesty and privacy while still being able to obtain necessary information.
    h. Discuss the need to provide care for a patient of sexual assault, while still preventing destruction of crime scene information.
    i. Demonstrate serving as a role model for other EMS providers when discussing or caring for patients with gynecological emergencies.
    j. Demonstrate how to assess a patient with a gynecological complaint.
    k. Demonstrate how to provide care for a patient with the following:
        (1) Excessive vaginal bleeding
        (2) Abdominal pain
        (3) Sexual assault

11. Discuss safe, empathetic competence in caring for patients with behavioral emergencies.
    a. Define behavior and distinguish between normal and abnormal behavior. (EMS2, EMS4, EMS9, EMS10)
    b. Define behavioral emergency.
    c. Discuss the prevalence of behavior and psychiatric disorders.
    d. Discuss the factors that may alter the behavior or emotional status of an ill or injured individual.
    e. Describe the medical legal considerations for management of emotionally disturbed patients.
    f. Discuss the pathophysiology of behavioral and psychiatric disorders.
    g. Describe the overt behaviors associated with behavioral and psychiatric disorders.
    h. Define the following terms:
        (1) Affect
        (2) Anger

(3) Anxiety
(4) Confusion
(5) Depression
(6) Fear
(7) Mental status
(8) Open-ended question
(9) Posture

i. Describe the verbal techniques useful in managing the emotionally disturbed patient.
j. List the reasons for taking appropriate measures to ensure the safety of the patient, paramedic, and others.
k. Describe the circumstances when relatives, by-standers, and others should be removed from the scene.
l. Describe the techniques that facilitate the systematic gathering of information from the disturbed patient.
m. List situations in which the paramedic is expected to transport a patient forcibly and against his or her will.
n. Identify techniques for physical assessment in a patient with behavioral problems.
o. Describe the pathophysiology and management of excited delirium.
p. Describe methods of restraint that may be necessary in managing the emotionally disturbed patient.
q. List the risk factors for suicide.
r. List the behaviors that may be seen indicating that the patient may be at risk for suicide.
s. Integrate the pathophysiological principles with the assessment of the patient with behavioral and psychiatric disorders.
t. Differentiate between the various behavioral and psychiatric disorders based on the assessment and history.
u. Formulate a field impression based on the assessment findings.
v. Develop a patient management plan based on the field impressions.
w. Recognize the need for empathetic and respectful treatment for individuals experiencing behavioral emergencies.
x. Demonstrate safe techniques for managing and restraining a violent patient.
y. Explain causes and plight of homelessness.
z. Explain the common medical issues that homeless patients face.
aa. Identify local resources needed by the homeless and indigent patients.

12. Apply and integrate anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, prognosis, and management of common or major nontraumatic musculoskeletal disorders. (EMS2, EMS4, EMS9, EMS10)
    - Disorders of the spine
    - Joint abnormalities
    - Muscle abnormalities
    - Overuse syndromes

13. Apply and integrate knowledge of anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, prognosis, management of common or major diseases of the eyes, ears, nose, and throat, including nose bleed. (EMS2, EMS4, EMS9, EMS10)

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS4 Pathophysiology
EMS9 Assessment
EMS10 Medicine
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: EMS Operations

Course Abbreviation: EMS 2912

Classification: Vocational–Technical Core

Description: This course teaches the leadership skills necessary to manage complex situations including patient care, management of the hazardous and crime scene, supervision, mentoring, and leading other personnel. (2 sch: 1-hr lecture, 2-hr lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Discuss the principles of assessment based management to perform an appropriate assessment and implement the management plan for patients with common complaints. (EMS1, EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14) a. Explain how effective assessment is critical to clinical decision making. b. Explain how the paramedic's attitude affects assessment and decision making. c. Explain how uncooperative patients affect assessment and decision making. d. Explain strategies to prevent labeling and tunnel vision. e. Develop strategies to decrease environmental distractions. f. Describe how man power considerations and staffing configurations affect assessment and decision making. g. Synthesize concepts of scene management and choreography to simulated emergency calls. h. Explain the roles of the team leader and the patient care person. i. Explain the rationale for carrying the essential patient care items. j. When given a simulated call, list the appropriate equipment to be taken to the patient. k. Explain the general approach to the emergency patient. l. Explain the general approach, patient assessment, differentials, and management priorities for patients with the following problems: (1) Chest pain (2) Medical and traumatic cardiac arrest (3) Acute abdominal pain (4) GI bleed (5) Altered mental status (6) Dyspnea (7) Syncope (8) Seizures (9) Environmental or thermal problem (10) Hazardous material or toxic exposure (11) Trauma or multi-trauma patients (12) Allergic reactions (13) Behavioral problems (14) Obstetric or gynecological problems

(15) Pediatric patients

m. Describe how to effectively communicate patient information face to face, over the telephone, by radio, and in writing.

n. Utilize scenarios to develop high level clinical decision-making skills.

o. Defend the importance of considering differentials in patient care.

p. Practice the process of complete patient assessment on all patients.

q. Recognize the importance of presenting the patient accurately and clearly.

2. Perform as a team leader. (EMS1, EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)

a. Organize the EMS response team.

b. Perform a patient assessment.

c. Provide local/regionally appropriate treatment.

d. Present cases verbally and in writing given a moulaged and programmed simulated patient.

3. Perform as a team member. (EMS1, EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)

a. Assess a programmed patient or mannequin.

b. Consider differentials.

c. Make decisions relative to interventions and transportation.

d. Provide the interventions, patient packaging, and transportation.

e. As a team, practice various roles for the following common emergencies.

(1) Chest pain

(2) Cardiac arrest

(3) Traumatic arrest

(4) Medical arrest

(5) Acute abdominal pain

(6) GI bleed

(7) Altered mental status

(8) Dyspnea

(9) Syncope

(10) Seizure

(11) Thermal/ environmental problem

(12) Hazardous materials/toxicology

(13) Trauma

(a) Isolated extremity fracture (tibia/fibula or radius/ulna)

(b) Femur fracture

(c) Shoulder dislocation

(d) Clavicular fracture or A-C separation

(e) Minor wound (no sutures required, sutures required, high risk wounds, with tendon and/or nerve injury)

(f) Spine injury (no neurologic deficit, with neurologic deficit)

(g) Multiple trauma-blunt

(h) Penetrating trauma

(i) Impaled object

(j) Elderly fall

(k) Athletic injury

(l) Head injury (concussion, subdural/epidural)

(14) Allergic reactions/bites/envenomation
- (a) Local allergic reaction
- (b) Systemic allergic reaction
- (c) Envenomation

(15) Behavioral
- (a) Mood disorders
- (b) Schizophrenic and delusional disorders
- (c) Suicidal

(16) Obstetrics/gynecology
- (a) Vaginal bleeding
- (b) Childbirth (normal and abnormal)

(17) Pediatric
- (a) Respiratory distress
- (b) Fever
- (c) Seizures

4. Explain the principles of rescue awareness and operations to safely rescue a patient from water, hazardous atmospheres, trenches, highways, and hazardous terrain. (EMS1, EMS14)
   a. Define the term rescue.
   b. Explain the medical and mechanical aspects of rescue situations.
   c. Explain the role of the paramedic in delivering care at the site of the injury, continuing through the rescue process and to definitive care.
   d. Describe the phases of a rescue operation.
   e. Describe the types of personal protective equipment needed to safely operate in the rescue environment to include the following:
      (1) Head protection
      (2) Eye protection
      (3) Hand protection
      (4) Personal flotation devices
      (5) Thermal protection/layering systems
      (6) High visibility clothing
      (7) Specialized footwear
   f. Explain the differences in risk between moving water and flat water rescue.
   g. Explain the effects of immersion hypothermia on the ability to survive sudden immersion and self-rescue.
   h. Explain the phenomenon of the cold protective response in cold water drowning situations.
   i. Identify the risks associated with low head dams and the rescue complexities they pose.
   j. Given a picture of moving water, identify and explain the following features and hazards associated with the following:
      (1) Hydraulics
      (2) Strainers
      (3) Dams/hydro-electric sites
   k. Explain why water entry or go techniques are methods of last resort.
   l. Explain the rescue techniques associated with reach-throw-row-go.

m. Given a list of rescue scenarios, identify the victim survivability profile and which are rescue versus body recovery situations.

n. Explain the self-rescue position if unexpectedly immersed in moving water.

o. Given a series of pictures, identify which would be considered “confined spaces” and potentially oxygen deficient.

p. Identify the hazards associated with confined spaces and risks posed to potential rescuers to include the following:
   (1) Oxygen deficiency
   (2) Chemical/toxic exposure/explosion
   (3) Engulfment
   (4) Machinery entrapment
   (5) Electricity

q. Identify components necessary to ensure site safety prior to confined space rescue attempts.

r. Identify the poisonous gases commonly found in confined spaces to include the following:
   (1) Hydrogen sulfide (H2S)
   (2) Carbon dioxide (CO2)
   (3) Carbon monoxide (CO)
   (4) Low/high oxygen concentrations (Fi02)
   (5) Methane (CH4)
   (6) Ammonia (NH3)
   (7) Nitrogen dioxide (NO_2)

s. Explain the hazard of cave-in during trench rescue operations.

t. Describe the effects of traffic flow on the highway rescue incident including limited access super highways and regular access highways.

u. Describe the following techniques to reduce scene risk at highway incidents:
   (1) Apparatus placement
   (2) Headlights and emergency vehicle lighting
   (3) Cones, flares
   (4) Reflective and high visibility clothing

v. Describe the hazards associated with the following auto/truck components:
   (1) Energy absorbing bumpers
   (2) Air bag/supplemental restraint systems
   (3) Catalytic converters and conventional fuel systems
   (4) Stored energy
   (5) Alternate fuel systems

w. Given a diagram of a passenger auto, identify the following structures:
   (1) A, B, C, D posts
   (2) Fire wall
   (3) Unibody versus frame designs

x. Describe methods for emergency stabilization using rope, cribbing, jacks, spare tire, and come-a-longs for vehicles found on the following:
   (1) Wheels
   (2) Side
   (3) Roof

(4) Inclines

y. Describe the electrical hazards commonly found at highway incidents (above and below ground).

z. Explain the difference between tempered and safety glass, identify its locations on a vehicle, and discuss how to break it safely.

aa. Explain typical door anatomy and methods to access through stuck doors.

bb. Explain SRS or “air bag” systems and methods to neutralize them.

cc. Define the following terms:
- (1) Low angle
- (2) High angle
- (3) Belay
- (4) Rappel
- (5) Scrambling
- (6) Hasty rope slide

dd. Describe the procedure for Stokes litter packaging for low angle evacuations.

ee. Explain the procedures for low angle litter evacuation to include the following:
- (1) Anchoring
- (2) Litter/rope attachment
- (3) Lowering and raising procedures

ff. Explain techniques to be used in non-technical litter carries over rough terrain.

gg. Explain non-technical high angle rescue procedures using aerial apparatus.

hh. Develop specific skill in emergency stabilization of vehicles and access procedures and an awareness of specific extrication strategies.

ii. Explain assessment procedures and modifications necessary when caring for entrapped patients.

jj. List the equipment necessary for an “off road” medical pack.

kk. Explain specific methods of improvisation for assessment, spinal immobilization, and extremity splinting.

ll. Explain the indications, contraindications, and methods of pain control for entrapped patients.

mm. Explain the need for and techniques of thermal control for entrapped patients.

nn. Explain the pathophysiology of “crush trauma” syndrome.

oo. Develop an understanding of the medical issues involved in providing care for a patient in a rescue environment.

pp. Develop proficiency in patient packaging and evacuation techniques that pertain to hazardous or rescue environments.

qq. Explain the different types of “Stokes” or basket stretchers and the advantages and disadvantages associated with each.

rr. Using cribbing, ropes, lifting devices, spare tires, chains, and hand winches, demonstrate the following stabilization procedures:
- (1) Stabilization on all four wheels
- (2) Stabilization on its side
- (3) Stabilization on its roof
- (4) Stabilization on an incline/embankments

ss. Using basic hand tools, demonstrate the following:
- (1) Access through a stuck door

(2) Access through safety and tempered glass
(3) Access through the trunk
(4) Access through the floor
(5) Roof removal
(6) Dash displacement/roll-up
(7) Steering wheel/column displacement
(8) Access through the roof

tt. Demonstrate methods of “Stokes” packaging for patients being the following:
(1) Vertically lifted (high angle)
(2) Horizontally lifted (low angle)
(3) Carried over rough terrain

uu. Demonstrate methods of packaging for patients being vertically lifted without Stokes litter stretcher packaging.

vv. Demonstrate the following litter carrying techniques:
(1) Stretcher lift straps
(2) “Leap frogging”
(3) Passing litters over and around obstructions

ww. Demonstrate litter securing techniques for patients being evacuated by aerial apparatus.

xx. Demonstrate in-water spinal immobilization techniques.

yy. Demonstrate donning and properly adjusting a PFD.

zz. Demonstrate use of a throw bag.

5. Analyze hazardous materials emergencies, call for appropriate resources, and work in the cold zone. (EMS1, EMS14)

a. Explain the role of the paramedic/EMS responder in terms of the following:
(1) Incident size-up
(2) Assessment of toxicologic risk
(3) Appropriate decontamination methods
(4) Treatment of semi-decontaminated patients
(5) Transportation of semi-decontaminated patients

b. Recognize a hazardous materials (haz-mat) incident, and determine the following:
(1) Potential hazards to the rescuers, public, and environment
(2) Potential risk of primary contamination to patients
(3) Potential risk of secondary contamination to rescuers

c. Identify resources for substance identification, decontamination, and treatment information including the following:
(1) Poison control center
(2) Medical control
(3) Material safety data sheets (MSDSs)
(4) Reference textbooks
(5) Computer databases (CAMEO)
(6) CHEMTREC
(7) Technical specialists
(8) Agency for toxic substances and disease registry
(9) Primary contamination risk
(10) Secondary contamination risk

(11) Describe the following routes of exposure:
  (a) Topical
  (b) Respiratory
  (c) Gastrointestinal
  (d) Parenteral

d. Explain the following toxicologic principles:
  (1) Acute and delayed toxicity
  (2) Route of exposure
  (3) Local versus systemic effects
  (4) Dose response
  (5) Synergistic effects

e. Explain how the substance and route of contamination alters triage and decontamination methods.

f. Explain the limitations of field decontamination procedures.

g. Explain the use and limitations of personal protective equipment (PPE) in hazardous material situations.

h. Explain the common signs, symptoms, and treatment for the following substances:
  (1) Corrosives (acids/alkalis)
  (2) Pulmonary irritants (ammonia/chlorine)
  (3) Pesticides (carbamates/organophosphates)
  (4) Chemical asphyxiants (cyanide/carbon monoxide)
  (5) Hydrocarbon solvents (xylene, methlyene chloride)

i. Explain the potential risk associated with invasive procedures performed on contaminated patients.

j. Given a contaminated patient, determine the level of decontamination necessary and the following:
  (1) Level of rescuer PPE
  (2) Decontamination methods
  (3) Treatment
  (4) Transportation and patient isolation techniques

k. Identify local facilities and resources capable of treating patients exposed to hazardous materials.

l. Determine the hazards present to the patient and paramedic given an incident involving hazardous materials.

m. Explain the importance of the following to the risk assessment process:
  (1) Boiling point
  (2) Flammable/ explosive limits
  (3) Flash point
  (4) Ignition temperature
  (5) Specific gravity
  (6) Vapor density
  (7) Vapor pressure
  (8) Water solubility
  (9) Alpha radiation
  (10) Beta radiation
  (11) Gamma radiation

n. Define the toxicologic terms and their use in the risk assessment process:
   (1) Threshold limit value (TLV)
   (2) Lethal concentration and doses (LD)
   (3) Parts per million/billion (ppm/ppb)
   (4) Immediately dangerous to life and health (IDLH)
   (5) Permissible exposure limit (PEL)
   (6) Short term exposure limit (TLV-STEL)
   (7) Ceiling level (TLV-C)

o. Given a specific hazardous material, be able to do the following:
   (1) Research the appropriate information about its physical and chemical characteristics and hazards.
   (2) Suggest the appropriate medical response.
   (3) Determine risk of secondary contamination.

p. Determine the factors that determine where and when to treat a patient to include the following:
   (1) Substance toxicity
   (2) Patient condition
   (3) Availability of decontamination

q. Determine the appropriate level of PPE to include the following:
   (1) Types, application, use, and limitations
   (2) Use of chemical compatibility chart

r. Explain decontamination procedures when functioning in the following modes:
   (1) Critical patient rapid two-step decontamination process
   (2) Non-critical patient eight-step decontamination process

s. Explain specific decontamination procedures.

t. Explain the four most common decontamination solutions used to include the following:
   (1) Water
   (2) Water and tincture of green soap
   (3) Isopropyl alcohol
   (4) Vegetable oil

u. Identify the areas of the body difficult to decontaminate to include the following:
   (1) Scalp/hair
   (2) Ears/ear canals/nostrils
   (3) Axilla
   (4) Finger nails
   (5) Navel
   (6) Groin/buttocks/genitalia
   (7) Behind knees
   (8) Between toes, toe nails

v. Explain the medical monitoring procedures of hazardous material team members to be used both pre- and post-entry, to include the following:
   (1) Vital signs
   (2) Body weight
   (3) General health
   (4) Neurologic status

(5) ECG

w. Explain the factors that influence the heat stress of hazardous material team personnel to include the following:
   (1) Hydration
   (2) Physical fitness
   (3) Ambient temperature
   (4) Activity
   (5) Level of PPE
   (6) Duration of activity

x. Explain the documentation necessary for haz-mat medical monitoring and rehabilitation operations, including the following:
   (1) The substance
   (2) The toxicity and danger of secondary contamination
   (3) Appropriate PPE and suit breakthrough time
   (4) Appropriate level of decontamination
   (5) Appropriate antidote and medical treatment
   (6) Transportation method

y. Given a simulated hazardous substance, use reference material to determine the appropriate actions.

z. Integrate the principles and practices of hazardous materials response in an effective manner to prevent and limit contamination, morbidity, and mortality.

aa. Demonstrate the donning and doffing of appropriate PPE.

bb. Demonstrate an emergency two step decontamination process.

cc. Demonstrate an eight-step decontamination process.

6. Outline the human hazard of crime and violence and the safe operation at crime scenes and other emergencies. (EMS1, EMS14)

a. Explain how EMS providers are often mistaken for the police.

b. Explain specific techniques for risk reduction when approaching the following types of routine EMS scenes:
   (1) Highway encounters
   (2) Violent street incidents
   (3) Residences and “dark houses”

c. Describe warning signs of potentially violent situations.

d. Explain emergency evasive techniques for potentially violent situations, including the following:
   (1) Threats of physical violence
   (2) Fire arms encounters
   (3) Edged weapon encounters

e. Explain EMS considerations for the following types of violent or potentially violent situations:
   (1) Gangs and gang violence
   (2) Hostage/sniper situations
   (3) Clandestine drug labs
   (4) Domestic violence
   (5) Emotionally disturbed people
   (6) Hostage/sniper situations

f. Explain the following techniques:
   (1) Field “contact and cover” procedures during assessment and care
   (2) Evasive tactics
   (3) Concealment techniques
g. Describe police evidence considerations and techniques to assist in evidence preservation.
h. Demonstrate the following techniques:
   (1) Field “contact and cover” procedures during assessment and care
   (2) Evasive tactics
   (3) Concealment techniques

7. Discuss the following diverse types of ambulance services and how this affects the delivery of advanced pre-hospital care: (EMS14)
   a. Municipal
   b. Private
   c. Volunteer
   d. Hospital based
   e. Third service
   f. Other

8. Demonstrate the necessary qualities of a paramedic supervisor including the following: (EMS1)
   a. Organizational skills
   b. Interpersonal skills
      (1) Verbal skills
      (2) Written skills
   c. Conflict/dispute resolution
   d. Privacy and confidentiality
   e. Mentorship
   f. Financial responsibility
   g. Education of other health-care providers

9. Discuss how regulations and rules affect the paramedic in delivering care including the following: (EMS1)
   a. Federal regulations and rules
   b. State regulations and rules
   c. Regional regulations and rules
   d. Local regulations and rules

10. Describe how to influence the modification of the regulations and rules that affect the paramedic including the following: (EMS1)
   a. How a bill becomes a law
   b. National, state, and local organizational influence on current and new regulations
   c. Ambulance and fire industry’s influence on current and new regulations
   d. The local government’s influences on current and new regulations

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)

L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS5 Environmental Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

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Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: Professional Development Seminar

Course Abbreviation: EMS 2923

Classification: Vocational–Technical Core

Description: This course teaches the leadership skills necessary to manage complex situations including patient care, management of the hazardous and crime scene, supervision, mentoring, and leading other personnel. (3 sch: 2-hr lecture, 2-hr lab)

Prerequisites: A student must be a nationally registered paramedic, as well as a Mississippi certified paramedic; pass a 100-question exam covering the entire paramedic curriculum with 75% accuracy; demonstrate competency in airway, cardiology, IV therapy, and trauma assessment skills; and be currently enrolled in the Associate of Applied Science Program.

Competencies and Suggested Objectives
1. Discuss the need for leadership skills in EMS. (EMS14) a. Define leadership as it is applicable to EMS. b. Describe the challenges of a “street EMT” moving into a leadership role. c. Explain the difference between legal, earned, and moral authority. d. Explain delegation of authority. e. Explain the role of accountability as it is related to an EMS leader. f. Contrast an effective leader with an ineffective leader. g. List positive leadership qualities. h. List negative leadership qualities.
2. Discuss the various leadership styles an EMS leader may utilize. (EMS14) a. Describe the following leadership styles. b. Describe task and relationship behavior as a leadership style. c. Describe situational leadership. d. Describe autocratic leadership. e. Describe transactional leadership. f. Describe servant leadership. g. Describe participation leadership. h. Describe charismatic leadership. i. Describe laissez-faire leadership. j. Describe bureaucratic leadership. k. Describe transformational leadership.
3. Discuss the importance of ethics in leadership. (EMS9, EMS14) a. Distinguish the difference between ethics and morals. b. Explain values as they apply to an EMS leader. c. Explain integrity as it applies to a EMS leader. d. Discuss the importance of a leader with honesty and integrity. e. Compare the difference between ethical and unethical behavior. f. Discuss the role of the EMS leader in discouraging discrimination and harassment in the workplace. g. Compare objective to subjective ethics.

h. Explain how to create an ethical climate in the EMS workplace.

4. Discuss positive interpersonal leadership skills used when interacting with the public. (EMS9, EMS13, EMS14)
   a. Explain the importance of developing good interpersonal skills as a leader in EMS.
   b. Describe the importance of listening as an interpersonal skill.
   c. Explain the importance of empathy as an interpersonal skill.
   d. Explain professional etiquette and how it affects interpersonal relationships.
   e. Define empathy as it relates to patients and EMS personnel.
   f. Explain how the values of the EMS leader and employees can affect the EMS organization.
   g. Explain how vision can play a major role in an EMS organization.
   h. Explain how to properly deal with diversity in the workplace.
   i. Identify steps to resolve conflict.

5. Discuss the positive and negative impact of effective communication. (EMS1)
   a. Describe the relationship of persuasion with effective communication.
   b. Explain the three modes of persuasion: ethos, pathos, and logos.
   c. List characteristics of nonverbal communication.
   d. Explain the importance of physical space when communicating with patients.
   e. Explain the importance of active listening when engaged with peers, employees, and patients.
   f. Explain the importance of developing good written communication skills.
   g. Describe the importance of written communication skills in EMS.

6. Discuss the psychology of leadership in general and what motivates people to lead and follow. (EMS1, EMS14)
   a. Explain the theory of hierarchy as it relates to leaders and followers.
   b. Describe intrinsic motivation.
   c. Describe extrinsic motivation.
   d. Explain the relationship of extrinsic and intrinsic motivation as they relate to leadership in EMS.
   e. Explain Maslow's hierarchy of needs.
   f. Categorize Maslow's hierarchy of needs into lower-order and higher-order needs.
   g. Describe transparency and authenticity.
   h. Explain how transparency and authenticity are related to EMS.
   i. Relate the role of empowerment in EMS leadership.
   j. Explain how manipulation and empowerment are incongruent.
   k. Contrast the characteristics of a narcissistic leader as opposed to a servant leader.
   l. Describe the various situations and events that may create stress.
   m. List common causes of stress in EMS.
   n. List warning signs of stress.

7. Discuss the principles of mentoring along with characteristics synonymous to a good mentor. (EMS1)
   a. Explain how "delegation" can be used as a mentoring tool to develop employees.
   b. Describe the role of a mentor in an organization.
   c. Compare the role of a mentor to that of a preceptor.
   d. Describe the relationship between a protege and his or her mentor.
   e. Describe the benefits of mentoring to the protégé.

f. Describe the benefits of becoming a mentor in EMS. g. Explain the role of providing feedback in the mentor-protege relationship. h. Identify ways a leader can be a positive role model for employees. i. Explain ways to develop employees into future leaders in EMS.
8. Discuss the role of the EMS leader in promoting quality assurance/quality improvement in the EMS organization. (EMS14) a. Compare differences between blaming and encouraging employees when mistakes are made. b. Describe methods that may be used to encourage employees to change behavior detrimental to the organization. c. Contrast the difference between retaliatory and non-retaliatory consequences. d. Explain the importance of quality assurance/improvement in an EMS system and ways to implement this program. e. Define the relationship of critical-thinking skills with being a leader in EMS. f. Describe the role of the leader performing employee evaluations. g. Explain how to offer constructive criticism to employees.
9. Discuss the challenges associated with making changes in an EMS organization from the attitude of "We've always done it this way" to the attitude of "We're going to try something new to improve what we are doing." (EMS1, EMS14) a. Explain ways an EMS leader can depart from the status quo by fostering positive change within an EMS organization. b. Compare the benefits of change as opposed to continuing with the status quo. c. Describe ways to bring EMS employees on board when there is resistance to change in the organization.
10. Discuss ways to develop and transform an EMS organization into a cohesive team. (EMS1, EMS14) a. Explain the importance of trust in a EMS team. b. Describe ways to build trust in an EMS organization. c. Define ways to turn conflict into positive outcomes.

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS9 Assessment
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS1 Global Awareness
CS2 Financial, Economic, Business, and Entrepreneurial Literacy
CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Brophy, J.R. (2009). *Leadership essentials for emergency medical services*. Jones & Bartlett Learning.

Recommended Tools and Equipment

CAPITALIZED ITEMS

1. Anatomical Manikin w/removable organs (1 per program)
2. ACLS Training Manikin w/remote and recorder (1 per program)
3. Chair, stair (1 per program)
4. Cot, ambulance (1 per program)
5. Defibrillator, automated external, educational (1 per program)
6. ECG monitor, defibrillator, portable w/pacing, educational (1 per program)
7. Generator, arrhythmia (1 per program)
8. Heart model, external/internal (1 per program)
9. Intubation manikin, adult (1 per program)
10. Manikin, full body, CPR (1 per program)
11. Manikin, obstetrical (1 per program)
12. Manikin, trauma/burn, full body (1 per program)
13. Pulse oximeter [CO2 detector] (2 per program)
14. Radio transmitter/receiver, base station (1 per program)
15. Radio transmitter/receiver, 2-way portable (2 per program)
16. Skeleton, human (replica) (1 per program)
17. Ventilator, automatic transport (1 per program)
18. Pneumatic anti-shock garment (1 per program)
19. Computer w/monitor (1 per 4 students)
20. Printer, laser (1 per 2 computers)
21. Manikins, advanced (Adult, child, and neonate - code crisis manikins)
22. Quantitive CO2 monitor
23. 12-lead cardiac monitor/deffibulator with pacing
24. 12-lead simulator
25. IV pumps and poles
26. Neonatoal umbilical cannulation
27. Vascular access device
28. VAD needles
29. Naso/Oro gastric manikin
30. Cricoid manikin
31. CPAP/BiPAP
32. External jugular access device
33. Implanted ports/external and peripheral cath manikin
34. Multi-dooplex model (fetal and peripheral pulses)
35. Broselow pediatric resusitation system
36. Scalp-vein manikin
37. Multi-purpose manikins
38. T.V., color, 31 in.

NON-CAPITALIZED ITEMS

1. Arm sling (1 per 2 students)
2. Bag-Valve-Mask device (1 per 2 students)
3. Blanket (1 per stretcher/cot)
4. Blood glucose monitor (1 per program)
5. Blood pressure cuff (4 per program)
6. Cervical collar (4 per program)
7. Containers, assorted medication
8. Cravats (1 per 2 students)
9. Cricothyrotomy device (1 per program)
10. FROPVD Flow Restricted Oxygen Powered Ventilation Device
11. ECG monitoring cables (2)
12. ECG electrodes (1 per program)
13. Esophogeal gastric tube airway (2)
14. Esophageal obturator airway (2)
15. Head immobilizer (CID) (1 per program)
16. Immobilization/extrication device (1 per program)
17. Intraosseus infusion simulator (1 per program)
18. IV training arm and hand, adult (2 per program)
19. IV training arm, pediatric (2 per program)
20. Laryngoscope intubation kit (1 per program)
21. Spine back board (2)
22. Manikin, child, CPR (1 per program)
23. Manikin, infant, CPR (1 per program)
24. Manikin, intubation, infant (1 per program)
25. Manikin, pneumothorax emergency training (1 per program)
26. Moulage kit (1 per program)
27. Nasal cannula (5)
28. Nasopharyngeal airway (2)
29. Non-rebreather masks (5)
30. Oropharyngeal airway, various sizes
31. Oxygen cylinder (2)
32. Oxygen regulator and flowmeter (1 per program)
33. Pen light (1 per 2 students)
34. Pillows (6 per program)
35. Pocket mask w/1-way valve and O2 port (2 per program)
36. Scissors, trauma (4 per program)
37. Sheets, ambulance Cot (2 per program)
38. Short spine board (2 per program)
39. Simulator, cricothyrotomy (1 per program)
40. Simulator, intramuscular injection (1 per program)
41. Splint, air, various sizes
42. Splint, ladder (1 per program)
43. Splint, traction, sager-hare (2)
44. Stethoscope (1 per 2 students)

45. Stethoscope, dual head (1 per program)
46. Straps, various sizes
47. Stretcher, scoop (1 per program)
48. Suction device, portable (1 per program)
49. Syringes, various cc volumes
50. Venturi mask (1 per program)
51. Lighted styletts
52. Ear thermometer
53. Opthalmic diagnostic trainer
54. Otic simulator trainer
55. Naso & orgastric tubes

RECOMMENDED INSTRUCTIONAL AIDS

It is recommended that instructors have access to the following items:

1. Screen, projection (1 per program)
2. LCD projector (1 per program)
3. VCR/DVD (1 per program)
4. Computer table (1 per computer)
5. ELMO opaque projector

Assessment

Students will be assessed using the *National Registry of Emergency Medical Technicians-Paramedic Exam*. https://www.nremt.org/nremt/about/reg_para_history.asp

Appendix A: National EMS Educational Standards

EMB1	Preparatory
EMB2	Anatomy and Physiology
EMB3	Medical Terminology
EMB4	Pathophysiology
EMB5	Life Span Development
EMB6	Public Health
EMB7	Pharmacology
EMB8	Airway Management, Respiration, and Artificial Ventilation
EMB9	Assessment
EMB10	Medicine
EMB11	Shock and Resuscitation
EMB12	Trauma
EMB13	Special Patient Populations
EMB14	EMS Operations

Appendix B: Related Academic Standards[1]

Reading

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Mathematics Computation

M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations

Applied Mathematics

A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)

Language

L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)

Spelling

S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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Appendix C: 21st Century Skills[2]

CSS1-21st Century Themes

CS1 Global Awareness

1. Using 21st century skills to understand and address global issues
2. Learning from and working collaboratively with individuals representing diverse cultures, religions, and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts
3. Understanding other nations and cultures, including the use of non-English languages

CS2 Financial, Economic, Business, and Entrepreneurial Literacy

1. Knowing how to make appropriate personal economic choices
2. Understanding the role of the economy in society
3. Using entrepreneurial skills to enhance workplace productivity and career options

CS3 Civic Literacy

1. Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
2. Exercising the rights and obligations of citizenship at local, state, national, and global levels
3. Understanding the local and global implications of civic decisions

CS4 Health Literacy

1. Obtaining, interpreting, and understanding basic health information and services and using such information and services in ways that enhance health
2. Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction
3. Using available information to make appropriate health-related decisions
4. Establishing and monitoring personal and family health goals
5. Understanding national and international public health and safety issues

CS5 Environmental Literacy

1. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems.
2. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
4. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues).

CSS2-Learning and Innovation Skills

CS6 Creativity and Innovation

1. Think Creatively
2. Work Creatively with Others

[2] *21st century skills.* (n.d.). Washington, DC: Partnership for 21st Century Skills.

3. Implement Innovations

CS7 Critical Thinking and Problem Solving

1. Reason Effectively
2. Use Systems Thinking
3. Make Judgments and Decisions
4. Solve Problems

CS8 Communication and Collaboration

1. Communicate Clearly
2. Collaborate with Others

CSS3-Information, Media and Technology Skills

CS9 Information Literacy

1. Access and Evaluate Information
2. Use and Manage Information

CS10 Media Literacy

1. Analyze Media
2. Create Media Products

CS11 ICT Literacy

1. Apply Technology Effectively

CSS4-Life and Career Skills

CS12 Flexibility and Adaptability

1. Adapt to Change
2. Be Flexible

CS13 Initiative and Self-Direction

1. Manage Goals and Time
2. Work Independently
3. Be Self-directed Learners

CS14 Social and Cross-Cultural Skills

1. Interact Effectively with Others
2. Work Effectively in Diverse Teams

CS15 Productivity and Accountability

1. Manage Projects
2. Produce Results

CS16 Leadership and Responsibility

1. Guide and Lead Others
2. Be Responsible to Others

2011 Mississippi Curriculum Framework

Postsecondary Paramedic

(Program CIP: 51.0904 – Emergency Medical Technology/Technician)

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Standards in this document are based on information from the following organizations:

National EMS Educational Standards

U.S. Department of Transportation. (2009). *National EMS Educational Standards*. Washington, DC: Author.

Related Academic Standards

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~~MISSISSIPPI~~

~~CURRICULUM FRAMEWORK~~

~~FOR~~

~~EMERGENCY MEDICAL TECHNOLOGY – PARAMEDIC~~

~~(Program CIP: 51.0904- Emergency Medical Technology)~~

~~POSTSECONDARY~~ ~~2004~~

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Preface

Paramedic Research Synopsis

Like Emergency Medical Technicians (EMTs), paramedics are trained to care for patients in the field and while transporting patients to the hospital. They manage many emergencies including cardiac, respiratory, and trauma events. Paramedics conduct more extensive patient care than EMTs. They are licensed to administer medication, perform and interpret electrocardiograms (EKGs), perform endotracheal intubations, and use other complex biomedical equipment.

Specific resources listed at the end of each course were considered during the revision process and were especially useful in providing insight into trends and issues in the field. These references are suggested for use by instructors and students during the study of the topics outlined.

Industry advisory team members from schools or colleges throughout the state were asked to give input related to changes to be made to the curriculum framework. Specific comments related to soft skills needed in this program included time management, empathy, trustworthiness, integrity, reliability, and dedication. Occupational-specific skills stated included patient assessment and field diagnosis, developing treatment plans, providing BLS and ALS care, oxygen administration, airway care, IV therapy, drug dosing, and ECG recognition. Safety practices emphasized included body substance isolation, universal precautions, safe driving practices, lifting, scene safety, and recognition of a potential HAZ-MAT scene.

Needs of the Future Workforce ~~Development~~
The Paramedic program is designed to prepare students for paramedic licensure. EMTs and paramedics combined held about 212,000 jobs in 2009. About 20% of them worked for hospitals. 29% worked for local governments, and about 45% worked for ambulance services (US Bureau of Labor Statistics, 2010).

EMT-Paramedic Employment Projections and Earnings
Employment of EMTs and paramedics is expected to grow slower than average in the United States, 5%, and much slower than average in Mississippi, 1% (EMSI, 2010). Job prospects will be best for those in metropolitan areas. Demand is expected to increase with aging populations and patient overcrowding in emergency departments (US Bureau of Labor Statistics, 2010).

Finance and Accounting Employment Projections and Earnings

Region	2010 Jobs	2019 Jobs	Change	% Change	Median Hourly Earnings
Regional Total	1,700	1,710	10	1%	$12.33
National Total	212,378	223,735	11,357	5%	$14.12

Source: EMSI Complete Employment - 1st Quarter 2010

Curriculum
The following national standards were referenced in each course of the curriculum:

- CTB/McGraw-Hill LLC *Tests of Adult Basic Education, forms 7 and 8* Academic Standards
- *21st Century Skills*

- U.S. Department of Transportation. (2009). *National EMS Educational Standards*. Washington, DC: Author.

Industry and instructor comments, along with current research, were considered by the curriculum revision team during the revision process, and changes were made as needed and appropriate. Many of the skills and topics noted in the research were already included in the curriculum framework. Specific changes made to the curriculum during the 2010 revision meeting included the following:

- Competencies and objectives were reviewed to ensure accuracy and appropriateness.
- Competencies and objectives were added in consideration of amended national standards.
- The course title was changed to Paramedic from EMT-Paramedic.
- The course abbreviation was changed from EMT to EMS.
- The term "pre-hospital" was dropped from all course titles.
- Fundamentals of Pre-hospital Care was renamed Introduction to EMS Systems.
- Airway Management and Ventilation was renamed Airway: Management, Respiration, and Oxygenation, and it is now 4 sch (EMS 1314).
- Patient Assessment is now 4 sch (EMS 1414).
- EMS Clinical Internship I was renamed EMS Practicum I.
- Pharmacology is now 4 sch (EMS 1614).
- Pre-hospital Medical Care was renamed Medical.
- EMS Clinical Internship II and EMS Field Internship I were combined to make EMS Practicum II, a 5-sch course (EMS 1525).
- Pre-hospital OB/GYN and Pre-hospital Pediatrics were combined to form Maternal/Child Emergencies, and it is a 4-sch course (EMS 2414).
- EMS Field Internship II was renamed EMS Practicum III, and it is 5 sch (EMS 2565).
- EMS Team Management was renamed EMS Operations, and it is now 2 sch (EMS 2912).
- EMS Special Considerations was renamed EMS Special Patient Populations, and it is now a 2-sch course (EMS 1422).

Assessment

Students will be assessed using the *National Registry of Emergency Medical Technicians-Paramedic Exam*.

Professional Learning

It is suggested that instructors participate in professional learning related to the following concepts:

- How to use the program Blackboard site

Differentiated instruction – To learn more about differentiated instruction, please go to http://www.paec.org/teacher2teacher/additional_subjects.html, and click on Differentiated Instruction. Work through this online course, and review the additional resources.

Foreword

As the world economy continues to evolve, businesses and industries must adopt new practices and processes in order to survive. Quality and cost control, work teams and participatory management, and an infusion of technology are transforming the way people work and do business. Employees are now expected to read, write, and communicate effectively; think creatively, solve problems, and make decisions; and interact with each other and the technologies in the workplace. Vocational~~-~~–technical programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact ~~on~~ local ~~vocational-~~career–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provides students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department~~s~~ of Education and Labor, provide ~~vocational~~career and technical educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Referenced throughout the courses of the curriculum are the 21st Century Skills, which were developed by the Partnership for 21st Century Skills, a group of business and education organizations concerned about the gap between the knowledge and skills learned in school and those needed in communities and the workplace. A portion of the 21st Century Skills addresses learning skills needed in the 21st century, including information and communication skills, thinking and problem-solving skills, and interpersonal and self-directional skills. The need for these types of skills has been recognized for some time, and the 21st Century Skills are adapted in part from the 1991 report from the U.S. Secretary of Labor's Commission on Achieving Necessary Skills (SCANS). Another important aspect of learning and working in the 21st century involves technology skills. The International Society for Technology in Education, developer of the National Educational Technology Standards (NETS), was a strategic partner in the Partnership for 21st Century Skills.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses ~~which focus~~that focuses on the development of occupational competencies. Each ~~vocational-~~career–technical course in this sequence has been written using a common format, which includes the following components:

- Course Name – A common name that will be used by all community~~/~~ and junior colleges in reporting students~~.~~

- Course Abbreviation – A common abbreviation that will be used by all community~~/~~ and junior colleges in reporting students

~~.~~

- Classification – Courses may be classified as the following:

- Vocational-–technical core – A required vocational-–technical course for all students.
- Area of concentration (AOC) core – A course required in an area of concentration of a cluster of programs
- Vocational-–technical elective – An elective vocational-–technical course.
- Related academic course – An academic course which that provides academic skills and knowledge directly related to the program area.
- Academic core – An academic course which that is required as part of the requirements for an associate's degree.

- Description – A short narrative which that includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester.

- Prerequisites – A listing of any prerequisite courses that must be taken prior to or on enrollment in the course

.

- Corequisites – A listing of courses that may be taken while enrolled in the course.

- Competencies and Suggested Objectives – A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies

.

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75 percent% of the time allocated to each course. The remaining 25 percent% of each course should be developed at the local district level and may reflect the following:
  - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district.
  - Activities which that develop a higher level of mastery on the existing competencies and suggested objectives.
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed/ or revised.
  - Activities which that implement components of the Mississippi Tech Prep initiative, including integration of academic and vocational- career–technical skills and coursework course work, school-to-work transition activities, and articulation of secondary and postsecondary vocational- career–technical programs.
  - Individualized learning activities, including worksite work-site learning activities, to better prepare individuals in the courses for their chosen occupational area.s

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas

and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15-semester-credit-hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:
    - 3 semester credit hours — Math/Science Elective
    - 3 semester credit hours — Written Communications Elective
    - 3 semester credit hours — Oral Communications Elective
    - 3 semester credit hours — Humanities/Fine Arts Elective
    - 3 semester credit hours — Social/Behavioral Science Elective

  It is recommended that courses in the academic core be spaced out over the entire length of the program~~,~~ so that students complete some academic and ~~vocational-~~career–technical courses each semester. Each community~~/~~ or junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- ~~In instances where secondary programs are directly related to community and junior college programs, competencies and suggested objectives from the high school programs are listed as Baseline Competencies. These competencies and objectives reflect skills and knowledge that are directly related to the community and junior college vocational-technical program. In adopting the curriculum framework, each community and junior college is asked to give assurances that:~~
    - ~~students who can demonstrate mastery of the Baseline Competencies do not receive duplicate instruction, and~~
    - ~~students who cannot demonstrate mastery of this content will be given the opportunity to do so.~~

- ~~The roles of the Baseline Competencies are to:~~
    - ~~Assist community/junior college personnel in developing articulation agreements wit high schools, and~~
    - ~~Ensure that all community and junior college courses provide a~~
    - ~~higher level of instruction than their secondary counterparts.~~

- ~~The Baseline Competencies may be taught as special "Introduction" courses for 3-6 semester hours of institutional credit which will not count toward Associate degree requirements. Community and junior colleges may choose to integrate the Baseline Competencies into ongoing courses in lieu of offering the "Introduction" courses or may offer the competencies through special projects or individualized instruction methods.~~
- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their areas.

In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

- Adding new competencies and suggested objectives
- Revising or extending the suggested objectives for individual competencies
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the State Board for Community and Junior Colleges [SBCJC] of the change)

In addition, the curriculum framework as a whole may be customized by doing the following:

- Resequencing courses within the suggested course sequence
- Developing and adding a new course that meets specific needs of industries and other clients in the community or junior college district (with SBCJC approval)
- Utilizing the technical elective options in many of the curricula to customize programs

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~~PROGRAM DESCRIPTION~~

~~EMERGENCY MEDICAL TECHNOLOGY – PARAMEDIC~~

~~Paramedics have fulfilled prescribed requirements by a credentialing agency to practice the art and science of out-of-hospital medicine in conjunction with medical direction. Through performance of assessments and providing medical care, their goal is to prevent and reduce mortality and morbidity due to illness and injury. Paramedics primarily provide care to emergency patients in an out-of-hospital setting.~~

Program Description

The paramedic is an allied health professional whose primary focus is to provide advanced emergency medical care for critical and emergent patients who access the emergency medical system. This individual possesses the complex knowledge and skills necessary to provide patient care and transportation. Paramedics function as part of a comprehensive EMS response, under medical oversight. Paramedics perform interventions with the basic and advanced equipment typically found on an ambulance. The paramedic is a link from the scene into the health-care system.

Paramedics possess the knowledge, skills, and attitudes consistent with the expectations of the public and the profession. Paramedics recognize that they are an essential component of the continuum of care and serve as linkages among health resources.

Paramedics strive to maintain high quality, reasonable cost health care by delivering patients directly to appropriate facilities. As an advocate for patients, paramedics seek to be proactive in affecting long-term health care by working in conjunction with other provider agencies, networks, and organizations. The emerging roles and responsibilities of the paramedic include public education, health promotion, and participation in injury and illness prevention programs. As the scope of service continues to expand, the paramedic will function as a facilitator of access to care, as well as an initial treatment provider.

Paramedics are responsible and accountable to medical direction, the public, and their peers. Paramedics recognize the importance of research and actively participate in the design, development, evaluation, and publication of research. Paramedics seek to take part in life-long professional development and peer evaluation, and they assume an active role in professional and community organizations.

The ~~EMT-P~~paramedic training program is a postsecondary program drawing its students from individuals already possessing a valid EMT~~-Basic~~ state certification and having Anatomy and Physiology I with a grade ~~point average of 2.0.~~ of C or better. Students must complete Anatomy and Physiology II with a grade of C or better to be eligible to complete the program. Each student must be 18 years or older and possess a high school diploma or GED certificate.

Classroom instruction is comprehensive including a working knowledge of all anatomy, physiology, and pathophysiological processes as well as competency-based instruction in assessment and management skills required for treatment of life-threatening problems in the adult, pediatric, and geriatric patient. Clinical internship requires participation in care of patients in a hospital emergency department that provides medical control to ALS providers in the field and, according to availability, CCU, ICU, labor and delivery suite, operating room, psychiatric ward, pediatric ward, and geriatric ward. Field internship is done with an ambulance service and/or rescue service providing advanced life support services to the community.

~~A student successfully completing the program will receive an associate degree from the college and~~ To be eligible to take the National Registry~~'~~'s Exam as ~~an EMT-Paramedic. For professional accreditation purposes, these academic courses~~ a paramedic, the student

must ~~include~~complete Anatomy and Physiology I and II, the EMT program, and all paramedic courses. Students must complete the following academic courses to obtain an Associate of Applied Science degree:

3 sch	Social Science/Behavior~~i~~al Science
3 sch	Written Communications Elective
3 sch	Oral Communications Elective
3 sch	Fine Arts/Humanities Elective
3 sch	Math/Science Elective (Anatomy and Physiology II satisfies this requirement~~)~~.)

This training program is sanctioned by the Mississippi State Board of Health. The course meets or exceeds those standards established by the National Highway Traffic Safety Administration/U.S. Department of Transportation.

~~Academic, workplace, technology, and industry standards are referenced at the end of each course where applicable. The academic and workplace standards are based on the SCANS competencies, and the technology standards are based on the~~

Suggested Course Sequence*
Degree Program

National ~~Educational Technology Standards for Students. The~~registered EMT~~-Paramedic standards listed at the end of each course are based on those required by the National Highway Traffic Safety Administration/U.S. Department of Transportation.~~

~~State certified EMT-Basic~~ is a prerequisit~~i~~e (by state law and national standards) for entrance into this program. Human Anatomy and Physiology I ~~&~~is a prerequisite, and Anatomy and Physiology II may be taken as ~~prerequisites or co-requisites (as of July 2004).~~a corequisite. Students must obtain state EMT certification after admission into the program if not held previously.

~~Baseline Competencies for Emergency Medical Technology **~~

FIRST YEAR

2 sch	Introduction to EMS Systems (EMS 1122)
4 sch	Airway: Management, Respiration, and Oxygenation (EMS 1314)
4 sch	Patient Assessment (EMS 1414)
3 sch	EMS Practicum I (EMS 1513)
4 sch	Pharmacology (EMS 1614)
17 sch	

5 sch	Cardiology (EMS 1825)
4 sch	Trauma (EMS 2714)
5 sch	EMS Practicum II (EMS 1525)
3 sch	Written Communications Elective
4 sch	Math/Science Elective**
21 sch	

~~2 sch~~	~~Fundamentals of Pre-hospital Care (EMT 1122)~~
~~5 sch~~	~~Airway Management and Ventilation (EMT 1315)~~
~~5 sch~~	~~Patient Assessment (EMT 1415)~~
~~3 sch~~	~~EMS Clinical Internship I (EMT 1513)~~
~~4 sch~~	~~Math/Science Elective ***~~
~~19 sch~~	

~~5 sch~~	~~Pre-hospital Cardiology (EMT 1825)~~
~~3 sch~~	~~Pre-hospital Pharmacology (EMT 1613)~~
~~5 sch~~	~~Pre-hospital Medical Care (EMT 2855)~~
~~3 sch~~	~~EMS Clinical Internship II (EMT 1523)~~
~~3 sch~~	~~Written Communications Elective~~
~~19 sch~~	

SECOND YEAR

3 sch	Oral Communications
5 sch	Medical (EMS 2855)
4 sch	Maternal/Child Emergencies (EMS 2414)
12 sch	

2 sch	EMS Operations (EMS 2912)
2 sch	EMS Special Patient Populations (EMS 1422)
3 sch	Social/Behavioral Science Elective
3 sch	Fine Arts/Humanities Elective
5 sch	EMS Practicum III (EMS 2555)
15 sch	

~~4 sch~~	~~Pre-hospital Trauma (EMT 2714)~~
~~3 sch~~	~~Pre-hospital Pediatrics (EMT 2423)~~
~~2 sch~~	~~EMS Field Internship I (EMT 2552)~~
~~3 sch~~	~~Oral Communications~~
~~12 sch~~	

			(EMT 1423)
		4 sch	EMS Field Internship II (EMT 2564)
2 sch	Pre-hospital OB/GYN (EMT 2412)	3 sch	Social/Behavioral Science Elective
3 sch	EMS Team Management (EMT 2913)	3 sch	Fine Arts/Humanities Elective
3 sch	EMS Special Considerations	18 sch	

* Students who lack entry-level skills in math, English, science, ~~etc.~~and so forth will be provided related studies.

~~** Baseline competencies are taken from the high school Allied Health program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.~~

~~***~~

** It is suggested that the Math/Science Elective be Anatomy and Physiology II (BIO 2524) for this program.

~~**** Pathophysiology (EMT 1213) may not be taught after July 1, 2005.~~

~~SUGGESTED COURSE SEQUENCE*~~
~~CERTIFICATE OPTION~~

~~State certified EMT-Basic is a prerequisitie~~

Suggested Course Sequence*
Certificate Program with Degree Option

National registered EMT is a prerequisite (by state law and national standards) for entrance into this program. Human Anatomy and Physiology I ~~may be taken as prerequisite or co-requisite.~~and Anatomy and Physiology II may be taken as a pre-requisite or corequisite. Students must obtain state EMT certification after admission into the program if not held previously.

Term 1		Term 2	
2 sch	Introduction to EMS Systems (EMS 1122)	5 sch	Cardiology (EMS 1825)
4 sch	Airway: Management, Respiration, and Oxygenation (EMS 1314)	5 sch	Medical (EMS 2855)
4 sch	Patient Assessment (EMS 1414)	5 sch	EMS Practicum II (EMS 1525)
3 sch	EMS Practicum I (EMS 1513)	4 sch	Trauma (EMS 2714)
4 sch	Pharmacology (EMS 1614)		
17 sch		19 sch	

~~Baseline Competencies for Emergency Medical Technology **~~

Term 3		Term 4	
4 sch	Maternal/Child Emergencies (EMS 2414)	3 sch	Oral Communications
5 sch	EMS Practicum III (EMS 2565)	3 sch	Social/Behavioral Science Elective
2 sch	EMS Operations(EMS 2912)	3 sch	Fine Arts/Humanities Elective
2 sch	EMS Special Patient Populations (EMS 1422)	4 sch	Math/Science Elective**
		3 sch	Written Communications Elective
13 sch		16 sch	

* Students who lack entry-level skills in math, English, science, ~~etc.~~and so forth will be provided related studies.

~~** Baseline competencies are taken from the high school Allied Health program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.~~

~~***~~

** It is suggested that the Math/Science Elective be Anatomy and Physiology II (BIO 2524) for this program.

~~SECTION I:~~

~~CURRICULUM GUIDE~~

~~FOR~~

~~EMERGENCY MEDICAL TECHNOLOGY - PARAMEDIC~~
~~EMERGENCY MEDICAL TECHNLOGY - PARAMEDIC COURSES~~

Paramedic Courses

Course Name: ~~Fundamental of Pre-hospital Care~~Introduction to EMS Systems

Course Abbreviation: ~~EMT~~EMS 1122

Classification: Vocational~~-~~–Technical Core

Description: This course introduces the student to the EMS systems, roles, and responsibilities of the paramedic, well-being of the paramedic, illness and injury prevention, medical/legal issues, ethical issues, therapeutic communications, and life span development. This course was formerly taught as ~~Preparatory~~Fundamentals of Pre-hospital Care (EMT 1122). (2 sch: 1-hr~~.~~ lecture, 2-hr~~.~~ lab)

Corequisite: ~~Anatomy and Physiology II (BIO 2524)~~None

Competencies and Suggested Objectives
1. Discuss roles and responsibilities within an EMS system and how these roles and responsibilities differ from other levels of providers. (EMS1, EMS14) a. Define terms associated with an EMS system. b. Describe key historical events that influenced the development of national Emergency Medical Services (EMS) systems. c. Identify national groups important to the development, education, and implementation of EMS. d. Differentiate among the four nationally recognized levels of EMS training/education, leading to licensure/certification/registration. e. Describe the attributes of a paramedic as a health-care professional. f. Describe the state's recognized levels of EMS training/education, leading to licensure/ certification. g. Explain the state's paramedic licensure/certification, recertification, and reciprocity requirements. h. Evaluate the importance of maintaining one's paramedic license/certification. i. Describe the benefits of paramedic continuing education. j. List the state's current state requirements for paramedic education. k. Discuss the role of national associations and of a national registry agency. l. Discuss current issues within the state impacting EMS. m. Discuss the roles of various EMS standard setting agencies. n. Identify the standards (components) of an EMS system as defined by the National Highway Traffic Safety Administration. o. Describe how professionalism applies to the paramedic while on and off duty. p. Describe examples of professional behaviors in the following areas: integrity, empathy, self-motivation, appearance and personal hygiene, self-confidence, communications, time management, teamwork and diplomacy, respect, patient advocacy, and careful delivery of service. q. Provide examples of activities that constitute appropriate professional behavior for a paramedic.

r. Describe the importance of quality EMS research to the future of EMS.
s. Identify the benefits of paramedics' teaching in their communities.
t. Describe what is meant by "citizen involvement in the EMS system."
u. Analyze how the paramedic can benefit the health-care system by supporting primary care to patients in the out-of-hospital setting.
v. List the primary and additional responsibilities of paramedics.
w. Describe the role of the EMS physician in providing medical direction.
x. Describe the benefits of medical direction, both online and off-line.
y. Describe the process for the development of local policies and protocols.
z. Provide examples of local protocols.
aaa. Discuss pre-hospital and out-of-hospital care as an extension of the physician.
bbb. Describe the relationship between a physician on the scene, the paramedic on the scene, and the EMS physician providing online medical direction.
ccc. Describe the components of continuous quality improvement.
ddd. Analyze the role of continuous quality improvement with respect to continuing medical education and research.
eee. Define the role of the paramedic relative to the safety of the crew, the patient, and bystanders.
fff. Identify local health-care agencies and transportation resources for patients with special needs.
ggg. Describe the role of the paramedic in health education activities related to illness and injury prevention.
hhh. Describe the importance and benefits of research.
iii. Explain the EMS provider's role in data collection.
jjj. Explain the basic principles of research.
kkk. Describe a process of evaluating and interpreting research.
lll. Advocate the benefits of working toward the goal of total personal wellness.
mmm. Serve as a role model for other EMS providers in regard to a total wellness lifestyle.
nnn. Value the need to assess the paramedic's lifestyle.
ooo. Challenge himself or herself to each wellness concept in his or her role as a paramedic.
ppp. Defend the need to treat each patient as an individual, with respect and dignity.
qqq. Assess the paramedic's prejudices related to the various aspects of cultural diversity.
rrr. Improve personal physical well-being through achieving and maintaining proper body weight, regular exercise, and proper nutrition.
sss. Practice stress management techniques.
ttt. Defend the need to respect the emotional needs of dying patients and their families.
uuu. Practice the use of personal safety precautions in all scene situations.
vvv. Serve as a role model for other EMS providers relative to body substance isolation practices.

2. Comprehend the importance of personal wellness in EMS, and serve as a healthy role model for peers. (EMS1, EMS14)
a. Discuss the concept of wellness and its benefits.
b. Define the components of wellness.
c. Describe the role of the paramedic in promoting wellness.

d. Discuss the components of wellness associated with proper nutrition.
e. List principles of weight control.
f. Discuss how cardiovascular endurance, muscle strength, and flexibility contribute to physical fitness.
g. Describe the impact of shift work on circadian rhythms.
h. Discuss how periodic risk assessments and knowledge of warning signs contribute to cancer and cardiovascular disease prevention.
i. Differentiate proper from improper body mechanics for lifting and moving patients in emergency and nonemergency situations.
j. Describe the problems that a paramedic might encounter in a hostile situation and the techniques used to manage the situation.
k. Given a scenario involving arrival at the scene of a motor vehicle collision, assess the safety of the scene, and propose ways to make the scene safer.
l. List factors that contribute to safe vehicle operations.
m. Describe the considerations that should be used when operating an emergency vehicle.
n. Discuss the concept of “due regard for the safety of all others” while operating an emergency vehicle.
o. Describe the equipment available for self-protection when confronted with a variety of adverse situations.
p. Describe the benefits and methods of smoking cessation.
q. Describe the three phases of the stress response.
r. List factors that trigger the stress response.
s. Discuss the interrelationships between stress, coping, and illness.
t. Differentiate between normal/healthy and detrimental reactions to anxiety and stress.
u. Describe the common physiological and psychological effects of stress.
v. Identify causes of stress in EMS.
w. Describe behavior that is a manifestation of stress in patients and those close to them and how this relates to paramedic stress.
x. Describe the defense mechanisms and management techniques commonly used to deal with stress.
y. Describe the components of stress management.
z. Provide examples of situations in which stress management would likely be beneficial to paramedics.
aa. Given a scenario involving a stressful situation, formulate a strategy to help cope with the stress.
bb. Describe the stages of the grieving process (Kubler-Ross).
cc. Describe the needs of the paramedic when dealing with death and dying.
dd. Describe the unique challenges for paramedics in dealing with the needs of children and other special populations related to their understanding or experience of death and dying.
ee. Discuss the importance of universal precautions and body substance isolation practices.
ff. Describe the steps to take for personal protection from airborne and bloodborne pathogens.

gg.	Given a scenario in which equipment and supplies have been exposed to body substances, plan for the proper cleaning, disinfection, and disposal of the items.
hh.	Explain what is meant by an exposure, and describe principles for management.
ii.	Advocate the benefits of working toward the goal of total personal wellness.
jj.	Serve as a role model for other EMS providers in regard to a total wellness lifestyle.
kk.	Value the need to assess the paramedic's lifestyle.
ll.	Challenge himself or herself to each wellness concept in his /her role as a paramedic.
mm.	Defend the need to treat each patient as an individual, with respect and dignity.
nn.	Assess the paramedic's prejudices related to the various aspects of cultural diversity.
oo.	Improve personal physical well-being through achieving and maintaining proper body weight, regular exercise, and proper nutrition.
pp.	Promote and practice stress management techniques.
qq.	Defend the need to respect the emotional needs of end-of-life patients and their families.
rr.	Advocate and practice the use of personal safety precautions in all scene situations.
ss.	Advocate and serve as a role model for other EMS providers relative to body substance isolation practices.
tt.	Demonstrate safe methods for lifting and moving patients in emergency and nonemergency situations.
uu.	Demonstrate the proper procedures to take for personal protection from disease.
3.	Apply fundamental knowledge of principles of public health and epidemiology including public health emergencies, health promotion, and illness and injury prevention. (EMS1, EMS6)
a.	Describe the incidence, morbidity, and mortality of unintentional and alleged unintentional events.
b.	Identify the human, environmental, and socioeconomic impact of unintentional and alleged unintentional events.
c.	Identify health hazards and potential crime areas within the community.
d.	Identify local municipal and community resources available for physical and socioeconomic crises.
e.	List the general and specific environmental parameters that should be inspected to assess a patient's need for preventative information and direction.
f.	Identify the role of EMS in local municipal and community prevention programs.
g.	Identify the local prevention programs that promote safety for all age populations.
h.	Identify patient situations where the paramedic can intervene in a preventative manner.
i.	Document primary and secondary injury prevention data.
j.	Defend tenets of prevention in terms of personal safety and wellness.
k	Defend tenets of prevention for patients and communities being served.
l.	Demonstrate effective documentation as one justification for funding of prevention programs.
m.	Demonstrate personal commitment to success of prevention programs.
n.	Demonstrate the use of protective equipment appropriate to the environment and scene.
4.	Discuss the legal issues that impact decisions made in the out-of-hospital environment.

(EMS1)

a. Differentiate between legal and ethical responsibilities.
b. Describe the basic structure of the legal system in the United States.
c. Differentiate between civil and criminal law as it pertains to the paramedic.
d. Explain the importance of laws pertinent to the paramedic.
e. Differentiate between licensure and certification as they apply to the paramedic.
f. List the specific problems or conditions encountered while providing care that a paramedic is required to report.
g. Identify in each instance to whom the report is to be made.
h. Define terms associated with legal and ethical issues.
i Differentiate between the scope of practice and the standard of care for paramedic practice.
j. Discuss the concept of medical direction, including off-line medical direction and online medical direction, and its relationship to the standard of care of a paramedic.
k. Describe the four elements that must be present in order to prove negligence.
l. Given a scenario in which a patient is injured while a paramedic is providing care, determine whether the four components of negligence are present.
m. Given a scenario, demonstrate patient care behaviors that would protect the paramedic from claims of negligence.
n. Explain the concept of liability as it might apply to paramedic practice, including physicians providing medical direction and paramedic supervision of other care providers.
o. Discuss the legal concept of immunity, including Good Samaritan statutes and governmental immunity, as it applies to the paramedic.
p. Explain the importance and necessity of patient confidentiality and the standards for maintaining patient confidentiality that apply to the paramedic, including HIPAA considerations.
q. Differentiate among expressed, informed, implied, and involuntary consent.
r. Given a scenario in which a paramedic is presented with a conscious patient in need of care, describe the process used to obtain consent.
s. Identify the steps to take if a patient refuses care.
t. Given a scenario, demonstrate appropriate patient management and care techniques in a refusal of care situation.
u. Describe what constitutes abandonment.
v. Identify the legal issues involved in the decision not to transport a patient or to reduce the level of care being provided during transportation.
w. Describe how hospitals are selected to receive patients based on patient need and hospital capability and the role of the paramedic in such selection.
x. Differentiate between assault and battery.
y. Describe how to avoid assault and battery.
z. Describe the conditions under which the use of force, including restraint, is acceptable.
aa. Explain the purpose of advance directives relative to patient care and how the paramedic should care for a patient who is covered by an advance directive.
bb. Discuss the responsibilities of the paramedic relative to resuscitation efforts for patients who are potential organ donors.

cc. Describe the actions that the paramedic should take to preserve evidence at a crime or accident scene.
dd. Describe the importance of providing accurate documentation (oral and written) in substantiating an incident.
ee. Describe the characteristics of a patient care report required to make it an effective legal document.
ff. Given a scenario, prepare a patient care report, including an appropriately detailed narrative.
gg. Demonstrate the need to show respect for the rights and feelings of patients.
hh. Assess the paramedic's personal commitment to protecting patient confidentiality.
ii. Given a scenario involving a new employee, explain the importance of obtaining consent for adults and minors.
jj. Discuss personal beliefs about withholding or stopping patient care.
kk. Explain the value of advance medical directives.

5. Explain the role that ethics plays in decision making in the out-of-hospital environment. (EMS)1

a. Define ethics.
b. Distinguish between ethical and moral decisions.
c. Identify the premise that should underlie the paramedic's ethical decisions in out-of hospital care.
d. Analyze the relationship between the law and ethics in EMS.
e. Compare and contrast the criteria that may be used in allocating scarce EMS resources.
f. Identify the issues surrounding the use of advance directives in making a pre-hospital resuscitation decision.
g. Describe the state's necessary criteria to honor an advance directive.
h. Describe the patient's autonomy in the decision-making process.
i. Discuss the following ethical positions:
   (1) The paramedic is accountable to the patient.
   (2) The paramedic is accountable to the medical director.
   (3) The paramedic is accountable to the EMS system.
   (4) The paramedic is accountable for fulfilling the standard of care.
j. Given a scenario, discuss a paramedic's actions concerning a patient who is treated against his or her wishes.
k. Given a scenario, discuss a paramedic's actions in a situation where a physician orders therapy the paramedic feels to be detrimental to the patient's best interests.
l. Describe confidentiality and HIPAA requirements.

6. Integrate the principles of therapeutic communication to effectively communicate with any patient while providing care. (EMS1, EMS5)

a. Define communication.
b. Identify internal and external factors that affect a patient/bystander interview conducted by a paramedic.
c. Restate the strategies for developing patient rapport.
d. Provide examples of open-ended and closed or direct questions.
e. Discuss common errors made by paramedics when interviewing patients.
f. Identify the nonverbal skills that are used in patient interviewing.

g. Restate the strategies for developing patient rapport. h. Summarize the methods to assess mental status based on interview techniques. i. Discuss the strategies for interviewing a patient who is unmotivated to talk. j. Differentiate the strategies a paramedic uses when interviewing a patient who is hostile compared to one who is cooperative. k. Summarize developmental considerations of various age groups that influence patient interviewing. l. Restate unique interviewing techniques necessary to employ with patients who have special needs. m. Discuss interviewing considerations used by paramedics in cross-cultural communications. n. Serve as a model for an effective communication process. o. Explain the importance of external factors of communication. p. Demonstrate the proper responses to patient communication. q. Demonstrate professional nonverbal behaviors. r. Demonstrate the development of proper patient rapport. s. Explain strategies to obtain patient information. t. Demonstrate professional behaviors in communicating with patients in special situations. u. Demonstrate professional behaviors in communication with patients from different cultures. v. Explain the importance of patient confidentiality and HIPAA requirements.
7. Integrate the physiological, psychological, and sociological changes throughout human development with assessment and communication strategies for patients of all ages. (EMS1, EMS5) a. Compare the physiological and psychosocial characteristics of an infant with those of an early adult. b. Compare the physiological and psychosocial characteristics of a toddler with those of an early adult. c. Compare the physiological and psychosocial characteristics of a pre-school child with those of an early adult. d. Compare the physiological and psychosocial characteristics of a school-aged child with those of an early adult. e. Compare the physiological and psychosocial characteristics of an adolescent with those of an early adult. f. Summarize the physiological and psychosocial characteristics of an early adult. g. Compare the physiological and psychosocial characteristics of a middle-aged adult with those of an early adult. h. Compare the physiological and psychosocial characteristics of a person in late adulthood with those of an early adult. i. Explain the uniqueness of infants, toddlers, pre-school children, school-aged children, adolescents, early adulthood, middle-aged people, and late adulthood physiological and psychosocial characteristics.
8. Outline an accepted format for dissemination of patient information in verbal form, either in person or over the radio. (EMS1, EMS3, EMS9) a. Identify the importance of communications when providing EMS.

b. Identify the role of verbal, written, and electronic communications in the provision of EMS.
c. Describe the phases of communications necessary to complete a typical EMS event.
d. Identify the importance of proper terminology when communicating during an EMS event.
e. Identify the importance of proper verbal communications during an EMS event.
f. List factors that impede effective verbal communications.
g. List factors that enhance verbal communications.
h. Identify the importance of proper written communications during an EMS event.
i. List factors that impede effective written communications.
j. List factors that enhance written communications.
k. Explain the importance of the legal status of written communications related to an EMS event.
l. State the importance of data collection during an EMS event.
m. Identify technology used to collect and exchange patient and/or scene information electronically.
n. Recognize the legal status of patient medical information exchanged electronically.
o. Identify the components of the local EMS communications system, and describe their function and use.
p. Identify and differentiate among the following communications systems:
    (1) Simplex
    (2) Multiplex
    (3) Duplex
    (4) Trunked
    (5) Digital communications
    (6) Cellular telephone
    (7) Facsimile
    (8) Computer
q. Identify the components of the local dispatch communications system, and describe their function and use.
r. Describe the functions and responsibilities of the Federal Communications Commission.
s. Describe how an EMS dispatcher functions as an integral part of the EMS team.
t. List appropriate information to be gathered by the Emergency Medical Dispatcher.
u. Identify the role of Emergency Medical Dispatch in a typical EMS event.
v. Identify the importance of pre-arrival instructions in a typical EMS event.
w. Describe the purpose of verbal communication of patient information to the hospital.
x. Describe information that should be included in patient assessment information verbally reported to medical direction.
y. Diagram a basic model of communications.
z. Organize a list of patient assessment information in the correct order for electronic transmission to medical direction according to the format used locally.
aa. Utilize proper terminology when describing a patient or patient condition.
bb. Demonstrate the ability to use the local dispatch communications system.
cc. Demonstrate the ability to use a radio.

dd.	Demonstrate the ability to use the biotelemetry equipment used locally.
9.	Effectively document the essential elements of patient assessment, care, and transport. (EMS3, EMS9)
a.	Identify the general principles regarding the importance of EMS documentation and ways in which documents are used.
b.	Utilize medical terminology correctly.
c.	List appropriate and accurate medical abbreviations and acronyms.
d.	Record all pertinent administrative information.
e.	Explain the role of documentation in agency reimbursement.
f.	Analyze the documentation for accuracy and completeness, including spelling.
g.	Eliminate extraneous or nonprofessional information from all communications.
h.	Describe the differences between subjective and objective elements of documentation.
i.	Evaluate a finished document for errors and omissions.
j.	Evaluate a finished document for proper use and spelling of abbreviations and acronyms.
k.	Evaluate the confidential nature of an EMS report.
l.	Describe the potential consequences of illegible, incomplete, or inaccurate documentation.
m.	Describe the special considerations concerning patient refusal of transport.
n.	Record pertinent information using a consistent narrative format.
o.	Explain how to properly record direct patient or bystander comments.
p.	Describe the special considerations concerning mass casualty incident documentation.
q.	Apply the principles of documentation to computer charting, as access to this technology becomes available.
r.	Record the pertinent, reportable clinical data of each patient interaction.
s.	Record “pertinent negative” clinical findings.
t.	Correct errors and omissions, using proper procedures as defined under local protocol.
u.	Revise documents, when necessary, using locally-approved procedures.
v.	Demonstrate responsibility for self-assessment of all documentation.
w.	Demonstrate proper completion of an EMS event record used locally.
x.	Demonstrate the relevance and importance of properly completed documentation.
y.	Discuss the common negative attitudes toward the task of documentation.

STANDARDS

National EMS Educational ~~Technology~~ *Standards* ~~for Students~~

~~T1 Basic operations and concepts~~
~~T2 Social, ethical, and human issues~~
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

EMS1 Preparatory
EMS3 Medical Terminology
EMS5 Life Span Development
EMS6 Public Health
EMS9 Assessment
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy

CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~ Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patient airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an~~

SUGGESTED REFERENCES

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P., (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency~~.~~ and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: ~~Pathophysiology~~ Airway: Management, Respiration, and Oxygenation

Course Abbreviation: ~~EMT 1213~~EMS 1314

Classification: Vocational~~-~~–Technical Core

Description: ~~This course provides information on abnormal functions of illness and disease processes in the human body.~~ ~~***This course may not be taught after July 1, 2005.***~~ ~~(3 sch: 2 hr. lecture, 2 hr. lab)~~

~~**Corequisite:** Fundamentals of Pre-hospital Care (EMT 1122)~~

~~**Competencies and Suggested Objectives:**~~

~~1. Explain the general concepts of pathophysiology of the assessment and management of emergency patients.~~
   ~~a. Discuss cellular adaptation.~~
   ~~b. Describe cellular injury and cellular death.~~
   ~~c. Describe the factors that precipitate disease in the human body.~~
   ~~d. Describe the cellular environment.~~
   ~~e. Discuss analyzing disease risk.~~
   ~~f. Describe aging as a risk factor for disease.~~
   ~~g. Discuss familial diseases and associated risk factors.~~
   ~~h. Describe multiple organ dysfunction syndrome.~~
   ~~i. Define the characteristics of the immune response.~~
   ~~j. Discuss induction of the immune system.~~
   ~~k. Discuss fetal and neonatal immune function.~~
   ~~l. Discuss aging and the immune function in the elderly.~~
   ~~m. Describe the inflammation response.~~
   ~~n. Discuss the role of mast cells as part of the inflammation response.~~
   ~~o. Describe the plasma protein system.~~
   ~~p. Discuss the cellular components of inflammation.~~
   ~~q. Describe the systemic manifestations of the inflammation response.~~
   ~~r. Describe the resolution and repair from inflammation.~~
   ~~s. Discuss the effect of aging on the mechanisms of self-defense.~~
   ~~t. Discuss hypersensitivity.~~
   ~~u. Describe deficiencies in immunity and inflammation.~~
   ~~v. Describe homeostasis as a dynamic steady state.~~
   ~~w. List types of tissue.~~
   ~~x. Describe the systemic manifestations that result from cellular injury.~~
   ~~y. Describe neuroendocrine regulation.~~
~~2. Explain the general concepts of pathophysiology in the management of the emergency patient.~~
~~a. Describe environmental risk factors.~~
~~b. Discuss combined effects and interaction among risk factors.~~
~~c. Discuss hypoperfusion.~~

d. Define cardiogenic, hypovolemic, neurogenic, anaphylactic, and septic shock.
e. Discuss the inter-relationships among stress, coping, and illness.
f. Utilize pathophysiology in patient assessment and treatment to patient assessment and treatment.

Standards

Related Academic Topics

C1 Interpret written material.
C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
C3 Listen, comprehend, and take appropriate actions.
C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.
S1 Explain the Anatomy and Physiology of the human body.
S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.
S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

Workplace Skills

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse populations.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.

~~**Course Name:** Airway Management and Ventilation~~

~~**Course Abbreviation:** EMT 1315~~

~~**Classification:** Vocational-Technical Core~~

~~**Description:**~~ This course will provide the student with the essential knowledge to attain ~~a~~an airway and manage the respiratory system using advanced techniques. ~~(5 sch: 2 hr. lecture, 6 hr. lab)~~

~~**Corequisites:** Fundamentals of Pre-hospital Care (EMT 1122), and Anatomy and Physiology II (BIO 2524)~~

~~**Competencies and Suggested Objectives:**~~

1. ~~Explain how to establish and maintain a patent airway.~~
   - ~~a. Explain the primary objective of airway maintenance.~~
   - ~~b. Identify commonly neglected pre-hospital skills related to airway.~~
   - ~~c. Identify the anatomy of the upper and lower airway.~~
   - ~~d. Describe the functions of the upper and lower airway.~~
   - ~~e. Explain the differences between adult and pediatric airway anatomy.~~
   - ~~f. Define gag reflex.~~
   - ~~g. Explain the relationship between pulmonary circulation and respiration.~~
   - ~~h. List the concentration of gases that comprise atmospheric air.~~
   - ~~i. Describe the measurement of oxygen in the blood.~~
   - ~~j. Describe the measurement of carbon dioxide in the blood.~~
   - ~~k. Describe peak expiratory flow.~~
   - ~~l. List factors that cause decreased oxygen concentrations in the blood.~~
   - ~~m. List the factors that increase and decrease carbon dioxide production in the body.~~
   - ~~n. Define atelectasis.~~
   - ~~o. Define FiO2.~~
   - ~~p. Differentiate between hypoxia and hypoxemia.~~
   - ~~q. Describe the voluntary and involuntary regulation of respiration.~~
   - ~~r. Describe the modified forms of respiration.~~
   - ~~s. Define normal respiratory rates and tidal volumes for the adult, child, and infant.~~
   - ~~t. List the factors that affect respiratory rate and depth.~~
   - ~~u. Explain the risk of infection to EMS providers associated with ventilation.~~
   - ~~v. Define pulsus paradoxes.~~

w. ~~Explain the implications of partial airway obstruction with good and poor air exchange.~~
x. ~~Describe airway maintenance devices typically found in the home care environment.~~
y. ~~Describe devices that provide or enhance alveolar ventilation in the home care setting.~~
z. ~~List modes of artificial ventilation and an out-of-hospital situation where each might be employed.~~
aa. ~~Define complete airway obstruction.~~
bb. ~~Describe causes of upper airway obstruction.~~
cc. ~~Describe causes of respiratory distress.~~
dd. ~~Describe manual airway maneuvers.~~
ee. ~~Describe the Sellick (cricoid pressure) maneuver.~~
ff. ~~Describe complete airway obstruction maneuvers.~~
gg. ~~Explain the purpose for suctioning the upper airway.~~
hh. ~~Identify types of suction equipment.~~
ii. ~~Describe the indications for suctioning the upper airway.~~
jj. ~~Identify types of suction catheters, including hard or rigid catheters and soft catheters.~~
kk. ~~Identify techniques of suctioning the upper airway.~~
ll. ~~Identify special considerations of suctioning the upper airway.~~
mm. ~~Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique of tracheobronchial suctioning in the intubated patient.~~
nn. ~~Describe the use of an oral and nasal airway.~~
oo. ~~Identify special considerations of tracheobronchial suctioning in the intubated patient.~~
pp. ~~Define gastric distention.~~
qq. ~~Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for inserting a nasogastric tube and orogastric tube.~~
rr. ~~Identify special considerations of gastric decompression.~~
ss. ~~Describe the indications, contraindications, advantages, disadvantages, complications, and technique for inserting an oropharyngeal and nasopharyngeal airway.~~
tt. ~~Describe the indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient by:~~
~~(1) Mouth-to-mouth~~
~~(2) Mouth-to-nose~~
~~(3) Mouth-to-mask~~
~~(4) One person bag-valve-mask~~
~~(5) Two person bag-valve-mask~~
~~(6) Three person bag-valve-mask~~
~~(7) Flow-restricted, oxygen-powered ventilation device~~
uu. ~~Explain the advantage of the two person method when ventilating with the bag-valve-mask.~~

vv. Compare the ventilation techniques used for an adult patient to those used for pediatric patients.
ww. Describe indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient with an automatic transport ventilator (ATV).
xx. Explain safety considerations of oxygen storage and delivery.
yy. Identify types of oxygen cylinders and pressure regulators (including a high pressure regulator and a therapy regulator).
zz. List the steps for delivering oxygen from a cylinder and regulator.
aaa. Describe the use, advantages, and disadvantages of an oxygen humidifier.
bbb. Describe the indications, contraindications, advantages, disadvantages, complications, liter flow range, and concentration of delivered oxygen for supplemental oxygen delivery devices.
ccc. Discuss tracheostomy, stoma, and tracheostomy tube.
ddd. Demonstrate the insertion of a new inner cannula and/or the use of an endotracheal tube to temporarily maintain an airway in a tracheostomy patient.
eee. Summarize a laryngectomy.
fff. Define how to ventilate with a patient with a stoma, including mouth-to stoma and bag-valve-mask-to-stoma ventilation.
ggg. Describe the special considerations in airway management and ventilation for patients with facial injuries.
hhh. Describe the special considerations in airway management and ventilation for the pediatric patient.
iii. Differentiate endotracheal intubation from other methods of advanced airway management.
jjj. Describe the indications, contraindications, advantages, disadvantages, and complications of endotracheal intubation.
kkk. Describe laryngoscopy for the removal of a foreign body airway obstruction.
lll. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for direct laryngoscopy.
mmm. Describe visual landmarks for direct laryngoscopy.
nnn. Describe use of cricoid pressure during intubation.
ooo. Describe indications, contraindications, advantages, disadvantages, complications, equipment, and technique for digital endotracheal intubation.
ppp. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for using a dual lumen airway.
qqq. Describe the indications, contraindications, advantages, disadvantages, complications, and equipment for rapid sequence intubation with neuromuscular blockade.
rrr. Identify neuromuscular blocking drugs and other agents used in rapid sequence intubation.

sss. Describe the indications, contraindications, advantages, disadvantages, complications, and equipment for sedation during intubation.
ttt. Identify sedative agents used in airway management.
uuu. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for nasotracheal intubation.
vvv. Describe the indications, contraindications, advantages, disadvantages, and complications for performing an open crichothyrotomy.
www. Describe the equipment and technique for performing an open cricothyrotomy.
xxx. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for transtlaryngeal catheter ventilation (needle cricothyrotomy).
yyy. Describe methods of assessment for confirming correct placement of an endotracheal tube.
zzz. Describe methods for securing an endotracheal tube.
aaaa. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for extubation.
bbbb. Describe methods of endotracheal intubation in the pediatric patient.
cccc. Discuss the need to oxygenate and ventilate a patient.
dddd. Discuss the necessity of establishing and/or maintaining patency of a patient's airway.
eeee. Demonstrate standard precautions to defend against infectious and communicable diseases.

2. Demonstrate how to maintain a patent airway.
   a. Perform body substance isolation (BSI) procedures during basic airway management, advanced airway management, and ventilation.
   b. Perform pulse oximetry.
   c. Perform end-tidal CO2 detection.
   d. Perform peak expiratory flow testing.
   e. Perform manual airway maneuvers, including:
      (1) Opening the mouth
      (2) Head-tilt/chin-lift maneuver
      (3) Jaw-thrust without head-tilt maneuver
      (4) Modified jaw-thrust maneuver
   f. Perform manual airway maneuvers for pediatric patients, including:
      (1) Opening the mouth
      (2) Head-tilt/chin-lift maneuver
      (3) Jaw-thrust without head-tilt maneuver
      (4) Modified jaw-thrust maneuver
   g. Perform the Sellick maneuver (cricoid pressure).
   h. Perform complete airway obstruction maneuvers, including:
      (1) Heimlich maneuver
      (2) Finger sweep
      (3) Chest thrusts

This course was previously taught as Airway Management and Ventilation (EMT 1315) (sch: 1-hr lecture, 6-hr lab)

~~(4) Removal with Magill forceps~~

i. Demonstrate suctioning the upper airway by selecting a suction device,

Corequisite: Introduction to EMS Systems (EMS 1122) and technique.

j. Perform tracheobronchial suctioning in the intubated patient by selecting a suction device, catheter, and technique.
k. Demonstrate insertion of a nasogastric tube.
l. Demonstrate insertion of an orogastric tube.
m. Perform gastric decompression by selecting a suction device, catheter, and technique.
n. Demonstrate insertion of an oropharyngeal airway.
o. Demonstrate insertion of a nasopharyngeal airway.
p. Demonstrate ventilating a patient by the following techniques:
    (1) Mouth-to-mask ventilation
    (2) One person bag-valve-mask
    (3) Two person bag-valve-mask
    (4) Three person bag-valve-mask
    (5) Flow-restricted, oxygen-powered ventilation device
    (6) Automatic transport ventilator
    (7) Mouth-to-stoma
    (8) Bag-valve-mask-to-stoma ventilation
q. Ventilate a pediatric patient using the one and two person techniques.
r. Perform ventilation with a bag-valve-mask with an in-line small-volume nebulizer.
s. Perform oxygen delivery from a cylinder and regulator with an oxygen delivery device.
t. Perform oxygen delivery with an oxygen humidifier.
u. Deliver supplemental oxygen to a breathing patient using the following devices:
    (1) Nasal cannula
    (2) Simple face mask
    (3) Partial rebreather mask
    (4) Nonrebreather mask
    (5) Venturi mask
v. Perform stoma suctioning.
w. Perform retrieval of foreign bodies from the upper airway.
x. Perform assessment to confirm correct placement of the endotracheal tube.
y. Intubate the trachea by the following methods:
    (1) Orotracheal intubation
    (2) Nasotracheal intubation
    (3) Multi-lumen airways
z. Discuss the implications of digital intubation, transillumination, and open cricothyrotomy.
aa. Secure an endotracheal tube.
bb. Perform endotracheal intubation in the pediatric patient.
cc. Perform transtracheal catheter ventilation (needle cricothyrotomy).

~~dd. Perform extubation.~~
~~ee. Perform replacement of a tracheostomy tube through a stoma.~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the~~ Anatomy and Physiology ~~of the human body.~~ II (BIO 2524)

Competencies and Suggested Objectives
2. Apply and integrate comprehensive knowledge of anatomy, physiology, and pathophysiology into the care of a patient with airway or ventilation problems. (EMS2, EMS3, EMS4, EMS8, EMS9, EMS11)
2. Explain how to establish and maintain a patent airway. (EMS8, EMS9, EMS10, EMS11, EMS12, EMS13) a. Explain the primary objective of airway maintenance. b. Identify commonly neglected pre-hospital skills related to airway. c. Identify the anatomy of the upper and lower airway. d. Describe the functions of the upper and lower airway. e. Explain the differences between adult and pediatric airway anatomy. f. Define gag reflex. g. Explain the relationship between pulmonary circulation and respiration. h. List the concentration of gases that comprise atmospheric air. i. Describe the measurement of oxygen in the blood. j. Describe the measurement of carbon dioxide in the blood. k. Describe peak expiratory flow. l. List the factors that cause decreased oxygen concentrations in the blood. m. List the factors that increase and decrease carbon dioxide production in the body. n. Define atelectasis. o. Define FiO2. p. Differentiate between hypoxia and hypoxemia. q. Describe the voluntary and involuntary regulation of respiration. r. Describe the modified forms of respiration. s. Define normal respiratory rates and tidal volumes for the adult, child, and infant. t. List the factors that affect respiratory rate and depth. u. Explain the risk of infection to EMS providers associated with ventilation. v. Define pulsus paradoxes. w. Explain the implications of partial airway obstruction with good and poor air exchange.

x. Describe airway maintenance devices typically found in the home-care environment.
y. Describe devices that provide or enhance alveolar ventilation in the home-care setting.
z. List modes of artificial ventilation and an out-of-hospital situation where each might be employed.
aa. Define complete airway obstruction.
bb. Describe causes of upper airway obstruction.
cc. Describe causes of respiratory distress.
dd. Describe manual airway maneuvers.
ee. Describe the Sellick (cricoid pressure) maneuver.
ff. Describe complete airway obstruction maneuvers.
gg. Explain the purpose for suctioning the upper airway.
hh. Identify types of suction equipment.
ii. Describe the indications for suctioning the upper airway.
jj. Identify types of suction catheters, including hard or rigid catheters and soft catheters.
kk. Identify techniques of suctioning the upper airway.
ll. Identify special considerations of suctioning the upper airway.
mm. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique of tracheobronchial suctioning in the intubated patient.
nn. Describe the use of an oral and nasal airway.
oo. Identify special considerations of tracheobronchial suctioning in the intubated patient.
pp. Define gastric distention.
qq. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for inserting a nasogastric tube and an orogastric tube.
rr. Identify special considerations of gastric decompression.
ss. Describe the indications, contraindications, advantages, disadvantages, complications, and technique for inserting an oropharyngeal and nasopharyngeal airway.
tt. Describe the indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient by the following:
    (1) Mouth-to-mouth
    (2) Mouth-to-nose
    (3) Mouth-to-mask
    (4) One person bag-valve-mask
    (5) Two person bag-valve-mask
    (6) Three person bag-valve-mask
    (7) Flow-restricted, oxygen-powered ventilation device
uu. Explain the advantage of the two-person method when ventilating with the bag-valve-mask.
vv. Compare the ventilation techniques used for an adult patient to those used for pediatric patients.

ww. Describe indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient with an automatic transport ventilator (ATV).
xx. Explain safety considerations of oxygen storage and delivery.
yy. Identify types of oxygen cylinders and pressure regulators (including a high pressure regulator and a therapy regulator).
zz. List the steps for delivering oxygen from a cylinder and regulator.
aaa. Describe the use, advantages, and disadvantages of an oxygen humidifier.
bbb. Describe the indications, contraindications, advantages, disadvantages, complications, liter flow range, and concentration of delivered oxygen for supplemental oxygen delivery devices.
ccc. Discuss tracheostomy, stoma, and tracheostomy tube.
ddd. Demonstrate the insertion of a new inner cannula and/or the use of an endotracheal tube to temporarily maintain an airway in a tracheostomy patient.
eee. Summarize a laryngectomy.
fff. Define how to ventilate with a patient with a stoma, including mouth-to-stoma and bag-valve-mask-to-stoma ventilation.
ggg. Describe the special considerations in airway management and ventilation for patients with facial injuries.
hhh. Describe the special considerations in airway management and ventilation for the pediatric patient.
iii. Differentiate endotracheal intubation from other methods of advanced airway management.
jjj. Describe the indications, contraindications, advantages, disadvantages, and complications of endotracheal intubation.
kkk. Describe laryngoscopy for the removal of a foreign body airway obstruction.
lll. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for direct laryngoscopy.
mmm. Describe visual landmarks for direct laryngoscopy.
nnn. Describe use of cricoid pressure during intubation.
ooo. Describe indications, contraindications, advantages, disadvantages, complications, equipment, and technique for digital endotracheal intubation.
ppp. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for using a dual lumen airway.
qqq. Describe the indications, contraindications, advantages, disadvantages, complications, and equipment for rapid sequence intubation with neuromuscular blockade.
rrr. Identify neuromuscular blocking drugs and other agents used in rapid sequence intubation.
sss. Describe the indications, contraindications, advantages, disadvantages, complications, and equipment for sedation during intubation.
ttt. Identify sedative agents used in airway management.
uuu. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for nasotracheal intubation.
vvv. Describe the indications, contraindications, advantages, disadvantages, and complications for performing an open crichothyrotomy.

www. Describe the equipment and technique for performing an open cricothyrotomy.
xxx. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for transtlaryngeal catheter ventilation (needle cricothyrotomy).
yyy. Describe methods of assessment for confirming correct placement of an endotracheal tube.
zzz. Describe methods for securing an endotracheal tube.
aaaa. Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for extubation.
bbbb. Describe methods of endotracheal intubation in the pediatric patient.
cccc. Discuss the need to oxygenate and ventilate a patient.
dddd. Discuss the necessity of establishing and/or maintaining patency of a patient's airway.
eeee. Demonstrate standard precautions to defend against infectious and communicable diseases.

3. Demonstrate how to maintain a patent airway. (EMS8, EMS9, EMS10, EMS11, EMS12, EMS13)
   a. Perform body substance isolation (BSI) procedures during basic airway management, advanced airway management, and ventilation.
   b. Perform pulse oximetry.
   c. Perform end-tidal CO2 detection.
   d. Perform peak expiratory flow testing.
   e. Perform manual airway maneuvers, including the following:
      (1) Opening the mouth
      (2) Head-tilt/chin-lift maneuver
      (3) Jaw-thrust without head-tilt maneuver
      (4) Modified jaw-thrust maneuver
   f. Perform manual airway maneuvers for pediatric patients, including the following:
      (1) Opening the mouth
      (2) Head-tilt/chin-lift maneuver
      (3) Jaw-thrust without head-tilt maneuver
      (4) Modified jaw-thrust maneuver
   g. Perform the Sellick maneuver (cricoid pressure).
   h. Perform complete airway obstruction maneuvers, including the following:
      (1) Heimlich maneuver
      (2) Finger sweep
      (3) Chest thrusts
      (4) Removal with Magill forceps
   i. Demonstrate suctioning the upper airway by selecting a suction device, catheter, and technique.
   j. Perform tracheobronchial suctioning in the intubated patient by selecting a suction device, catheter, and technique.
   k. Demonstrate insertion of a nasogastric tube.
   l. Demonstrate insertion of an orogastric tube.
   m. Perform gastric decompression by selecting a suction device, catheter, and technique.
   n. Demonstrate insertion of an oropharyngeal airway.

o. Demonstrate insertion of a nasopharyngeal airway.
p. Demonstrate ventilating a patient by the following techniques:
(1) Mouth-to-mask ventilation
(2) One-person bag-valve-mask
(3) Two-person bag-valve-mask
(4) Three person bag-valve-mask
(5) Flow-restricted, oxygen-powered ventilation device
(6) Automatic transport ventilator
(7) Mouth-to-stoma
(8) Bag-valve-mask-to-stoma ventilation
q. Ventilate a pediatric patient using the one- and two-person techniques.
r. Perform ventilation with a bag-valve-mask with an in-line small-volume nebulizer.
s. Perform oxygen delivery from a cylinder and regulator with an oxygen delivery device.
t. Perform oxygen delivery with an oxygen humidifier.
u. Deliver supplemental oxygen to a breathing patient using the following devices:
(1) Nasal cannula
(2) Simple face mask
(3) Partial rebreather mask
(4) Nonrebreather mask
(5) Venturi mask
(6) BiPAP/CPAP
v. Perform stoma suctioning.
w. Perform retrieval of foreign bodies from the upper airway.
x. Perform assessment to confirm correct placement of the endotracheal tube.
y. Intubate the trachea by the following methods:
(1) Orotracheal intubation
(2) Nasotracheal intubation
z. Perform airway care utilizing multi-lumen, single lumen, and supraglottic airways.
aa. Discuss the implications of digital intubation, transillumination, and open cricothyrotomy.
aa. Secure an endotracheal tube.
bb. Perform endotracheal intubation in the pediatric patient.
cc. Perform transtracheal catheter ventilation (needle cricothyrotomy).
dd. Perform extubation.
ee. Perform replacement of a tracheostomy tube through a stoma.
ff. Perform and interpret waveform capnography.

4. Integrate a comprehensive knowledge of the causes and pathophysiology into the management of shock or respiratory failure or arrest with an emphasis on early intervention to prevent arrest. EMS2, EMS4, EMS8, EMS9, EMS11

~~S5 Investigate the properties and reactions of matter to include symbols, formulas, and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~

~~S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~

~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~

STANDARDS

National EMS Educational ~~Technology~~ *Standards* ~~for Students~~

~~T1 Basic operations~~EMS2 Anatomy and ~~concepts,~~ Physiology
~~T2 Social, ethical, and human issues~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the finding to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the~~

~~treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients and chronically ill patients.~~

~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

~~**Course Name:**~~ EMS3 Medical Terminology
EMS4 Pathophysiology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient ~~Assessment~~Populations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P., (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: Patient Assessment

Course Abbreviation: ~~EMT 1415~~EMS 1414

Classification: Vocational~~-~~–Technical Core

Description: This course will teach comprehensive history taking and physical exam techniques. (~~5~~4 sch: ~~2 hr. lecture, 6 hr. lab)~~

~~**Corequisites:** Fundamentals of Pre-hospital Care (EMT 1122), and Anatomy and Physiology II (BIO 2524)~~

~~**Competencies and Suggested Objectives:**~~

1. ~~Discuss techniques to obtain a medical history from a patient.~~-hr lecture, 6-hr lab)

Corequisite: Introduction to EMS Systems (EMS 1122) and Anatomy and Physiology II (BIO 2524)

Competencies and Suggested Objectives
3. Apply and integrate comprehensive knowledge of anatomy, physiology, and pathophysiology related to patient assessment across the life span. (EMS2, EMS4, EMS5, EMS9)
4. Integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression, utilizing the following components: (EMS2, EMS4, EMS5, EMS9) • Scene size-up • Primary assessment • Vital signs • History taking • Secondary assessment • Monitoring devices • Reassessment b. Using the techniques of examination, demonstrate the assessment of a medical and trauma patient.
3. Apply and integrate complex depth and comprehensive breadth of scene management. (EMS9) a. Recognize hazards/potential hazards. b. Describe common hazards found at the scene of a trauma and a medical patient. c. Determine hazards found at the scene of a medical or trauma patient. d. Differentiate safe from unsafe scenes. e. Describe methods to make an unsafe scene safe. f. Discuss common mechanisms of injury/nature of illness. g. Predict patterns of injury based on mechanism of injury. h. Discuss the reason for identifying the total number of patients at the scene. i. Organize the management of a scene following size-up. j. Explain the reasons for identifying the need for additional help or assistance.

k. Explain the rationale for crew members to evaluate scene safety prior to entering.
l. Given visual scenarios, identify potential hazards.
m. Demonstrate the scene size-up.

4. Apply and integrate complex depth and comprehensive breadth of primary assessment. (EMS9)
   a. Summarize the reasons for forming a general impression of the patient.
   b. Discuss methods of assessing mental status.
   c. Categorize levels of consciousness in the adult, infant, and child.
   d. Differentiate between assessing the altered mental status in the adult, child, and infant patient.
   e. Discuss methods of assessing the airway in the adult, child, and infant patient.
   f. State reasons for management of the cervical spine once the patient has been determined to be a trauma patient.
   g. Analyze a scene to determine if spinal precautions are required.
   h. Describe methods used for assessing if a patient is breathing.
   i. Differentiate between a patient with adequate and inadequate minute ventilation.
   j. Distinguish between methods of assessing breathing in the adult, child, and infant patient.
   k. Compare the methods of providing airway care to the adult, child, and infant patient.
   l. Describe the methods used to locate and assess a pulse.
   m. Differentiate between locating and assessing a pulse in an adult, a child, and an infant patient.
   n. Discuss the need for assessing the patient for external bleeding.
   o. Describe normal and abnormal findings when assessing skin color.
   p. Describe normal and abnormal findings when assessing skin temperature.
   q. Describe normal and abnormal findings when assessing skin condition.
   r. Explain the reason for prioritizing a patient for care and transport.
   s. Identify patients who require expeditious transport.
   t. Describe the evaluation of a patient's perfusion status based on findings in the initial assessment.
   u. Integrate appropriate treatment and procedures.
   v. Describe and demonstrate the assessment of baseline vital signs.
   w. Explain the importance of forming a general impression of the patient.
   x. Explain the value of performing a primary assessment.
   y. Demonstrate a caring attitude when performing an initial assessment.
   z. Demonstrate the techniques for assessing mental status.
   aa. Demonstrate the techniques for assessing the airway.
   bb. Demonstrate the techniques for assessing if the patient is breathing.
   cc. Demonstrate the techniques for assessing if the patient has a pulse.
   dd. Demonstrate the techniques for assessing the patient for external bleeding.
   ee. Demonstrate the techniques for assessing the patient's skin color, temperature, and condition.
   ff. Demonstrate the ability to prioritize patients.

5. Apply and integrate complex depth and comprehensive breadth of history taking. (EMS9)
   a. Describe the techniques of history taking.

b. Discuss the importance of using open-ended questions.
c. Describe the use of facilitation, reflection, clarification, empathetic responses, confrontation, and interpretation.
d. Differentiate among facilitation, reflection, clarification, sympathetic responses, confrontation, and interpretation.
e. Describe the structure and purpose of a health history.
f. Describe how to obtain a comprehensive health history.
g. List the components of a comprehensive history of an adult patient.
h. Demonstrate the importance of empathy when obtaining a health history.
i. Demonstrate the importance of confidentiality when obtaining a health history.

6. Apply and integrate complex depth and comprehensive breadth of secondary assessment. (EMS9)

a. Define the terms inspection, palpation, percussion, and auscultation.
b. Describe the techniques of inspection, palpation, percussion, and auscultation.
c. Describe the evaluation of mental status.
d. Evaluate the importance of a general survey.
e. Describe the examination of skin, hair, and nails.
f. Differentiate between normal and abnormal findings of the assessment of the skin.
g. Describe the importance of abnormal findings of the assessment of the skin.
h. Describe the examination of the head and neck.
i. Differentiate between normal and abnormal findings of the scalp examination.
j. Describe the normal and abnormal assessment findings of the skull.
k. Describe the assessment of visual acuity.
l. Explain the rationale for the use of an ophthalmoscope.
m. Describe the examination of the eyes.
n. Distinguish between normal and abnormal assessment findings of the eyes.
o. Explain the rationale for the use of an otoscope.
p. Describe the examination of the ears.
q. Differentiate between normal and abnormal assessment findings of the ears.
r. Describe the examination of the nose.
s. Differentiate between normal and abnormal assessment findings of the nose.
t. Describe the examination of the mouth and pharynx.
u. Differentiate between normal and abnormal assessment findings of the mouth and pharynx.
v. Describe the examination of the neck.
w. Differentiate between normal and abnormal assessment findings of the neck.
x. Describe the survey of the thorax and respiration.
y. Describe the examination of the posterior chest.
z. Describe percussion of the chest.
aa. Differentiate among the percussion notes and their characteristics.
bb. Differentiate among the characteristics of breath sounds.
cc. Describe the examination of the anterior chest.
dd. Differentiate between normal and abnormal assessment findings of the chest examination.
ee. Describe special examination techniques related to the assessment of the chest.
ff. Describe the examination of the arterial pulse including rate, rhythm, and

amplitude.

gg. Distinguish between normal and abnormal findings of arterial pulse.
hh. Describe the assessment of jugular venous pressure and pulsations.
ii. Distinguish between normal and abnormal examination findings of jugular venous pressure and pulsations.
jj. Describe the examination of the heart and blood vessels.
kk. Differentiate between normal and abnormal assessment findings of the heart and blood vessels.
ll. Describe the auscultation of the heart.
mm. Differentiate between the characteristics of normal and abnormal findings associated with the auscultation of the heart.
nn. Describe special examination techniques of the cardiovascular examination.
oo. Describe the examination of the abdomen.
pp. Differentiate between normal and abnormal assessment findings of the abdomen.
qq. Describe auscultation of the abdomen.
rr. Distinguish between normal and abnormal findings of the auscultation of the abdomen.
ss. Describe the examination of the female genitalia.
tt. Differentiate between normal and abnormal assessment findings of the female genitalia.
uu. Describe the examination of the male genitalia.
vv. Differentiate between normal and abnormal findings of the male genitalia.
www. Describe the examination of the anus and rectum.
xxx. Distinguish between normal and abnormal findings of the anus and rectum.
yyy. Describe the examination of the peripheral vascular system.
zzz. Differentiate between normal and abnormal findings of the peripheral vascular system.
aaa. Describe the examination of the musculoskeletal system.
bbb. Differentiate between normal and abnormal findings of the musculoskeletal system.
ccc. Describe the examination of the nervous system.
ddd. Differentiate between normal and abnormal findings of the nervous system.
eee. Describe the assessment of the cranial nerves.
fff. Differentiate between normal and abnormal findings of the cranial nerves.
ggg. Describe the general guidelines of recording examination information.
hhh. Discuss the considerations of examination of an infant or child.
iii. Demonstrate a caring attitude when performing physical examination skills.
jjj. Discuss the importance of a professional appearance and demeanor when performing physical examination skills.
kkk. Discuss the limitations of conducting a physical exam in the out-of-hospital environment.
lll. Demonstrate the examination of skin, hair, and nails.
mmm. Demonstrate the examination of the head and neck.
nnn. Demonstrate the examination of the eyes.
ooo. Demonstrate the examination of the ears.
ppp. Demonstrate the assessment of visual acuity.
qqq. Demonstrate the examination of the nose.

rrr. Demonstrate the examination of the mouth and pharynx. sss. Demonstrate the examination of the neck. ttt. Demonstrate the examination of the thorax and ventilation. uuu. Demonstrate the examination of the posterior chest. vvv. Demonstrate auscultation of the chest. www. Demonstrate percussion of the chest. xxx. Demonstrate the examination of the anterior chest. yyy. Demonstrate special examination techniques related to the assessment of the chest. zzz. Demonstrate the examination of the arterial pulse including location, rate, rhythm, and amplitude. aaaa. Demonstrate the assessment of jugular venous pressure and pulsations. bbbb. Demonstrate the examination of the heart and blood vessels. cccc. Demonstrate special examination techniques of the cardiovascular examination. dddd. Demonstrate the examination of the abdomen. eeee. Demonstrate auscultation of the abdomen. ffff. Demonstrate the external visual examination of the female genitalia. gggg. Demonstrate the examination of the male genitalia. hhhh. Demonstrate the examination of the peripheral vascular system. iiii. Demonstrate the examination of the musculoskeletal system. jjjj. Demonstrate the examination of the nervous system.
7. Apply and integrate fundamental depth and foundational breadth in the use of monitoring devices.(EMS9, EMS10, EMS11, EMS12) a. Explain the benefit of continuous ECG monitoring. b. Demonstrate the use of continuous ECG monitoring. c. Explain the benefit of 12 lead ECG interpretation. d. Demonstrate the use of 12 lead ECG interpretation. e. Explain the benefit of carbon dioxide monitoring. f. Demonstrate the use of carbon dioxide monitoring. g. Explain the benefit of obtaining basic blood chemistry h. Demonstrate obtaining basic blood chemistry. i. Interpret basic blood chemistry results. j. Interpret arterial blood gases.
8. Apply and integrate complex depth and comprehensive breadth of reassessment. (EMS9) a. Discuss the reasons for repeating the primary assessment as part of the ongoing assessment. b. Describe orthostatic vital signs, and evaluate their usefulness in assessing a patient in shock. c. Apply the techniques of physical examination to the medical patient. d. Differentiate between the assessment that is performed for a patient who is unresponsive or has an altered mental status and other medical patients requiring assessment. e. Discuss the reasons for reconsidering the mechanism of injury. f. Apply the techniques of physical examination to the trauma patient. g. Describe the components of the reassessment. h. Describe trending of assessment components. i. Discuss medical identification devices/systems.

j. Demonstrate to others how patients' situations affect your evaluation of mechanism of injury or illness.
k. Identify the feelings that patients with medical conditions might be experiencing.
l. Explain the rationale for the feelings that these patients might be experiencing.
m. Demonstrate a caring attitude when performing a physical examination.
n. Recognize the feelings that patients might experience during assessment.
o. Explain the value of trending assessment components to other health professionals who assume care of the patient.

9. Demonstrate clinical decision making as it applies to patient assessment. (EMS9, EMS10, EMS11, EMS12)

a. Differentiate between critical life-threatening, potentially life-threatening, and non-life-threatening patient presentations.
b. Evaluate the benefits and shortfalls of protocols, standing orders, and patient care algorithms.
c. Define the components, stages, and sequences of the critical-thinking process for paramedics.
d. Apply the fundamental elements of critical thinking for paramedics.
e. Describe the effects of the "fight or flight" response and the positive and negative effects on a paramedic's decision making.

~~a. Describe the techniques of history taking.~~
~~b. Discuss the importance of using open-ended questions.~~
~~c. Describe the use of facilitation, reflection, clarification, empathetic responses, confrontation, and interpretation.~~
~~d. Differentiate among facilitation, reflection, clarification, sympathetic responses, confrontation, and interpretation.~~
~~e. Describe the structure and purpose of a health history.~~
~~f. Describe how to obtain a comprehensive health history.~~
~~g. List the components of a comprehensive history of an adult patient.~~
~~h. Demonstrate the importance of empathy when obtaining a health history.~~
~~i. Demonstrate the importance of confidentiality when obtaining a health history.~~

~~2. Explain the pathophysiological significance of physical exam findings.~~
~~a. Define the terms inspection, palpation, percussion, and auscultation.~~
~~b. Describe the techniques of inspection, palpation, percussion, and auscultation.~~
~~c. Describe the evaluation of mental status.~~
~~d. Evaluate the importance of a general survey.~~
~~e. Describe the examination of skin, hair, and nails.~~
~~f. Differentiate between normal and abnormal findings of the assessment of the skin.~~
~~g. Describe the importance of abnormal findings of the assessment of the skin.~~
~~h. Describe the examination of the head and neck.~~
~~i. Differentiate between normal and abnormal findings of the scalp~~

~~examination.~~

j. ~~Describe the normal and abnormal assessment findings of the skull.~~
k. ~~Describe the assessment of visual acuity.~~
l. ~~Explain the rationale for the use of an ophthalmoscope.~~
m. ~~Describe the examination of the eyes.~~
n. ~~Distinguish between normal and abnormal assessment findings of the eyes.~~
o. ~~Explain the rationale for the use of an otoscope.~~
p. ~~Describe the examination of the ears.~~
q. ~~Differentiate between normal and abnormal assessment findings of the ears.~~
r. ~~Describe the examination of the nose.~~
s. ~~Differentiate between normal and abnormal assessment findings of the nose.~~
t. ~~Describe the examination of the mouth and pharynx.~~
u. ~~Differentiate between normal and abnormal assessment findings of the mouth and pharynx.~~
v. ~~Describe the examination of the neck.~~
w. ~~Differentiate between normal and abnormal assessment findings of the neck.~~
x. ~~Describe the survey of the thorax and respiration.~~
y. ~~Describe the examination of the posterior chest.~~
z. ~~Describe percussion of the chest.~~
aa. ~~Differentiate among the percussion notes and their characteristics.~~
bb. ~~Differentiate among the characteristics of breath sounds.~~
cc. ~~Describe the examination of the anterior chest.~~
dd. ~~Differentiate between normal and abnormal assessment findings of the chest examination.~~
ee. ~~Describe special examination techniques related to the assessment of the chest.~~
ff. ~~Describe the examination of the arterial pulse including rate, rhythm, and amplitude.~~
gg. ~~Distinguish between normal and abnormal findings of arterial pulse.~~
hh. ~~Describe the assessment of jugular venous pressure and pulsations.~~
ii. ~~Distinguish between normal and abnormal examination findings of jugular venous pressure and pulsations.~~
jj. ~~Describe the examination of the heart and blood vessels.~~
kk. ~~Differentiate between normal and abnormal assessment findings of the heart and blood vessels.~~
ll. ~~Describe the auscultation of the heart.~~
mm. ~~Differentiate between the characteristics of normal and abnormal findings associated with the auscultation of the heart.~~

nn. ~~Describe special examination techniques of the cardiovascular examination.~~
oo. ~~Describe the examination of the abdomen.~~
pp. ~~Differentiate between normal and abnormal assessment findings of the abdomen.~~
qq. ~~Describe auscultation of the abdomen.~~
rr. ~~Distinguish between normal and abnormal findings of the auscultation of the abdomen.~~
ss. ~~Describe the examination of the female genitalia.~~
tt. ~~Differentiate between normal and abnormal assessment findings of the female genitalia.~~
uu. ~~Describe the examination of the male genitalia.~~
vv. ~~Differentiate between normal and abnormal findings of the male genitalia.~~
ww. ~~Describe the examination of the anus and rectum.~~
xx. ~~Distinguish between normal and abnormal findings of the anus and rectum.~~
yy. ~~Describe the examination of the peripheral vascular system.~~
zz. ~~Differentiate between normal and abnormal findings of the peripheral vascular system.~~
aaa. ~~Describe the examination of the musculoskeletal system.~~
bbb. ~~Differentiate between normal and abnormal findings of the musculoskeletal system.~~
ccc. ~~Describe the examination of the nervous system.~~
ddd. ~~Differentiate between normal and abnormal findings of the nervous system.~~
eee. ~~Describe the assessment of the cranial nerves.~~
fff. ~~Differentiate between normal and abnormal findings of the cranial nerves.~~
ggg. ~~Describe the general guidelines of recording examination information.~~
hhh. ~~Discuss the considerations of examination of an infant or child.~~
iii. ~~Demonstrate a caring attitude when performing physical examination skills.~~
jjj. ~~Discuss the importance of a professional appearance and demeanor when performing physical examination skills.~~
kkk. ~~Discuss the limitations of conducting a physical exam in the out-of-hospital environment.~~
lll. ~~Demonstrate the examination of skin, hair, and nails.~~
mmm. ~~Demonstrate the examination of the head and neck.~~
nnn. ~~Demonstrate the examination of the eyes.~~
ooo. ~~Demonstrate the examination of the ears.~~
ppp. ~~Demonstrate the assessment of visual acuity.~~
qqq. ~~Demonstrate the examination of the nose.~~
rrr. ~~Demonstrate the examination of the mouth and pharynx.~~
sss. ~~Demonstrate the examination of the neck.~~

ttt. Demonstrate the examination of the thorax and ventilation.
uuu. Demonstrate the examination of the posterior chest.
vvv. Demonstrate auscultation of the chest.
www. Demonstrate percussion of the chest.
xxx. Demonstrate the examination of the anterior chest.
yyy. Demonstrate special examination techniques related to the assessment of the chest.
zzz. Demonstrate the examination of the arterial pulse including location, rate, rhythm, and amplitude.
aaaa. Demonstrate the assessment of jugular venous pressure and pulsations.
bbbb. Demonstrate the examination of the heart and blood vessels.
cccc. Demonstrate special examination techniques of the cardiovascular examination.
dddd. Demonstrate the examination of the abdomen.
eeee. Demonstrate auscultation of the abdomen.
ffff. Demonstrate the external visual examination of the female genitalia.
gggg. Demonstrate the examination of the male genitalia.
hhhh. Demonstrate the examination of the peripheral vascular system.
iiii. Demonstrate the examination of the musculoskeletal system.
jjjj. Demonstrate the examination of the nervous system.

3. Discuss the principles of history taking and techniques of physical exam to perform a patient assessment.
   a. Recognize hazards/potential hazards.
   b. Describe common hazards found at the scene of a trauma and a medical patient.
   c. Determine hazards found at the scene of a medical or trauma patient.
   d. Differentiate safe from unsafe scenes.
   e. Describe methods to make an unsafe scene safe.
   f. Discuss common mechanisms of injury/nature of illness.
   g. Predict patterns of injury based on mechanism of injury.
   h. Discuss the reason for identifying the total number of patients at the scene.
   i. Organize the management of a scene following size-up.
   j. Explain the reasons for identifying the need for additional help or assistance.
   k. Summarize the reasons for forming a general impression of the patient.
   l. Discuss methods of assessing mental status.
   m. Categorize levels of consciousness in the adult, infant, and child.
   n. Differentiate between assessing the altered mental status in the adult, child, and infant patient.

o. ~~Discuss methods of assessing the airway in the adult, child, and infant patient.~~
p. ~~State reasons for management of the cervical spine once the patient has been determined to be a trauma patient.~~
q. ~~Analyze a scene to determine if spinal precautions are required.~~
r. ~~Describe methods used for assessing if a patient is breathing.~~
s. ~~Differentiate between a patient with adequate and inadequate minute ventilation.~~
t. ~~Distinguish between methods of assessing breathing in the adult, child, and infant patient.~~
u. ~~Compare the methods of providing airway care to the adult, child, and infant patient.~~
v. ~~Describe the methods used to locate and assess a pulse.~~
w. ~~Differentiate between locating and assessing a pulse in an adult, child, and infant patient.~~
x. ~~Discuss the need for assessing the patient for external bleeding.~~
y. ~~Describe normal and abnormal findings when assessing skin color.~~
z. ~~Describe normal and abnormal findings when assessing skin temperature.~~
aa. ~~Describe normal and abnormal findings when assessing skin condition.~~
bb. ~~Explain the reason for prioritizing a patient for care and transport.~~
cc. ~~Identify patients who require expeditious transport.~~
dd. ~~Describe the evaluation of patient's perfusion status based on findings in the initial assessment.~~
ee. ~~Describe orthostatic vital signs and evaluate their usefulness in assessing a patient in shock.~~
ff. ~~Apply the techniques of physical examination to the medical patient.~~
gg. ~~Differentiate between the assessment that is performed for a patient who is unresponsive or has an altered mental status and other medical patients requiring assessment.~~
hh. ~~Discuss the reasons for reconsidering the mechanism of injury.~~
ii. ~~State the reasons for performing a rapid trauma assessment.~~
jj. ~~Explain why patients should receive a rapid trauma assessment.~~
kk. ~~Apply the techniques of physical examination to the trauma patient.~~
ll. ~~Describe the areas included in the rapid trauma assessment and discuss what should be evaluated.~~
mm. ~~Discuss cases when the rapid assessment may be altered in order to provide patient care.~~
nn. ~~Discuss the reason for performing a focused history and physical exam.~~
oo. ~~Describe when and why a detailed physical examination is necessary.~~

pp. Discuss the components of the detailed physical exam in relation to the techniques of examination.
qq. State the areas of the body that are evaluated during the detailed physical exam.
rr. Explain what additional care should be provided while performing the detailed physical exam.
ss. Distinguish between the detailed physical exam that is performed on a trauma patient and that of the medical patient.
tt. Differentiate between patients requiring a detailed physical exam and those who do not.
uu. Discuss the reasons for repeating the initial assessment as part of the ongoing assessment.
vv. Describe the components of the ongoing assessment.
ww. Describe trending of assessment components.
xx. Discuss medical identification devices/systems.
yy. Explain the rationale for crew members to evaluate scene safety prior to entering.
zz. Demonstrate to others how patient situations affect your evaluation of mechanism of injury or illness.
aaa. Explain the importance of forming a general impression of the patient.
bbb. Explain the value of performing an initial assessment.
ccc. Demonstrate a caring attitude when performing an initial assessment.
ddd. Identify the feelings that patients with medical conditions might be experiencing.
eee. Demonstrate maintaining a professional caring attitude when performing a focused history and physical examination.
fff. Explain the rationale for the feelings that these patients might be experiencing.
ggg. Demonstrate a caring attitude when performing a detailed physical examination.
hhh. Explain the value of performing an ongoing assessment.
iii. Recognize the feelings that patients might experience during assessment.
jjj. Explain the value of trending assessment components to other health professionals who assume care of the patient.
kkk. Given visual scenarios, identify potential hazards.
lll. Demonstrate the scene size-up.
mmm. Demonstrate the techniques for assessing mental status.
nnn. Demonstrate the techniques for assessing the airway.
ooo. Demonstrate the techniques for assessing if the patient is breathing.
ppp. Demonstrate the techniques for assessing if the patient has a pulse.

qqq. Demonstrate the techniques for assessing the patient for external bleeding.
rrr. Demonstrate the techniques for assessing the patient's skin color, temperature, and condition.
sss. Demonstrate the ability to prioritize patients.
ttt. Using the techniques of examination, demonstrate the assessment of a medical patient.
uuu. Demonstrate the patient care skills that should be used to assist with a patient who is responsive with no known history.
vvv. Demonstrate the patient care skills that should be used to assist with a patient who is unresponsive or has an altered mental status.
www. Perform a rapid medical assessment.
xxx. Perform a focused history and physical exam of the medical patient.
yyy. Using the techniques of physical examination, demonstrate the assessment of a trauma patient.
zzz. Demonstrate the rapid trauma assessment used to assess a patient based on mechanism of injury.
aaaa. Perform a focused history and physical exam on a non-critically injured patient.
bbbb. Perform a focused history and physical exam on a patient with life-threatening injuries.
cccc. Perform a detailed physical examination.
dddd. Demonstrate the skills involved in performing the ongoing assessment.

4. Demonstrate the process of clinical decision making to use the assessment findings to help form a field impression.
   a. Compare the factors influencing medical care in the out-of-hospital environment to other medical settings.
   b. Differentiate between critical life-threatening, potentially life-threatening, and non life-threatening patient presentations.
   c. Evaluate the benefits and shortfalls of protocols, standing orders, and patient care algorithms.
   d. Define the components, stages, and sequences of the critical thinking process for paramedics.
   e. Apply the fundamental elements of critical thinking for paramedics.
   f. Describe the effects of the "fight or flight" response and the positive and negative effects on a paramedic's decision making.
   g. Summarize the "six Rs" of putting it all together: Read the patient, Read the scene, React, Reevaluate, Revise the management plan, Review performance.
   h. Defend the position that clinical decision making is the cornerstone of effective paramedic practice.
   i. Practice facilitating behaviors when thinking under pressure.

5. ~~Outline an accepted format for dissemination of patient information in verbal form, either in person or over the radio.~~
   a. ~~Identify the importance of communications when providing EMS.~~
   b. ~~Identify the role of verbal, written, and electronic communications in the provision of EMS.~~
   c. ~~Describe the phases of communications necessary to complete a typical EMS event.~~
   d. ~~Identify the importance of proper terminology when communicating during an EMS event.~~
   e. ~~Identify the importance of proper verbal communications during an EMS event.~~
   f. ~~List factors that impede effective verbal communications.~~
   g. ~~List factors which enhance verbal communications.~~
   h. ~~Identify the importance of proper written communications during an EMS event.~~
   i. ~~List factors which impede effective written communications.~~
   j. ~~List factors which enhance written communications.~~
   k. ~~Explain the importance of the legal status of written communications related to an EMS event.~~
   l. ~~State the importance of data collection during an EMS event.~~
   m. ~~Identify technology used to collect and exchange patient and/or scene information electronically.~~
   n. ~~Recognize the legal status of patient medical information exchanged electronically.~~
   o. ~~Identify the components of the local EMS communications system and describe their function and use.~~
   p. ~~Identify and differentiate among the following communications systems:~~
      (1) ~~Simplex~~
      (2) ~~Multiplex~~
      (3) ~~Duplex~~
      (4) ~~Trunked~~
      (5) ~~Digital communications~~
      (6) ~~Cellular telephone~~
      (7) ~~Facsimile~~
      (8) ~~Computer~~
   q. ~~Identify the components of the local dispatch communications system and describe their function and use.~~
   r. ~~Describe the functions and responsibilities of the Federal Communications Commission.~~
   s. ~~Describe how an EMS dispatcher functions as an integral part of the EMS team.~~
   t. ~~List appropriate information to be gathered by the Emergency Medical Dispatcher.~~

u. ~~Identify the role of Emergency Medical Dispatch in a typical EMS event.~~
v. ~~Identify the importance of pre-arrival instructions in a typical EMS event.~~
w. ~~Describe the purpose of verbal communication of patient information to the hospital.~~
x. ~~Describe information that should be included in patient assessment information verbally reported to medical direction.~~
y. ~~Diagram a basic model of communications.~~
z. ~~Organize a list of patient assessment information in the correct order for electronic transmission to medical direction according to the format used locally.~~
aa. ~~Utilize proper terminology when describing a patient or patient condition.~~
bb. ~~Demonstrate the ability to use the local dispatch communications system.~~
cc. ~~Demonstrate the ability to use a radio.~~
dd. ~~Demonstrate the ability to use the biotelemetry equipment used locally.~~

6. ~~Effectively document the essential elements of patient assessment, care, and transport.~~
   a. ~~Identify the general principles regarding the importance of EMS documentation and ways in which documents are used.~~
   b. ~~Utilize medical terminology correctly.~~
   c. ~~List appropriate and accurate medical abbreviations and acronyms.~~
   d. ~~Record all pertinent administrative information.~~
   e. ~~Explain the role of documentation in agency reimbursement.~~
   f. ~~Analyze the documentation for accuracy and completeness, including spelling.~~
   g. ~~Eliminate extraneous or nonprofessional information from all communications.~~
   h. ~~Describe the differences between subjective and objective elements of documentation.~~
   i. ~~Evaluate a finished document for errors and omissions.~~
   j. ~~Evaluate a finished document for proper use and spelling of abbreviations and acronyms.~~
   k. ~~Evaluate the confidential nature of an EMS report.~~
   l. ~~Describe the potential consequences of illegible, incomplete, or inaccurate documentation.~~
   m. ~~Describe the special considerations concerning patient refusal of transport.~~
   n. ~~Record pertinent information using a consistent narrative format.~~
   o. ~~Explain how to properly record direct patient or bystander comments.~~
   p. ~~Describe the special considerations concerning mass casualty incident documentation.~~
   q. ~~Apply the principles of documentation to computer charting, as access to this technology becomes available.~~
   r. ~~Record the pertinent, reportable clinical data of each patient interaction.~~
   s. ~~Record “pertinent negative” clinical findings.~~

t. ~~Correct errors and omissions, using proper procedures as defined under local protocol.~~
u. ~~Revise documents, when necessary, using locally-approved procedures.~~
v. ~~Demonstrate responsibility for self-assessment of all documentation.~~
w. ~~Demonstrate proper completion of an EMS event record used locally.~~
x. ~~Demonstrate the relevance and importance of properly completed documentation.~~
y. ~~Discuss the common negative attitudes toward the task of documentation.~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S5 Investigate the properties and reactions of matter to include symbols, formulas, and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~
~~S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~Workplace Skills~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse populations.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problems solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~

~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

STANDARDS

National EMS Educational ~~Technology~~ *Standards* ~~for Students~~

~~T1 Basic operations and concepts~~
~~T2~~EMS2 Anatomy and Physiology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)

S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the finding to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P., (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: EMS Special ~~Considerations~~ Patient Populations

Course Abbreviation: ~~**EMT 1423**~~EMS 1422

Classification: Vocational~~-~~–Technical Core

Description: This course will provide a comprehensive overview of providing care for the patient with special needs. This course was previously taught as Special Considerations~~. (3~~ (EMT 1423). (2 sch: 1-hr~~.~~ lecture, ~~4~~ 2-hr~~.~~ lab)

Prerequisite~~s~~: All first semester courses

Competencies and Suggested Objectives
1. Explain the pathophysiological principles and the assessment findings to formulate and implement a treatment plan for the geriatric patient. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
a. Discuss population demographics demonstrating the rise in elderly population in the U.S.
b. Discuss society's view of aging and the social, financial, and ethical issues facing the elderly.
c. Assess the various living environments of elderly patients.
d. Describe the local resources available to assist the elderly, and create strategies to refer at-risk patients to appropriate community services.
e. Discuss issues facing society concerning the elderly.
f. Discuss common emotional and psychological reactions to aging to include causes and manifestations.
g. Apply the pathophysiology of multi-system failure to the assessment and management of medical conditions in the elderly patient.
h. Discuss the problems with mobility in the elderly, and develop strategies to prevent falls.
i. Discuss the implications of problems with sensation to communication and patient assessment.
j. Discuss the problems with continence and elimination, and develop communication strategies to provide psychological support.
k. Discuss factors that may complicate the assessment of the elderly patient.
l. Describe principles that should be employed when assessing and communicating with the elderly.
m. Compare the assessment of a young patient with that of an elderly patient.
n. Discuss common complaints of elderly patients.
o. Compare the pharmacokinetics of an elderly patient to that of a young adult.
p. Discuss the impact of polypharmacy and medication non-compliance on patient assessment and management.
q. Discuss drug distribution, metabolism, and excretion in the elderly patient.
r. Discuss medication issues of the elderly including polypharmacy, dosing errors, and increased drug sensitivity.
s. Discuss the use and effects of commonly prescribed drugs for the elderly patient.

t. Discuss the normal and abnormal changes with age of the pulmonary system.
u. Describe the epidemiology of pulmonary diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
v. Compare and contrast the pathophysiology of pulmonary diseases in the elderly with that of a younger adult, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
w. Discuss the assessment of the elderly patient with pulmonary complaints, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
x. Identify the need for intervention and transport of the elderly patient with pulmonary complaints.
y. Develop a treatment and management plan of the elderly patient with pulmonary complaints, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.
z. Discuss the normal and abnormal cardiovascular system changes with age.
aa. Describe the epidemiology for cardiovascular diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
bb. Compare and contrast the pathophysiology of cardiovascular diseases in the elderly with that of a younger adult, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
cc. Discuss the assessment of the elderly patient with complaints related to the cardiovascular system, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
dd. Identify the need for intervention and transportation of the elderly patient with cardiovascular complaints.
ee. Develop a treatment and management plan of the elderly patient with cardiovascular complaints, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.
ff. Discuss the normal and abnormal changes with age of the nervous system.
gg. Describe the epidemiology for nervous system diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with cerebral vascular disease, delirium, dementia, Alzheimer’s disease, and Parkinson’s disease.
hh. Compare and contrast the pathophysiology of nervous system diseases in the elderly with that of a younger adult, including cerebral vascular disease, delirium, dementia, Alzheimer’s disease, and Parkinson’s disease.
ii. Discuss the assessment of the elderly patient with complaints related to the nervous system, including cerebral vascular disease, delirium, dementia, Alzheimer’s disease, and Parkinson’s disease.
jj. Identify the need for intervention and transportation of the patient with complaints related to the nervous system.
kk. Develop a treatment and management plan of the elderly patient with complaints related to the nervous system, including cerebral vascular disease, delirium,

dementia, Alzheimer's disease, and Parkinson's disease.

ll. Discuss the normal and abnormal changes of the endocrine system with age.

mm. Describe the epidemiology for endocrine diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with diabetes and thyroid diseases.

nn. Compare and contrast the pathophysiology of diabetes and thyroid diseases in the elderly with that of a younger adult.

oo. Discuss the assessment of the elderly patient with complaints related to the endocrine system, including diabetes and thyroid diseases.

pp. Identify the need for intervention and transportation of the patient with endocrine problems.

qq. Develop a treatment and management plan of the elderly patient with endocrine problems, including diabetes and thyroid diseases.

rr. Discuss the normal and abnormal changes of the gastrointestinal system with age.

ss. Discuss the assessment of the elderly patient with complaints related to the gastrointestinal system.

tt. Identify the need for intervention and transportation of the patient with gastrointestinal complaints.

uu. Execute a treatment and management plan of the elderly patient with gastrointestinal problems.

vv. Discuss the assessment and management of an elderly patient with GI hemorrhage and bowel obstruction.

ww. Compare and contrast the pathophysiology of GI hemorrhage and bowel obstruction in the elderly with that of a young adult.

xx. Discuss the normal and abnormal changes with age related to toxicology.

yy. Discuss the assessment of the elderly patient with complaints related to toxicology.

zz. Identify the need for intervention and transportation of the patient with toxicological problems.

aaa. Execute a treatment and management plan of the elderly patient with toxicological problems.

bbb. Describe the epidemiology in the elderly, including the incidence, morbidity/mortality, risk factors, and prevention strategies, for patients with drug toxicity.

ccc. Compare and contrast the pathophysiology of drug toxicity in the elderly with that of a younger adult.

ddd. Discuss the assessment findings common in elderly patients with drug toxicity.

eee. Discuss the management/considerations when treating an elderly patient with drug toxicity.

fff. Describe the epidemiology for drug and alcohol abuse in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.

ggg. Compare and contrast the pathophysiology of drug and alcohol abuse in the elderly with that of a younger adult.

hhh. Discuss the assessment findings common in elderly patients with drug and alcohol abuse.

iii. Discuss the management/considerations when treating an elderly patient with drug and alcohol abuse.

jjj. Discuss the normal and abnormal changes of thermoregulation with age.
kkk. Discuss the assessment of the elderly patient with complaints related to thermoregulation.
lll. Identify the need for intervention and transportation of the patient with environmental considerations.
mmm. Execute a treatment and management plan of the elderly patient with environmental considerations.
nnn. Compare and contrast the pathophysiology of hypothermia and hyperthermia in the elderly with that of a younger adult.
ooo. Discuss the assessment findings and management plan for elderly patients with hypothermia and hyperthermia.
ppp. Discuss the normal and abnormal psychiatric changes of age.
qqq. Describe the epidemiology of depression and suicide in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.
rrr. Compare and contrast the psychiatry of depression and suicide in the elderly with that of a younger adult.
sss. Discuss the assessment of the elderly patient with psychiatric complaints, including depression and suicide.
ttt. Identify the need for intervention and transport of the elderly psychiatric patient.
uuu. Develop a treatment and management plan of the elderly psychiatric patient, including depression and suicide.
vvv. Discuss the normal and abnormal changes of the integumentary system with age.
www. Describe epidemiology for pressure ulcers in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.
xxx. Compare and contrast the pathophysiology of pressure ulcers in the elderly with that of a younger adult.
yyy. Discuss the assessment of the elderly patient with complaints related to the integumentary system, including pressure ulcers.
zzz. Identify the need for intervention and transportation of the patient with complaints related to the integumentary system.
aaaa. Develop a treatment and management plan of the elderly patient with complaints related to the integumentary system, including pressure ulcers.
bbbb. Discuss the normal and abnormal changes of the musculoskeletal system with age.
cccc. Describe the epidemiology for osteoarthritis and osteoporosis, including incidence, morbidity/mortality, risk factors, and prevention strategies.
dddd. Compare and contrast the pathophysiology of osteoarthritis and osteoporosis with that of a younger adult.
eeee. Discuss the assessment of the elderly patient with complaints related to the musculoskeletal system, including osteoarthritis and osteoporosis.
ffff. Identify the need for intervention and transportation of the patient with musculoskeletal complaints.
gggg. Develop a treatment and management plan of the elderly patient with musculoskeletal complaints, including osteoarthritis and osteoporosis.
hhhh. Describe the epidemiology for trauma in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with orthopedic injuries, burns, and head injuries.

iiii. Compare and contrast the pathophysiology of trauma in the elderly with that of a younger adult, including orthopedic injuries, burns, and head injuries.
jjjj. Discuss the assessment findings common in elderly patients with traumatic injuries, including orthopedic injuries, burns, and head injuries.
kkkk. Discuss the management/considerations when treating an elderly patient with traumatic injuries, including orthopedic injuries, burns, and head injuries.
llll. Identify the need for intervention and transport of the elderly patient with trauma.
mmmm. Demonstrate appropriate interactions with the elderly that convey respect for their position in life.
nnnn. Recognize the emotional need for independence in the elderly while simultaneously attending to their apparent acute dependence.
oooo. Recognize and appreciate the many impediments to physical and emotional well-being in the elderly.
pppp. Recognize and appreciate the physical and emotional difficulties, particularly the patient with Alzheimer's disease.
qqqq. Demonstrate the ability to assess a geriatric patient.
rrrr. Demonstrate the ability to adjust an assessment to a geriatric patient.
ssss. Discuss aging and the immune function in the elderly, including herpes zoster.
tttt. Discuss the effect of aging on the mechanisms of self-defense.

2. Discuss the assessment findings to formulate a field impression, and implement a treatment plan for the patient who has sustained abuse or assault. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)

a. Discuss the incidence of abuse and assault.
b. Describe the categories of abuse.
c. Discuss examples of domestic abuse.
d. Discuss examples of elder abuse.
e. Discuss examples of child abuse.
f. Discuss examples of sexual assault.
g. Describe the characteristics associated with the profile of the typical abuser of a domestic partner.
h. Describe the characteristics associated with the profile of the typical abuser of the elderly.
i. Describe the characteristics associated with the profile of the typical abuser of children.
j. Describe the characteristics associated with the profile of the typical assailant of sexual assault.
k. Identify the profile of the "at-risk" domestic partners.
l. Identify the profile of the "at-risk" elderly.
m. Identify the profile of the "at-risk" child.
n. Discuss the assessment and management of the abused patient.
o. Discuss the legal aspects associated with abuse situations.
p. Identify community resources that are able to assist victims of abuse and assault.
q. Discuss the documentation associated with the abused and assaulted patient.
r. Demonstrate sensitivity to the abused patient.
s. Recognize the behavior of the abused patient.
t. Recognize the emotional state of the abused patient.

u. Recognize the value of nonverbal communication with the abused patient.
v. Demonstrate reassurance, empathy, and compassion with the abused patient.
w. Recognize the concerns expressed by the abused patient.
x. Recognize the concerns expressed by the sexually assaulted patient.
y. Demonstrate the ability to assess a domestic partner, an elder, or a child abused patient.
z. Demonstrate the ability to assess a sexually assaulted patient.

5. Explain the pathophysiological and psychosocial principles to adapt the assessment and treatment plan for diverse patients and those who face physical, mental, social, and financial challenges. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
   a. Describe the various etiologies and types of hearing impairments.
   b. Recognize the patient with a hearing impairment.
   c. Plan for accommodations that may be needed in order to properly manage the patient with a hearing impairment.
   d. Describe the various etiologies of visual impairments.
   e. Recognize the patient with a visual impairment.
   f. Plan for accommodations that may be needed in order to properly manage the patient with a visual impairment.
   g. Describe the various etiologies and types of speech impairments.
   h. Recognize the patient with speech impairment.
   i. Plan for accommodations that may be needed in order to properly manage the patient with speech impairment.
   j. Describe the various etiologies of bariatrics.
   k. Plan for accommodations that may be needed in order to properly manage the bariatric patient.
   l. Describe paraplegia/quadriplegia.
   m. Plan for accommodations that may be needed in order to properly manage the patient with paraplegia/quadriplegia.
   n. Define mental illness.
   o. Describe the various etiologies of mental illness.
   p. Recognize the presenting signs of the various mental illnesses.
   q. Plan for accommodations that may be needed in order to properly manage the patient with a mental illness.
   r. Define the term “developmentally disabled.”
   s. Recognize the patient with a developmental disability.
   t. Plan for accommodations that may be needed in order to properly manage the patient with a developmental disability.
   u. Describe Down syndrome.
   v. Recognize the patient with Down syndrome.
   w. Plan for accommodations that may be needed in order to properly manage the patient with Down syndrome.
   x. Describe the various etiologies of emotional impairment.
   y. Recognize the patient with an emotional impairment.
   z. Plan for accommodations that may be needed in order to properly manage the patient with an emotional impairment.
   aa. Define emotional/cognitive impairment.

bb. Recognize the patient with an emotional or cognitive impairment.
cc. Plan for accommodations that may be needed in order to properly manage patients with an emotional or cognitive impairment.
dd. Discuss the following diseases/illnesses to include signs/symptoms and management of the following:
(1) Arthritis
(2) Cancer
(3) Cerebral palsy
(4) Cystic fibrosis
(5) Multiple sclerosis
(6) Muscular dystrophy
(7) Myasthenia gravis
(8) Poliomyelitis
(9) Spina bifida
(10) Patients with a previous head injury
ee. Define cultural diversity.
ff. Recognize a patient who is culturally diverse populations.
gg. Plan for accommodations that may be needed in order to properly manage a patient who is culturally diverse populations.
hh. Identify a patient that is terminally ill.
ii. Plan for accommodations that may be needed in order to properly manage a patient who is terminally ill.
jj. Identify a patient with a communicable disease.
kk. Recognize the presenting signs of a patient with a communicable disease.
ll. Plan for accommodations that may be needed in order to properly manage a patient with a communicable disease.
mm. Recognize sign(s) of financial impairments.
nn. Plan for accommodations that may be needed in order to properly manage the patient with a financial impairment.

4. Discuss the pathophysiological principles and the assessment findings to formulate a field impression, and implement a treatment plan for the acute deterioration of a chronic care patient. (EMS 2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
a. Compare and contrast the primary objectives of the ALS professional and the home-care professional.
b. Identify the importance of home health care medicine as related to the ALS level of care.
c. Differentiate between the role of EMS provider and the role of the home-care provider.
d. Compare and contrast the primary objectives of acute care, home care, and hospice care.
e. Summarize the types of home health care available in your area and the services provided.
f. Discuss the aspects of home care that result in enhanced quality of care for a given patient.
g. Discuss the aspects of home care that have a potential to become a detriment to the quality of care for a given patient.

h. List complications commonly seen in the home-care patients that result in their hospitalization.
i. Compare the cost, mortality, and quality of care for a given patient in the hospital versus the home-care setting.
j. Discuss the significance of palliative care programs as related to a patient in a home health care setting.
k. Define hospice care, comfort care, and DNR/DNAR as they relate to local practice, law, and policy.
l. List the stages of the grief process, and relate them to an individual in hospice care.
m. List pathologies and complications typical to home-care patients.
n. Given a home-care scenario, predict complications requiring ALS intervention.
o. Given a series of home-care scenarios, determine which patients should receive follow-up home care and which should be transported to an emergency care facility.
p. List vascular access devices found in the home-care setting.
q. Recognize standard central venous access devices utilized in home health care.
r. Describe the basic universal characteristics of central venous catheters.
s. Describe the basic universal characteristics of implantable injection devices.
t. List devices found in the home-care setting that are used to empty, irrigate, or deliver nutrition or medication to the GI/GU tract.
u. Describe complications of assessing each of the airway, vascular access, and GI/GU devices described above.
v. Given a series of scenarios, demonstrate the appropriate ALS interventions.
w. Given a series of scenarios, demonstrate interaction and support with the family members/support persons for a patient who has died.
x. Describe common complications with central venous access and implantable drug administration ports in the out-of-hospital setting.
y. Describe the indications and contraindications for urinary catheter insertion in an out-of-hospital setting.
z. Identify the proper anatomy for placement of urinary catheters in males and females.
aa. Identify failure of GI/GU devices found in the home-care setting.
bb. Identify failure of ventilatory devices found in the home-care setting.
cc. Identify failure of vascular access devices found in the home-care setting.
dd. Identify failure of drains.
ee. Differentiate between home care and acute care as preferable situations for a given patient scenario.
ff. Discuss the relationship between local home-care treatment protocols/SOPs and local EMS protocols/SOPs.
gg. Discuss differences in the ability of individuals to accept and cope with their own impending death.
hh. Discuss the rights of the terminally ill.
ii. Give in the paramedic’s own words the role of the home-care professional in patient care along the life-span continuum.
jj. Recognize the patient’s desire to remain in the home setting.
kk. Recognize the patient’s desire to accept or deny hospice care.

ll. Recognize the uses of long-term venous access in the home health setting, including but not limited to the following:
   (1) Chemotherapy
   (2) Home pain management
   (3) Nutrition therapy
   (4) Congestive heart therapy
   (5) Antibiotic therapy

mm. Observe for an infected or otherwise complicated venous access point.

nn. Demonstrate the proper technique for drawing blood from a central venous line.

oo. Demonstrate the method of accessing vascular access devices found in the home health-care setting.

~~Competencies and Suggested Objectives:~~

~~1. Explain the pathophysiological principles and the assessment findings to formulate and implement a treatment plan for the geriatric patient.~~

~~a. Discuss population demographics demonstrating the rise in elderly population in the U.S.~~

~~b. Discuss society's view of aging and the social, financial, and ethical issues facing the elderly.~~

~~c. Assess the various living environments of elderly patients.~~

~~d. Describe the local resources available to assist the elderly, and create strategies to refer at risk patients to appropriate community services.~~

~~e. Discuss issues facing society concerning the elderly.~~

~~f. Discuss common emotional and psychological reactions to aging to include causes and manifestations.~~

~~g. Apply the pathophysiology of multi-system failure to the assessment and management of medical conditions in the elderly patient.~~

~~h. Discuss the problems with mobility in the elderly and develop strategies to prevent falls.~~

~~i. Discuss the implications of problems with sensation to communication and patient assessment.~~

~~j. Discuss the problems with continence and elimination and develop communication strategies to provide psychological support.~~

~~k. Discuss factors that may complicate the assessment of the elderly patient.~~

~~l. Describe principles that should be employed when assessing and communicating with the elderly.~~

~~m. Compare the assessment of a young patient with that of an elderly patient.~~

~~n. Discuss common complaints of elderly patients.~~

~~o. Compare the pharmacokinetics of an elderly patient to that of a young adult.~~

~~p. Discuss the impact of polypharmacy and medication non-compliance on patient assessment and management.~~

~~q. Discuss drug distribution, metabolism, and excretion in the elderly patient.~~

r. ~~Discuss medication issues of the elderly including polypharmacy, dosing errors, and increased drug sensitivity.~~
s. ~~Discuss the use and effects of commonly prescribed drugs for the elderly patient.~~
t. ~~Discuss the normal and abnormal changes with age of the pulmonary system.~~
u. ~~Describe the epidemiology of pulmonary diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.~~
v. ~~Compare and contrast the pathophysiology of pulmonary diseases in the elderly with that of a younger adult, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.~~
w. ~~Discuss the assessment of the elderly patient with pulmonary complaints, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.~~
x. ~~Identify the need for intervention and transport of the elderly patient with pulmonary complaints.~~
y. ~~Develop a treatment and management plan of the elderly patient with pulmonary complaints, including pneumonia, chronic obstructive pulmonary diseases, and pulmonary embolism.~~
z. ~~Discuss the normal and abnormal cardiovascular system changes with age.~~
aa. ~~Describe the epidemiology for cardiovascular diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.~~
bb. ~~Compare and contrast the pathophysiology of cardiovascular diseases in the elderly with that of a younger adult, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.~~
cc. ~~Discuss the assessment of the elderly patient with complaints related to the cardiovascular system, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.~~
dd. ~~Identify the need for intervention and transportation of the elderly patient with cardiovascular complaints.~~
ee. ~~Develop a treatment and management plan of the elderly patient with cardiovascular complaints, including myocardial infarction, heart failure, dysrhythmias, aneurism, and hypertension.~~
ff. ~~Discuss the normal and abnormal changes with age of the nervous system.~~
gg. ~~Describe the epidemiology for nervous system diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with cerebral vascular disease, delirium, dementia, Alzheimer's disease, and Parkinson's disease.~~

hh. Compare and contrast the pathophysiology of nervous system diseases in the elderly with that of a younger adult, including cerebral vascular disease, delirium, dementia, Alzheimer's disease, and Parkinson's disease.

ii. Discuss the assessment of the elderly patient with complaints related to the nervous system, including cerebral vascular disease, delirium, dementia, Alzheimer's disease, and Parkinson's disease.

jj. Identify the need for intervention and transportation of the patient with complaints related to the nervous system.

kk. Develop a treatment and management plan of the elderly patient with complaints related to the nervous system, including cerebral vascular disease, delirium, dementia, Alzheimer's disease, and Parkinson's disease.

ll. Discuss the normal and abnormal changes of the endocrine system with age.

mm. Describe the epidemiology for endocrine diseases in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with diabetes and thyroid diseases.

nn. Compare and contrast the pathophysiology of diabetes and thyroid diseases in the elderly with that of a younger adult.

oo. Discuss the assessment of the elderly patient with complaints related to the endocrine system, including diabetes and thyroid diseases.

pp. Identify the need for intervention and transportation of the patient with endocrine problems.

qq. Develop a treatment and management plan of the elderly patient with endocrine problems, including diabetes and thyroid diseases.

rr. Discuss the normal and abnormal changes of the gastrointestinal system with age.

ss. Discuss the assessment of the elderly patient with complaints related to the gastrointestinal system.

tt. Identify the need for intervention and transportation of the patient with gastrointestinal complaints.

uu. Execute a treatment and management plan of the elderly patient with gastrointestinal problems.

vv. Discuss the assessment and management of an elderly patient with GI hemorrhage and bowel obstruction.

ww. Compare and contrast the pathophysiology of GI hemorrhage and bowel obstruction in the elderly with that of a young adult.

xx. Discuss the normal and abnormal changes with age related to toxicology.

yy. Discuss the assessment of the elderly patient with complaints related to toxicology.

zz. Identify the need for intervention and transportation of the patient with toxicological problems.

aaa. Execute a treatment and management plan of the elderly patient with

bbb. Describe the epidemiology in the elderly, including the incidence, morbidity/mortality, risk factors, and prevention strategies, for patients with drug toxicity.

ccc. Compare and contrast the pathophysiology of drug toxicity in the elderly with that of a younger adult.
ddd. Discuss the assessment findings common in elderly patients with drug toxicity.
eee. Discuss the management/considerations when treating an elderly patient with drug toxicity.
fff. Describe the epidemiology for drug and alcohol abuse in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.

ggg. Compare and contrast the pathophysiology of drug and alcohol abuse in the elderly with that of a younger adult.

hhh. Discuss the assessment findings common in elderly patients with drug and alcohol abuse.

iii. Discuss the management/considerations when treating an elderly patient with drug and alcohol abuse.

jjj. Discuss the normal and abnormal changes of thermoregulation with age.
kkk. Discuss the assessment of the elderly patient with complaints related to thermoregulation.
lll. Identify the need for intervention and transportation of the patient with environmental considerations.
mmm. Execute a treatment and management plan of the elderly patient with environmental considerations.
nnn. Compare and contrast the pathophysiology of hypothermia and hyperthermia in the elderly with that of a younger adult.
ooo. Discuss the assessment findings and management plan for elderly patients with hypothermia and hyperthermia.
ppp. Discuss the normal and abnormal psychiatric changes of age.
qqq. Describe the epidemiology of depression and suicide in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.
rrr. Compare and contrast the psychiatry of depression and suicide in the elderly with that of a younger adult.
sss. Discuss the assessment of the elderly patient with psychiatric complaints, including depression and suicide.
ttt. Identify the need for intervention and transport of the elderly psychiatric patient.
uuu. Develop a treatment and management plan of the elderly psychiatric patient, including depression and suicide.

vvv. Discuss the normal and abnormal changes of the integumentary

www. Describe epidemiology for pressure ulcers in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies.
xxx. Compare and contrast the pathophysiology of pressure ulcers in the elderly with that of a younger adult.
yyy. Discuss the assessment of the elderly patient with complaints related

~~to the integumentary system, including pressure ulcers.~~

~~zzz. Identify the need for intervention and transportation of the patient with complaints related to the integumentary system.~~

~~aaaa. Develop a treatment and management plan of the elderly patient with complaints related to the integumentary system, including pressure ulcers.~~

~~bbbb. Discuss the normal and abnormal changes of the musculoskeletal system with age.~~

~~cccc. Describe the epidemiology for osteoarthritis and osteoporosis, including incidence, morbidity/ mortality, risk factors, and prevention strategies.~~

~~dddd. Compare and contrast the pathophysiology of osteoarthritis and osteoporosis with that of a younger adult.~~

~~eeee. Discuss the assessment of the elderly patient with complaints related to the musculoskeletal system, including osteoarthritis and osteoporosis.~~

~~ffff. Identify the need for intervention and transportation of the patient with musculoskeletal complaints.~~

~~gggg. Develop a treatment and management plan of the elderly patient with musculoskeletal complaints, including osteoarthritis and osteoporosis.~~

~~hhhh. Describe the epidemiology for trauma in the elderly, including incidence, morbidity/mortality, risk factors, and prevention strategies for patients with orthopedic injuries, burns, and head injuries.~~

~~iiii. Compare and contrast the pathophysiology of trauma in the elderly with that of a younger adult, including orthopedic injuries, burns, and head injuries.~~

~~jjjj. Discuss the assessment findings common in elderly patients with traumatic injuries, including orthopedic injuries, burns, and head injuries.~~

~~kkkk. Discuss the management/considerations when treating an elderly patient with traumatic injuries, including orthopedic injuries, burns, and head injuries.~~

~~llll. Identify the need for intervention and transport of the elderly patient with trauma.~~

~~mmmm. Demonstrate appropriate interactions with the elderly that convey respect for their position in life.~~

~~nnnn. Recognize the emotional need for independence in the elderly while simultaneously attending to their apparent acute dependence.~~

~~oooo. Recognize and appreciate the many impediments to physical and emotional well being in the elderly.~~

~~pppp. Recognize and appreciate the physical and emotional difficulties particularly the patient with Alzheimer's disease.~~

~~qqqq. Demonstrate the ability to assess a geriatric patient.~~

~~rrrr. Demonstrate the ability to adjust their assessment to a geriatric patient.~~

~~ssss. Discuss aging and the immune function in the elderly.~~

~~tttt. Discuss the effect of aging on the mechanisms of self-defense.~~

2. ~~Discuss the assessment findings to formulate a field impression and implement a treatment plan for the patient who has sustained abuse or assault.~~
   a. ~~Discuss the incidence of abuse and assault.~~
   b. ~~Describe the categories of abuse.~~
   c. ~~Discuss examples of domestic abuse.~~
   d. ~~Discuss examples of elder abuse.~~
   e. ~~Discuss examples of child abuse.~~
   f. ~~Discuss examples of sexual assault.~~
   g. ~~Describe the characteristics associated with the profile of the typical abuser of a domestic partner.~~
   h. ~~Describe the characteristics associated with the profile of the typical abuser of the elderly.~~
   i. ~~Describe the characteristics associated with the profile of the typical abuser of children.~~
   j. ~~Describe the characteristics associated with the profile of the typical assailant of sexual assault.~~
   k. ~~Identify the profile of the "at-risk" domestic partners.~~
   l. ~~Identify the profile of the "at-risk" elderly.~~
   m. ~~Identify the profile of the "at-risk" child.~~
   n. ~~Discuss the assessment and management of the abused patient.~~
   o. ~~Discuss the legal aspects associated with abuse situations.~~
   p. ~~Identify community resources that are able to assist victims of abuse and assault.~~
   q. ~~Discuss the documentation associated with the abused and assaulted patient.~~
   r. ~~Demonstrate sensitivity to the abused patient.~~
   s. ~~Recognize the behavior of the abused patient.~~
   t. ~~Recognize the emotional state of the abused patient.~~
   u. ~~Recognize the value of non-verbal communication with the abused patient.~~
   v. ~~Demonstrate reassurance, empathy, and compassion with the abused patient.~~
   w. ~~Recognize the concerns expressed by the abused patient.~~
   x. ~~Recognize the concerns expressed by the sexually assaulted patient.~~
   y. ~~Demonstrate the ability to assess a domestic partner, elder, or child abused patient.~~
   z. ~~Demonstrate the ability to assess a sexually assaulted patient.~~
6. ~~Explain the pathophysiological and psychosocial principles to adapt the assessment and treatment plan for diverse patients and those who face physical, mental, social, and financial challenges.~~
   a. ~~Describe the various etiologies and types of hearing impairments.~~
   b. ~~Recognize the patient with a hearing impairment.~~
   c. ~~Plan for accommodations that may be needed in order to properly manage the patient with a hearing impairment.~~
   d. ~~Describe the various etiologies of visual impairments.~~
   e. ~~Recognize the patient with a visual impairment.~~

f. Plan for accommodations that may be needed in order to properly manage the patient with a visual impairment.
g. Describe the various etiologies and types of speech impairments.
h. Recognize the patient with a speech impairment.
i. Plan for accommodations that may be needed in order to properly manage the patient with speech impairment.
j. Describe the various etiologies of obesity.
k. Plan for accommodations that may be needed in order to properly manage the patient with obesity.
l. Describe paraplegia/quadriplegia.
m. Plan for accommodations that may be needed in order to properly manage the patient with paraplegia/quadriplegia.
n. Define mental illness.
o. Describe the various etiologies of mental illness.
p. Recognize the presenting signs of the various mental illnesses.
q. Plan for accommodations that may be needed in order to properly manage the patient with a mental illness.
r. Define the term developmentally disabled.
s. Recognize the patient with a developmental disability.
t. Plan for accommodations that may be needed in order to properly manage the patient with a developmental disability.
u. Describe Down's syndrome.
v. Recognize the patient with Down's syndrome.
w. Plan for accommodations that may be needed in order to properly manage the patient with Down's syndrome.
x. Describe the various etiologies of emotional impairment.
y. Recognize the patient with an emotional impairment.
z. Plan for accommodations that may be needed in order to properly manage the patient with an emotional impairment.
aa. Define emotional/mental impairment (EMI).
bb. Recognize the patient with an emotional or mental impairment.
cc. Plan for accommodations that may be needed in order to properly manage patients with an emotional or mental impairment.
dd. Discuss the following diseases/illnesses to include signs/symptoms and management of:
(1) Arthritis
(2) Cancer
(3) Cerebral palsy
(4) Cystic fibrosis
(5) Multiple sclerosis
(6) Muscular dystrophy
(7) Myasthenia gravis
(8) Poliomyelitis
(9) Spina bifida
(10) Patients with a previous head injury
ee. Define cultural diversity.

ff. Recognize a patient who is culturally diverse populations.
gg. Plan for accommodations that may be needed in order to properly manage a patient who is culturally diverse populations.
hh. Identify a patient that is terminally ill.
ii. Plan for accommodations that may be needed in order to properly manage a patient who is terminally ill.
jj. Identify a patient with a communicable disease.
kk. Recognize the presenting signs of a patient with a communicable disease.
ll. Plan for accommodations that may be needed in order to properly manage a patient with a communicable disease.
mm. Recognize sign(s) of financial impairments.
nn. Plan for accommodations that may be needed in order to properly manage the patient with a financial impairment.

4. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the acute deterioration of a chronic care patient.
   a. Compare and contrast the primary objectives of the ALS professional and the home care professional.
   b. Identify the importance of home health care medicine as related to the ALS level of care.
   c. Differentiate between the role of EMS provider and the role of the home care provider.
   d. Compare and contrast the primary objectives of acute care, home care, and hospice care.
   e. Summarize the types of home health care available in your area and the services provided.
   f. Discuss the aspects of home care that result in enhanced quality of care for a given patient.
   g. Discuss the aspects of home care that have a potential to become a detriment to the quality of care for a given patient.
   h. List complications commonly seen in the home care patients which result in their hospitalization.
   i. Compare the cost, mortality, and quality of care for a given patient in the hospital versus the home care setting.
   j. Discuss the significance of palliative care programs as related to a patient in a home health care setting.
   k. Define hospice care, comfort care, and DNR/DNAR as they relate to local practice, law, and policy.
   l. List the stages of the grief process and relate them to an individual in hospice care.
   m. List pathologies and complications typical to home care patients.

n. ~~Given a home care scenario, predict complications requiring ALS intervention.~~
o. ~~Given a series of home care scenarios, determine which patients should receive follow-up home care and which should be transported to an emergency care facility.~~
p. ~~List vascular access devices found in the home care setting.~~
q. ~~Recognize standard central venous access devices utilized in home health care.~~
r. ~~Describe the basic universal characteristics of central venous catheters.~~
s. ~~Describe the basic universal characteristics of implantable injection devices.~~
t. ~~List devices found in the home care setting that are used to empty, irrigate, or deliver nutrition or medication to the GI/GU tract.~~
u. ~~Describe complications of assessing each of the airway, vascular access, and GI/GU devices described above.~~
v. ~~Given a series of scenarios, demonstrate the appropriate ALS interventions.~~
w. ~~Given a series of scenarios, demonstrate interaction and support with the family members/support persons for a patient who has died.~~
x. ~~Describe common complications with central venous access and implantable drug administration ports in the out-of-hospital setting.~~
y. ~~Describe the indications and contraindications for urinary catheter insertion in an out-of-hospital setting.~~
z. ~~Identify the proper anatomy for placement of urinary catheters in males and females.~~
aa. ~~Identify failure of GI/GU devices found in the home care setting.~~
bb. ~~Identify failure of ventilatory devices found in the home care setting.~~
cc. ~~Identify failure of vascular access devices found in the home care setting.~~
dd. ~~Identify failure of drains.~~
ee. ~~Differentiate between home care and acute care as preferable situations for a given patient scenario.~~
ff. ~~Discuss the relationship between local home care treatment protocols/SOPs and local EMS protocols/SOPs.~~
gg. ~~Discuss differences in the ability of individuals to accept and cope with their own impending death.~~
hh. ~~Discuss the rights of the terminally ill.~~
ii. ~~Give in his/her own words the role of the home-care professional in patient care along the life-span continuum.~~
jj. ~~Recognize the patient's desire to remain in the home setting.~~
kk. ~~Recognize the patient's desire to accept or deny hospice care.~~
ll. ~~Recognize the uses of long term venous access in the home health setting, including but not limited to:~~
    (1) ~~Chemotherapy~~
    (2) ~~Home pain management~~
    (3) ~~Nutrition therapy~~
    (4) ~~Congestive heart therapy~~

(5) Antibiotic therapy

mm. Observe for an infected or otherwise complicated venous access point.

nn. Demonstrate the proper technique for drawing blood from a central venous line.

oo. Demonstrate the method of accessing vascular access devices found in the home health care setting.

5. Discuss safe, empathetic competence in caring for patients with behavioral emergencies.

a. Define behavior and distinguish between normal and abnormal behavior.

b. Define behavioral emergency.

c. Discuss the prevalence of behavior and psychiatric disorders.

d. Discuss the factors that may alter the behavior or emotional status of an ill or injured individual.

e. Describe the medical legal considerations for management of emotionally disturbed patients.

f. Discuss the pathophysiology of behavioral and psychiatric disorders.

g. Describe the overt behaviors associated with behavioral and psychiatric disorders.

h. Define the following terms:

(1) Affect

(2) Anger

(3) Anxiety

(4) Confusion

(5) Depression

(6) Fear

(7) Mental status

(8) Open-ended question

(9) Posture

i. Describe the verbal techniques useful in managing the emotionally disturbed patient.

j. List the reasons for taking appropriate measures to ensure the safety of the patient, paramedic, and others.

k. Describe the circumstances when relatives, bystanders, and others should be removed from the scene.

l. Describe the techniques that facilitate the systematic gathering of information from the disturbed patient.

m. List situations in which the EMT-P is expected to transport a patient forcibly and against his/her will.

n. Identify techniques for physical assessment in a patient with behavioral problems.

o. Describe methods of restraint that may be necessary in managing the emotionally disturbed patient.

p. List the risk factors for suicide.

q. List the behaviors that may be seen indicating that the patient may be at risk for suicide.

~~r. Integrate the pathophysiological principles with the assessment of the patient with behavioral and psychiatric disorders.~~
~~s. Differentiate between the various behavioral and psychiatric disorders based on the assessment and history.~~
~~t. Formulate a field impression based on the assessment findings.~~
~~u. Develop a patient management plan based on the field impressions.~~
~~v. Recognize the need for empathetic and respectful treatment for individuals experiencing behavioral emergencies.~~
~~w. Demonstrate safe techniques for managing and restraining a violent patient.~~
~~x. Explain causes and plight of homelessness.~~
~~y. Explain the common medical issues that homeless patients face.~~
~~z. Identify local resources needed by the homeless and indigent patients.~~

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic ~~Topics~~*Standards*

~~C1~~R1 Interpret ~~written material~~
~~C2 Interpret visual materials (~~Graphic Information (forms, maps, ~~charts, graphs, tables, etc.).~~reference sources)
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment;~~

~~interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, excercising leadership, negotiation, and working with culturally diverse populations.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~
~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts~~
~~T2~~R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)

L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment~~

~~plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: EMS ~~Clinical Internship~~Practicum I

Course Abbreviation: ~~EMT~~EMS 1513

Classification: Vocational~~-~~–Technical Core

Description: This course will provide clinical training on the skills and knowledge obtained in the classroom. This will be a supervised activity carried out in the clinical and field setting at approved sites. This course was formerly taught as Clinical Internship I (EMT 1513). (3 sch: 9-hr~~.~~ clinical)

Corequisites: ~~Fundamentals of Pre-hospital Care (EMT~~ Introduction to EMS Systems (EMS 1122), Airway: Management, Respiration, and ~~Ventilation (EMT 1315~~Oxygenation (EMS 1314), and Patient Assessment (EM~~T~~S 1415)

Competencies and Suggested Objectives
1. Practice EMT skills. (EMS1) a. Measure, interpret, and record vital signs. b. Perform patient assessment. c. Perform spinal immobilization. d. Utilize infection control techniques. e. Perform splinting. f. Perform airway placement. g. Perform suctioning. h. Perform patient handling/lifting. i. Perform hemorrhage control. j. Perform oxygen administration. k. Perform documentation. l. Transmit radio report. m. Perform CPR. n. Administer medication.
2. Practice limited paramedic skills. (EMS7, EMS9, EMS10, EMS11, EMS12) a. Perform endotracheal intubation. b. Perform BIAD. c. Perform comprehensive patient assessment. d. Perform vascular access, fluid administration, and blood draw.

~~**Competencies and Suggested Objectives:**~~

~~1. Practice basic level EMT skills.~~
~~a. Measure, interpret, and record vital signs.~~
~~b. Perform patient assessment.~~
~~c. Perform spinal immobilization.~~
~~d. Utilize infection control techniques.~~
~~e. Perform splinting.~~
~~f. Perform MAST application.~~
~~g. Perform airway placement.~~

~~h. Perform suctioning.~~
~~i. Perform patient handling/lifting.~~
~~j. Perform hemorrhage control.~~
~~k. Perform oxygen administration.~~
~~l. Perform documentation.~~
~~m. Transmit radio report.~~
~~n. Perform CPR.~~

~~2. Practice advanced EMT skills.~~
~~a. Perform endotracheal intubation.~~
~~b. Perform BIAD.~~
~~c. Perform comprehensive patient assessment.~~

~~3. Apply ACLS skills.~~
~~a. Administer medication.~~
~~b. Recognize arrhythmias.~~
~~c. Apply electrical therapy.~~
~~d. Perform comprehensive advanced level patient assessment.~~

~~4. Perform comprehensive advanced level patient assessment and management for the OB/GYN, pediatric and neonate patients.~~
~~a. Perform an OB assessment.~~
~~b. Perform delivery techniques.~~
~~c. Perform neonate assessment.~~
~~d. Perform neonate resuscitation.~~
~~e. Perform pediatric assessment.~~
~~f. Perform pediatric resuscitation.~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~

~~Workplace Skills~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~

~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

STANDARDS

National EMS Educational ~~Technology~~ *Standards* ~~for Students~~

~~T1 Basic operations and concepts~~
~~T2~~EMS1 Preparatory
EMS7 Pharmacology
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)

L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
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S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~EMT1 The~~CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

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Web Sites

FISDAP (1997). FISDAP: Paramedic student ~~will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~

~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~

~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~

~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a~~ field ~~impression and implement the treatment~~ internship and hospital clinical tracking software [Software]. Available from https://www.fisdap.net/.

~~plan for the trauma patient.~~

~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~

~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~

~~EMT7 The paramedic student will be able to integrate pathophysiology principles and~~

~~assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

Course Name: EMS ~~Clinical Internship~~Practicum II

Course Abbreviation: ~~EMT 1523~~EMS 1525

Classification: Vocational~~-~~–Technical Core

Description: This course will provide clinical and field training on the skills and knowledge obtained in classroom. This will be a supervised activity carried out in the clinical and field setting at approved site. This course was ~~formerly~~previously taught as EMS Clinical Internship II and now incorporates EMS Field Internship I (EMT ~~1523). (3~~2552). (5 sch: 9-hr~~.~~ clinical, 6-hr field clinical)

Prerequisite: EMS ~~Clinical Internship~~Practicum I (EM~~T~~S 1513)

Competencies and Suggested Objectives
1. Demonstrate professional behavior. (EMS1, EMS3, EMS4) a. Perform behaviors within the integrity of the profession. b. Perform the following behaviors with empathy as related to the profession: (1) Self-motivation (2) Appearance and personal hygiene (3) Self-confidence (4) Communication (5) Time management (6) Team work with diplomacy (7) Respect (8) Patient advocacy (9) Careful delivery of service
6. Perform EMT skills in the clinical setting. (EMS1, EMS2, EMS3, EMS5, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14) a. Measure, interpret, and record vital signs. b. Perform patient assessment. c. Perform spinal immobilization. d. Utilize infection control technique. e. Perform splinting. f. Perform MAST application. g. Perform airway placement. h. Perform suctioning. i. Perform patient handling/lifting. j. Perform hemorrhage control. k. Perform oxygen administration. l. Perform documentation. m. Transmit radio report. n. Perform CPR.
7. Perform paramedic skills in the clinical setting. (EMS1, EMS2, EMS3, EMS5, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14) a. Perform endotracheal intubation.

b. Perform BIAD.
c. Perform comprehensive patient assessment.
d. Perform venous access.
e. Perform cardiopulmonary arrest management, including CPR, airway and ventilatory management, electrical therapy, pharmacological therapy, and decision-making skills.

8. Practice ACLS skills in the clinical setting. (EMS4, EMS7, EMS8, EMS11)
   a. Practice medication administration.
   b. Practice ACLS skills.
   c. Practice defibrillation.
   d. Perform comprehensive advanced level patient assessment throughout the life span.

9. Perform comprehensive advanced level patient assessment and management for the medical patient in critical care units. (EMS1, EMS2, EMS3, EMS5, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)
   a. Perform 12-cardiac monitoring.
   b. Perform synchronized cardioversion.
   c. Perform transcutaneous pacing.
   d. Perform thrombolytic monitoring.
   e. Perform glucose determination.

6. Perform paramedic activities in the field setting. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)
   a. Measure, interpret, and record vital signs.
   b. Perform patient assessment.
   c. Perform spinal immobilization.
   d. Utilize infection control techniques.
   e. Perform splinting.
   f. Perform MAST application.
   g. Perform airway placement.
   h. Perform suctioning.
   i. Perform esophageal airway.
   j. Implement intravenous therapy.
   k. Perform defibrillation.
   l. Perform patient handling/lifting.
   m. Perform hemorrhage control.
   n. Perform oxygen administration.
   o. Perform documentation.
   p. Transmit radio report.
   q. Perform CPR.
   r. Perform medication administration (all methods).
   s. Perform advanced airway/breathing techniques.
   t. Perform glucose monitoring.
   u. Perform transcutaneous pacing.
   v. Practice arrhythmia recognition.
   w. Perform intra-osseous infusion.
   x. Follow childbirth procedures.
   y. Perform 12-lead EKG.
   z. Monitor thrombolytic transport.

aa. Perform nasogastric tube.
bb. Perform orogastric tube.
cc. Perform CPAP/BiPAP.
dd. Access central venous devices.
ee. Perform pulse oximetry.
ff. Perform end tidal capnography.

~~**Competencies and Suggested Objectives:**~~

1. ~~Critique basic level EMT skills.~~
   a. ~~Measure, interpret, and record vital signs.~~
   b. ~~Perform patient assessment.~~
   c. ~~Perform spinal immobilization.~~
   d. ~~Utilize infection control technique.~~
   e. ~~Perform splinting.~~
   f. ~~Perform MAST application.~~
   g. ~~Perform airway placement.~~
   h. ~~Perform suctioning.~~
   i. ~~Perform patient handling/lifting.~~
   j. ~~Perform hemorrhage control.~~
   k. ~~Perform oxygen administration.~~
   l. ~~Perform documentation.~~
   m. ~~Transmit radio report.~~
   n. ~~Perform CPR.~~
2. ~~Critique advanced EMT skills.~~
   a. ~~Critique performance of endotracheal intubation.~~
   b. ~~Critique performance of BIAD.~~
   c. ~~Critique performance of comprehensive patient assessment.~~
   d. ~~Critique the performance of venous access.~~
   e. ~~Critique the performance of cardiopulmonary arrest management, including CPR, airway and ventilatory management, electrical therapy, pharmacological therapy, and decision making skills.~~
3. ~~Practice ACLS skills.~~
   a. ~~Practice medication administration.~~
   b. ~~Practice ACLS skills.~~
   c. ~~Practice defibrillation.~~
   d. ~~Perform comprehensive advanced level patient assessment.~~
4. ~~Practice comprehensive advanced level patient assessment and management for the OBGYN, PEDS, and neonate patients.~~
   a. ~~Practice OB assessment.~~
   b. ~~Practice delivery techniques.~~
   c. ~~Perform neonate assessment.~~
   d. ~~Perform neonate resuscitation.~~
   e. ~~Perform pediatric resuscitation.~~
5. ~~Perform comprehensive advanced level patient assessment and management for the medical patient in critical care units.~~
   a. ~~Perform 12-cardiac monitoring.~~

~~b. Perform synchronized cardioversion.~~
~~c. Perform transcutaneous pacing.~~
~~d. Perform thrombolytic monitoring.~~
~~e. Perform glucose determination.~~

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic ~~*Topics*~~

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
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~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing,~~

~~arithmetic and mathematics, speaking, and listening.~~

~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~National Educational Technology~~ *Standards* ~~for Students~~

~~T1 Basic operations and concepts~~

~~T2~~R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
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M5 Decimals (addition, subtraction, multiplication, division)
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M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
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S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving

CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

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~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

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Books

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Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Web Sites

FISDAP (1997). FISDAP: Paramedic student field internship and hospital clinical tracking software [Software]. Available from https://www.fisdap.net/.

Course Name: ~~Pre-hospital~~ Pharmacology

Course Abbreviation: ~~***EMT 1613***~~EMS 1614

Classification: Vocational~~-~~–Technical Core

Description: This course will teach comprehensive pharmodynamics and pharmacokinetics. This course was formerly taught as Pre-hospital Pharmacology (EMT 1613). ~~(3~~ (4 sch: ~~1~~ 2-hr~~.~~ lecture, 4-hr~~.~~ lab)

~~**Prerequisites:** All first semester courses~~

~~**Competencies and Suggested Objectives:**~~

~~1. Explain the pathophysiological principles of pharmacology and the assessment findings~~**Corequisite:** Introduction to ~~formulate a field impression and implement a pharmacologic management plan.~~

~~a. Describe historical trends in pharmacology.~~
~~b. Differentiate among the chemical, generic (nonproprietary), and trade (proprietary) names of a drug.~~
~~c. List the four main sources of drug products.~~
~~d. Describe how drugs are classified.~~
~~e. List the authoritative sources for drug information.~~
~~f. List legislative acts controlling drug use and abuse in the United States.~~
~~g. Differentiate among Schedule I, II, III, IV, and V substances.~~
~~h. List examples of substances in each schedule.~~
~~i. Discuss standardization of drugs.~~
~~j. Discuss investigational drugs, including the Food and Drug Administration (FDA) approval process and the FDA classifications for newly approved drugs.~~
~~k. Discuss special consideration in drug treatment with regard to pregnant, pediatric, and geriatric patients.~~
~~l. Discuss the paramedic's responsibilities and scope of management pertinent to the administration of medications.~~
~~m. Discuss the specific anatomy and physiology pertinent to pharmacology with additional attention to autonomic pharmacology.~~
~~n. Describe general properties of drugs.~~
~~o. Describe liquid and solid drug forms.~~
~~p. Differentiate routes of drug administration.~~
~~q. Differentiate between enteral and parenteral routes of drug administration.~~
~~r. Describe mechanisms of drug action.~~
~~s. Differentiate the phases of drug activity, including the pharmaceutical, pharmacokinetic, and pharmacodynamic phases.~~
~~t. Describe the processes called pharmacokinetics and pharmocodynamics including theories of drug action, drug-response relationship, factors altering drug responses, predictable drug responses, iatrogenic drug responses, and unpredictable adverse drug responses.~~

u. Differentiate among drug interactions.
v. Discuss considerations for storing and securing medications.
w. List the component of a drug profile by classification.
x. Describe drugs that the paramedic may administer according to local protocol.
y. Assess the pathophysiology of a patient's condition by identifying classifications of drugs.
z. Demonstrate the proper technique for obtaining a history by identifying classifications of drugs.
aa. Discuss the necessity for the administration of medications by a paramedic to effect positive therapeutic affect.
bb. Explain drug education through identification of drug classifications.

2. Integrate pathophysiological principles of pharmacology and assessment findings to formulate a field impression and implement a pharmacologic management plan.
   a. Integrate pathophysiological principles of pharmacology with patient assessment.
   b. Synthesize patient history information and assessment findings to form a field impression.
   c. Synthesize a field impression to implement a pharmacologic management plan.

3. Demonstrate vascular access and medication administration.
   a. Explain the specific anatomy and physiology pertinent to medication administration.
   b. Demonstrate mathematical equivalents.
   c. Differentiate temperature readings between the Centigrade and Fahrenheit scales.
   d. Discuss formulas as a basis for performing drug calculations.
   e. Discuss applying basic principles of mathematics to the calculation of problems associated with medication dosages.
   f. Demonstrate mathematical conversions from the household system to the metric system.
   g. Describe the indications, equipment needed, technique used, precautions and general principles of peripheral venous or external jugular cannulation.
   h. Describe the indications, equipment needed, technique used, precautions, and general principles of intraosseous needle placement and infusion.
   i. Discuss legal aspects affecting medication administration.
   j. Discuss the "six rights" of drug administration and correlate these with the principles of medication administration.
   k. Discuss medical asepsis and the differences between clean and sterile techniques.
   l. Describe the use of universal precautions and body substance isolation (BSI) procedures when administering a medication.
   m. Differentiate among the different dosage forms of oral medications.
   n. Describe the equipment needed and general principles of administering

~~oral medications.~~

o. ~~Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the inhalation route.~~

p. ~~Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the gastric tube.~~

q. ~~Describe the indications, equipment needed, techniques used, precautions, and general principles of rectal medication administration.~~

r. ~~Differentiate among the different parenteral routes of medication administration.~~

s. ~~Describe the equipment needed, techniques used, complications, and general principles for the preparation and administration of parenteral medications.~~

t. ~~Differentiate among the different percutaneous routes of medication administration.~~

u. ~~Describe disposal of contaminated items and sharps.~~

v. ~~Synthesize a pharmacologic management plan including medication administration.~~

w. ~~Integrate pathophysiological principles of medication administration with patient management.~~

x. ~~Explain the paramedic standards of medication administration.~~

y. ~~Explain the universal precautions and body substance isolation (BSI).~~

z. ~~Formulate a pharmacologic management plan for medication administration.~~

aa. ~~Demonstrate medical asepsis techniques.~~

bb. ~~Perform as a role-model for advocacy while performing medication administration.~~

cc. ~~Perform as a role-model for disposing contaminated items and sharps.~~

dd. ~~Use universal precautions and body substance isolation (BSI) procedures during medication administration.~~

ee. ~~Demonstrate cannulation of peripheral or external jugular veins.~~

ff. ~~Demonstrate intraosseous needle placement and infusion.~~

gg. ~~Demonstrate clean technique during medication administration.~~

hh. ~~Demonstrate administration of oral medications.~~

ii. ~~Demonstrate administration of medications by the inhalation route.~~

jj. ~~Demonstrate administration of medications by the gastric tube.~~

kk. ~~Demonstrate rectal administration of medications.~~

ll. ~~Demonstrate preparation and administration of parenteral medications.~~

mm. ~~Demonstrate preparation and techniques for obtaining a blood sample.~~

nn. ~~Demonstrate the disposal of contaminated items and sharps.~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the~~ EMS Systems (EMS 1122) and Anatomy and Physiology ~~of the human body.~~II (BIO 2524)

Competencies and Suggested Objectives
1. Explain the pathophysiological principles of pharmacology and the assessment findings to formulate a field impression and implement a pharmacologic management plan. a. Describe historical trends in pharmacology. (EMS7, EMS9, EMS10, EMS11, EMS12) b. Differentiate among the chemical, generic (nonproprietary), and trade (proprietary) names of a drug. c. List the four main sources of drug products. d. Describe how drugs are classified. e. List the authoritative sources for drug information. f. List legislative acts controlling drug use and abuse in the United States. g. Differentiate among Schedule I, II, III, IV, and V substances. h. List examples of substances in each schedule. i. Discuss standardization of drugs. j. Discuss investigational drugs, including the Food and Drug Administration (FDA) approval process and the FDA classifications for newly approved drugs. k. Discuss special consideration in drug treatment with regard to pregnant, pediatric, and geriatric patients. l. Discuss the paramedic's responsibilities and scope of management pertinent to the administration of medications. m. Discuss the specific anatomy and physiology pertinent to pharmacology with additional attention to autonomic pharmacology. n. Describe general properties of drugs. o. Describe liquid and solid drug forms. p. Differentiate routes of drug administration. q. Differentiate between enteral and parenteral routes of drug administration. r. Describe mechanisms of drug action. s. Differentiate the phases of drug activity, including the pharmaceutical, pharmacokinetic, and pharmacodynamic phases. t. Describe the processes called pharmacokinetics and pharmocodynamics including theories of drug action, drug-response relationship, factors altering drug responses, predictable drug responses, iatrogenic drug responses, and unpredictable adverse drug responses. u. Differentiate among drug interactions.

v. Discuss considerations for storing and securing medications.
w. List the component of a drug profile by classification.
x. Describe drugs that the paramedic may administer according to local protocol.
y. Assess the pathophysiology of a patient's condition by identifying classifications of drugs.
z. Demonstrate the proper technique for obtaining a history by identifying classifications of drugs.
aa. Discuss the necessity for the administration of medications by a paramedic to affect positive therapeutic effect.
bb. Explain drug education through identification of drug classifications. (At a minimum, the state-approved drug list for paramedics must be covered.)

2. Integrate pathophysiological principles of pharmacology and assessment findings to formulate a field impression and implement a pharmacologic management plan. (EMS7, EMS9, EMS10, EMS11, EMS12)
   a. Integrate pathophysiological principles of pharmacology with patient assessment.
   b. Synthesize patient history information and assessment findings to form a field impression.
   c. Synthesize a field impression to implement a pharmacologic management plan.

3. Demonstrate vascular access and medication administration. (EMS7, EMS9, EMS10, EMS11, EMS12)
   a. Explain the specific anatomy and physiology pertinent to medication administration.
   b. Demonstrate mathematical equivalents.
   c. Differentiate temperature readings between the Centigrade and Fahrenheit scales.
   d. Discuss formulas as a basis for performing drug calculations.
   e. Discuss applying basic principles of mathematics to the calculation of problems associated with medication dosages.
   f. Demonstrate mathematical conversions from the household system to the metric system.
   g. Describe the indications, equipment needed, technique used, precautions, and general principles of peripheral venous or external jugular cannulation.
   h. Describe the indications, equipment needed, technique used, precautions, and general principles of intraosseous needle placement and infusion in all patients.
   i. Describe the indications, equipment needed, technique used, precautions, and general principles of management of indwelling catheters and implanted central IV ports in all patients.
   j. Discuss legal aspects affecting medication administration.
   k. Discuss the "six rights" of drug administration, and correlate these with the principles of medication administration.
   l. Discuss medical asepsis and the differences between clean and sterile techniques.
   m. Describe the use of universal precautions and body substance isolation (BSI) procedures when administering a medication.
   n. Differentiate among the different dosage forms of oral medications.
   o. Describe the equipment needed and general principles of administering oral medications.
   p. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the inhalation route.
   q. Describe the indications, equipment needed, techniques used, precautions, and general

principles of administering medications by the intranasal route.

r. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the gastric tube.
s. Describe the indications, equipment needed, techniques used, precautions, and general principles of rectal medication administration.
t. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering and monitoring thrombolytic medication.
u. Differentiate among the different parenteral routes of medication administration.
v. Describe the equipment needed, techniques used, complications, and general principles for the preparation and administration of parenteral medications.
w. Differentiate among the different percutaneous routes of medication administration.
x. Describe disposal of contaminated items and sharps.
y. Synthesize a pharmacologic management plan including medication administration.
z. Integrate pathophysiological principles of medication administration with patient management.
aa. Explain the paramedic standards of medication administration.
bb. Explain the universal precautions and body substance isolation (BSI).
cc. Formulate a pharmacologic management plan for medication administration.
dd. Demonstrate medical asepsis techniques.
ee. Perform as a role-model for advocacy while performing medication administration.
ff. Perform as a role-model for disposing contaminated items and sharps.
gg. Use universal precautions and body substance isolation (BSI) procedures during medication administration.
hh. Demonstrate cannulation of peripheral or external jugular veins.
ii. Demonstrate intraosseous needle placement and infusion.
jj. Demonstrate accessing indwelling catheters and implanted central IV ports.
kk. Demonstrate clean technique during medication administration.
ll. Demonstrate administration of oral medications.
mm. Demonstrate administration of medications by the inhalation route.
nn. Demonstrate administration of medications by the intranasal route.
oo. Demonstrate administration of medications by the gastric tube.
pp. Demonstrate rectal administration of medications.
qq. Demonstrate the preparation, administration, and maintenance of thrombolytic medications.
qq. Demonstrate preparation and administration of parenteral medications.
rr. Demonstrate preparation and techniques for obtaining a blood sample.
ss. Demonstrate the disposal of contaminated items and sharps.

~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~

~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

STANDARDS

National EMS Educational ~~Technology~~ *Standards*

EMS7 Pharmacology
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic Standards ~~for Students~~

~~T1 Basic operations and concepts~~
~~T2~~R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)

L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~EMT-Paramedic: National Standard Curriculum~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysioogy, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~

~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~

~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~

~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~

~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

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Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Deglin, J., Vallerand, A., & Sanoski, C. (2010). *Davis's drug guide for nurses* (12th ed.). Philadelphia, PA: F. A. Davis Company.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Hazinski, M., & Gilmore, D. (2008). *Handbook of emergency cardiovascular care: For health care providers*. Dallas, TX: American Heart Association.

Mikolaj, A. (2003). *Drug dosage calculations for the emergency care provider* (2nd ed.). Englewood Cliffs: Prentice Hall.

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Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: ~~Pre-hospital~~ Cardiology

Course Abbreviation: ~~EMT~~EMS 1825

Classification: Vocational~~-~~–Technical Core

Description: This class will teach a comprehensive approach to the care of patients with acute and complex cardiovascular compromise. This course ~~is a combination of the courses formerly taught as Acute~~was previously named Pre-hospital Cardiology (EMT ~~1814) and Advanced Cardiology (EMT 2824).~~ 1825). (5 sch: 2-hr~~.~~ lecture, 6-hr~~.~~ lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11) a. Describe the incidence, morbidity, and mortality of cardiovascular disease. b. Discuss prevention strategies that may reduce the morbidity and mortality of cardiovascular disease. c. Identify the risk factors most predisposing to coronary artery disease. d. Describe the anatomy of the heart, including the position in the thoracic cavity, layers of the heart, chambers of the heart, and location and function of cardiac valves. e. Identify the major structures of the vascular system. f. Identify the factors affecting venous return. g. Identify and define the components of cardiac output. h. Identify phases of the cardiac cycle. i. Identify the arterial blood supply to any given area of the myocardium. j. Compare and contrast the coronary arterial distribution to the major portions of the cardiac conduction system. k. Identify the structure and course of all divisions and subdivisions of the cardiac conduction system. l. Describe how the heart's pacemaking control, rate, and rhythm are determined. m. Explain the physiological basis of conduction delay in the AV node. n. Define the functional properties of cardiac muscle. o. Define the events comprising electrical potential. p. List the most important ions involved in myocardial action potential and their primary function in this process. q. Describe the events involved in the steps from excitation to contraction of cardiac muscle fibers. r. Describe the clinical significance of Starling's law. s. Identify the structures of the autonomic nervous system (ANS). t. Identify the effect of the ANS on heart rate, rhythm, and contractility. u. Give examples of positive and negative inotropism, chronotropism, and dromotropism.

v. Discuss the pathophysiology of cardiac disease and injury.
w. Describe the details of inspection, auscultation, and palpation specific to the cardiovascular system.
x. Define pulse deficit, pulsus paradoxus, and pulsus alternans.
y. Identify the normal characteristics of the point of maximal impulse (PMI).
z. Differentiate between the heart sounds.
aa. Relate heart sounds to hemodynamic events in the cardiac cycle.
bb. Describe the differences between normal and abnormal heart sounds.
cc. Describe the components of the focused history as they relate to the patient with cardiovascular compromise.
dd. Explain the purpose of ECG monitoring.
ee. Describe how ECG wave forms are produced.
ff. Compare the electrophysiological and hemodynamic events occurring throughout the entire cardiac cycle with the various ECG wave forms, segments, and intervals.
gg. Identify how heart rates, durations, and amplitudes may be determined from ECG recordings.
hh. Relate the cardiac surfaces or areas represented by the ECG leads.
ii. Given an ECG, identify the arrhythmia.
jj. Identify the limitations to the ECG.
kk. Differentiate among the primary mechanisms responsible for producing cardiac arrhythmias.
ll. Describe a systematic approach to the analysis and interpretation of cardiac arrhythmias.
mm. Describe the arrhythmias originating in the sinus node, AV junction, atria, and ventricles.
nn. Describe the arrhythmias originating or sustained in the AV junction.
oo. Describe the abnormalities originating within the bundle branch system.
pp. Describe the process of differentiating wide QRS complex tachycardias.
qq. Recognize the pitfalls in the differentiation of wide QRS complex tachycardias.
rr. Describe the conditions of pulseless electrical activity.
ss. Describe the phenomena of reentry, aberration, and accessory pathways.
tt. Identify the ECG changes characteristically produced by electrolyte imbalances, and specify the clinical implications.
uu. Identify patient situations where ECG rhythm analysis is indicated.
vv. Recognize the changes on the ECG that may reflect evidence of myocardial ischemia and injury.
ww. Recognize the limitations of the ECG in reflecting evidence of myocardial ischemia and injury.
xx. Compare abnormal ECG findings with clinical interpretation.
yy. Identify the major therapeutic objectives in the treatment of the patient with any arrhythmia.
zz. Identify the major mechanical, pharmacological, and electrical therapeutic interventions.
aaa. Based on field impressions, identify the need for rapid intervention for the patient in cardiovascular compromise.
bbb. Describe the incidence, morbidity, and mortality associated with myocardial

conduction defects.

ccc. Describe the epidemiology, morbidity and mortality, and pathophysiology of angina pectoris.

ddd. Describe the assessment parameters to be evaluated in a patient with angina pectoris.

eee. Identify what is meant by the OPQRST of chest pain assessment.

fff. List other clinical conditions that may mimic signs and symptoms of coronary artery disease and angina pectoris.

ggg. Identify the ECG findings in patients with angina pectoris.

hhh. Identify the paramedic responsibilities associated with management of the patient with angina pectoris.

iii. Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the anticipated clinical problems according to their life-threatening potential.

jjj. Describe the epidemiology, morbidity, and mortality of myocardial infarction.

kkk. List the mechanisms by which an MI may be produced by traumatic and nontraumatic events.

lll. Identify the primary hemodynamic changes produced in myocardial infarction.

mmm. Describe the assessment parameters to be evaluated in a patient with a suspected myocardial infarction.

nnn. Identify the anticipated clinical presentation of a patient with a suspected acute myocardial infarction.

ooo. Differentiate the characteristics of the pain/discomfort occurring in angina pectoris and acute myocardial infarction.

ppp. Identify the ECG changes characteristically seen during evolution of an acute myocardial infarction.

qqq. Identify the most common complications of an acute myocardial infarction.

rrr. Define the term “cardiac arrest.”

sss. Identify the characteristics of patient population at risk for developing cardiac arrest from cardiac causes.

ttt. Identify noncardiac causes of cardiac arrest.

uuu. Describe the arrhythmias seen in cardiac arrest.

vvv. Identify the critical actions necessary in caring for the patient with cardiac arrest.

www. Explain how to confirm asystole using the 3-lead ECG.

xxx. Define the terms defibrillation and synchronized cardioversion.

yyy. Specify the methods of supporting the patient with a suspected ineffective implanted defibrillation device.

zzz. Describe the most commonly used pharmacological agents in the managements of cardiac arrest in terms of therapeutic effects.

aaaa. Identify resuscitation.

bbbb. Identify circumstances and situations where resuscitation efforts would not be initiated.

cccc. Identify the inclusion and exclusion criteria for termination of resuscitation efforts.

dddd. Identify communication and documentation protocols with medical direction and law enforcement used for termination of resuscitation efforts.

eeee. Based on the pathophysiology and clinical evaluation of the patient with chest pain, characterize the clinical problems according to their life-threatening potential.

ffff.	Apply knowledge of the epidemiology of cardiovascular disease to develop prevention strategies.
gggg.	Integrate pathophysiological principles into the assessment of a patient with cardiovascular disease.
hhhh.	Apply knowledge of the epidemiology of cardiovascular disease to develop prevention strategies.
iiii.	Integrate pathophysiological principles into the assessment of a patient with cardiovascular disease.
jjjj.	Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with cardiovascular disease.
kkkk.	Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the clinical problems according to their life-threatening potential.
llll.	Integrate pathophysiological principles to the assessment of a patient with chest pain.
mmmm.	Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with angina pectoris.
nnnn.	Formulate a treatment plan based on the field impression for the patient with chest pain.
oooo.	Integrate pathophysiological principles to the assessment of a patient with a suspected myocardial infarction.
pppp.	Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with a suspected myocardial infarction.
qqqq.	Formulate a treatment plan based on the field impression for the suspected myocardial infarction patient.
rrrr.	Integrate the pathophysiological principles to the assessment of the patient with cardiac arrest.
ssss.	Synthesize assessment findings to formulate a rapid intervention for a patient in cardiac arrest.
tttt.	Synthesize assessment findings to formulate the termination of resuscitative efforts for a patient in cardiac arrest.
uuuu.	Integrate pathophysiological principles to the assessment and field management of a patient with chest pain.
vvvv.	Demonstrate the sense of urgency for initial assessment and intervention in the patient with cardiac compromise.
wwww.	Discuss patient situations where ECG rhythm analysis is indicated.
xxxx.	Based on the pathophysiology and clinical evaluation of the patient with acute myocardial infarction, list the clinical problems according to their life-threatening potential.
yyyy.	Discuss the measures that may be taken to prevent or minimize complications in the patient with a suspected myocardial infarction.
zzzz.	Demonstrate the urgency in rapid determination of and rapid intervention of patients in cardiac arrest.
aaaaa.	Discuss the possibility of termination of resuscitative efforts in the out-of-hospital setting.
2.	Demonstrate the pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.

(EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)

a. Demonstrate how to set and adjust the ECG monitor settings to varying patient situations.
b. Demonstrate a working knowledge of various ECG lead systems.
c. Demonstrate how to record an ECG.
d. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines, including the following:
   (1) Cardiopulmonary resuscitation
   (2) Defibrillation
e. Complete a communication patch with medical direction and law enforcement used for termination of resuscitation efforts.
f. Demonstrate how to evaluate major peripheral arterial pulses.

3. Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with chronic cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)
   a. Identify the clinical indications for transcutaneous and permanent artificial cardiac pacing.
   b. Describe the components and the functions of a transcutaneous pacing system.
   c. Explain what each setting and indicator on a transcutaneous pacing system represents and how the settings may be adjusted.
   d. Describe the techniques of applying a transcutaneous pacing system.
   e. Describe the characteristics of an implanted pacemaking system.
   f. Describe artifacts that may cause confusion when evaluating the ECG of a patient with a pacemaker.
   g. List the possible complications of pacing.
   h. List the causes and implications of pacemaker failure.
   i. Identify additional hazards that interfere with artificial pacemaker function.
   j. Recognize the complications of artificial pacemakers as evidenced on ECG.
   k. List the characteristics of a patient eligible for thrombolytic therapy.
   l. Describe the “window of opportunity” as it pertains to reperfusion of a myocardial injury or infarction.
   m. Based on the pathophysiology and clinical evaluation of the patient with a suspected acute myocardial infarction, list the anticipated clinical problems according to their life-threatening potential.
   n. Specify the measures that may be taken to prevent or minimize complications in the patient suspected of myocardial infarction.
   o. Describe the most commonly used cardiac drugs in terms of therapeutic effect and dosages, routes of administration, side effects, and toxic effects.
   p. Describe the epidemiology, morbidity, and mortality of heart failure.
   q. Define the principal causes and terminology associated with heart failure.
   r. Identify the factors that may precipitate or aggravate heart failure.
   s. Describe the physiological effects of heart failure.
   t. Define the term “acute pulmonary edema,” and describe its relationship to left ventricular failure.
   u. Define preload, afterload, and left ventricular end-diastolic pressure, and relate each

to the pathophysiology of heart failure.

v. Differentiate between early and late signs and symptoms of left ventricular failure and those of right ventricular failure.

w. Explain the clinical significance of paroxysmal nocturnal dyspnea.

x. Explain the clinical significance of edema of the extremities and sacrum.

y. List the interventions prescribed for the patient in acute congestive heart failure.

z. Describe the most commonly used pharmacological agents in the management of congestive heart failure in terms of therapeutic effect, dosages, routes of administration, side effects, and toxic effects.

aa. Define the term “cardiac tamponade.”

bb. List the mechanisms by which cardiac tamponade may be produced by traumatic and nontraumatic events.

cc. Identify the limiting factor of pericardial anatomy that determines intrapericardiac pressure.

dd. Identify the clinical criteria specific to cardiac tamponade.

ee. Describe how to determine if pulsus paradoxus, pulsus alternans, or electrical alternans is present.

ff. Identify the paramedic responsibilities associated with management of a patient with cardiac tamponade.

gg. Describe the incidence, morbidity, and mortality of hypertensive emergencies.

hh. Define the term “hypertensive emergency.”

ii. Identify the characteristics of the patient population at risk for developing a hypertensive emergency.

jj. Explain the essential pathophysiological defect of hypertension in terms of Starling’s law of the heart.

kk. Identify the progressive vascular changes associate with sustained hypertension.

ll. Describe the clinical features of the patient in a hypertensive emergency.

mm. Rank the clinical problems of patients in hypertensive emergencies according to their sense of urgency.

nn. From the priority of clinical problems identified, state the management responsibilities for the patient with a hypertensive emergency.

oo. Identify the drugs of choice for hypertensive emergencies, rationale for use, clinical precautions, and disadvantages of selected antihypertensive agents.

pp. Correlate abnormal findings with clinical interpretation of the patient with a hypertensive emergency.

qq. Define the term “cardiogenic shock.”

rr. Describe the major systemic effects of reduced tissue perfusion caused by cardiogenic shock.

ss. Explain the primary mechanisms by which the heart may compensate for a diminished cardiac output, and describe their efficiency in cardiogenic shock.

tt. Differentiate progressive stages of cardiogenic shock.

uu. Identify the clinical criteria for cardiogenic shock.

vv. Describe the characteristics of patients most likely to develop cardiogenic shock.

ww. Describe the most commonly used pharmacological agents in the management of cardiogenic shock in terms of therapeutic effects, dosages, routes of administration, side effects, and toxic effects.

xx. Correlate abnormal findings with clinical assessment of the patient in cardiogenic shock.
yy. Identify the paramedic responsibilities associated with management of a patient in cardiogenic shock.
zz. Describe the incidence, morbidity, and mortality of vascular disorders.
aaa. Describe the pathophysiology of vascular disorders.
bbb. List the traumatic and nontraumatic causes of vascular disorders.
ccc. Define the terms “aneurysm,” “claudication,” and “phlebitis.”
ddd. Identify the peripheral arteries most commonly affected by occlusive disease.
eee. Identify the major factors involved in the pathophysiology of aortic aneurysm.
fff. Recognize the usual order of signs and symptoms that develop following peripheral artery occlusion.
ggg. Identify the clinical significance of claudication and presence of arterial bruits in a patient with peripheral vascular disorders.
hhh. Describe the clinical significance of unequal arterial blood pressure readings in the arms.
iii. Recognize the signs and symptoms of dissecting thoracic or abdominal aneurysm.
jjj. Describe the significant elements of the patient history in a patient with vascular disease.
kkk. Identify the hemodynamic effects of vascular disorders.
lll. Identify the complications of vascular disorders.
mmm. Identify the paramedic’s responsibilities associated with management of patients with vascular disorders.
nnn. Formulate a treatment plan based on the field impression for the patient with vascular disorders.
ooo. Differentiate among signs and symptoms of cardiac tamponade, hypertensive emergencies, cardiogenic shock, and cardiac arrest.
ppp. Integrate pathophysiological principles to the assessment of a patient in need of a pacemaker.
qqq. Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient in need of a pacemaker.
rrr. Formulate a treatment plan based on field impression for the patient in need of a pacemaker.
sss. Integrate pathophysiological principles to the assessment of the patient with heart failure.
ttt. Synthesize assessment findings and patient history information to form a field impression of the patient with heart failure.
uuu. Formulate a treatment plan based on the field impression for the heart failure patient.
vvv. Integrate pathophysiological principles to the assessment of a patient with cardiac tamponade.
www. Synthesize assessment findings and patient history information to form a field impression of the patient with cardiac tamponade.
xxx. Formulate a treatment plan based on the field impression for the patient with cardiac tamponade.
yyy. Integrate pathophysiological principles to the assessment of the patient with a

hypertensive emergency.

zzz. Synthesize assessment findings and patient history information to form a field impression of the patient with a hypertensive emergency.

aaaa. Formulate a treatment plan based on the field impression for the patient with a hypertensive emergency.

bbbb. Integrate pathophysiological principles to the assessment of the patient with cardiogenic shock.

cccc. Synthesize assessment findings and patient history information to form a field impression of the patient with cardiogenic shock.

dddd. Formulate a treatment plan based on the field impression for the patient with cardiogenic shock.

eeee. Integrate pathophysiological principles to the assessment of a patient with vascular disorders.

ffff. Synthesize assessment findings and patient history to form a field impression for the patient with vascular disorders.

gggg. Recognize the sense of urgency necessary to protect the window of opportunity for reperfusion in the patient with suspected myocardial infarction.

hhhh. Recognize the application of transcutaneous pacing system.

iiii. Recognize the urgency in identifying pacemaker malfunction.

jjjj. Discuss the urgency based on the severity of the patient's clinical problems in a hypertensive emergency.

kkkk. From the priority of clinical problems identified, state the management responsibilities for the patient with a hypertensive emergency.

llll. Based on the pathophysiology and clinical evaluation of the patient with vascular disorders, characterize the clinical problems according to their life-threatening potential.

mmmm. Recognize the sense of urgency in identifying peripheral vascular occlusion.

nnnn. Recognize the sense of urgency in recognizing signs of aortic aneurysm.

oooo. Describe infectious diseases of the heart, to include endocarditis and pericarditis.

4. Demonstrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatments plan for the patient with chronic cardiovascular disease. (EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11)

a. Apply a transcutaneous pacing system.

b. Given the model of a patient with signs and symptoms of heart failure, position the patient to afford comfort and relief.

c. Demonstrate how to determine if pulsus paradoxus, pulsus alternans, or electrical alternans is present.

d. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines, including the following:

(1) Cardiopulmonary resuscitation

(2) Defibrillation

(3) Synchronized cardioversion

(4) Transcutaneous pacing

(5) Mechanical CPR devices

(6) External carotid massage

5. Demonstrate correct application and interpretation of 12-lead ECGs. (EMS2, EMS3, EMS4, EMS10)
   a. Perform a 12-lead ECG.
   b. Identify the 12-lead ECG changes characteristically seen during an acute myocardial infarction including anterior MI, septal MI, lateral MI, inferior MI, posterior MI, right ventricular infarction, STEMI, and any combination of the MIs together.
   c. Identify the 12-lead ECG changes caused by an old myocardial infarction.
   d. Identify the 12-lead ECG changes seen with bundle branch blocks.
   e. Identify the 12-lead ECG changes seen with fascicular blocks.
   f. Identify the 12-lead ECG changes seen with atrial enlargement.
   g. Identify the 12-lead ECG changes seen with ventricular enlargement.
   h. Identify the 12-lead ECG changes commonly seen with electrolyte abnormalities.
   i. Identify the 12-lead ECG changes commonly seen with drug effects.
   j. Identify the electrical axis seen on 12-lead ECGs.
   k. Identify the 12-lead ECG effects commonly seen with hypothermia.
   l. Identify the 12-lead ECG effects seen with WPW pattern and syndrome.
   m. Identify the 12-lead ECG effects seen with LGL syndrome.
   n. Identify a prolonged QT interval on a 12-lead ECG.
   o. Identify an Osborn wave on a 12-lead ECG.
   p. Discuss causes and treatments of ECG abnormalities.

~~**Competencies and Suggested Objectives:**~~

~~1. Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.~~
   ~~a. Describe the incidence, morbidity, and mortality of cardiovascular disease.~~
   ~~b. Discuss prevention strategies that may reduce the morbidity and mortality of cardiovascular disease.~~
   ~~c. Identify the risk factors most predisposing to coronary artery disease.~~
   ~~d. Describe the anatomy of the heart, including the position in the thoracic cavity, layers of the heart, chambers of the heart, and location and function of cardiac valves.~~
   ~~e. Identify the major structures of the vascular system.~~
   ~~f. Identify the factors affecting venous return.~~
   ~~g. Identify and define the components of cardiac output.~~
   ~~h. Identify phases of the cardiac cycle.~~
   ~~i. Identify the arterial blood supply to any given area of the myocardium.~~
   ~~j. Compare and contrast the coronary arterial distribution to the major portions of the cardiac conduction system.~~
   ~~k. Identify the structure and course of all divisions and subdivisions of the cardiac conduction system.~~
   ~~l. Describe how the heart's pacemaking control, rate, and rhythm are determined.~~
   ~~m. Explain the physiological basis of conduction delay in the AV node.~~
   ~~n. Define the functional properties of cardiac muscle.~~
   ~~o. Define the events comprising electrical potential.~~

p. ~~List the most important ions involved in myocardial action potential and their primary function in this process.~~
q. ~~Describe the events involved in the steps from excitation to contraction of cardiac muscle fibers.~~
r. ~~Describe the clinical significance of Starling's law.~~
s. ~~Identify the structures of the autonomic nervous system (ANS).~~
t. ~~Identify the effect of the ANS on heart rate, rhythm, and contractility.~~
u. ~~Give examples of positive and negative inotropism, chronotropism, and dromotropism.~~
v. ~~Discuss the pathophysiology of cardiac disease and injury.~~
w. ~~Describe the details of inspection, auscultation, and palpation specific to the cardiovascular system.~~
x. ~~Define pulse deficit, pulsus paradoxus, and pulsus alternans.~~
y. ~~Identify the normal characteristics of the point of maximal impulse (PMI).~~
z. ~~Differentiate between the heart sounds.~~
aa. ~~Relate heart sounds to hemodynamic events in the cardiac cycle.~~
bb. ~~Describe the differences between normal and abnormal heart sounds.~~
cc. ~~Describe the components of the focused history as they relate to the patient with cardiovascular compromise.~~
dd. ~~Explain the purpose of ECG monitoring.~~
ee. ~~Describe how ECG wave forms are produced.~~
ff. ~~Compare the electrophysiological and hemodynamic events occurring throughout the entire cardiac cycle with the various ECG wave forms, segments, and intervals.~~
gg. ~~Identify how heart rates, durations, and amplitudes may be determined from ECG recordings.~~
hh. ~~Relate the cardiac surfaces or areas represented by the ECG leads.~~
ii. ~~Given an ECG, identify the arrhythmia.~~
jj. ~~Identify the limitations to the ECG.~~
kk. ~~Differentiate among the primary mechanisms responsible for producing cardiac arrhythmias.~~
ll. ~~Describe a systematic approach to the analysis and interpretation of cardiac arrhythmias.~~
mm. ~~Describe the arrhythmias originating in the sinus node, the AV junction, the atria, and the ventricles.~~
nn. ~~Describe the arrhythmias originating or sustained in the AV junction.~~
oo. ~~Describe the abnormalities originating within the bundle branch system.~~
pp. ~~Describe the process of differentiating wide QRS complex tachycardias.~~
qq. ~~Recognize the pitfalls in the differentiation of wide QRS complex tachycardias.~~
rr. ~~Describe the conditions of pulseless electrical activity.~~
s. ~~Describe the phenomena of reentry, aberration, and accessory pathways.~~
tt. ~~Identify the ECG changes characteristically produced by electrolyte imbalances and specify the clinical implications.~~
uu. ~~Identify patient situations where ECG rhythm analysis is indicated.~~

vv. Recognize the changes on the ECG that may reflect evidence of myocardial ischemia and injury.
ww. Recognize the limitations of the ECG in reflecting evidence of myocardial ischemia and injury.
xx. Compare abnormal ECG findings with clinical interpretation.
yy. Identify the major therapeutic objectives in the treatment of the patient with any arrhythmia.

zz. Identify the major mechanical, pharmacological, and electrical therapeutic interventions.
aaa. Based on field impressions, identify the need for rapid intervention for the patient in cardiovascular compromise.
bbb. Describe the incidence, morbidity, and mortality associated with myocardial conduction defects.
ccc. Describe the epidemiology, morbidity and mortality, and pathophysiology of angina pectoris.
ddd. Describe the assessment parameters to be evaluated in a patient with angina pectoris.
eee. Identify what is meant by the OPQRST of chest pain assessment.
fff. List other clinical conditions that may mimic signs and symptoms of coronary artery disease and angina pectoris.
ggg. Identify the ECG findings in patients with angina pectoris.
hhh. Identify the paramedic responsibilities associated with management of the patient with angina pectoris.
iii. Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the anticipated clinical problems according to their life-threatening potential.
jjj. Describe the epidemiology, morbidity, and mortality of myocardial infarction.
kkk. List the mechanisms by which an MI may be produced by traumatic and non-traumatic events.
lll. Identify the primary hemodynamic changes produced in myocardial infarction.
mmm. Describe the assessment parameters to be evaluated in a patient with a suspected myocardial infarction.
nnn. Identify the anticipated clinical presentation of a patient with a suspected acute myocardial infarction.
ooo. Differentiate the characteristics of the pain/discomfort occurring in angina pectoris and acute myocardial infarction.
ppp. Identify the ECG changes characteristically seen during evolution of an acute myocardial infarction.
qqq. Identify the most common complications of an acute myocardial infarction.
rrr. Define the term "cardiac arrest."
sss. Identify the characteristics of patient population at risk for developing cardiac arrest from cardiac causes.
ttt. Identify non-cardiac causes of cardiac arrest.
uuu. Describe the arrhythmias seen in cardiac arrest.
vvv. Identify the critical actions necessary in caring for the patient with cardiac arrest.
www. Explain how to confirm asystole using the 3-lead ECG.
xxx. Define the terms defibrillation and synchronized cardioversion.
yyy. Specify the methods of supporting the patient with a suspected ineffective implanted defibrillation device.

zzz. Describe the most commonly used pharmacological agents in the managements of cardiac arrest in terms of therapeutic effects.

aaaa. Identify resuscitation.

bbbb. Identify circumstances and situations where resuscitation efforts would not be initiated.

cccc. Identify the inclusion and exclusion criteria for termination of resuscitation efforts.

dddd. Identify communication and documentation protocols with medical direction and law enforcement used for termination of resuscitation efforts.

eeee. Based on the pathophysiology and clinical evaluation of the patient with chest pain, characterize the clinical problems according to their life-threatening potential.

ffff. Apply knowledge of the epidemiology of cardiovascular disease to develop prevention strategies.

gggg. Integrate pathophysiological principles into the assessment of a patient with cardiovascular disease.

hhhh. Apply knowledge of the epidemiology of cardiovascular disease to develop prevention strategies.

iiii. Integrate pathophysiological principles into the assessment of a patient with cardiovascular disease.

jjjj. Synthesize patient history, assessment findings and ECG analysis to form a field impression for the patient with cardiovascular disease.

kkkk. Based on the pathophysiology and clinical evaluation of the patient with chest pain, list the clinical problems according to their life-threatening potential.

llll. Integrate pathophysiological principles to the assessment of a patient with chest pain.

mmmm. Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient with angina pectoris.

nnnn. Formulate a treatment plan based on the field impression for the patient with chest pain.

oooo. Integrate pathophysiological principles to the assessment of a patient with a suspected myocardial infarction.

pppp. Synthesize patient history, assessment findings and ECG analysis to form a field impression for the patient with a suspected myocardial infarction.

qqqq. Formulate a treatment plan based on the field impression for the suspected myocardial infarction patient.

rrrr. Integrate the pathophysiological principles to the assessment of the patient with cardiac arrest.

ssss. Synthesize assessment findings to formulate a rapid intervention for a patient in cardiac arrest.

~~tttt. Synthesize assessment findings to formulate the termination of resuscitative efforts for a patient in cardiac arrest.~~

~~uuuu. Integrate pathophysiological principles to the assessment and field management of a patient with chest pain.~~

~~vvvv. Demonstrate the sense of urgency for initial assessment and intervention in the patient with cardiac compromise.~~

~~wwww. Discuss patient situations where ECG rhythm analysis is indicated.~~

~~xxxx. Based on the pathophysiology and clinical evaluation of the patient with acute myocardial infarction, list the clinical problems according to their life threatening potential.~~

~~yyyy. Discuss the measures that may be taken to prevent or minimize complications in the patient with a suspected myocardial infarction.~~

~~zzzz. Demonstrate the urgency in rapid determination of and rapid intervention of patients in cardiac arrest.~~

~~aaaaa. Discuss the possibility of termination of resuscitative efforts in the out-of-hospital setting.~~

~~2. Demonstrate the pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.~~

~~a. Demonstrate how to set and adjust the ECG monitor settings to varying patient situations.~~

~~b. Demonstrate a working knowledge of various ECG lead systems.~~

~~c. Demonstrate how to record an ECG.~~

~~d. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines, including:~~

~~(1) Cardiopulmonary resuscitation~~

~~(2) Defibrillation~~

~~e. Complete a communication patch with medical direction and law enforcement used for termination of resuscitation efforts.~~

~~f. Demonstrate how to evaluate major peripheral arterial pulses.~~

~~3. Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with chronic cardiovascular disease.~~

~~a. Identify the clinical indications for transcutaneous and permanent artificial cardiac pacing.~~

~~b. Describe the components and the functions of a transcutaneous pacing system.~~

~~c. Explain what each setting and indicator on a transcutaneous pacing system represents and how the settings may be adjusted.~~

~~d. Describe the techniques of applying a transcutaneous pacing system.~~

~~e. Describe the characteristics of an implanted pacemaking system.~~

~~f. Describe artifacts that may cause confusion when evaluating the ECG of a patient with a pacemaker.~~

~~g. List the possible complications of pacing.~~

h. ~~List the causes and implications of pacemaker failure.~~
i. ~~Identify additional hazards that interfere with artificial pacemaker function.~~
j. ~~Recognize the complications of artificial pacemakers as evidenced on ECG.~~
k. ~~List the characteristics of a patient eligible for thrombolytic therapy.~~
l. ~~Describe the "window of opportunity" as it pertains to reperfusion of a myocardial injury or infarction.~~
m. ~~Based on the pathophysiology and clinical evaluation of the patient with a suspected acute myocardial infarction, list the anticipated clinical problems according to their life-threatening potential.~~
n. ~~Specify the measures that may be taken to prevent or minimize complications in the patient suspected of myocardial infarction.~~
o. ~~Describe the most commonly used cardiac drugs in terms of therapeutic effect and dosages, routes of administration, side effects, and toxic effects.~~
p. ~~Describe the epidemiology, morbidity, and mortality of heart failure.~~
q. ~~Define the principal causes and terminology associated with heart failure.~~
r. ~~Identify the factors that may precipitate or aggravate heart failure.~~
s. ~~Describe the physiological effects of heart failure.~~
t. ~~Define the term "acute pulmonary edema" and describe its relationship to left ventricular failure.~~
u. ~~Define preload, afterload, and left ventricular end-diastolic pressure and relate each to the pathophysiology of heart failure.~~
v. ~~Differentiate between early and late signs and symptoms of left ventricular failure and those of right ventricular failure.~~
w. ~~Explain the clinical significance of paroxysmal nocturnal dyspnea.~~
x. ~~Explain the clinical significance of edema of the extremities and sacrum.~~
y. ~~List the interventions prescribed for the patient in acute congestive heart failure.~~
z. ~~Describe the most commonly used pharmacological agents in the management of congestive heart failure in terms of therapeutic effect, dosages, routes of administration, side effects, and toxic effects.~~
aa. ~~Define the term "cardiac tamponade."~~
bb. ~~List the mechanisms by which cardiac tamponade may be produced by traumatic and non-traumatic events.~~
cc. ~~Identify the limiting factor of pericardial anatomy that determines intrapericardiac pressure.~~
dd. ~~Identify the clinical criteria specific to cardiac tamponade.~~
ee. ~~Describe how to determine if pulsus paradoxus, pulsus alternans, or electrical alternans is present.~~
ff. ~~Identify the paramedic responsibilities associated with management of a patient with cardiac tamponade.~~
gg. ~~Describe the incidence, morbidity, and mortality of hypertensive emergencies.~~
hh. ~~Define the term "hypertensive emergency."~~

ii. ~~Identify the characteristics of the patient population at risk for developing a hypertensive emergency.~~
jj. ~~Explain the essential pathophysiological defect of hypertension in terms of Starling's law of the heart.~~
kk. ~~Identify the progressive vascular changes associate with sustained hypertension.~~
ll. ~~Describe the clinical features of the patient in a hypertensive emergency.~~
mm. ~~Rank the clinical problems of patients in hypertensive emergencies according to their sense of urgency.~~
nn. ~~From the priority of clinical problems identified, state the management responsibilities for the patient with a hypertensive emergency.~~
oo. ~~Identify the drugs of choice for hypertensive emergencies, rationale for use, clinical precautions, and disadvantages of selected antihypertensive agents.~~
pp. ~~Correlate abnormal findings with clinical interpretation of the patient with a hypertensive emergency.~~
qq. ~~Define the term "cardiogenic shock."~~
rr. ~~Describe the major systemic effects of reduced tissue perfusion caused by cardiogenic shock.~~
ss. ~~Explain the primary mechanisms by which the heart may compensate for a diminished cardiac output and describe their efficiency in cardiogenic shock.~~
tt. ~~Differentiate progressive stages of cardiogenic shock.~~
uu. ~~Identify the clinical criteria for cardiogenic shock.~~
vv. ~~Describe the characteristics of patients most likely to develop cardiogenic shock.~~
ww. ~~Describe the most commonly used pharmacological agents in the management of cardiogenic shock in terms of therapeutic effects, dosages, routes of administration, side effects, and toxic effects.~~
xx. ~~Correlate abnormal findings with clinical assessment of the patient in cardiogenic shock.~~
yy. ~~Identify the paramedic responsibilities associated with management of a patient in cardiogenic shock.~~
zz. ~~Describe the incidence, morbidity, and mortality of vascular disorders.~~
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bbb. ~~List the traumatic and non-traumatic causes of vascular disorders.~~
ccc. ~~Define the terms "aneurysm," "claudication," and "phlebitis."~~
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eee. ~~Identify the major factors involved in the pathophysiology of aortic aneurysm.~~
fff. ~~Recognize the usual order of signs and symptoms that develop following peripheral artery occlusion.~~
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iii. ~~Recognize the signs and symptoms of dissecting thoracic or abdominal aneurysm.~~
jjj. ~~Describe the significant elements of the patient history in a patient with vascular disease.~~
kkk. ~~Identify the hemodynamic effects of vascular disorders.~~
lll. ~~Identify the complications of vascular disorders.~~
mmm. ~~Identify the paramedic's responsibilities associated with management of patients with vascular disorders.~~
nnn. ~~Formulate a treatment plan based on the field impression for the patient with vascular disorders.~~
ooo. ~~Differentiate among signs and symptoms of cardiac tamponade, hypertensive emergencies, cardiogenic shock, and cardiac arrest.~~
ppp. ~~Integrate pathophysiological principles to the assessment of a patient in need of a pacemaker.~~
qqq. ~~Synthesize patient history, assessment findings, and ECG analysis to form a field impression for the patient in need of a pacemaker.~~
rrr. ~~Formulate a treatment plan based on field impression for the patient in need of a pacemaker.~~
sss. ~~Integrate pathophysiological principles to the assessment of the patient with heart failure.~~
ttt. ~~Synthesize assessment findings and patient history information to form a field impression of the patient with heart failure.~~
uuu. ~~Formulate a treatment plan based on the field impression for the heart failure patient.~~
vvv. ~~Integrate pathophysiological principles to the assessment of a patient with cardiac tamponade.~~
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xxx. ~~Formulate a treatment plan based on the field impression for the patient with cardiac tamponade.~~
yyy. ~~Integrate pathophysiological principles to the assessment of the patient with a hypertensive emergency.~~
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ffff. Synthesize assessment findings and patient history to form a field impression for the patient with vascular disorders.
gggg. Recognize the sense of urgency necessary to protect the window of opportunity for reperfusion in the patient with suspected myocardial infarction.
hhhh. Recognize the application of transcutaneous pacing system.
iiii. Recognize the urgency in identifying pacemaker malfunction.
jjjj. Discuss the urgency based on the severity of the patient's clinical problems in a hypertensive emergency.
kkkk. From the priority of clinical problems identified, state the management responsibilities for the patient with a hypertensive emergency.
llll. Based on the pathophysiology and clinical evaluation of the patient with vascular disorders, characterize the clinical problems according to their life-threatening potential.
mmmm. Recognize the sense of urgency in identifying peripheral vascular occlusion.
nnnn. Recognize the sense of urgency in recognizing signs of aortic aneurysm.

4. Demonstrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatments plan for the patient with chronic cardiovascular disease.
   a. Apply a transcutaneous pacing system.
   b. Given the model of a patient with signs and symptoms of heart failure, position the patient to afford comfort and relief.
   c. Demonstrate how to determine if pulsus paradoxus, pulsus alternans, or electrical alternans is present.
   d. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines, including:
      (1) Cardiopulmonary resuscitation
      (2) Defibrillation
      (3) Synchronized cardioversion
      (4) Transcutaneous pacing
5. Demonstrate correct application and interpretation of 12-lead ECGs.
   a. Perform a 12-lead ECG.
   b. Identify the 12-lead ECG changes characteristically seen during an acute myocardial infarction including anterior MI, septal MI, lateral MI, inferior MI, posterior MI, right ventricular infarction, and any combination of the MI's together.
   c. Identify the 12-lead ECG changes caused by an old myocardial infarction.
   d. Identify the 12-lead ECG changes seen with bundle branch blocks.
   e. Identify the 12-lead ECG changes seen with fascicular blocks.
   f. Identify the 12-lead ECG changes seen with atrial enlargement.
   g. Identify the 12-lead ECG changes seen with ventricular enlargement.

~~h. Identify the 12-lead ECG changes commonly seen with electrolyte abnormalities.~~
~~i. Identify the 12-lead ECG changes commonly seen with drug effects.~~
~~j. Identify the electrical axis seen on 12-lead ECGs.~~
~~k. Identify the 12-lead ECG effects commonly seen with hypothermia.~~
~~l. Identify the 12-lead ECG effects seen with WPW pattern and syndrome.~~
~~m. Identify the 12-lead ECG effects seen with LGL syndrome.~~
~~n. Identify a prolonged QT interval on a 12-lead ECG.~~
~~o. Identify an Osborn wave on a 12-lead ECG.~~
~~p. Discuss causes and treatments of ECG abnormalities.~~

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation

Related Academic ~~Topics~~ *Standards*

~~C1~~ R1 Interpret ~~written material.~~
~~C2 Interpret visual materials (~~Graphic Information (forms, maps, ~~charts, graphs, tables, etc.).~~reference sources)
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~
~~S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment;~~

~~interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace*~~R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations~~CS4 Health Literacy

CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and ~~concepts~~Adaptability
~~T2~~CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~ Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT 1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT 2 The paramedic student will be able to establish and/or maintain a patient airway, oxygenate, and ventilate a patient.~~
~~EMT 3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT 4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT 7 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT 8 The paramedic student will be able to safely manage the scene of an emergency.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

(2006). *ACLS provider manual*. American Heart Association.

Aehlert, B., (2006). *ACLS study guide* (3rd ed.). St. Louis, MO: Mosby.

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Beasley, B., & West, M. (2005). *Understanding 12-lead EKGs: A practical approach*. Englewood Cliffs: Prentice Hall.

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Hazinski, M., & Gilmore, D. (2008). *Handbook of emergency cardiovascular care: For healthcare providers*. Dallas, TX: American Heart Association.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Walraven, G., (2010). *Basic Arrhythmias* (7th ed.). Englewood Cliffs: Prentice Hall.

Course Name: ~~Pre-hospital OB/GYN~~Maternal/Child Emergencies

Course Abbreviation: ~~EMT 2412~~EMS 2414

Classification: Vocational~~-~~–Technical Core

Description: This course will provide a detailed understanding of the anatomic structures, physiology, and pathophysiology encountered when providing care in gynecological and obstetrical emergencies~~.~~ as well as pediatric emergencies. The course ~~called Maternal/Child Emergencies (EMT 1435)~~ was previously divided into Pre-hospital OB/GYN (~~EMT2412~~EMT 2412) and Pre-hospital Pediatrics (EMT 2423). ~~(2~~(4 sch: ~~1~~ 3-hr~~.~~ lecture, 2-hr~~.~~ lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Explain the anatomy and physiology of the female reproductive system to the assessment and management of a patient experiencing normal or abnormal labor. (EMS2, EMS3, EMS7, EMS8, EMS9, EMS13) a. Review the anatomic structures and physiology of the reproductive system. b. Identify the normal events of pregnancy. c. Describe how to assess an obstetrical patient. d. Identify the stages of labor and the paramedic's role in each stage. e. Differentiate between normal and abnormal delivery. f. Describe complications associated with pregnancy and delivery, including hyperemesis gravidarum. g. Identify predelivery emergencies. h. State indications of an imminent delivery. i. Explain the use of the contents of an obstetrics kit. j. Differentiate the management of a patient with predelivery emergencies from a normal delivery. k. State the steps in the predelivery preparation of the mother. l. Demonstrate body substance isolation as it relates to childbirth. m. State the steps to assist in the delivery of a newborn. n. Describe how to care for the newborn. o. Describe how and when to cut the umbilical cord. p. Discuss the steps in the delivery of the placenta. q. Describe the management of the mother post-delivery, including postpartum depression. r. Summarize neonatal resuscitation procedures. s. Describe the procedures for handling abnormal deliveries. t. Describe the procedures for handling complications of pregnancy. u. Describe the procedures for handling maternal complications of labor. v. Describe special considerations when meconium is present in amniotic fluid or during delivery. w. Describe special considerations of a premature baby. x. Recognize the need for treating two patients (mother and baby).

y. Recognize the importance of maintaining a patient's modesty and privacy during assessment and management.
z. Demonstrate serving as a role model for other EMS providers when discussing or performing the steps of childbirth.
aa. Demonstrate how to assess an obstetric patient.
bb. Demonstrate how to provide care for a patient with the following:
(1) Excessive vaginal bleeding
(2) Abdominal pain
(3) Hypertensive crisis
cc. Demonstrate how to prepare the obstetric patient for delivery.
dd. Demonstrate how to assist in the normal cephalic delivery of the fetus.
ee. Demonstrate how to deliver the placenta.
ff. Demonstrate how to provide post-delivery care of the mother.
gg. Demonstrate how to assist with abnormal deliveries.
hh. Demonstrate how to care for the mother with delivery complications.

2. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for a neonatal patient. (EMS2, EMS3, EMS7, EMS8, EMS9, EMS11, EMS13)

a. Define the term newborn.
b. Define the term neonate.
c. Identify important antepartum factors that can affect childbirth.
d. Identify important intrapartum factors that can term the newborn high risk.
e. Discuss fetal and neonatal immune function.
f. Identify the factors that lead to premature birth and low birth weight newborns.
g. Distinguish between primary and secondary apnea.
h. Discuss pulmonary perfusion and asphyxia.
i. Identify the primary signs utilized for evaluating a newborn during resuscitation.
j. Formulate an appropriate treatment plan for providing initial care to a newborn.
k. Identify the appropriate use of the APGAR score in caring for a newborn.
l. Calculate the APGAR score given various newborn situations.
m. Determine when ventilatory assistance is appropriate for a newborn.
n. Prepare appropriate ventilation equipment, adjuncts, and technique for a newborn.
o. Determine when chest compressions are appropriate for a newborn.
p. Discuss appropriate chest compression techniques for a newborn.
q. Assess patient improvement due to chest compressions and ventilations.
r. Determine when endotracheal intubation is appropriate for a newborn.
s. Discuss appropriate endotracheal intubation techniques for a newborn.
t. Assess patient improvement due to endotracheal intubation.
u. Identify complications related to endotracheal intubation for a newborn.
v. Determine when vascular access is indicated for a newborn.
w. Discuss the routes of medication administration for a newborn.
x. Determine when blow-by oxygen delivery is appropriate for a newborn.
y. Discuss appropriate blow-by oxygen delivery devices and technique for a newborn.
z. Assess patient improvement due to assisted ventilations.
aa. Determine when an orogastric tube should be inserted during positive-pressure

	ventilation.
bb.	Discuss the signs of hypovolemia in a newborn.
cc.	Discuss the initial steps in resuscitation of a newborn.
dd.	Assess patient improvement due to blow-by oxygen delivery.
ee.	Discuss the effects maternal narcotic usage has on the newborn.
ff.	Determine the appropriate treatment for the newborn with narcotic depression.
gg.	Discuss appropriate transport guidelines for a newborn.
hh.	Determine appropriate receiving facilities for low and high risk newborns.
ii.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for meconium aspiration.
jj.	Discuss the pathophysiology of meconium aspiration.
k.	Discuss the assessment findings associated with meconium aspiration.
ll.	Discuss the management/treatment plan for meconium aspiration.
mm.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for apnea in the neonate.
nn.	Discuss the pathophysiology of apnea in the neonate.
oo.	Discuss the assessment findings associated with apnea in the neonate.
pp.	Discuss the management/treatment plan for apnea in the neonate.
qq.	Describe the epidemiology, pathophysiology, assessment findings, and management/treatment plan for diaphragmatic hernia.
rr.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for bradycardia in the neonate.
ss.	Discuss the pathophysiology of bradycardia in the neonate.
tt.	Discuss the assessment findings associated with bradycardia in the neonate.
uu.	Discuss the management/treatment plan for bradycardia in the neonate.
vv.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for premature infants.
ww.	Discuss the pathophysiology of premature infants.
xx.	Discuss the assessment findings associated with premature infants.
yy.	Discuss the management/treatment plan for premature infants.
zz.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for respiratory distress/cyanosis in the neonate.
aaa.	Discuss the pathophysiology of respiratory distress/cyanosis in the neonate.
bbb.	Discuss the assessment findings associated with respiratory distress/cyanosis in the neonate.
ccc.	Discuss the management/treatment plan for respiratory distress/cyanosis in the neonate.
ddd.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for seizures in the neonate.
eee.	Discuss the pathophysiology of seizures in the neonate.
fff.	Discuss the assessment findings associated with seizures in the neonate.
ggg.	Discuss the management/treatment plan for seizures in the neonate.
hhh.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for fever in the neonate.
iii.	Discuss the pathophysiology of fever in the neonate.
jjj.	Discuss the assessment findings associated with fever in the neonate.

kkk.	Discuss the management/treatment plan for fever in the neonate.
lll.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for hypothermia in the neonate.
mmm.	Discuss the pathophysiology of hypothermia in the neonate.
nnn.	Discuss the assessment findings associated with hypothermia in the neonate.
ooo.	Discuss the management/treatment plan for hypothermia in the neonate.
ppp.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for hypoglycemia in the neonate.
qqq.	Discuss the pathophysiology of hypoglycemia in the neonate.
rrr.	Discuss the assessment findings associated with hypoglycemia in the neonate.
sss.	Discuss the management/treatment plan for hypoglycemia in the neonate.
ttt.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for vomiting in the neonate.
uuu.	Discuss the pathophysiology of vomiting in the neonate.
vvv.	Discuss the assessment findings associated with vomiting in the neonate.
www.	Discuss the management/treatment plan for vomiting in the neonate.
xxx.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for diarrhea in the neonate.
yyy.	Discuss the pathophysiology of diarrhea in the neonate.
zzz.	Discuss the assessment findings associated with diarrhea in the neonate.
aaaa.	Discuss the management/treatment plan for diarrhea in the neonate.
bbbb.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for common birth injuries in the neonate.
cccc.	Discuss the pathophysiology of common birth injuries in the neonate.
dddd.	Discuss the assessment findings associated with common birth injuries in the neonate.
eeee.	Discuss the management/treatment plan for common birth injuries in the neonate.
ffff.	Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for cardiac arrest in the neonate.
gggg.	Discuss the pathophysiology of cardiac arrest in the neonate.
hhhh.	Discuss the assessment findings associated with cardiac arrest in the neonate.
iiii.	Discuss the management/treatment plan for cardiac arrest in the neonate.
jjjj.	Discuss the pathophysiology of post arrest management of the neonate.
kkkk.	Discuss the assessment findings associated with post arrest situations in the neonate.
llll.	Discuss the management/treatment plan to stabilize the post arrest neonate.
mmmm.	Demonstrate and advocate appropriate interaction with a newborn/neonate that conveys respect for the position in life.
nnnnn.	Recognize the emotional impact of newborn/neonate injuries/illnesses on parents/guardians.
oooo.	Recognize and appreciate the physical and emotional difficulties associated with separation of the parent/guardian and a newborn/neonate.
pppp.	Recognize the concerns expressed by parents/guardians.
qqqq.	Recognize the need for reassurance, empathy, and compassion for the parent/guardian.
rrrr.	Demonstrate preparation of a newborn resuscitation area.

ssss.	Demonstrate appropriate assessment technique for examining a newborn.
tttt.	Demonstrate appropriate assisted ventilations for a newborn.
uuuu.	Demonstrate appropriate endotracheal intubation technique for a newborn.
vvvv.	Demonstrate appropriate meconium aspiration suctioning technique for a newborn.
wwww.	Demonstrate appropriate insertion of an orogastric tube.
xxxx.	Demonstrate needle chest decompression for a newborn or neonate.
yyyy.	Demonstrate appropriate chest compression and ventilation technique for a newborn.
zzzz.	Demonstrate appropriate techniques to improve or eliminate endotracheal intubation complications.
aaaaa.	Demonstrate vascular access cannulation techniques for a newborn.
bbbbb.	Demonstrate the initial steps in resuscitation of a newborn.
ccccc.	Demonstrate blow-by oxygen delivery for a newborn.
3.	Explain the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the pediatric patient. (EMS2, EMS3, EMS5, EMS7, EMS8, EMS9, EMS11, EMS13)
a.	Discuss the paramedic's role in the reduction of infant and childhood morbidity and mortality from acute illness and injury.
b.	Identify methods/mechanisms that prevent injuries to infants and children.
c.	Describe Emergency Medical Services for Children (EMSC).
d.	Discuss how an integrated EMSC system can affect patient outcome.
e.	Identify key growth and developmental characteristics of infants and children and their implications.
f.	Identify key anatomical and physiological characteristics of infants and children and their implications.
g.	Describe techniques for successful assessment of infants and children.
h.	Describe techniques for successful treatment of infants and children.
i.	Identify the common responses of families to acute illness and injury of an infant or child.
j.	Describe techniques for successful interaction with families of acutely ill or injured infants and children.
k.	Outline differences in adult and childhood anatomy and physiology.
l.	Identify "normal" age group related vital signs.
m.	Discuss the appropriate equipment utilized to obtain pediatric vital signs.
n.	Determine appropriate airway adjuncts for infants and children.
o.	Discuss complications of improper utilization of airway adjuncts with infants and children.
p.	Discuss appropriate ventilation devices for infants and children.
q.	Discuss complications of improper utilization of ventilation devices with infants and children.
r.	Discuss appropriate endotracheal intubation equipment for infants and children.
s.	Identify complications of improper endotracheal intubation procedure in infants and children.
t.	List the indications and methods for gastric decompression for infants and children.

u. Define respiratory distress.
v. Define respiratory failure.
w. Define respiratory arrest.
x. Differentiate between upper airway obstruction and lower airway disease.
y. Describe the general approach to the treatment of children with respiratory distress, failure, or arrest from upper airway obstruction or lower airway disease.
z. Discuss the pathophysiology and epidemiology of the following:
- Pertussis
- Bronchopulmonary dysplasia
- Hydrocephalus and ventricular shunts

aa. Discuss the common causes of hypoperfusion in infants and children.
bb. Evaluate the severity of hypoperfusion in infants and children.
cc. Identify the major classifications of pediatric cardiac rhythms.
dd. Discuss the primary etiologies of cardiopulmonary arrest in infants and children.
ee. Discuss age appropriate vascular access sites for infants and children.
ff. Discuss the appropriate equipment for vascular access in infants and children.
gg. Identify complications of vascular access for infants and children.
hh. Describe the primary etiologies of altered level of consciousness in infants and children.
ii. Identify common lethal mechanisms of injury in infants and children.
jj. Discuss anatomical features of children that predispose or protect them from certain injuries.
kk. Describe aspects of infant and children airway management that are affected by potential cervical spine injury.
ll. Identify infant and child trauma patients who require spinal immobilization.
mm. Discuss fluid management and shock treatment for the infant and child trauma patient.
nn. Determine when pain management and sedation are appropriate for infants and children.
oo. Define child abuse.
pp. Define child neglect.
qq. Define sudden infant death syndrome (SIDS).
rr. Discuss the parent/caregiver responses to the death of an infant or child.
ss. Define children with special health-care needs.
tt. Define technology-assisted children.
uu. Discuss basic cardiac life support (CPR) guidelines for infants and children.
vv. Identify appropriate parameters for performing infant and child CPR.
ww. Integrate advanced life support skills with basic cardiac life support for infants and children.
xx. Discuss the indications, dosage, route of administration, and special considerations for medication administration in infants and children.
yy. Discuss appropriate transport guidelines for infants and children.
zz. Discuss appropriate receiving facilities for low and high risk infants and children.
aaa. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for respiratory distress/failure in infants and children.

bbb.	Discuss the pathophysiology of respiratory distress/failure in infants and children.
ccc.	Discuss the assessment findings associated with respiratory distress/failure in infants and children.
ddd.	Discuss the management/treatment plan for respiratory distress/failure in infants and children.
eee.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for hypoperfusion in infants and children.
fff.	Discuss the pathophysiology of hypoperfusion in infants and children.
ggg.	Discuss the assessment findings associated with hypoperfusion in infants and children.
hhh.	Discuss the management/treatment plan for hypoperfusion in infants and children.
iii.	Describe the epidemiology, including the incidence, morbidity/ mortality, risk factors, and prevention strategies for cardiac dysrhythmias in infants and children.
jjj.	Discuss the pathophysiology of cardiac dysrhythmias in infants and children.
kkk.	Discuss the assessment findings associated with cardiac dysrhythmias in infants and children.
lll.	Discuss the management/treatment plan for cardiac dysrhythmias in infants and children.
mmm.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for neurological emergencies in infants and children.
nnn.	Discuss the pathophysiology of neurological emergencies in infants and children.
ooo.	Discuss the assessment findings associated with neurological emergencies in infants and children.
ppp.	Discuss the management/treatment plan for neurological emergencies in infants and children.
qqq.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for trauma in infants and children.
rrr.	Discuss the pathophysiology of trauma in infants and children.
sss.	Discuss the assessment findings associated with trauma in infants and children.
ttt.	Discuss the management/treatment plan for trauma in infants and children.
uuu.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for abuse and neglect in infants and children.
vvv.	Discuss the pathophysiology of abuse and neglect in infants and children.
www.	Discuss the assessment findings associated with abuse and neglect in infants and children.
xxx.	Discuss the management/treatment plan for abuse and neglect in infants and children, including documentation and reporting.
yyy.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for SIDS infants.
zzz.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for children with special health-care needs including technology assisted children.
aaaa.	Discuss the pathophysiology of children with special health-care needs including technology-assisted children.

bbbb.	Discuss the assessment findings associated for children with special health-care needs including technology assisted children.
cccc.	Discuss the management/treatment plan for children with special health-care needs including technology-assisted children.
dddd.	Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for SIDS infants.
eeee	Discuss the pathophysiology of SIDS in infants.
ffff.	Discuss the assessment findings associated with SIDS infants.
gggg.	Discuss the management/treatment plan for SIDS in infants.
hhhh.	Demonstrate and advocate appropriate interactions with the infant/child that convey an understanding of the developmental stage.
iiii.	Recognize the emotional dependence of the infant/child to the parent/guardian.
jjjj.	Recognize the emotional impact of the infant/child injuries and illnesses on the parent/guardian.
kkkk.	Recognize the physical and emotional difficulties associated with separation of the parent/guardian of a special needs child.
llll.	Demonstrate the ability to provide reassurance, empathy, and compassion for the parent/guardian.
mmmm.	Demonstrate the appropriate approach for treating infants and children.
nnnn.	Demonstrate appropriate intervention techniques with families of acutely ill or injured infants and children.
oooo.	Demonstrate an appropriate assessment for different developmental age groups.
pppp.	Demonstrate an appropriate technique for measuring pediatric vital signs.
qqqq.	Demonstrate the use of a length-based resuscitation device for determining equipment sizes, drug doses, and other pertinent information for a pediatric patient.
rrrr.	Demonstrate the appropriate approach for treating infants and children with respiratory distress, failure, and arrest.
ssss.	Demonstrate proper technique for administering blow-by oxygen to infants and children.
tttt.	Demonstrate the proper utilization of a pediatric non-rebreather oxygen mask.
uuuu.	Demonstrate the proper technique for suctioning of infants and children.
vvvv.	Demonstrate appropriate use of airway adjuncts with infants and children.
wwww.	Demonstrate appropriate use of ventilation devices for infants and children.
xxxx.	Demonstrate endotracheal intubation procedures in infants and children.
yyyy.	Demonstrate appropriate treatment/management of intubation complications for infants and children.
zzzz.	Demonstrate appropriate needle cricothyroidotomy in infants and children.
aaaaa.	Demonstrate proper placement of a gastric tube in infants and children.
bbbbb.	Demonstrate an appropriate technique for insertion of peripheral intravenous catheters for infants and children.
ccccc.	Demonstrate an appropriate technique for administration of intramuscular, inhalation, subcutaneous, rectal, endotracheal, and oral medication for infants and children.
ddddd.	Demonstrate an appropriate technique for insertion of an intraosseous line for infants and children.

eeeee.	Demonstrate appropriate interventions for infants and children with a partially obstructed airway.
fffff.	Demonstrate age appropriate basic airway clearing maneuvers for infants and children with a completely obstructed airway.
ggggg.	Demonstrate proper technique for direct larnyngoscopy and foreign body retrieval in infants and children with a completely obstructed airway.
hhhhh.	Demonstrate appropriate airway and breathing control maneuvers for infant and child trauma patients.
iiiii.	Demonstrate appropriate treatment of infants and children requiring advanced airway and breathing control.
jjjjj.	Demonstrate appropriate immobilization techniques for infant and child trauma patients.
kkkkk.	Demonstrate appropriate treatment of infants and children with head injuries.
lllll.	Demonstrate appropriate treatment of infants and children with chest injuries.
mmmmm.	Demonstrate appropriate treatment of infants and children with abdominal injuries.
nnnnn.	Demonstrate appropriate treatment of infants and children with extremity injuries.
ooooo.	Demonstrate appropriate treatment of infants and children with burns.
ppppp.	Demonstrate appropriate parent/caregiver interviewing techniques for infant and child death situations.
qqqqq.	Demonstrate proper infant CPR.
rrrrr.	Demonstrate proper child CPR.
sssss.	Demonstrate proper techniques for performing infant and child defibrillation and synchronized cardioversion.

~~Competencies and Suggested Objectives:~~

~~1. Explain gynecological principles and assessment findings to formulate a field impression and implement the management plan for the patient experiencing a gynecological emergency.~~

~~a. Review the anatomic structures and physiology of the female reproductive system.~~
~~b. Identify the normal events of the menstrual cycle.~~
~~c. Describe how to assess a patient with a gynecological complaint.~~
~~d. Explain how to recognize a gynecological emergency.~~
~~e. Describe the general care for any patient experiencing a gynecological emergency.~~
~~f. Describe the pathophysiology, assessment, and management of specific gynecological emergencies.~~
~~g. Recognize the importance of maintaining a patient's modesty and privacy while still being able to obtain necessary information.~~
~~h. Discuss the need to provide care for a patient of sexual assault, while still preventing destruction of crime scene information.~~
~~i. Demonstrate serving as a role model for other EMS providers when discussing or caring for patients with gynecological emergencies.~~
~~j. Demonstrate how to assess a patient with a gynecological complaint.~~

k. Demonstrate how to provide care for a patient with:
   (1) Excessive vaginal bleeding
   (2) Abdominal pain
   (3) Sexual assault

2. Explain the anatomy and physiology of the female reproductive system to the assessment and management of a patient experiencing normal or abnormal labor.
   a. Review the anatomic structures and physiology of the reproductive system.
   b. Identify the normal events of pregnancy.
   c. Describe how to assess an obstetrical patient.
   d. Identify the stages of labor and the paramedic's role in each stage.
   e. Differentiate between normal and abnormal delivery.
   f. Describe complications associated with pregnancy and delivery.
   g. Identify predelivery emergencies.
   h. State indications of an imminent delivery.
   i. Explain the use of the contents of an obstetrics kit.
   j. Differentiate the management of a patient with predelivery emergencies from a normal delivery.
   k. State the steps in the predelivery preparation of the mother.
   l. Demonstrate body substance isolation as it relates to childbirth.
   m. State the steps to assist in the delivery of a newborn.
   n. Describe how to care for the newborn.
   o. Describe how and when to cut the umbilical cord.
   p. Discuss the steps in the delivery of the placenta.
   q. Describe the management of the mother post-delivery.
   r. Summarize neonatal resuscitation procedures.
   s. Describe the procedures for handling abnormal deliveries.
   t. Describe the procedures for handling complications of pregnancy.
   u. Describe the procedures for handling maternal complications of labor.
   v. Describe special considerations when meconium is present in amniotic fluid or during delivery.
   w. Describe special considerations of a premature baby.
   x. Recognize the need for treating two patients (mother and baby).
   y. Recognize the importance of maintaining a patient's modesty and privacy during assessment and management.
   z. Demonstrate serving as a role model for other EMS providers when discussing or performing the steps of childbirth.
   aa. Demonstrate how to assess an obstetric patient.
   bb. Demonstrate how to provide care for a patient with:
      (1) Excessive vaginal bleeding
      (2) Abdominal pain
      (3) Hypertensive crisis
   cc. Demonstrate how to prepare the obstetric patient for delivery.
   dd. Demonstrate how to assist in the normal cephalic delivery of the fetus.
   ee. Demonstrate how to deliver the placenta.

~~ff. Demonstrate how to provide post-delivery care of the mother.~~
~~gg. Demonstrate how to assist with abnormal deliveries.~~
~~hh. Demonstrate how to care for the mother with delivery complications.~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the~~

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology ~~of the human body.~~
~~S8 Apply concepts related to the~~EMS3 Medical Terminology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS11 Shock and Resuscitation
EMS13 Special Patient Populations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations

A1 Numeration (ordering, place value, scientific ~~process and method to include safety~~ notation)

~~procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~

~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~

~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~

~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~

~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts~~

~~T2 Social, ethical, and human issues~~

~~T3 Technology productivity tools~~

~~T4 Technology communications tools~~

~~T5 Technology research tools~~

~~T6 Technology problem-solving and decision-making tools~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, Pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~

~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~

~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~

~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~

~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~

~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~

~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: ~~Pre-hospital Pediatrics~~EMS Practicum III

Course Abbreviation: ~~**EMT 2423**~~EMS 2565

Classification: Vocational~~-~~–Technical Core

Description: This course will provide ~~a detailed understanding of the anatomic structures, physiology, and pathophysiology encountered when providing care in pediatric emergencies. The course called Maternal/Child Emergencies (EMT 1435) was divided into Pre-hospital OB/GYN (EMT 2412) and Pre-hospital Pediatrics (EMT 2423). (3 sch: 1 hr. lecture, 4 hr. lab)~~

~~**Prerequisites:** All first semester courses~~

~~**Competencies and Suggested Objectives:**~~

1. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for a neonatal patient.~~
   a. ~~Define the term newborn.~~
   b. ~~Define the term neonate.~~
   c. ~~Identify important antepartum factors that can affect childbirth.~~
   d. ~~Identify important intrapartum factors that can term the newborn high risk.~~
   e. ~~Discuss fetal and neonatal immune function.~~
   f. ~~Identify the factors that lead to premature birth and low birth weight newborns.~~
   g. ~~Distinguish between primary and secondary apnea.~~
   h. ~~Discuss pulmonary perfusion and asphyxia.~~
   i. ~~Identify the primary signs utilized for evaluating a newborn during resuscitation.~~
   j. ~~Formulate an appropriate treatment plan for providing initial care to a newborn.~~
   k. ~~Identify the appropriate use of the APGAR score in caring for a newborn.~~
   l. ~~Calculate the APGAR score given various newborn situations.~~
   m. ~~Determine when ventilatory assistance is appropriate for a newborn.~~
   n. ~~Prepare appropriate ventilation equipment, adjuncts, and technique for a newborn.~~
   o. ~~Determine when chest compressions are appropriate for a newborn.~~
   p. ~~Discuss appropriate chest compression techniques for a newborn.~~
   q. ~~Assess patient improvement due to chest compressions and ventilations.~~
   r. ~~Determine when endotracheal intubation is appropriate for a newborn.~~
   s. ~~Discuss appropriate endotracheal intubation techniques for a newborn.~~
   t. ~~Assess patient improvement due to endotracheal intubation.~~
   u. ~~Identify complications related to endotracheal intubation for a newborn.~~
   v. ~~Determine when vascular access is indicated for a newborn.~~
   w. ~~Discuss the routes of medication administration for a newborn.~~
   x. ~~Determine when blow-by oxygen delivery is appropriate for a newborn.~~

y. ~~Discuss appropriate blow-by oxygen delivery devices and technique for a newborn.~~
z. ~~Assess patient improvement due to assisted ventilations.~~
aa. ~~Determine when an orogastric tube should be inserted during positive-pressure ventilation.~~
bb. ~~Discuss the signs of hypovolemia in a newborn.~~
cc. ~~Discuss the initial steps in resuscitation of a newborn.~~
dd. ~~Assess patient improvement due to blow-by oxygen delivery.~~
ee. ~~Discuss the effects maternal narcotic usage has on the newborn.~~
ff. ~~Determine the appropriate treatment for the newborn with narcotic depression.~~
gg. ~~Discuss appropriate transport guidelines for a newborn.~~
hh. ~~Determine appropriate receiving facilities for low and high risk newborns.~~
ii. ~~Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for meconium aspiration.~~
jj. ~~Discuss the pathophysiology of meconium aspiration.~~
kk. ~~Discuss the assessment findings associated with meconium aspiration.~~
ll. ~~Discuss the management/treatment plan for meconium aspiration.~~
mm. ~~Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for apnea in the neonate.~~
nn. ~~Discuss the pathophysiology of apnea in the neonate.~~
oo. ~~Discuss the assessment findings associated with apnea in the neonate.~~
pp. ~~Discuss the management/treatment plan for apnea in the neonate.~~
qq. ~~Describe the epidemiology, pathophysiology, assessment findings, and management/treatment plan for diaphragmatic hernia.~~
rr. ~~Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for bradycardia in the neonate.~~
ss. ~~Discuss the pathophysiology of bradycardia in the neonate.~~
tt. ~~Discuss the assessment findings associated with bradycardia in the neonate.~~
uu. ~~Discuss the management/treatment plan for bradycardia in the neonate.~~
vv. ~~Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for premature infants.~~
ww. ~~Discuss the pathophysiology of premature infants.~~
xx. ~~Discuss the assessment findings associated with premature infants.~~
yy. ~~Discuss the management/treatment plan for premature infants.~~
zz. ~~Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for respiratory distress/cyanosis in the neonate.~~
aaa. ~~Discuss the pathophysiology of respiratory distress/cyanosis in the neonate.~~
bbb. ~~Discuss the assessment findings associated with respiratory distress/cyanosis in the neonate.~~
ccc. ~~Discuss the management/treatment plan for respiratory distress/ cyanosis in the neonate.~~
ddd. ~~Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for seizures in the neonate.~~

~~eee. Discuss the pathophysiology of seizures in the neonate.~~
~~fff. Discuss the assessment findings associated with seizures in the neonate.~~
~~ggg. Discuss the management/treatment plan for seizures in the neonate.~~
~~hhh. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for fever in the neonate.~~
~~iii. Discuss the pathophysiology of fever in the neonate.~~
~~jjj. Discuss the assessment findings associated with fever in the neonate.~~
~~kkk. Discuss the management/treatment plan for fever in the neonate.~~
~~lll. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for hypothermia in the neonate.~~
~~mmm. Disscuss the pathophysiology of hypothermia in the neonate.~~
~~nnn. Discuss the assessment findings associated with hypothermia in the neonate.~~
~~ooo. Discuss the management/treatment plan for hypothermia in the neonate.~~
~~ppp. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for hypoglycemia in the neonate.~~
~~qqq. Discuss the pathophysiology of hypoglycemia in the neonate.~~
~~rrr. Discuss the assessment findings associated with hypoglycemia in the neonate.~~
~~sss. Discuss the management/treatment plan for hypoglycemia in the neonate.~~
~~ttt. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for vomiting in the neonate.~~
~~uuu. Discuss the pathophysiology of vomiting in the neonate.~~
~~vvv. Discuss the assessment findings associated with vomiting in the neonate.~~
~~www. Discuss the management/treatment plan for vomiting in the neonate.~~
~~xxx. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for diarrhea in the neonate.~~
~~yyy. Discuss the pathophysiology of diarrhea in the neonate.~~
~~zzz. Discuss the assessment findings associated with diarrhea in the neonate.~~
~~aaaa. Discuss the management/treatment plan for diarrhea in the neonate.~~
~~bbbb. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for common birth injuries in the neonate.~~
~~cccc. Discuss the pathophysiology of common birth injuries in the neonate.~~
~~dddd. Discuss the assessment findings associated with common birth injuries in the neonate.~~
~~eeee. Discuss the management/treatment plan for common birth injuries in the neonate.~~
~~ffff. Describe the epidemiology, including the incidence, morbidity/mortality, and risk factors for cardiac arrest in the neonate.~~
~~gggg. Discuss the pathophysiology of cardiac arrest in the neonate.~~
~~hhhh. Discuss the assessment findings associated with cardiac arrest in the neonate.~~
~~iiii. Discuss the management/treatment plan for cardiac arrest in the neonate.~~
~~jjjj. Discuss the pathophysiology of post arrest management of the neonate.~~

kkkk. Discuss the assessment findings associated with post arrest situations in the neonate.

llll. Discuss the management/treatment plan to stabilize the post arrest neonate.

mmmm. Demonstrate and advocate appropriate interaction with a newborn/ neonate that conveys respect for their position in life.

nnnnn. Recognize the emotional impact of newborn/neonate injuries/illnesses on parents/guardians.

oooo. Recognize and appreciate the physical and emotional difficulties associated with separation of the parent/guardian and a newborn/ neonate.

pppp. Recognize the concerns expressed by parents/guardians.

qqqq. Recognize the need for reassurance, empathy, and compassion for the parent/guardian.

rrrr. Demonstrate preparation of a newborn resuscitation area.

ssss. Demonstrate appropriate assessment technique for examining a newborn.

tttt. Demonstrate appropriate assisted ventilations for a newborn.

uuuu. Demonstrate appropriate endotracheal intubation technique for a newborn.

vvvv. Demonstrate appropriate meconium aspiration suctioning technique for a newborn.

wwww. Demonstrate appropriate insertion of an orogastric tube.

xxxx. Demonstrate needle chest decompression for a newborn or neonate.

yyyy. Demonstrate appropriate chest compression and ventilation technique for a newborn.

zzzz. Demonstrate appropriate techniques to improve or eliminate endotracheal intubation complications.

aaaaa. Demonstrate vascular access cannulation techniques for a newborn.

bbbbb. Demonstrate the initial steps in resuscitation of a newborn.

ccccc. Demonstrate blow-by oxygen delivery for a newborn.

2. Explain the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the pediatric patient.

a. Discuss the paramedic’s role in the reduction of infant and childhood morbidity and mortality from acute illness and injury.

b. Identify methods/mechanisms that prevent injuries to infants and children.

c. Describe Emergency Medical Services for Children (EMSC).

d. Discuss how an integrated EMSC system can affect patient outcome.

e. Identify key growth and developmental characteristics of infants and children and their implications.

f. ~~Identify key anatomical and physiological characteristics of infants and children and their implications.~~
g. ~~Describe techniques for successful assessment of infants and children.~~
h. ~~Describe techniques for successful treatment of infants and children.~~
i. ~~Identify the common responses of families to acute illness and injury of an infant or child.~~
j. ~~Describe techniques for successful interaction with families of acutely ill or injured infants and children.~~
k. ~~Outline differences in adult and childhood anatomy and physiology.~~
l. ~~Identify "normal" age group related vital signs.~~
m. ~~Discuss the appropriate equipment utilized to obtain pediatric vital signs.~~
n. ~~Determine appropriate airway adjuncts for infants and children.~~
o. ~~Discuss complications of improper utilization of airway adjuncts with infants and children.~~
p. ~~Discuss appropriate ventilation devices for infants and children.~~
q. ~~Discuss complications of improper utilization of ventilation devices with infants and children.~~
r. ~~Discuss appropriate endotracheal intubation equipment for infants and children.~~
s. ~~Identify complications of improper endotracheal intubation procedure in infants and children.~~
t. ~~List the indications and methods for gastric decompression for infants and children.~~
u. ~~Define respiratory distress.~~
v. ~~Define respiratory failure.~~
w. ~~Define respiratory arrest.~~
x. ~~Differentiate between upper airway obstruction and lower airway disease.~~
y. ~~Describe the general approach to the treatment of children with respiratory distress, failure, or arrest from upper airway obstruction or lower airway disease.~~
z. ~~Discuss the common causes of hypoperfusion in infants and children.~~
aa. ~~Evaluate the severity of hypoperfusion in infants and children.~~
bb. ~~Identify the major classifications of pediatric cardiac rhythms.~~
cc. ~~Discuss the primary etiologies of cardiopulmonary arrest in infants and children.~~
dd. ~~Discuss age appropriate vascular access sites for infants and children.~~
ee. ~~Discuss the appropriate equipment for vascular access in infants and children.~~
ff. ~~Identify complications of vascular access for infants and children.~~
gg. ~~Describe the primary etiologies of altered level of consciousness in infants and children.~~
hh. ~~Identify common lethal mechanisms of injury in infants and children.~~
ii. ~~Discuss anatomical features of children that predispose or protect them from certain injuries.~~

jj. Describe aspects of infant and children airway management that are affected by potential cervical spine injury.
kk. Identify infant and child trauma patients who require spinal immobilization.
ll. Discuss fluid management and shock treatment for the infant and child trauma patient.
mm. Determine when pain management and sedation are appropriate for I nfants and children.
nn. Define child abuse.
oo. Define child neglect.
pp. Define sudden infant death syndrome (SIDS).
qq. Discuss the parent/caregiver responses to the death of an infant or child.
rr. Define children with special health care needs.
ss. Define technology assisted children.
tt. Discuss basic cardiac life support (CPR) guidelines for infants and children.
uu. Identify appropriate parameters for performing infant and child CPR.
vv. Integrate advanced life support skills with basic cardiac life support for infants and children.
ww. Discuss the indications, dosage, route of administration, and special considerations for medication administration in infants and children.
xx. Discuss appropriate transport guidelines for infants and children.
yy. Discuss appropriate receiving facilities for low and high risk infants and children.
zz. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for respiratory distress/failure in infants and children.
aaa. Discuss the pathophysiology of respiratory distress/failure in infants and children.
bbb. Discuss the assessment findings associated with respiratory distress/failure in infants and children.
ccc. Discuss the management/treatment plan for respiratory distress/failure in infants and children.
ddd. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for hypoperfusion in infants and children.
eee. Discuss the pathophysiology of hypoperfusion in infants and children.
fff. Discuss the assessment findings associated with hypoperfusion in infants and children.
ggg. Discuss the management/treatment plan for hypoperfusion in infants and children.
hhh. Describe the epidemiology, including the incidence, morbidity/ mortality, risk factors, and prevention strategies for cardiac dysrhythmias in infants and children.
iii. Discuss the pathophysiology of cardiac dysrhythmias in infants and children.

~~jjj. Discuss the assessment findings associated with cardiac dysrhythmias in infants and children.~~

~~kkk. Discuss the management/treatment plan for cardiac dysrhythmias in infants and children.~~

~~lll. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for neurological emergencies in infants and children.~~

~~mmm. Discuss the pathophysiology of neurological emergencies in infants and children.~~

~~nnn. Discuss the assessment findings associated with neurological emergencies in infants and children.~~

~~ooo. Discuss the management/treatment plan for neurological emergencies in infants and children.~~

~~ppp. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for trauma in infants and children.~~

~~qqq. Discuss the pathophysiology of trauma in infants and children.~~

~~rrr. Discuss the assessment findings associated with trauma in infants and children.~~

~~sss. Discuss the management/treatment plan for trauma in infants and children.~~

~~ttt. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for abuse and neglect in infants and children.~~

~~uuu. Discuss the pathophysiology of abuse and neglect in infants and children.~~

~~vvv. Discuss the assessment findings associated with abuse and neglect in infants and children.~~

~~www. Discuss the management/treatment plan for abuse and neglect in infants and children, including documentation and reporting.~~

~~xxx. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for SIDS infants.~~

~~yyy. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for children with special health care needs including technology assisted children.~~

~~zzz. Discuss the pathophysiology of children with special health care needs including technology assisted children.~~

~~aaaa. Discuss the assessment findings associated for children with special health care needs including technology assisted children.~~

~~bbbb. Discuss the management/treatment plan for children with special health care needs including technology assisted children.~~

~~cccc. Describe the epidemiology, including the incidence, morbidity/mortality, risk factors, and prevention strategies for SIDS infants.~~

~~dddd. Discuss the pathophysiology of SIDS in infants.~~

~~eeee. Discuss the assessment findings associated with SIDS infants.~~

~~ffff. Discuss the management/treatment plan for SIDS in infants.~~

~~gggg. Demonstrate and advocate appropriate interactions with the infant/child that convey an understanding of their developmental stage.~~

~~hhhh. Recognize the emotional dependence of the infant/child to their parent/guardian.~~

~~iiii. Recognize the emotional impact of the infant/child injuries and illnesses on the parent/guardian.~~

~~jjjj. Recognize the physical and emotional difficulties associated with separation of the parent/guardian of a special needs child~~

~~kkkk. Demonstrate the ability to provide reassurance, empathy, and compassion for the parent/guardian.~~

~~llll. Demonstrate the appropriate approach for treating infants and children.~~

~~mmmm. Demonstrate appropriate intervention techniques with families of acutely ill or injured infants and children.~~

~~nnnn. Demonstrate an appropriate assessment for different developmental age groups.~~

~~oooo. Demonstrate an appropriate technique for measuring pediatric vital signs.~~

~~pppp. Demonstrate the use of a length-based resuscitation device for determining equipment sizes, drug doses, and other pertinent information for a pediatric patient.~~

~~qqqq. Demonstrate the appropriate approach for treating infants and children with respiratory distress, failure, and arrest.~~

~~rrrr. Demonstrate proper technique for administering blow-by oxygen to infants and children.~~

~~ssss. Demonstrate the proper utilization of a pediatric non-rebreather oxygen mask.~~

~~tttt. Demonstrate proper technique for suctioning of infants and children.~~

~~uuuu. Demonstrate appropriate use of airway adjuncts with infants and children.~~

~~vvvv. Demonstrate appropriate use of ventilation devices for infants and children.~~

~~wwww. Demonstrate endotracheal intubation procedures in infants and children.~~

~~xxxx. Demonstrate appropriate treatment/management of intubation complications for infants and children.~~

~~yyyy. Demonstrate appropriate needle cricothyroidotomy in infants and children.~~

~~zzzz. Demonstrate proper placement of a gastric tube in infants and children.~~

~~aaaaa. Demonstrate an appropriate technique for insertion of peripheral intravenous catheters for infants and children.~~

~~bbbbb. Demonstrate an appropriate technique for administration of intramuscular, inhalation, subcutaneous, rectal, endotracheal, and oral medication for infants and children.~~

~~ccccc. Demonstrate an appropriate technique for insertion of an intraosseous line for infants and children.~~

~~ddddd. Demonstrate appropriate interventions for infants and children with a partially obstructed airway.~~

~~eeeee. Demonstrate age appropriate basic airway clearing maneuvers for~~

~~infants and children with a completely obstructed airway.~~

~~fffff. Demonstrate proper technique for direct larnyngoscopy and foreign body retrieval in infants and children with a completely obstructed airway.~~

~~ggggg. Demonstrate appropriate airway and breathing control maneuvers for infant and child trauma patients.~~

~~hhhhh. Demonstrate appropriate treatment of infants and children requiring advanced airway and breathing control.~~

~~iiiii. Demonstrate appropriate immobilization techniques for infant and child trauma patients.~~

~~jjjjj. Demonstrate appropriate treatment of infants and children with head injuries.~~

~~kkkkk. Demonstrate appropriate treatment of infants and children with chest injuries.~~

~~lllll. Demonstrate appropriate treatment of infants and children with abdominal injuries.~~

~~mmmmm. Demonstrate appropriate treatment of infants and children with extremity injuries.~~

~~nnnnn. Demonstrate appropriate treatment of infants and children with burns.~~

~~ooooo. Demonstrate appropriate parent/caregiver interviewing techniques for infant and child death situations.~~

~~ppppp. Demonstrate proper infant CPR.~~

~~qqqqq. Demonstrate proper child CPR.~~

~~rrrrr. Demonstrate proper techniques for performing infant and child defibrillation and synchronized cardioversion.~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material~~

~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~

~~C3 Listen, comprehend, and take appropriate actions.~~

~~C4 Access, organize, and evaluate information.~~

~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~

~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~

~~S1 Explain the Anatomy and Physiology of the human body.~~

~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts~~
~~T2 Social, ethical, and human issues~~
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~

~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

~~**Course Name:** EMS Field Internship I~~

~~**Course Abbreviation:** EMT 2552~~

~~**Classification:** Vocational-Technical Core~~

~~**Description:** This course will provide~~ advanced clinical ~~training in the skills and knowledge obtained in the classroom. These will be supervised activities carried out in the out-of- hospital field setting at approved sites with an approved preceptor. This course was formerly called Field Internship I. (2 sch: 6 hr. clinical)~~

~~**Prerequisites:** All first semester courses~~

~~**Competencies and Suggested Objectives:**~~

~~1. Perform EMT-Paramedic activities.~~
- ~~a. Measure, interpret, and record vital signs.~~
- ~~b. Perform patient assessment.~~
- ~~c. Perform spinal immobilization.~~
- ~~d. Utilize infection control techniques.~~
- ~~e. Perform splinting.~~
- ~~f. Perform MAST application.~~
- ~~g. Perform airway placement.~~
- ~~h. Perform suctioning.~~
- ~~i. Perform esophageal airway.~~
- ~~j. Implement intravenous therapy.~~
- ~~k. Perform defibrillation.~~
- ~~l. Perform patient handling/lifting.~~
- ~~m. Perform hemorrhage control.~~
- ~~n. Perform oxygen administration.~~
- ~~o. Perform documentation.~~
- ~~p. Transmit radio report.~~
- ~~q. Perform CPR.~~
- ~~r. Perform medication administration (all methods).~~
- ~~s. Perform advanced airway/breathing techniques.~~
- ~~t. Perform glucose monitoring.~~
- ~~u. Perform transcutaneous pacing.~~
- ~~v. Practice arrhythmia recognition.~~
- ~~w. Perform intra-osseous infusion.~~
- ~~x. Follow childbirth procedures.~~
- ~~y. Perform 12-lead EKG.~~
- ~~z. Monitor thrombolytic transport.~~
- ~~aa. Perform nasogastric tube.~~
- ~~bb. Perform orogastric tube.~~
- ~~cc. Perform CPAP/BiPAP.~~

~~dd. Perform umbilical vein cannulazation.~~
~~ee. Access central venous devices.~~
~~ff. Perform pulse oximetry.~~
~~gg. Perform end tidal capnography.~~

~~2. Demonstrate professional behavior.~~
~~a. Perform behaviors within the integrity of the profession.~~
~~b. Perform the following behaviors with empathy as related to the profession:~~
~~(1) Self-motivation~~
~~(2) Appearance and personal hygiene~~
~~(3) Self-confidence~~
~~(4) Communication~~
~~(5) Time management~~
~~(6) Team work with diplomancy~~
~~(7) Respect~~
~~(8) Patient advocacy~~
~~(9) Careful delivery of service~~

~~Standards~~

~~Related Academic Topics~~

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~Workplace Skills~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to carets including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse populations.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~

~~WP6 Employs thinking skills including creative thinking, decision making, problems solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts~~
~~T2 Social, ethical, and human issues~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

~~**Course Name:** EMS Field Internship II~~

~~**Course Abbreviation:** EMT 2564~~

~~**Classification:** Vocational-Technical Core~~

~~**Description:** This course will provide advanced clinical training~~and field experiences in the skills and knowledge obtained in the classroom with an emphasis on leadership skills. These will be supervised activities carried out in the clinical and out-of-hospital field setting at approved sites with an approved preceptor. ~~(4~~This course was previously called EMS Field Internship II (EMT 2564). (5 sch~~: 12 hr. clinical~~)

Prerequisite: EMS ~~Field Internship I (EMT 2552~~Practicum II (EMS 1553)

Competencies and Suggested Objectives
1. Coordinate the following paramedic activities. a. Measure, interpret, and record vital signs. b. Perform patient assessment and emergency care throughout the life span, to include OB. c. Perform spinal immobilization. d. Utilize infection control techniques. e. Perform splinting. f. Perform MAST application. g. Perform airway placement. h. Perform suctioning. i. Perform esophageal airway. j. Implement intravenous therapy. k. Perform defibrillation. l. Perform patient handling/lifting. m. Perform hemorrhage control. n. Perform oxygen administration. o. Perform documentation. p. Transmit radio report. q. Perform CPR. r. Perform medication administration (all methods). s. Perform advanced airway/breathing techniques. t. Perform glucose monitoring. u. Perform transcutaneous pacing. v. Practice arrhythmia recognition. w. Perform intra-osseous infusion. x. Follow childbirth procedures. y. Perform 12-lead EKG. z. Monitor thrombolytic transport. aa. Perform nasogastric tube. bb. Perform orogastric tube. cc. Perform CPAP/BiPAP.

dd. Access central venous devices. ee. Perform pulse oximetry. ff. Perform end tidal capnography.
2. Exemplify professional behavior. a. Perform behaviors within the integrity of the profession. b. Perform behaviors with empathy as related to the profession. c. Practice self-motivation. d. Demonstrate professional appearance and personal hygiene. e. Demonstrate self-confidence. f. Utilize effective communication. g. Utilize time management skills. h. Practice team work with diplomacy. i. Demonstrate respect. j. Practice patient advocacy. k. Perform careful delivery of service.

~~**Competencies and Suggested Objectives**~~

~~1. Coordinate the following EMT-Paramedic activities.~~
~~a. Measure, interpret, and record vital signs.~~
~~b. Perform patient assessment.~~
~~c. Perform spinal immobilization.~~
~~d. Utilize infection control techniques.~~
~~e. Perform splinting.~~
~~f. Perform MAST application.~~
~~g. Perform airway placement.~~
~~h. Perform suctioning.~~
~~i. Perform esophageal airway.~~
~~j. Implement intravenous therapy.~~
~~k. Perform defibrillation.~~
~~l. Perform patient handling/lifting.~~
~~m. Perform hemorrhage control.~~
~~n. Perform oxygen administration.~~
~~o. Perform documentation.~~
~~p. Transmit radio report.~~
~~q. Perform CPR.~~
~~r. Perform medication administration (all methods).~~
~~s. Perform advanced airway/breathing techniques.~~
~~t. Perform glucose monitoring.~~
~~u. Perform transcutaneous pacing.~~
~~v. Practice arrhythmia recognition.~~
~~w. Perform intra-osseous infusion.~~
~~x. Follow childbirth procedures.~~
~~y. Perform 12-lead EKG.~~
~~z. Monitor thrombolytic transport.~~
~~aa. Perform nasogastric tube.~~
~~bb. Perform orogastric tube.~~

cc. Perform CPAP/BiPAP.
dd. Perform umbilical vein cannulization.
ee. Access central venous devices.
ff. Perform pulse oximetry.
gg. Perform end tidal capnography.

2. Exemplify professional behavior.
   a. Perform behaviors within the integrity of the profession.
   b. Perform behaviors with empathy as related to the profession
   c. Practice self-motivation.
   d. Demonstrate professional appearance and personal hygiene.
   e. Demonstrate self-confidence.
   f. Utilize effective communication.
   g. Utilize time management skills.
   h. Practice team work with diplomacy.
   i. Demonstrate respect.
   j. Practice patient advocacy.
   k. Perform careful delivery of service.

STANDARDS

National EMS Educational Standards

Related Academic Topics

C1 Interpret written material.
C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
C3 Listen, comprehend, and take appropriate actions.
C4 Access, organize, and evaluate information.
C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.
S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

Workplace Skills

WP1 Allocates resources (time, money, materials and facilities, and human resources).
WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.

~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse populations.~~

~~WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.~~

~~WP5 Selects, applies, and maintains/troubleshoots technology.~~

~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts,~~
~~T2 Social, ethical, and human issues~~
~~T3 Technology productivity tools~~
~~T4 Technology communications~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patient airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

~~**Course Name:** Pre-hospital~~ EMS1 Preparatory
EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS6 Public Health
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)

S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Web Sites

FISDAP (1997). FISDAP: Paramedic student field internship and hospital clinical tracking software [Software]. Available from https://www.fisdap.net/.

Course Name: Trauma

Course Abbreviation: ~~EMT~~EMS 2714

Classification: Vocational~~-~~–Technical Core

Description: This course will provide advanced instruction in the integration of pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for a suspected trauma patient. This course ~~is a combination of the courses formerly taught as~~was previously called Pre-hospital Trauma ~~I~~ (EMT ~~1714) and Trauma II (EMT 2724~~2714). (4 sch: 2-hr~~.~~ lecture, 4-hr~~.~~ lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Discuss the principles of kinematics to enhance the patient assessment and predict the likelihood of injuries based on the patient's mechanism of injury. (EMS4, EMS11, EMS12) a. Describe the components of a comprehensive trauma system. b. Describe the role of and differences between levels of trauma centers. c. Describe the criteria for transport to a trauma center. d. Describe the criteria and procedure for air medical transport. e. Define energy and force as they relate to trauma. f. Define laws of motion and energy, and understand the role that increased speed has on injuries. g. Describe each type of impact and its effect on unrestrained victims (e.g., "down and under," "up and over," compression, and deceleration). h. Describe the pathophysiology of the head, spine, thorax, and abdomen that results from the above forces. i. Describe the kinematics of penetrating injuries. j. List the motion and energy considerations of mechanisms other than motor vehicle crashes. k. Define the role of kinematics as an additional tool for patient assessment.
2. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with shock or hemorrhage. (EMS2, EMS4, EMS9, EMS12) a. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for shock and hemorrhage. b. Discuss the anatomy and physiology of the cardiovascular system. c. Predict shock and hemorrhage based on mechanism of injury. d. Discuss the various types and degrees of shock and hemorrhage. e. Discuss the pathophysiology of hemorrhage and shock. f. Discuss the assessment findings associated with hemorrhage and shock. g. Identify the need for intervention and transport of the patient with hemorrhage or shock. h. Discuss the treatment plan and management of hemorrhage and shock. i. Discuss the management of external hemorrhage.

j. Differentiate between controlled and uncontrolled hemorrhage.
k. Differentiate between the administration rate and amount of IV fluid in a patient with controlled versus uncontrolled hemorrhage.
l. Relate internal hemorrhage to the pathophysiology of compensated and decompensated hemorrhagic shock.
m. Relate internal hemorrhage to the assessment findings of compensated and decompensated hemorrhagic shock.
n. Discuss the management of internal hemorrhage.
o. Define shock based on aerobic and anaerobic metabolism.
p. Describe the incidence, morbidity, and mortality of shock.
q. Describe the body's physiologic response to changes in perfusion.
r. Describe the effects of decreased perfusion at the capillary level.
s. Discuss the cellular ischemic phase related to hemorrhagic shock.
t. Discuss the capillary stagnation phase related to hemorrhagic shock.
u. Discuss the capillary washout phase related to hemorrhagic shock.
v. Discuss the assessment findings of hemorrhagic shock.
w. Relate pulse pressure changes to perfusion status.
x. Relate orthostatic vital sign changes to perfusion status.
y. Define compensated and decompensated hemorrhagic shock.
z. Discuss the pathophysiological changes associated with compensated shock.
aa. Discuss the assessment findings associated with compensated shock.
bb. Identify the need for intervention and transport of the patient with compensated shock.
cc. Discuss the treatment plan and management of compensated shock.
dd. Discuss the pathophysiological changes associated with decompensated shock.
ee. Discuss the assessment findings associated with decompensated shock.
ff. Identify the need for intervention and transport of the patient with decompensated shock.
gg. Discuss the treatment plan and management of the patient with decompensated shock.
hh. Differentiate between compensated and decompensated shock.
ii. Relate external hemorrhage to the pathophysiology of compensated and decompensated hemorrhagic shock.
jj. Relate external hemorrhage to the assessment findings of compensated and decompensated hemorrhagic shock.
kk. Differentiate among the normotensive, hypotensive, or profoundly hypotensive patient.
ll. Differentiate among the administration of fluid in the normotensive, hypotensive, or profoundly hypotensive patient.
mm. Discuss the physiologic changes associated with the pneumatic anti-shock garment (PASG).
nn. Discuss the indications and contraindications for the application and inflation of the PASG.
oo. Apply epidemiology to develop prevention strategies for hemorrhage and shock.
pp. Integrate the pathophysiological principles to the assessment of a patient with hemorrhage or shock.

qq. Synthesize assessment findings and patient history information to form a field impression for the patient with hemorrhage or shock.
rr. Formulate a treatment plan based on the field impression for the hemorrhage or shock patient.
ss. Demonstrate the assessment of a patient with signs and symptoms of hemorrhagic shock.
tt. Demonstrate the management of a patient with signs and symptoms of hemorrhagic shock.
uu. Demonstrate the assessment of a patient with signs and symptoms of compensated hemorrhagic shock.
vv. Demonstrate the management of a patient with signs and symptoms of compensated hemorrhagic shock.
ww. Demonstrate the assessment of a patient with signs and symptoms of decompensated hemorrhagic shock.
xx. Demonstrate the management of a patient with signs and symptoms of decompensated hemorrhagic shock.
yy. Demonstrate the assessment of a patient with signs and symptoms of external hemorrhage.
zz. Demonstrate the management of a patient with signs and symptoms of external hemorrhage.
aaa. Demonstrate the assessment of a patient with signs and symptoms of internal hemorrhage.
bbb. Demonstrate the management of a patient with signs and symptoms of internal hemorrhage.

3. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with soft tissue trauma. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of soft tissue injures.
b. Describe the layers of the skin, specifically the following:
   (1) Epidermis and dermis (cutaneous)
   (2) Superficial fascia (subcutaneous)
   (3) Deep fascia
c. Identify the major functions of the integumentary system.
d. Identify the skin tension lines of the body.
e. Predict soft tissue injuries based on mechanism of injury.
f. Discuss the pathophysiology of wound healing, including the following:
   (1) Homeostasis
   (2) Inflammation phase
   (3) Epithelialization
   (4) Neovascularization
   (5) Collagen synthesis
g. Discuss the pathophysiology of soft tissue injuries.
h. Differentiate between the following types of closed soft tissue injuries:
   (1) Contusion
   (2) Hematoma
   (3) Crush injuries

i. Discuss the assessment findings associated with closed soft tissue injuries.
j. Discuss the management of a patient with closed soft tissue injuries.
k. Discuss the pathophysiology of open soft tissue injuries.
l. Differentiate between the following types of open soft tissue injuries:
    (1) Abrasions
    (2) Lacerations
    (3) Major arterial lacerations
    (4) Avulsions
    (5) Impaled objects
    (6) Amputations
    (7) Incisions
    (8) Crush injuries
    (9) Blast injuries
    (10) Penetrations/ punctures
m. Discuss the incidence, morbidity, and mortality of blast injuries.
n. Predict blast injuries based on mechanism of injury, including the following:
    (1) Primary
    (2) Secondary
    (3) Tertiary
o. Discuss types of trauma, including the following:
    (1) Blunt
    (2) Penetrating
    (3) Barotrauma
    (4) Burns
p. Discuss the pathophysiology associated with blast injuries.
q. Discuss the effects of an explosion within an enclosed space on a patient.
r. Discuss the assessment findings associated with blast injuries.
s. Identify the need for rapid intervention and transport of the patient with a blast injury.
t. Discuss the management of a patient with a blast injury.
u. Discuss the pathophysiology, assessment, and management of high pressure injection injuries.
v. Discuss the incidence, morbidity, and mortality of crush injuries.
w. Define the following conditions:
    (1) Crush injury
    (2) Crush syndrome
    (3) Compartment syndrome
x. Discuss the mechanisms of injury in a crush injury.
y. Discuss the effects of reperfusion and rhabdomyolysis on the body.
z. Discuss the assessment findings associated with crush injuries.
aa. Identify the need for rapid intervention and transport of the patient with a crush injury.
bb. Discuss the management of a patient with a crush injury.
cc. Discuss the pathophysiology of hemorrhage associated with soft tissue injuries, including the following:
    (1) Capillary

(2) Venous
(3) Arterial

dd. Discuss the assessment findings associated with open soft tissue injuries.

ee. Discuss the assessment of hemorrhage associated with open soft tissue injuries.

ff. Differentiate between the various management techniques for hemorrhage control of open soft tissue injuries, including the following:
(1) Direct pressure
(2) Pressure dressing
(3) Tourniquet application

gg. Demonstrate timely and appropriate tourniquet use for refractory external bleeding.

hh. Differentiate between the types of injuries requiring the use of an occlusive versus non-occlusive dressing.

ii. Identify the need for rapid assessment, intervention, and appropriate transport for the patient with a soft tissue injury.

jj. Discuss the management of the soft tissue injury patient.

kk. Define and discuss the following:
(1) Dressings
(a) Sterile
(b) Non-sterile
(c) Occlusive
(d) Non-occlusive
(e) Adherent
(f) Non-adherent
(g) Absorbent
(h) Non-absorbent
(i) Wet
(j) Dry
(2) Bandages
(a) Absorbent
(b) Non-absorbent
(c) Adherent
(d) Non-adherent
(e) Tourniquet

ll. Discuss the possible complications of an improperly applied dressing, bandage, or tourniquet.

mm. Discuss the assessment of wound healing.

nn. Discuss the management of wound healing.

oo. Discuss the pathophysiology of wound infection.

pp. Discuss the assessment of wound infection.

qq. Discuss the management of wound infection.

rr. Integrate pathophysiological principles to the assessment of a patient with a soft tissue injury.

ss. Formulate treatment priorities for patients with soft tissue injuries in conjunction with the following:
(1) Airway/face/neck trauma
(2) Thoracic trauma (open/closed)

(3) Abdominal trauma

tt. Synthesize assessment findings and patient history information to form a field impression for the patient with soft tissue trauma.
uu. Formulate a treatment plan based on the field impression for the patient with soft tissue trauma.
vv. Defend the rationale explaining why immediate life threats must take priority over wound closure.
ww. Defend the management regimens for various soft tissue injuries.
xx. Defend why immediate life-threatening conditions take priority over soft tissue management.
yy. Explain the importance of a thorough assessment for patients with soft tissue injuries.
zz. Attend to the feelings that the patient with a soft tissue injury may experience.
aaa. Explain the importance of good follow-up care for patients receiving sutures.
bbb. Discuss the value of the written report for soft tissue injuries, in the continuum of patient care.
ccc. Demonstrate the assessment and management of a patient with signs and symptoms of soft tissue injury, including the following:
(1) Contusion
(2) Hematoma
(3) Crushing
(4) Abrasion
(5) Laceration
(6) Avulsion
(7) Amputation
(8) Impaled object
(9) Penetration/puncture
(10) Blast

4. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the management plan for the patient with a burn injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the anatomy and physiology pertinent to burn injuries.
b. Describe the epidemiology, including incidence, mortality/morbidity, risk factors, and prevention strategies for the patient with a burn injury.
c. Describe the pathophysiologic complications and systemic complications of a burn injury.
d. Identify types of burn injuries, including a thermal burn, an inhalation burn, chemical burn, an electrical burn, and a radiation exposure.
e. Describe the depth classifications of burn injuries, including a superficial burn, a partial-thickness burn, a full-thickness burn, and other depth classifications described by local protocol.
f. Describe methods for determining body surface area percentage of a burn injury including the “rules of nines,” the “rules of palms,” and other methods described by local protocol.
g. Describe the severity of a burn including a minor burn, a moderate burn, a severe

burn, and other severity classifications described by local protocol.

h. Differentiate criteria for determining the severity of a burn injury between a pediatric patient and an adult patient.

i. Describe special considerations for a pediatric patient with a burn injury.

j. Discuss considerations that impact management and prognosis of the burn injured patient.

k. Discuss mechanisms of burn injuries.

l. Discuss conditions associated with burn injuries, including trauma, blast injuries, airway compromise, respiratory compromise, and child abuse.

m. Describe the management of a burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

n. Describe the epidemiology of a thermal burn injury.

o. Describe the specific anatomy and physiology pertinent to a thermal burn injury.

p. Describe the pathophysiology of a thermal burn injury.

q. Describe the depth classifications of a thermal burn injury.

r. Describe the severity of a thermal burn injury.

s. Describe considerations that impact management and prognosis of the patient with a thermal burn injury.

t. Discuss mechanisms of burn injury and conditions associated with a thermal burn injury.

u. Describe the management of a thermal burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.

v. Describe the epidemiology of an inhalation burn injury.

w. Describe the specific anatomy and physiology pertinent to an inhalation burn injury.

x. Describe the pathophysiology of an inhalation burn injury.

y. Differentiate between supraglottic and infraglottic inhalation injuries.

z. Describe the depth classifications of an inhalation burn injury.

aa. Describe the severity of an inhalation burn injury.

bb. Describe considerations that impact management and prognosis of the patient with an inhalation burn injury.

cc. Discuss mechanisms of burn injury and conditions associated with an inhalation burn injury.

dd. Describe the management of an inhalation burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.

ee. Describe the epidemiology of a chemical burn injury and a chemical burn injury to the eye.

ff. Describe the specific anatomy and physiology pertinent to a chemical burn injury and a chemical burn injury to the eye.

gg. Describe the pathophysiology of a chemical burn injury, including types of chemicals and their burning processes and a chemical burn injury to the eye.

hh. Describe the depth classifications of a chemical burn injury.

ii. Describe the severity of a chemical burn injury.
jj. Describe considerations that impact management and prognosis of the patient with a chemical burn injury and a chemical burn injury to the eye.
kk. Discuss mechanisms of burn injury and conditions associated with a chemical burn injury.
ll. Describe the management of a chemical burn injury and a chemical burn injury to the eye, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
mm. Describe the epidemiology of an electrical burn injury.
nn. Describe the specific anatomy and physiology pertinent to an electrical burn injury.
oo. Describe the pathophysiology of an electrical burn injury.
pp. Describe the depth classifications of an electrical burn injury.
qq. Describe the severity of an electrical burn injury.
rr. Describe considerations that impact management and prognosis of the patient with an electrical burn injury.
ss. Discuss mechanisms of burn injury and conditions associated with an electrical burn injury.
tt. Describe the management of an electrical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
uu. Describe the epidemiology of a radiation exposure.
vv. Describe the specific anatomy and physiology pertinent to a radiation exposure.
ww. Describe the pathophysiology of a radiation exposure, including the types and characteristics of ionizing radiation.
xx. Describe the depth classifications of a radiation exposure.
yy. Describe the severity of a radiation exposure.
zz. Describe considerations that impact management and prognosis of the patient with a radiation exposure.
aaa. Discuss mechanisms of burn injury associated with a radiation exposure.
bbb. Discuss conditions associated with a radiation exposure.
ccc. Describe the management of a radiation exposure, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
ddd. Integrate pathophysiological principles to the assessment of a patient with a thermal burn injury.
eee. Integrate pathophysiological principles to the assessment of a patient with an inhalation burn injury.
fff. Integrate pathophysiological principles to the assessment of a patient with a chemical burn injury.
ggg. Integrate pathophysiological principles to the assessment of a patient with an electrical burn injury.
hhh. Integrate pathophysiological principles to the assessment of a patient with a radiation exposure.
iii. Synthesize patient history information and assessment findings to form a field impression for the patient with a thermal burn injury.

jjj. Synthesize patient history information and assessment findings to form a field impression for the patient with an inhalation burn injury.
kkk. Synthesize patient history information and assessment findings to form a field impression for the patient with a chemical burn injury.
lll. Synthesize patient history information and assessment findings to form a field impression for the patient with an electrical burn injury.
mmm. Synthesize patient history information and assessment findings to form a field impression for the patient with a radiation exposure.
nnn. Formulate a management plan based on the field impression for the patient with a thermal burn injury.
ooo. Formulate a management plan based on the field impression for the patient with an inhalation burn injury.
ppp. Formulate a management plan based on the field impression for the patient with a chemical burn injury.
qqq. Formulate a management plan based on the field impression for the patient with an electrical burn injury.
rrr. Formulate a management plan based on the field impression for the patient with a radiation exposure.
sss. Explain the changes of a patient's self-image associated with a burn injury.
ttt. Explain the impact of managing a burn injured patient.
uuu. Demonstrate empathy for a burn injured patient.
vvv. Assess safety at a burn injury incident.
www. Predict mortality and morbidity based on the pathophysiology and assessment findings of a patient with a burn injury.
xxx. Discuss the sense of urgency in burn injuries.
yyy. Perform as a role-model for universal precautions and body substance isolation (BSI).
zzz. Demonstrate body substance isolation procedures during assessment and management of patients with a burn injury.
aaaa. Perform assessment of a patient with a burn injury.
bbbb. Perform management of a thermal burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.
cccc. Perform management of an inhalation burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.
dddd. Perform management of a chemical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.
eeee. Perform management of an electrical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

ffff. Perform management of a radiation exposure, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

5. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the trauma patient with a suspected head injury. (EMS2, EMS4, EMS9, EMS12)
   a. Describe the incidence, morbidity, and mortality of facial injuries.
   b. Explain facial anatomy and relate physiology to facial injuries.
   c. Predict facial injuries based on mechanism of injury.
   d. Predict other injuries commonly associated with facial injuries based on mechanism of injury.
   e. Differentiate between the following types of facial injuries, highlighting the defining characteristics of each:
      (1) Eye
      (2) Ear
      (3) Nose
      (4) Throat
      (5) Mouth
   f. Integrate pathophysiological principles to the assessment of a patient with facial injury.
   g. Differentiate between facial injuries based on the assessment and history.
   h. Formulate a field impression for a patient with a facial injury based on the assessment findings.
   i. Develop a patient management plan for a patient with a facial injury based on the field impression
   j. Explain the pathophysiology of eye injuries.
   k. Relate assessment findings associated with eye injuries to pathophysiology.
   l. Integrate pathophysiological principles to the assessment of a patient with an eye injury.
   m. Formulate a field impression for a patient with an eye injury based on the assessment findings.
   n. Develop a patient management plan for a patient with an eye injury based on the field impression.
   o. Describe and demonstrate eye irrigation with a Morgan lens.
   p. Explain the pathophysiology of ear injuries.
   q. Relate assessment findings associated with ear injuries to pathophysiology.
   r. Integrate pathophysiological principles to the assessment of a patient with an ear injury.
   s. Formulate a field impression for a patient with an ear injury based on the assessment findings.
   t. Develop a patient management plan for a patient with an ear injury based on the field impression.
   u. Explain the pathophysiology of nose injuries.
   v. Relate assessment findings associated with nose injuries to pathophysiology.
   w. Integrate pathophysiological principles to the assessment of a patient with a nose

injury.

x. Formulate a field impression for a patient with a nose injury based on the assessment findings.

y. Develop a patient management plan for a patient with a nose injury based on the field impression.

z. Explain the pathophysiology of throat injuries.

aa. Relate assessment findings associated with throat injuries to pathophysiology.

bb. Integrate pathophysiological principles to the assessment of a patient with a throat injury.

cc. Formulate a field impression for a patient with a throat injury based on the assessment findings.

dd. Develop a patient management plan for a patient with a throat injury based on the field impression.

ee. Explain the pathophysiology of mouth injuries.

ff. Relate assessment findings associated with mouth injuries to pathophysiology.

gg. Integrate pathophysiological principles to the assessment of a patient with a mouth injury.

hh. Formulate a field impression for a patient with a mouth injury based on the assessment findings.

ii. Develop a patient management plan for a patient with a mouth injury based on the field impression.

jj. Describe the incidence, morbidity, and mortality of head injuries.

kk. Explain anatomy, and relate physiology of the CNS to head injuries.

ll. Predict head injuries based on mechanism of injury.

mm. Distinguish between head injury and brain injury.

nn. Explain the pathophysiology of head/brain injuries.

oo. Explain the concept of increasing intracranial pressure (ICP).

pp. Explain the effect of increased and decreased carbon dioxide on ICP.

qq. Explain the process involved with each of the levels of increasing ICP.

rr. Relate assessment findings associated with head/brain injuries to the pathophysiologic process.

ss. Classify head injuries (mild, moderate, severe) according to assessment findings.

tt. Identify the need for rapid intervention and transport of the patient with a head/brain injury.

uu. Describe and explain the general management of the head/brain injury patient, including pharmacological and non-pharmacological treatment.

vv. Analyze the relationship between carbon dioxide concentration in the blood and management of the airway in the head/brain injured patient.

ww. Explain the pathophysiology of diffuse axonal injury.

xx. Relate assessment findings associated with concussion and moderate and severe diffuse axonal injury to pathophysiology.

yy. Develop a management plan for a patient with a moderate and severe diffuse axonal injury.

zz. Explain the pathophysiology of skull fracture.

aaa. Relate assessment findings associated with skull fracture to pathophysiology.

bbb. Develop a management plan for a patient with a skull fracture.

ccc. Explain the pathophysiology of cerebral contusion.
ddd. Relate assessment findings associated with cerebral contusion to pathophysiology.
eee. Develop a management plan for a patient with a cerebral contusion.
fff. Explain the pathophysiology, assessment findings, and management plan for a patient with an intracranial hemorrhage, including the following:
(1) Epidural
(2) Subdural
(3) Intracerebral
(4) Subarachnoid
ggg. Describe the various types of helmets and their purposes.
hhh. Relate priorities of care to factors determining the need for helmet removal in various field situations including sports related incidents.
iii. Develop a management plan for the removal of a helmet for a head injured patient.
jjj. Integrate the pathophysiological principles to the assessment of a patient with head/brain injury.
kkk. Differentiate between the types of head/brain injuries based on the assessment and history.
lll. Formulate a field impression for a patient with a head/brain injury based on the assessment findings.
mmm. Develop a patient management plan for a patient with a head/brain injury based on the field impression.

6. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a suspected spinal injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of spinal injuries in the trauma patient.
b. Describe the following anatomy and physiology of structures related to spinal injuries:
(1) Cervical
(2) Thoracic
(3) Lumbar
(4) Sacrum
(5) Coccyx
(6) Head
(7) Brain
(8) Spinal cord
(9) Nerve tract(s)
(10) Dermatomes
c. Predict spinal injuries based on mechanism of injury.
d. Describe the pathophysiology of spinal injuries.
e. Explain traumatic and nontraumatic spinal injuries.
f. Describe the assessment findings associated with spinal injuries.
g. Describe the management of spinal injuries.
h. Identify the need for rapid intervention and transport of the patient with spinal injuries.
i. Integrate the pathophysiological principles to the assessment of a patient with a

spinal injury.

j. Differentiate between spinal injuries based on the assessment and history.

k. Formulate a field impression based on the assessment findings.

l. Develop a patient management plan based on the field impression.

m. Describe the pathophysiology of traumatic spinal injury related to the following:
   (1) Spinal shock
   (2) Spinal neurogenic shock
   (3) Quadriplegia/paraplegia
   (4) Incomplete cord injury/cord syndromes
      (a) Central cord syndrome
      (b) Anterior cord syndrome
      (c) Brown-Sequard syndrome
      (d) Cauda equina syndrome

n. Describe the assessment findings associated with traumatic spinal injuries.

o. Describe the management of traumatic spinal injuries.

p. Integrate pathophysiological principles to the assessment of a patient with a traumatic spinal injury.

q. Differentiate between traumatic and nontraumatic spinal injuries based on the assessment and history.

r. Formulate a field impression for traumatic spinal injury based on the assessment findings.

s. Develop a patient management plan for traumatic spinal injury based on the field impression.

t. Describe the pathophysiology of nontraumatic spinal injury, including the following:
   (1) Low back pain
   (2) Herniated intervertebral disk
   (3) Spinal cord tumors

u. Describe the assessment findings associated with nontraumatic spinal injuries.

v. Describe the management of nontraumatic spinal injuries.

w. Integrate pathophysiological principles to the assessment of a patient with nontraumatic spinal injury.

x. Differentiate between traumatic and nontraumatic spinal injuries based on the assessment and history.

y. Formulate a field impression for nontraumatic spinal injury based on the assessment findings.

z. Develop a patient management plan for nontraumatic spinal injury based on the field impression.

aa. Recognize the need for a thorough assessment when determining the proper management modality for spine injuries.

bb. Recognize the implications of failing to properly immobilize a spine injured patient.

cc. Demonstrate a clinical assessment to determine the proper management modality for a patient with a suspected traumatic spinal injury.

dd. Demonstrate a clinical assessment to determine the proper management modality for a patient with a suspected nontraumatic spinal injury.

ee. Demonstrate immobilization of the urgent and non-urgent patient with assessment

findings of spinal injury from the following presentations:
(1) Supine
(2) Prone
(3) Semi-prone
(4) Sitting
(5) Standing

ff. Demonstrate documentation of suspected spinal cord injury to include the following:
(1) General area of spinal cord involved
(2) Sensation
(3) Dermatomes
(4) Motor function
(5) Area(s) of weakness

gg. Demonstrate preferred methods for stabilization of a helmet from a potentially spine injured patient.

hh. Demonstrate helmet removal techniques.

ii. Demonstrate alternative methods for stabilization of a helmet from a potentially spine injured patient.

jj. Demonstrate documentation of assessment before spinal immobilization.

kk. Demonstrate documentation of assessment during spinal immobilization.

ll. Demonstrate documentation of assessment after spinal immobilization.

7. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for a patient with a thoracic injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of thoracic injuries in the trauma patient.

b. Discuss the anatomy and physiology of the organs and structures related to thoracic injuries.

c. Predict thoracic injuries based on mechanism of injury.

d. Discuss the types of thoracic injuries.

e. Discuss the pathophysiology of thoracic injuries.

f. Discuss the assessment findings associated with thoracic injuries.

g. Discuss the management of thoracic injuries.

h. Identify the need for rapid intervention and transport of the patient with thoracic injuries.

i. Discuss the pathophysiology of specific chest wall injuries, including the following:
(1) Rib fracture
(2) Flail segment
(3) Sternal fracture

j. Discuss the assessment findings associated with chest wall injuries.

k. Identify the need for rapid intervention and transport of the patient with chest wall injuries.

l. Discuss the management of chest wall injuries.

m. Discuss the pathophysiology of injury to the lung, including the following:
(1) Simple pneumothorax
(2) Open pneumothorax

(3) Tension pneumothorax
(4) Hemothorax
(5) Hemopneumothorax
(6) Pulmonary contusion

n. Discuss the assessment findings associated with lung injuries.
o. Discuss the management of lung injuries, to include assisting in the insertion of a chest tube as well as monitoring and management of a chest tube.
p. Identify the need for rapid intervention and transport of the patient with lung injuries.
q. Discuss the pathophysiology of myocardial injuries, including the following:
(1) Pericardial tamponade
(2) Myocardial contusion
(3) Myocardial rupture
(4) Commotio cordis

r. Discuss the assessment findings associated with myocardial injuries.
s. Discuss the management of myocardial injuries.
t. Identify the need for rapid intervention and transport of the patient with myocardial injuries.
u. Discuss the pathophysiology of vascular injuries, including injuries to the following:
(1) Aorta
(2) Vena cava
(3) Pulmonary arteries/veins

v. Discuss the assessment findings associated with vascular injuries.
w. Discuss the management of vascular injuries.
x. Identify the need for rapid intervention and transport of the patient with vascular injuries.
y. Discuss the pathophysiology of diaphragmatic injuries.
z. Discuss the assessment findings associated with diaphragmatic injuries.
aa. Discuss the management of diaphragmatic injuries.
bb. Identify the need for rapid intervention and transport of the patient with diaphragmatic injuries.
cc. Discuss the pathophysiology of esophageal injuries.
dd. Discuss the assessment findings associated with esophageal injuries.
ee. Discuss the management of esophageal injuries.
ff. Identify the need for rapid intervention and transport of the patient with esophageal injuries.
gg. Discuss the pathophysiology of tracheo-bronchial injuries.
hh. Discuss the assessment findings associated with tracheo-bronchial injuries.
ii. Discuss the management of tracheo-bronchial injuries.
jj. Identify the need for rapid intervention and transport of the patient with tracheo-bronchial injuries.
kk. Discuss the pathophysiology of traumatic asphyxia.
ll. Discuss the assessment findings associated with traumatic asphyxia.
mm. Discuss the management of traumatic asphyxia.
nn. Identify the need for rapid intervention and transport of the patient with traumatic

asphyxia.

oo. Integrate the pathophysiological principles to the assessment of a patient with thoracic injury.

pp. Differentiate between thoracic injuries based on the assessment and history.

qq. Formulate a field impression based on the assessment findings.

rr. Develop a patient management plan based on the field impression.

ss. Recognize the need for the use of a thorough assessment to determine a differential diagnosis and treatment plan for thoracic trauma.

tt. Recognize the need for a thorough scene survey to determine the forces involved in thoracic trauma.

uu. Recognize the implications of failing to properly diagnose thoracic trauma.

vv. Recognize the implications of failing to initiate timely interventions to patients with thoracic trauma.

ww. Demonstrate a clinical assessment for a patient with suspected thoracic trauma.

xx. Demonstrate the following techniques of management for thoracic injuries:

(1) Needle decompression
(2) Fracture stabilization
(3) Elective intubation
(4) ECG monitoring
(5) Oxygenation and ventilation

8. Explain the pathophysiologic principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with suspected abdominal trauma. (EMS2, EMS4, EMS9, EMS12)

a. Describe the epidemiology, including the morbidity/mortality and prevention strategies for a patient with abdominal trauma.

b. Describe the anatomy and physiology of organs and structures related to abdominal injuries.

c. Predict abdominal injuries based on blunt and penetrating mechanisms of injury.

d. Describe open and closed abdominal injuries.

e. Explain the pathophysiology of abdominal injuries.

f. Describe the assessment findings associated with abdominal injuries.

g. Identify the need for rapid intervention and transport of the patient with abdominal injuries based on assessment findings.

h. Describe the management of abdominal injuries.

i. Integrate the pathophysiological principles to the assessment of a patient with abdominal injury.

j. Differentiate between abdominal injuries based on the assessment and history.

k. Formulate a field impression for patients with abdominal trauma based on the assessment findings.

l. Develop a patient management plan for patients with abdominal trauma based on the field impression.

m. Describe the epidemiology, including the morbidity/mortality and prevention strategies for solid organ injuries.

n. Explain the pathophysiology of solid organ injuries.

o. Describe the assessment findings associated with solid organ injuries.

p. Describe the treatment plan and management of solid organ injuries.

q. Describe the epidemiology, including the morbidity/mortality and prevention strategies for hollow organ injuries.
r. Explain the pathophysiology of hollow organ injuries.
s. Describe the assessment findings associated with hollow organ injuries.
t. Describe the treatment plan and management of hollow organ injuries.
u. Describe the epidemiology, including the morbidity/mortality and prevention strategies for abdominal vascular injuries.
v. Explain the pathophysiology of abdominal vascular injuries.
w. Describe the assessment findings associated with abdominal vascular injuries.
x. Describe the treatment plan and management of abdominal vascular injuries.
y. Describe the epidemiology, including the morbidity/mortality and prevention strategies for pelvic fractures.
z. Explain the pathophysiology of pelvic fractures.
aa. Describe the assessment findings associated with pelvic fractures.
bb. Describe the treatment plan and management of pelvic fractures.
cc. Describe the epidemiology, including the morbidity/mortality and prevention strategies for other related abdominal injuries.
dd. Explain the pathophysiology of other related abdominal injuries.
ee. Describe the assessment findings associated with other related abdominal injuries.
ff. Describe the treatment plan and management of other related abdominal injuries.
gg. Apply the epidemiologic principles to develop prevention strategies for abdominal injuries.
hh. Integrate the pathophysiological principles to the assessment of a patient with abdominal injuries.
ii. Differentiate between abdominal injuries based on the assessment and history.
jj. Formulate a field impression based upon the assessment findings for a patient with abdominal injuries.
kk. Develop a patient management plan for a patient with abdominal injuries, based upon field impression.
ll. Recognize the need for the use of a thorough assessment to determine a differential diagnosis and treatment plan for abdominal trauma.
mm. Recognize the need for the use of a thorough scene survey to determine the forces involved in abdominal trauma.
nn. Recognize the implications of failing to properly diagnose abdominal trauma and initiate timely interventions to patients with abdominal trauma.
oo. Demonstrate a clinical assessment to determine the proper treatment plan for a patient with suspected abdominal trauma.
pp. Demonstrate the proper use of PASG in a patient with suspected abdominal trauma.
qq. Demonstrate the proper use of PASG in a patient with suspected pelvic fracture.

9. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with a musculoskeletal injury. (EMS2, EMS4, EMS9, EMS12)

a. Describe the incidence, morbidity, and mortality of musculoskeletal injuries.
b. Discuss the anatomy and physiology of the musculoskeletal system.
c. Predict injuries based on the mechanism of injury, including the following:
(1) Direct

(2) Indirect
(3) Pathologic

d. Discuss the types of musculoskeletal injuries:
(1) Fracture (open and closed)
(2) Dislocation/ fracture
(3) Sprain
(4) Strain

e. Discuss the pathophysiology of musculoskeletal injuries.
f. Discuss the assessment findings associated with musculoskeletal injuries.
g. List the six “Ps” of musculoskeletal injury assessment.
h. List the primary signs and symptoms of extremity trauma.
i. List other signs and symptoms that can indicate less obvious extremity injury.
j. Discuss the need for assessment of pulses, motor, and sensation before and after splinting.
k. Identify the need for rapid intervention and transport when dealing with musculoskeletal injuries.
l. Discuss the management of musculoskeletal injuries.
m. Discuss the general guidelines for splinting.
n. Explain the benefits of cold application for musculoskeletal injury.
o. Explain the benefits of heat application for musculoskeletal injury.
p. Describe age-associated changes in the bones.
q. Discuss the pathophysiology of open and closed fractures.
r. Discuss the relationship between volume of hemorrhage and open or closed fractures.
s. Discuss the assessment findings associated with fractures.
t. Discuss the management of fractures.
u. Discuss the usefulness of the pneumatic anti-shock garment (PASG) in the management of fractures.
v. Describe the special considerations involved in femur fracture management.
w. Discuss the pathophysiology of dislocations.
x. Discuss the assessment findings of dislocations.
y. Discuss the out-of-hospital management of dislocation/fractures, including splinting and realignment.
z. Explain the importance of manipulating a knee dislocation/fracture with an absent distal pulse.
aa. Describe the procedure for reduction of a shoulder, finger, or ankle dislocation/fracture.
bb. Discuss the pathophysiology of sprains.
cc. Discuss the assessment findings of sprains.
dd. Discuss the management of sprains.
ee. Discuss the pathophysiology of strains.
ff. Discuss the assessment findings of strains.
gg. Discuss the management of strains.
hh. Discuss the pathophysiology of a tendon injury.
ii. Discuss the assessment findings of tendon injury.
jj. Discuss the management of a tendon injury.

kk. Integrate the pathophysiological principles to the assessment of a patient with a musculoskeletal injury.
ll. Differentiate between musculoskeletal injuries based on the assessment findings and history.
mm. Formulate a field impression of a musculoskeletal injury based on the assessment findings.
nn. Develop a patient management plan for the musculoskeletal injury based on the field impression.
oo. Recognize the use of a thorough assessment to determine a working diagnosis and treatment plan for musculoskeletal injuries.
pp. Recognize the use of pain management in the treatment of musculoskeletal injuries.
qq. Demonstrate a clinical assessment to determine the proper treatment plan for a patient with a suspected musculoskeletal injury.
rr. Demonstrate the proper use of fixation, soft, and traction splints for apatient with a suspected fracture.

~~**Competencies and Suggested Objectives:**~~

1. ~~Discuss the principles of kinematics to enhance the patient assessment and predict the likelihood of injuries based on the patient's mechanism of injury.~~
   a. ~~Describe the components of a comprehensive trauma system.~~
   b. ~~Describe the role of and differences between levels of trauma centers.~~
   c. ~~Describe the criteria for transport to a trauma center.~~
   d. ~~Describe the criteria and procedure for air medical transport.~~
   e. ~~Define energy and force as they relate to trauma.~~
   f. ~~Define laws of motion and energy and understand the role that increased speed has on injuries.~~
   g. ~~Describe each type of impact and its effect on unrestrained victims (e.g., "down and under," "up and over," compression, deceleration).~~
   h. ~~Describe the pathophysiology of the head, spine, thorax, and abdomen that result from the above forces.~~
   i. ~~Describe the kinematics of penetrating injuries.~~
   j. ~~List the motion and energy considerations of mechanisms other than motor vehicle crashes.~~
   k. ~~Define the role of kinematics as an additional tool for patient assessment.~~
2. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with shock or hemorrhage.~~
   a. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies, for shock and hemorrhage.~~
   b. ~~Discuss the anatomy and physiology of the cardiovascular system.~~
   c. ~~Predict shock and hemorrhage based on mechanism of injury.~~
   d. ~~Discuss the various types and degrees of shock and hemorrhage.~~
   e. ~~Discuss the pathophysiology of hemorrhage and shock.~~
   f. ~~Discuss the assessment findings associated with hemorrhage and shock.~~
   g. ~~Identify the need for intervention and transport of the patient with hemorrhage or shock.~~

h. ~~Discuss the treatment plan and management of hemorrhage and shock.~~
i. ~~Discuss the management of external hemorrhage.~~
j. ~~Differentiate between controlled and uncontrolled hemorrhage.~~
k. ~~Differentiate between the administration rate and amount of IV fluid in a patient with controlled versus uncontrolled hemorrhage.~~
l. ~~Relate internal hemorrhage to the pathophysiology of compensated and decompensated hemorrhagic shock.~~
m. ~~Relate internal hemorrhage to the assessment findings of compensated and decompensated hemorrhagic shock.~~
n. ~~Discuss the management of internal hemorrhage.~~
o. ~~Define shock based on aerobic and anaerobic metabolism.~~
p. ~~Describe the incidence, morbidity, and mortality of shock.~~
q. ~~Describe the body's physiologic response to changes in perfusion.~~
r. ~~Describe the effects of decreased perfusion at the capillary level.~~
s. ~~Discuss the cellular ischemic phase related to hemorrhagic shock.~~
t. ~~Discuss the capillary stagnation phase related to hemorrhagic shock.~~
u. ~~Discuss the capillary washout phase related to hemorrhagic shock.~~
v. ~~Discuss the assessment findings of hemorrhagic shock.~~
w. ~~Relate pulse pressure changes to perfusion status.~~
x. ~~Relate orthostatic vital sign changes to perfusion status.~~
y. ~~Define compensated and decompensated hemorrhagic shock.~~
z. ~~Discuss the pathophysiological changes associated with compensated shock.~~
aa. ~~Discuss the assessment findings associated with compensated shock.~~
bb. ~~Identify the need for intervention and transport of the patient with compensated shock.~~
cc. ~~Discuss the treatment plan and management of compensated shock.~~
dd. ~~Discuss the pathophysiological changes associated with decompensated shock.~~
ee. ~~Discuss the assessment findings associated with decompensated shock.~~
ff. ~~Identify the need for intervention and transport of the patient with decompensated shock.~~
gg. ~~Discuss the treatment plan and management of the patient with decompensated shock.~~
hh. ~~Differentiate between compensated and decompensated shock.~~
ii. ~~Relate external hemorrhage to the pathophysiology of compensated and decompensated hemorrhagic shock.~~
jj. ~~Relate external hemorrhage to the assessment findings of compensated and decompensated hemorrhagic shock.~~
kk. ~~Differentiate among the normotensive, hypotensive, or profoundly hypotensive patient.~~
ll. ~~Differentiate among the administration of fluid in the normotensive, hypotensive, or profoundly hypotensive patient.~~
mm. ~~Discuss the physiologic changes associated with the pneumatic anti-shock garment (PASG).~~

nn. Discuss the indications and contraindications for the application and inflation of the PASG.
oo. Apply epidemiology to develop prevention strategies for hemorrhage and shock.
pp. Integrate the pathophysiological principles to the assessment of a patient with hemorrhage or shock.
qq. Synthesize assessment findings and patient history information to form a field impression for the patient with hemorrhage or shock.
rr. Formulate a treatment plan based on the field impression for the hemorrhage or shock patient.
ss. Demonstrate the assessment of a patient with signs and symptoms of hemorrhagic shock.
tt. Demonstrate the management of a patient with signs and symptoms of hemorrhagic shock.
uu. Demonstrate the assessment of a patient with signs and symptoms of compensated hemorrhagic shock.
vv. Demonstrate the management of a patient with signs and symptoms of compensated hemorrhagic shock.
ww. Demonstrate the assessment of a patient with signs and symptoms of decompensated hemorrhagic shock.
xx. Demonstrate the management of a patient with signs and symptoms of decompensated hemorrhagic shock.
yy. Demonstrate the assessment of a patient with signs and symptoms of external hemorrhage.
zz. Demonstrate the management of a patient with signs and symptoms of external hemorrhage.
aaa. Demonstrate the assessment of a patient with signs and symptoms of internal hemorrhage.
bbb. Demonstrate the management of a patient with signs and symptoms of internal hemorrhage.

3. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with soft tissue trauma.

a. Describe the incidence, morbidity, and mortality of soft tissue injures.
b. Describe the layers of the skin, specifically:
(1) Epidermis and dermis (cutaneous)
(2) Superficial fascia (subcutaneous)
(3) Deep fascia
c. Identify the major functions of the integumentary system.
d. Identify the skin tension lines of the body.
e. Predict soft tissue injuries based on mechanism of injury.
f. Discuss the pathophysiology of wound healing, including:
(1) Homeostasis
(2) Inflammation phase
(3) Epithelialization
(4) Neovascularization

~~(5) Collagen synthesis~~

~~g. Discuss the pathophysiology of soft tissue injuries.~~

~~h. Differentiate between the following types of closed soft tissue injuries:~~

~~(1) Contusion~~

~~(2) Hematoma~~

~~(3) Crush injuries~~

~~i. Discuss the assessment findings associated with closed soft tissue injuries.~~

~~j. Discuss the management of a patient with closed soft tissue injuries.~~

~~k. Discuss the pathophysiology of open soft tissue injuries.~~

~~l. Differentiate between the following types of open soft tissue injuries:~~

~~(1) Abrasions~~

~~(2) Lacerations~~

~~(3) Major arterial lacerations~~

~~(4) Avulsions~~

~~(5) Impaled objects~~

~~(6) Amputations~~

~~(7) Incisions~~

~~(8) Crush injuries~~

~~(9) Blast injuries~~

~~(10) Penetrations/ punctures~~

~~m. Discuss the incidence, morbidity, and mortality of blast injuries.~~

~~n. Predict blast injuries based on mechanism of injury, including:~~

~~(1) Primary~~

~~(2) Secondary~~

~~(3) Tertiary~~

~~o. Discuss types of trauma including:~~

~~(1) Blunt~~

~~(2) Penetrating~~

~~(3) Barotrauma~~

~~(4) Burns~~

~~p. Discuss the pathophysiology associated with blast injuries.~~

~~q. Discuss the effects of an explosion within an enclosed space on a patient.~~

~~r. Discuss the assessment findings associated with blast injuries.~~

~~s. Identify the need for rapid intervention and transport of the patient with a blast injury.~~

~~t. Discuss the management of a patient with a blast injury.~~

~~u. Discuss the incidence, morbidity, and mortality of crush injuries.~~

~~v. Define the following conditions:~~

~~(1) Crush injury~~

~~(2) Crush syndrome~~

~~(3) Compartment syndrome~~

~~w. Discuss the mechanisms of injury in a crush injury.~~

~~x. Discuss the effects of reperfusion and rhabdomyolysis on the body.~~

~~y. Discuss the assessment findings associated with crush injuries.~~

~~z. Identify the need for rapid intervention and transport of the patient with a~~

~~crush injury.~~

~~aa. Discuss the management of a patient with a crush injury.~~

~~bb. Discuss the pathophysiology of hemorrhage associated with soft tissue injuries, including:~~

~~(1) Capillary~~

~~(2) Venous~~

~~(3) Arterial~~

~~cc. Discuss the assessment findings associated with open soft tissue injuries.~~

~~dd. Discuss the assessment of hemorrhage associated with open soft tissue injuries.~~

~~ee. Differentiate between the various management techniques for hemorrhage control of open soft tissue injuries, including:~~

~~(1) Direct pressure~~

~~(2) Elevation~~

~~(3) Pressure dressing~~

~~(4) Pressure point~~

~~(5) Tourniquet application~~

~~ff. Differentiate between the types of injuries requiring the use of an occlusive versus non-occlusive dressing.~~

~~gg. Identify the need for rapid assessment, intervention, and appropriate transport for the patient with a soft tissue injury.~~

~~hh. Discuss the management of the soft tissue injury patient.~~

~~ii. Define and discuss the following:~~

~~(1) Dressings~~

~~(a) Sterile~~

~~(b) Non-sterile~~

~~(c) Occlusive~~

~~(d) Non-occlusive~~

~~(e) Adherent~~

~~(f) Non-adherent~~

~~(g) Absorbent~~

~~(h) Non-absorbent~~

~~(i) Wet~~

~~(j) Dry~~

~~(2) Bandages~~

~~(a) Absorbent~~

~~(b) Non-absorbent~~

~~(c) Adherent~~

~~(d) Non-adherent~~

~~(e) Tourniquet~~

~~jj. Discuss the possible complications of an improperly applied dressing, bandage, or tourniquet.~~

~~kk. Discuss the assessment of wound healing.~~

~~ll. Discuss the management of wound healing.~~

~~mm. Discuss the pathophysiology of wound infection.~~

nn. Discuss the assessment of wound infection.
oo. Discuss the management of wound infection.
pp. Integrate pathophysiological principles to the assessment of a patient with a soft tissue injury.
qq. Formulate treatment priorities for patients with soft tissue injuries in conjunction with:
(1) Airway/ face/neck trauma
(2) Thoracic trauma (open/closed)
(3) Abdominal trauma
rr. Synthesize assessment findings and patient history information to form a field impression for the patient with soft tissue trauma.
ss. Formulate a treatment plan based on the field impression for the patient with soft tissue trauma.
tt. Defend the rationale explaining why immediate life-threats must take priority over wound closure.
uu. Defend the management regimens for various soft tissue injuries.
vv. Defend why immediate life-threatening conditions take priority over soft tissue management.
ww. Explain the importance of a thorough assessment for patients with soft tissue injuries.
xx. Attend to the feelings that the patient with a soft tissue injury may experience.
yy. Explain the importance of good follow-up care for patients receiving sutures.
zz. Discuss the value of the written report for soft tissue injuries, in the continuum of patient care.
aaa. Demonstrate the assessment and management of a patient with signs and symptoms of soft tissue injury, including:
(1) Contusion
(2) Hematoma
(3) Crushing
(4) Abrasion
(5) Laceration
(6) Avulsion
(7) Amputation
(8) Impaled object
(9) Penetration/puncture
(10) Blast

4. Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the management plan for the patient with a burn injury.
a. Describe the anatomy and physiology pertinent to burn injuries.
b. Describe the epidemiology, including incidence, mortality/morbidity, risk factors, and prevention strategies for the patient with a burn injury.
c. Describe the pathophysiologic complications and systemic complications of a burn injury.

d. ~~Identify types of burn injuries, including a thermal burn, an inhalation burn, a chemical burn, an electrical burn, and a radiation exposure.~~
e. ~~Describe the depth classifications of burn injuries, including a superficial burn, a partial-thickness burn, a full-thickness burn, and other depth classifications described by local protocol.~~
f. ~~Describe methods for determining body surface area percentage of a burn injury including the "rules of nines," the "rules of palms," and other methods described by local protocol.~~
g. ~~Describe the severity of a burn including a minor burn, a moderate burn, a severe burn, and other severity classifications described by local protocol.~~
h. ~~Differentiate criteria for determining the severity of a burn injury between a pediatric patient and an adult patient.~~
i. ~~Describe special considerations for a pediatric patient with a burn injury.~~
j. ~~Discuss considerations which impact management and prognosis of the burn injured patient.~~
k. ~~Discuss mechanisms of burn injuries.~~
l. ~~Discuss conditions associated with burn injuries, including trauma, blast injuries, airway compromise, respiratory compromise, and child abuse.~~
m. ~~Describe the management of a burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.~~
n. ~~Describe the epidemiology of a thermal burn injury.~~
o. ~~Describe the specific anatomy and physiology pertinent to a thermal burn injury.~~
p. ~~Describe the pathophysiology of a thermal burn injury.~~
q. ~~Describe the depth classifications of a thermal burn injury.~~
r. ~~Describe the severity of a thermal burn injury.~~
s. ~~Describe considerations which impact management and prognosis of the patient with a thermal burn injury.~~
t. ~~Discuss mechanisms of burn injury and conditions associated with a thermal burn injury.~~
u. ~~Describe the management of a thermal burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.~~
v. ~~Describe the epidemiology of an inhalation burn injury.~~
w. ~~Describe the specific anatomy and physiology pertinent to an inhalation burn injury.~~
x. ~~Describe the pathophysiology of an inhalation burn injury.~~
y. ~~Differentiate between supraglottic and infraglottic inhalation injuries.~~
z. ~~Describe the depth classifications of an inhalation burn injury.~~
aa. ~~Describe the severity of an inhalation burn injury.~~
bb. ~~Describe considerations which impact management and prognosis of the patient with an inhalation burn injury.~~
cc. ~~Discuss mechanisms of burn injury and conditions associated with an inhalation burn injury.~~

dd. Describe the management of an inhalation burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
ee. Describe the epidemiology of a chemical burn injury and a chemical burn injury to the eye.
ff. Describe the specific anatomy and physiology pertinent to a chemical burn injury and a chemical burn injury to the eye.
gg. Describe the pathophysiology of a chemical burn injury, including types of chemicals and their burning processes and a chemical burn injury to the eye.
hh. Describe the depth classifications of a chemical burn injury.
ii. Describe the severity of a chemical burn injury.
jj. Describe considerations which impact management and prognosis of the patient with a chemical burn injury and a chemical burn injury to the eye.
kk. Discuss mechanisms of burn injury and conditions associated with a chemical burn injury.
ll. Describe the management of a chemical burn injury and a chemical burn injury to the eye, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
mm. Describe the epidemiology of an electrical burn injury.
nn. Describe the specific anatomy and physiology pertinent to an electrical burn injury.
oo. Describe the pathophysiology of an electrical burn injury.
pp. Describe the depth classifications of an electrical burn injury.
qq. Describe the severity of an electrical burn injury.
rr. Describe considerations which impact management and prognosis of the patient with an electrical burn injury.
ss. Discuss mechanisms of burn injury and conditions associated with an electrical burn injury.
tt. Describe the management of an electrical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.
uu. Describe the epidemiology of a radiation exposure.
vv. Describe the specific anatomy and physiology pertinent to a radiation exposure.
ww. Describe the pathophysiology of a radiation exposure, including the types and characteristics of ionizing radiation.
xx. Describe the depth classifications of a radiation exposure.
yy. Describe the severity of a radiation exposure.
zz. Describe considerations which impact management and prognosis of the patient with a radiation exposure.
aaa. Discuss mechanisms of burn injury associated with a radiation exposure.
bbb. Discuss conditions associated with a radiation exposure.

ccc. ~~Describe the management of a radiation exposure, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, and psychological support/communication strategies.~~
ddd. ~~Integrate pathophysiological principles to the assessment of a patient with a thermal burn injury.~~
eee. ~~Integrate pathophysiological principles to the assessment of a patient with an inhalation burn injury.~~
fff. ~~Integrate pathophysiological principles to the assessment of a patient with a chemical burn injury.~~
ggg. ~~Integrate pathophysiological principles to the assessment of a patient with an electrical burn injury.~~
hhh. ~~Integrate pathophysiological principles to the assessment of a patient with a radiation exposure.~~
iii. ~~Synthesize patient history information and assessment findings to form a field impression for the patient with a thermal burn injury.~~
jjj. ~~Synthesize patient history information and assessment findings to form a field impression for the patient with an inhalation burn injury.~~
kkk. ~~Synthesize patient history information and assessment findings to form a field impression for the patient with a chemical burn injury.~~
lll. ~~Synthesize patient history information and assessment findings to form a field impression for the patient with an electrical burn injury.~~
mmm. ~~Synthesize patient history information and assessment findings to form a field impression for the patient with a radiation exposure.~~
nnn. ~~Formulate a management plan based on the field impression for the patient with a thermal burn injury.~~
ooo. ~~Formulate a management plan based on the field impression for the patient with an inhalation burn injury.~~
ppp. ~~Formulate a management plan based on the field impression for the patient with a chemical burn injury.~~
qqq. ~~Formulate a management plan based on the field impression for the patient with an electrical burn injury.~~
rrr. ~~Formulate a management plan based on the field impression for the patient with a radiation exposure.~~
sss. ~~Explain the changes of a patient's self-image associated with a burn injury.~~
ttt. ~~Explain the impact of managing a burn injured patient.~~
uuu. ~~Demonstrate empathy for a burn injured patient.~~
vvv. ~~Assess safety at a burn injury incident.~~
www. ~~Predict mortality and morbidity based on the pathophysiology and assessment findings of a patient with a burn injury.~~
xxx. ~~Discuss the sense of urgency in burn injuries.~~
yyy. ~~Perform as a role-model for universal precautions and body substance isolation (BSI).~~
zzz. ~~Demonstrate body substance isolation procedures during assessment and management of patients with a burn injury.~~
aaaa. ~~Perform assessment of a patient with a burn injury.~~
bbbb. ~~Perform management of a thermal burn injury, including airway and~~

ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

cccc. Perform management of an inhalation burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

dddd. Perform management of a chemical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

eeee. Perform management of an electrical burn injury, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

ffff. Perform management of a radiation exposure, including airway and ventilation, circulation, pharmacological, non-pharmacological, transport considerations, psychological support/communication strategies, and other management described by local protocol.

5. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the trauma patient with a suspected head injury.

a. Describe the incidence, morbidity, and mortality of facial injures.

b. Explain facial anatomy and relate physiology to facial injuries.

c. Predict facial injuries based on mechanism of injury.

d. Predict other injuries commonly associated with facial injuries based on mechanism of injury.

e. Differentiate between the following types of facial injuries, highlighting the defining characteristics of each:

(1) Eye

(2) Ear

(3) Nose

(4) Throat

(5) Mouth

f. Integrate pathophysiological principles to the assessment of a patient with facial injury.

g. Differentiate between facial injuries based on the assessment and history.

h. Formulate a field impression for a patient with a facial injury based on the assessment findings.

i. Develop a patient management plan for a patient with a facial injury based on the field impression

j. Explain the pathophysiology of eye injuries.

k. Relate assessment findings associated with eye injuries to pathophysiology.

l. Integrate pathophysiological principles to the assessment of a patient with

~~an eye injury.~~

m. ~~Formulate a field impression for a patient with an eye injury based on the assessment findings.~~

n. ~~Develop a patient management plan for a patient with an eye injury based on the field impression.~~

o. ~~Explain the pathophysiology of ear injuries.~~

p. ~~Relate assessment findings associated with ear injuries to pathophysiology.~~

q. ~~Integrate pathophysiological principles to the assessment of a patient with an ear injury.~~

r. ~~Formulate a field impression for a patient with an ear injury based on the assessment findings.~~

s. ~~Develop a patient management plan for a patient with an ear injury based on the field impression.~~

t. ~~Explain the pathophysiology of nose injuries.~~

u. ~~Relate assessment findings associated with nose injuries to pathophysiology.~~

v. ~~Integrate pathophysiological principles to the assessment of a patient with a nose injury.~~

w. ~~Formulate a field impression for a patient with a nose injury based on the assessment findings.~~

x. ~~Develop a patient management plan for a patient with a nose injury based on the field impression.~~

y. ~~Explain the pathophysiology of throat injuries.~~

z. ~~Relate assessment findings associated with throat injuries to pathophysiology.~~

aa. ~~Integrate pathophysiological principles to the assessment of a patient with a throat injury.~~

bb. ~~Formulate a field impression for a patient with a throat injury based on the assessment findings.~~

cc. ~~Develop a patient management plan for a patient with a throat injury based on the field impression.~~

dd. ~~Explain the pathophysiology of mouth injuries.~~

ee. ~~Relate assessment findings associated with mouth injuries to pathophysiology.~~

ff. ~~Integrate pathophysiological principles to the assessment of a patient with a mouth injury.~~

gg. ~~Formulate a field impression for a patient with a mouth injury based on the assessment findings.~~

hh. ~~Develop a patient management plan for a patient with a mouth injury based on the field impression.~~

ii. ~~Describe the incidence, morbidity, and mortality of head injures.~~

jj. ~~Explain anatomy and relate physiology of the CNS to head injuries.~~

kk. ~~Predict head injuries based on mechanism of injury.~~

ll. ~~Distinguish between head injury and brain injury.~~

mm. ~~Explain the pathophysiology of head/brain injuries.~~

~~nn. Explain the concept of increasing intracranial pressure (ICP).~~
~~oo. Explain the effect of increased and decreased carbon dioxide on ICP.~~
~~pp. Explain the process involved with each of the levels of increasing ICP.~~
~~qq. Relate assessment findings associated with head/brain injuries to the pathophysiologic process.~~
~~rr. Classify head injuries (mild, moderate, severe) according to assessment findings.~~
~~ss. Identify the need for rapid intervention and transport of the patient with a head/brain injury.~~
~~tt. Describe and explain the general management of the head/brain injury patient, including pharmacological and non-pharmacological treatment.~~
~~uu. Analyze the relationship between carbon dioxide concentration in the blood and management of the airway in the head/brain injured patient.~~
~~vv. Explain the pathophysiology of diffuse axonal injury.~~
~~ww. Relate assessment findings associated with concussion, and moderate and severe diffuse axonal injury to pathophysiology.~~
~~xx. Develop a management plan for a patient with a moderate and severe diffuse axonal injury.~~
~~yy. Explain the pathophysiology of skull fracture.~~
~~zz. Relate assessment findings associated with skull fracture to pathophysiology.~~
~~aaa. Develop a management plan for a patient with a skull fracture.~~
~~bbb. Explain the pathophysiology of cerebral contusion.~~
~~ccc. Relate assessment findings associated with cerebral contusion to pathophysiology.~~
~~ddd. Develop a management plan for a patient with a cerebral contusion.~~
~~eee. Explain the pathophysiology, assessment findings, and management plan for a patient with an intracranial hemorrhage, including:~~
~~(1) Epidural~~
~~(2) Subdural~~
~~(3) Intracerebral~~
~~(4) Subarachnoid~~
~~fff. Describe the various types of helmets and their purposes.~~
~~ggg. Relate priorities of care to factors determining the need for helmet removal in various field situations including sports related incidents.~~
~~hhh. Develop a management plan for the removal of a helmet for a head injured patient.~~
~~iii. Integrate the pathophysiological principles to the assessment of a patient with head/brain injury.~~
~~jjj. Differentiate between the types of head/brain injuries based on the assessment and history.~~
~~kkk. Formulate a field impression for a patient with a head/brain injury based on the assessment findings.~~

~~lll. Develop a patient management plan for a patient with a head/brain injury based on the field impression.~~

6. ~~Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a suspected spinal injury.~~

a. ~~Describe the incidence, morbidity, and mortality of spinal injuries in the trauma patient.~~

b. ~~Describe the following anatomy and physiology of structures related to spinal injuries:~~

(1) ~~Cervical~~
(2) ~~Thoracic~~
(3) ~~Lumbar~~
(4) ~~Sacrum~~
(5) ~~Coccyx~~
(6) ~~Head~~
(7) ~~Brain~~
(8) ~~Spinal cord~~
(9) ~~Nerve tract(s)~~
(10) ~~Dermatomes~~

c. ~~Predict spinal injuries based on mechanism of injury.~~
d. ~~Describe the pathophysiology of spinal injuries.~~
e. ~~Explain traumatic and non-traumatic spinal injuries.~~
f. ~~Describe the assessment findings associated with spinal injuries.~~
g. ~~Describe the management of spinal injuries.~~
h. ~~Identify the need for rapid intervention and transport of the patient with spinal injuries.~~
i. ~~Integrate the pathophysiological principles to the assessment of a patient with a spinal injury.~~
j. ~~Differentiate between spinal injuries based on the assessment and history.~~
k. ~~Formulate a field impression based on the assessment findings.~~
l. ~~Develop a patient management plan based on the field impression.~~
m. ~~Describe the pathophysiology of traumatic spinal injury related to:~~

(1) ~~Spinal shock~~
(2) ~~Spinal neurogenic shock~~
(3) ~~Quadriplegia/paraplegia~~
(4) ~~Incomplete cord injury/cord syndromes:~~

(a) ~~Central cord syndrome~~
(b) ~~Anterior cord syndrome~~
(c) ~~Brown-Sequard syndrome~~

n. ~~Describe the assessment findings associated with traumatic spinal injuries.~~
o. ~~Describe the management of traumatic spinal injuries.~~
p. ~~Integrate pathophysiological principles to the assessment of a patient with a traumatic spinal injury.~~
q. ~~Differentiate between traumatic and non-traumatic spinal injuries based on the assessment and history.~~
r. ~~Formulate a field impression for traumatic spinal injury based on the assessment findings.~~

s. ~~Develop a patient management plan for traumatic spinal injury based on the field impression.~~
t. ~~Describe the pathophysiology of non-traumatic spinal injury, including:~~
   (1) ~~Low back pain~~
   (2) ~~Herniated intervertebral disk~~
   (3) ~~Spinal cord tumors~~
u. ~~Describe the assessment findings associated with non-traumatic spinal injuries.~~
v. ~~Describe the management of non-traumatic spinal injuries.~~
w. ~~Integrate pathophysiological principles to the assessment of a patient with non-traumatic spinal injury.~~
x. ~~Differentiate between traumatic and non-traumatic spinal injuries based on the assessment and history.~~
y. ~~Formulate a field impression for non-traumatic spinal injury based on the assessment findings.~~
z. ~~Develop a patient management plan for non-traumatic spinal injury based on the field impression.~~
aa. ~~Recognize the need for a thorough assessment when determining the proper management modality for spine injuries.~~
bb. ~~Recognize the implications of failing to properly immobilize a spine injured patient.~~
cc. ~~Demonstrate a clinical assessment to determine the proper management modality for a patient with a suspected traumatic spinal injury.~~
dd. ~~Demonstrate a clinical assessment to determine the proper management modality for a patient with a suspected non-traumatic spinal injury.~~
ee. ~~Demonstrate immobilization of the urgent and non-urgent patient with assessment findings of spinal injury from the following presentations:~~
   (1) ~~Supine~~
   (2) ~~Prone~~
   (3) ~~Semi-prone~~
   (4) ~~Sitting~~
   (5) ~~Standing~~
   ff. ~~Demonstrate documentation of suspected spinal cord injury to include:~~
   (1) ~~General area of spinal cord involved~~
   (2) ~~Sensation~~
   (3) ~~Dermatomes~~
   (4) ~~Motor function~~
   (5) ~~Area(s) of weakness~~
   gg. ~~Demonstrate preferred methods for stabilization of a helmet from a potentially spine injured patient.~~
hh. ~~Demonstrate helmet removal techniques.~~
ii. ~~Demonstrate alternative methods for stabilization of a helmet from a potentially spine injured patient.~~
jj. ~~Demonstrate documentation of assessment before spinal immobilization.~~
kk. ~~Demonstrate documentation of assessment during spinal immobilization.~~

~~ll. Demonstrate documentation of assessment after spinal immobilization.~~

7. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for a patient with a thoracic injury.~~

a. ~~Describe the incidence, morbidity, and mortality of thoracic injuries in the trauma patient.~~
b. ~~Discuss the anatomy and physiology of the organs and structures related to thoracic injuries.~~
c. ~~Predict thoracic injuries based on mechanism of injury.~~
d. ~~Discuss the types of thoracic injuries.~~
e. ~~Discuss the pathophysiology of thoracic injuries.~~
f. ~~Discuss the assessment findings associated with thoracic injuries.~~
g. ~~Discuss the management of thoracic injuries.~~
h. ~~Identify the need for rapid intervention and transport of the patient with thoracic injuries.~~
i. ~~Discuss the pathophysiology of specific chest wall injuries, including:~~
   (1) ~~Rib fracture~~
   (2) ~~Flail segment~~
   (3) ~~Sternal fracture~~
j. ~~Discuss the assessment findings associated with chest wall injuries.~~
k. ~~Identify the need for rapid intervention and transport of the patient with chest wall injuries.~~
l. ~~Discuss the management of chest wall injuries.~~
m. ~~Discuss the pathophysiology of injury to the lung, including:~~
   (1) ~~Simple pneumothorax~~
   (2) ~~Open pneumothorax~~
   (3) ~~Tension pneumothorax~~
   (4) ~~Hemothorax~~
   (5) ~~Hemopneumothorax~~
   (6) ~~Pulmonary contusion~~
n. ~~Discuss the assessment findings associated with lung injuries.~~
o. ~~Discuss the management of lung injuries.~~
p. ~~Identify the need for rapid intervention and transport of the patient with lung injuries.~~
q. ~~Discuss the pathophysiology of myocardial injuries, including:~~
   (1) ~~Pericardial tamponade~~
   (2) ~~Myocardial contusion~~
   (3) ~~Myocardial rupture~~
r. ~~Discuss the assessment findings associated with myocardial injuries.~~
s. ~~Discuss the management of myocardial injuries.~~
t. ~~Identify the need for rapid intervention and transport of the patient with myocardial injuries.~~
u. ~~Discuss the pathophysiology of vascular injuries, including injuries to:~~
   (1) ~~Aorta~~
   (2) ~~Vena cava~~

~~(3) Pulmonary arteries/ veins~~

~~v. Discuss the assessment findings associated with vascular injuries.~~

~~w. Discuss the management of vascular injuries.~~

~~x. Identify the need for rapid intervention and transport of the patient with vascular injuries.~~

~~y. Discuss the pathophysiology of diaphragmatic injuries.~~

~~z. Discuss the assessment findings associated with diaphragmatic injuries.~~

~~aa. Discuss the management of diaphragmatic injuries.~~

~~bb. Identify the need for rapid intervention and transport of the patient with diaphragmatic injuries.~~

~~cc. Discuss the pathophysiology of esophageal injuries.~~

~~dd. Discuss the assessment findings associated with esophageal injuries.~~

~~ee. Discuss the management of esophageal injuries.~~

~~ff. Identify the need for rapid intervention and transport of the patient with esophageal injuries.~~

~~gg. Discuss the pathophysiology of tracheo-bronchial injuries.~~

~~hh. Discuss the assessment findings associated with tracheo-bronchial injuries.~~

~~ii. Discuss the management of tracheo-bronchial injuries.~~

~~jj. Identify the need for rapid intervention and transport of the patient with tracheo-bronchial injuries.~~

~~kk. Discuss the pathophysiology of traumatic asphyxia.~~

~~ll. Discuss the assessment findings associated with traumatic asphyxia.~~

~~mm. Discuss the management of traumatic asphyxia.~~

~~nn. Identify the need for rapid intervention and transport of the patient with traumatic asphyxia.~~

~~oo. Integrate the pathophysiological principles to the assessment of a patient with thoracic injury.~~

~~pp. Differentiate between thoracic injuries based on the assessment and history.~~

~~qq. Formulate a field impression based on the assessment findings.~~

~~rr. Develop a patient management plan based on the field impression.~~

~~ss. Recognize the need for the use of a thorough assessment to determine a differential diagnosis and treatment plan for thoracic trauma.~~

~~tt. Recognize the need for a thorough scene survey to determine the forces involved in thoracic trauma.~~

uu. ~~Recognize the implications of failing to properly diagnose thoracic trauma.~~

vv. ~~Recognize the implications of failing to initiate timely interventions to patients with thoracic trauma.~~

ww. ~~Demonstrate a clinical assessment for a patient with suspected thoracic trauma.~~

xx. ~~Demonstrate the following techniques of management for thoracic injuries:~~

(1) ~~Needle decompression~~

(2) ~~Fracture stabilization~~

(3) ~~Elective intubation~~

(4) ~~ECG monitoring~~

(5) ~~Oxygenation and ventilation~~

8. ~~Explain the pathophysiologic principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with suspected abdominal trauma.~~
   a. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies for a patient with abdominal trauma.~~
   b. ~~Describe the anatomy and physiology of organs and structures related to abdominal injuries.~~
   c. ~~Predict abdominal injuries based on blunt and penetrating mechanisms of injury.~~
   d. ~~Describe open and closed abdominal injuries.~~
   e. ~~Explain the pathophysiology of abdominal injuries.~~
   f. ~~Describe the assessment findings associated with abdominal injuries.~~
   g. ~~Identify the need for rapid intervention and transport of the patient with abdominal injuries based on assessment findings.~~
   h. ~~Describe the management of abdominal injuries.~~
   i. ~~Integrate the pathophysiological principles to the assessment of a patient with abdominal injury.~~
   j. ~~Differentiate between abdominal injuries based on the assessment and history.~~
   k. ~~Formulate a field impression for patients with abdominal trauma based on the assessment findings.~~
   l. ~~Develop a patient management plan for patients with abdominal trauma based on the field impression.~~
   m. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies for solid organ injuries.~~
   n. ~~Explain the pathophysiology of solid organ injuries.~~
   o. ~~Describe the assessment findings associated with solid organ injuries.~~
   p. ~~Describe the treatment plan and management of solid organ injuries.~~
   q. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies for hollow organ injuries.~~
   r. ~~Explain the pathophysiology of hollow organ injuries.~~
   s. ~~Describe the assessment findings associated with hollow organ injuries.~~
   t. ~~Describe the treatment plan and management of hollow organ injuries.~~
   u. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies for abdominal vascular injuries.~~
   v. ~~Explain the pathophysiology of abdominal vascular injuries.~~
   w. ~~Describe the assessment findings associated with abdominal vascular injuries.~~
   x. ~~Describe the treatment plan and management of abdominal vascular injuries.~~
   y. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies for pelvic fractures.~~
   z. ~~Explain the pathophysiology of pelvic fractures.~~
   aa. ~~Describe the assessment findings associated with pelvic fractures.~~
   bb. ~~Describe the treatment plan and management of pelvic fractures.~~

cc. Describe the epidemiology, including the morbidity/mortality and prevention strategies for other related abdominal injuries.
dd. Explain the pathophysiology of other related abdominal injuries.
ee. Describe the assessment findings associated with other related abdominal injuries.
ff. Describe the treatment plan and management of other related abdominal injuries.
gg. Apply the epidemiologic principles to develop prevention strategies for abdominal injuries.
hh. Integrate the pathophysiological principles to the assessment of a patient with abdominal injuries.
ii. Differentiate between abdominal injuries based on the assessment and history.
jj. Formulate a field impression based upon the assessment findings for a patient with abdominal injuries.
kk. Develop a patient management plan for a patient with abdominal injuries, based upon field impression.
ll. Recognize the need for the use of a thorough assessment to determine a differential diagnosis and treatment plan for abdominal trauma.
mm. Recognize the need for the use of a thorough scene survey to determine the forces involved in abdominal trauma.
nn. Recognize the implications of failing to properly diagnose abdominal trauma and initiate timely interventions to patients with abdominal trauma.
oo. Demonstrate a clinical assessment to determine the proper treatment plan for a patient with suspected abdominal trauma.
pp. Demonstrate the proper use of PASG in a patient with suspected abdominal trauma.
qq. Demonstrate the proper use of PASG in a patient with suspected pelvic fracture.

9. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with a musculoskeletal injury.

a. Describe the incidence, morbidity, and mortality of musculoskeletal injuries.
b. Discuss the anatomy and physiology of the musculoskeletal system.
c. Predict injuries based on the mechanism of injury, including:
    (1) Direct
    (2) Indirect
    (3) Pathologic
d. Discuss the types of musculoskeletal injuries:
    (1) Fracture (open and closed)
    (2) Dislocation/ fracture
    (3) Sprain
    (4) Strain
e. Discuss the pathophysiology of musculoskeletal injuries.
f. Discuss the assessment findings associated with musculoskeletal injuries.

g. ~~List the six "P"s of musculoskeletal injury assessment.~~
h. ~~List the primary signs and symptoms of extremity trauma.~~
i. ~~List other signs and symptoms that can indicate less obvious extremity injury.~~
j. ~~Discuss the need for assessment of pulses, motor, and sensation before and after splinting.~~
k. ~~Identify the need for rapid intervention and transport when dealing with musculoskeletal injuries.~~
l. ~~Discuss the management of musculoskeletal injuries.~~
m. ~~Discuss the general guidelines for splinting.~~
n. ~~Explain the benefits of cold application for musculoskeletal injury.~~
o. ~~Explain the benefits of heat application for musculoskeletal injury.~~
p. ~~Describe age-associated changes in the bones.~~
q. ~~Discuss the pathophysiology of open and closed fractures.~~
r. ~~Discuss the relationship between volume of hemorrhage and open or closed fractures.~~
s. ~~Discuss the assessment findings associated with fractures.~~
t. ~~Discuss the management of fractures.~~
u. ~~Discuss the usefulness of the pneumatic anti-shock garment (PASG) in the management of fractures.~~
v. ~~Describe the special considerations involved in femur fracture management.~~
w. ~~Discuss the pathophysiology of dislocations.~~
x. ~~Discuss the assessment findings of dislocations.~~
y. ~~Discuss the out-of-hospital management of dislocation/fractures, including splinting and realignment.~~
z. ~~Explain the importance of manipulating a knee dislocation/fracture with an absent distal pulse.~~
aa. ~~Describe the procedure for reduction of a shoulder, finger, or ankle dislocation/fracture.~~
bb. ~~Discuss the pathophysiology of sprains.~~
cc. ~~Discuss the assessment findings of sprains.~~
dd. ~~Discuss the management of sprains.~~
ee. ~~Discuss the pathophysiology of strains.~~
ff. ~~Discuss the assessment findings of strains.~~
gg. ~~Discuss the management of strains.~~
hh. ~~Discuss the pathophysiology of a tendon injury.~~
ii. ~~Discuss the assessment findings of tendon injury.~~
jj. ~~Discuss the management of a tendon injury.~~
kk. ~~Integrate the pathophysiological principles to the assessment of a patient with a musculoskeletal injury.~~
ll. ~~Differentiate between musculoskeletal injuries based on the assessment findings and history.~~
mm. ~~Formulate a field impression of a musculoskeletal injury based on the assessment findings.~~
nn. ~~Develop a patient management plan for the musculoskeletal injury based~~

~~on the field impression.~~

~~oo. Recognize the use of a thorough assessment to determine a working diagnosis and treatment plan for musculoskeletal injuries.~~

~~pp. Recognize the use of pain management in the treatment of musculoskeletal injuries.~~

~~qq. Demonstrate a clinical assessment to determine the proper treatment plan for a patient with a suspected musculoskeletal injury.~~

~~rr. Demonstrate the proper use of fixation, soft, and traction splints for a patient with a suspected fracture.~~

STANDARDS

National EMS Educational Standards

EMS2 Anatomy and Physiology
EMS4 Pathophysiology
EMS9 Assessment
EMS11 Shock and Resuscitation
EMS12 Trauma

Related Academic ~~Topics~~*Standards*

~~C1~~R1 Interpret ~~written material~~
~~C2 Interpret visual materials (~~Graphic Information (forms, maps, ~~charts, graphs, tables, etc.).~~reference sources)
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreements.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S8 Apply concepts related to the~~R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents

M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific ~~process and method to include safety~~ notation)
~~procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace*~~A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~National Educational Technology Standards~~

~~T1 Basic operations and concepts~~
~~T2~~CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~EMT-Paramedic: National Standard Curriculum~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: ~~Pre-hospital~~ Medical ~~Care~~

Course Abbreviation: ~~EMT~~EMS 2855

Classification: Vocational~~-~~–Technical Core

Description: This course will provide a detailed understanding of the anatomic structures, physiology, and pathophysiology encountered when providing care in medical emergencies involving pulmonary, allergy and anaphylaxis, gastroenterology, renal urology, and hematology. This course ~~is a combination of the courses formerly taught as~~was previously called Pre-hospital Medical ~~Emergencies I~~Care (EMT ~~2834) and Medical Emergencies II (EMT 2845).~~ 2855). (5 sch: 2-hr~~.~~ lecture, 6-hr~~.~~ lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory problems. (EMS2, EMS4, EMS9, EMS10) a. Discuss the epidemiology of pulmonary diseases and conditions. b. Identify and describe the function of the structures located in the upper and lower airway. c. Discuss the physiology of ventilation and respiration. d. Identify common pathological events that affect the pulmonary system. e. Discuss abnormal assessment findings associated with pulmonary diseases and conditions. f. Compare various airway and ventilation techniques used in the management of pulmonary diseases. g. Review the pharmacological preparations that paramedics use for management of respiratory diseases and conditions. h. Review the pharmacological preparations used in managing patients with respiratory diseases that may be prescribed by physicians. i. Review the use of equipment used during the physical examination of patients with complaints associated with respiratory diseases and conditions. j. Identify the epidemiology, anatomy, physiology, pathophysiology, assessment findings, and management for the following respiratory diseases and conditions: (1) Adult respiratory distress syndrome (2) Bronchial asthma (3) Chronic bronchitis (4) Emphysema (5) Pneumonia (6) Pulmonary edema (7) Pulmonary thromboembolism (8) Neoplasms of the lung (9) Upper respiratory infections (10) Spontaneous pneumothorax

(11) Hyperventilation syndrome

k. Demonstrate the assessment and treatment of patients with respiratory diseases.

l. Recognize the critical nature of accurate field impressions of patients with respiratory diseases and conditions.

m. Demonstrate proper use of airway and ventilation devices.

n. Conduct a history and patient assessment for patients with pulmonary diseases and conditions.

o. Demonstrate the application of a CPAP/BiPAP unit.

2. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic, anaphylactic, or anaphylactoid reaction. (EMS2, EMS4, EMS9, EMS10)

a. Define allergic reaction.

b. Define anaphylaxis.

c. Describe the incidence, morbidity, and mortality of anaphylaxis.

d. Identify the risk factors most predisposing to anaphylaxis.

e. Discuss the anatomy and physiology of the organs and structures related to anaphylaxis.

f. Describe the prevention of anaphylaxis and appropriate patient education.

g. Discuss the pathophysiology of allergy and anaphylaxis.

h. Describe the common methods of entry of substances into the body.

i. Define natural and acquired immunity.

j. Define antigens and antibodies.

k. List common antigens most frequently associated with anaphylaxis.

l. Discuss the formation of antibodies in the body.

m. Describe physical manifestations in anaphylaxis.

n. Differentiate manifestations of an allergic reaction from anaphylaxis.

o. Recognize the signs and symptoms related to anaphylaxis.

p. Differentiate among the various treatment and pharmacological interventions used in the management of anaphylaxis.

q. Integrate the pathophysiological principles of the patient with anaphylaxis.

r. Correlate abnormal findings in assessment with the clinical significance in the patient with anaphylaxis.

s. Develop a treatment plan based on field impression in the patient with allergic reaction and anaphylaxis.

t. Describe the factors that precipitate disease in the human body.

u. Discuss analyzing disease risk.

v. Describe aging as a risk factor for disease.

w. Discuss familial diseases and associated risk factors.

x. Define the characteristics of the immune response.

y. Discuss induction of the immune system.

z. Discuss transplant-related problems and collagen vascular disease.

aa. Describe the inflammation response.

bb. Discuss the role of mast cells as part of the inflammation response.

cc. Discuss the cellular components of inflammation.

dd. Describe the systemic manifestations of the inflammation response.

ee. Describe the resolution and repair from inflammation.

ff.	Discuss hypersensitivity.
gg.	Describe deficiencies in immunity and inflammation.
hh.	Define anaphylactic shock
3.	Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterologic problem. (EMS2, EMS4, EMS9, EMS10)
a.	Describe the incidence, morbidity, and mortality of gastrointestinal emergencies.
b.	Identify the risk factors most predisposing to gastrointestinal emergencies.
c.	Discuss the anatomy and physiology of the organs and structures related to gastrointestinal diseases.
d.	Discuss the pathophysiology of inflammation and its relationship to acute abdominal pain.
e.	Define somatic pain as it relates to gastroenterology.
f.	Define visceral pain as it relates to gastroenterology.
g.	Define referred pain as it relates to gastroenterology.
h.	Differentiate between hemorrhagic and non-hemorrhagic abdominal pain.
i.	Discuss the signs and symptoms of local inflammation relative to acute abdominal pain.
j.	Discuss the signs and symptoms of peritoneal inflammation relative to acute abdominal pain.
k.	List the signs and symptoms of general inflammation relative to acute abdominal pain.
l.	Based on assessment findings, differentiate between local, peritoneal, and general inflammation as they relate to acute abdominal pain.
m.	Describe the questioning technique and specific questions the paramedic should ask when gathering a focused history in a patient with abdominal pain.
n.	Describe the technique for performing a comprehensive physical examination on a patient complaining of abdominal pain.
o.	Define upper gastrointestinal bleeding.
p.	Discuss the pathophysiology of upper gastrointestinal bleeding.
q.	Recognize the signs and symptoms related to upper gastrointestinal bleeding.
r.	Describe the management for upper gastrointestinal bleeding.
s.	Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with upper GI bleeding.
t.	Define lower gastrointestinal bleeding.
u.	Discuss the pathophysiology of lower gastrointestinal bleeding.
v.	Recognize the signs and symptoms related to lower gastrointestinal bleeding.
w.	Describe the management for lower gastrointestinal bleeding.
x.	Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with lower GI bleeding.
y.	Define acute gastroenteritis.
z.	Discuss the pathophysiology of acute gastroenteritis.
aa.	Recognize the signs and symptoms related to acute gastroenteritis.
bb.	Describe the management for acute gastroenteritis.
cc.	Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute

gastroenteritis.

dd. Define colitis.

ee. Discuss the pathophysiology of colitis.

ff. Recognize the signs and symptoms related to colitis.

gg. Describe the management for colitis.

hh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with colitis.

ii. Define gastroenteritis.

jj. Discuss the pathophysiology of gastroenteritis.

kk. Recognize the signs and symptoms related to gastroenteritis.

ll. Describe the management for gastroenteritis.

mm. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with gastroenteritis.

nn. Define diverticulitis.

oo. Discuss the pathophysiology of diverticulitis.

pp. Recognize the signs and symptoms related to diverticulitis.

qq. Describe the management for diverticulitis.

rr. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with diverticulitis.

ss. Define appendicitis.

tt. Discuss the pathophysiology of appendicitis.

uu. Recognize the signs and symptoms related to appendicitis.

vv. Describe the management for appendicitis.

ww. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with appendicitis.

xx. Define peptic ulcer disease.

yy. Discuss the pathophysiology of peptic ulcer disease.

zz. Recognize the signs and symptoms related to peptic ulcer disease.

aaa. Describe the management for peptic ulcer disease.

bbb. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with peptic ulcer disease.

ccc. Define bowel obstruction.

ddd. Discuss the pathophysiology of bowel obstruction.

eee. Recognize the signs and symptoms related to bowel obstruction.

fff. Describe the management for bowel obstruction.

ggg. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with bowel obstruction.

hhh. Define Crohn’s disease.

iii. Discuss the pathophysiology of Crohn’s disease.

jjj. Recognize the signs and symptoms related to Crohn’s disease.

kkk. Describe the management for Crohn’s disease.

lll. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with Crohn’s disease.

mmm. Define pancreatitis.

nnn. Discuss the pathophysiology of pancreatitis.

ooo. Recognize the signs and symptoms related to pancreatitis.

ppp. Describe the management for pancreatitis.
qqq. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with pancreatitis.
rrr. Define esophageal varices.
sss. Discuss the pathophysiology of esophageal varices.
ttt. Recognize the signs and symptoms related to esophageal varices.
uuu. Describe the management for esophageal varices.
vvv. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with esophageal varices.
www. Define hemorrhoids.
xxx. Discuss the pathophysiology of hemorrhoids.
yyy. Recognize the signs and symptoms related to hemorrhoids.
zzz. Describe the management for hemorrhoids.
aaaa. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with hemorrhoids.
bbbb. Discuss the pathophysiology of the following:
- Rectal abscess
- Rectal foreign body obstruction
- Mesenteric ischemia

cccc. Define cholecystitis.
dddd. Discuss the pathophysiology of cholecystitis.
eeee. Recognize the signs and symptoms related to cholecystitis.
ffff. Describe the management for cholecystitis.
gggg. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with cholecystitis.
hhhh. Define acute hepatitis.
iiii. Discuss the pathophysiology of acute hepatitis.
jjjj. Recognize the signs and symptoms related to acute hepatitis.
kkkk. Describe the management for acute hepatitis.
llll. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute hepatitis.
mmmm. Integrate pathophysiological principles of the patient with a gastrointestinal emergency.
nnnn. Differentiate between gastrointestinal emergencies based on assessment findings.
oooo. Correlate abnormal findings in the assessment with the clinical significance in the patient with abdominal pain.
pppp. Develop a patient management plan based on field impression in the patient with abdominal pain.

4. Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a renal or urologic problem. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, mortality, and risk factors predisposing to urological emergencies.
b. Discuss the anatomy and physiology of the organs and structures related to urogenital diseases.
c. Define referred pain and visceral pain as it relates to urology.

d. Describe the questioning technique and specific questions the paramedic should utilize when gathering a focused history in a patient with abdominal pain.
e. Describe the technique for performing a comprehensive physical examination of a patient complaining of abdominal pain.
f. Define acute renal failure.
g. Discuss the pathophysiology of acute renal failure.
h. Recognize the signs and symptoms related to acute renal failure.
i. Describe the management for acute renal failure.
j. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute renal failure.
k. Define chronic renal failure.
l. Discuss the pathophysiology of chronic renal failure.
m. Recognize the signs and symptoms related to chronic renal failure.
n. Describe the management for chronic renal failure.
o. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with chronic renal failure.
p. Define renal dialysis.
q. Discuss the common complication of renal dialysis.
r. Define renal calculi.
s. Discuss the pathophysiology of renal calculi.
t. Recognize the signs and symptoms related to renal calculi.
u. Describe the management for renal calculi.
v. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with renal calculi.
w. Define urinary tract infection.
x. Discuss the pathophysiology of urinary tract infection.
y. Recognize the signs and symptoms related to urinary tract infection.
z. Describe the management for a urinary tract infection.
aa. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a urinary tract infection.
bb. Apply the epidemiology to develop prevention strategies for urological emergencies.
cc. Integrate pathophysiological principles to the assessment of a patient with abdominal pain.
dd. Synthesize assessment findings and patient history information to accurately differentiate between pain of a urogenital emergency and that of other origins.
ee. Formulate a treatment plan based on the field impression made in the assessment.
ff. Describe the pathophysiology of rhabdomyolysis including its causes.
gg. Recognize signs and symptoms of rhabdomyolysis.
hh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with rhabdomyolosis.

5. Discuss the pathophysiological principles of the hematopoietic system to formulate a field impression and implement a treatment plan. (EMS2, EMS4, EMS9, EMS10)
   a. Identify the anatomy of the hematopoietic system.

b. Describe volume and volume-control related to the hematopoietic system.
c. Describe the blood-forming organs.
d. Describe normal red blood cell (RBC) production, function, and destruction.
e. Explain the significance of the hematocrit with respect to red cell size and number.
f. Explain the correlation of the RBC count, hematocrit, and hemoglobin values.
g. Define anemia.
h. Describe normal white blood cell (WBC) production, function, and destruction.
i. Identify the characteristics of the inflammatory process.
j. Identify the difference between cellular and humoral immunity.
k. Identify alterations in immunologic response.
l. Describe the number, normal function, types, and life span of leukocytes.
m. List the leukocyte disorders.
n. Describe platelets with respect to normal function, life span, and numbers.
o. Describe the components of the hemostatic mechanism.
p. Describe the function of coagulation factors, platelets, and blood vessels necessary for normal coagulation.
q. Describe the intrinsic and extrinsic clotting systems with respect to identification of factor deficiencies in each stage.
r. Identify blood groups.
s. Define and describe the management of transfusion reactions.
t. Describe how acquired factor deficiencies may occur.
u. Define fibrinolysis.
v. Identify the components of physical assessment as they relate to the hematologic system.
w. Describe the pathology and clinical manifestations and prognosis associated with the following:
   (1) Anemia
   (2) Leukemia
   (3) Lymphomas
   (4) Polycythemia
   (5) Disseminated intravascular coagulopathy
   (6) Hemophilia
   (7) Sickle cell disease
   (8) Multiple myeloma
x. Integrate pathophysiological principles into the assessment of a patient with hematologic disease.
y. Recognize the sense of urgency for initial assessment and interventions for patients with hematologic crises.
z. Perform an assessment of the patient with hematologic disorder.
aa. Define septic shock.
bb. Utilize the pathophysiology behind septic shock, and formulate a treatment plan for the patient with septic shock.

6. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a neurological problem. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, and mortality of neurological emergencies.

b. Identify the risk factors most predisposing to the nervous system.
c. Discuss the anatomy and physiology of the organs and structures related to nervous system.
d. Discuss the pathophysiology of nontraumatic neurologic emergencies.
e. Discuss the assessment findings associated with nontraumatic neurologic emergencies.
f. Identify the need for rapid intervention and the transport of the patient with nontraumatic emergencies.
g. Discuss the management of nontraumatic neurological emergencies.
h. Discuss the pathophysiology of coma and altered mental status.
i. Discuss the assessment findings associated with coma and altered mental status.
j. Discuss the management/treatment plan of coma and altered mental status.
k. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for seizures.
l. Discuss the pathophysiology of seizures.
m. Discuss the assessment findings associated with seizures.
n. Define seizure.
o. Differentiate the major types of seizures.
p. List the most common causes of seizures.
q. Describe the phases of a generalized seizure.
r. Discuss the pathophysiology of syncope.
s. Discuss the assessment findings associated with syncope.
t. Discuss the management/treatment plan of syncope.
u. Discuss the pathophysiology of headache.
v. Discuss the assessment findings associated with a headache.
w. Discuss the management/treatment plan of a headache.
x. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for neoplasms.
y. Discuss the pathophysiology of neoplasms.
z. Describe the types of neoplasms.
aa. Discuss the assessment findings associated with neoplasms.
bb. Discuss the management/treatment plan of neoplasms.
cc. Define neoplasms.
dd. Recognize the signs and symptoms related to neoplasms.
ee. Correlate abnormal assessment findings with clinical significance in the patient with neoplasms.
ff. Differentiate among the various treatment and pharmacological interventions used in the management of neoplasms.
gg. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with neoplasms.
hh. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for abscess.
ii. Discuss the pathophysiology of abscess.
jj. Discuss the assessment findings associated with abscess.
kk. Discuss the management/treatment plan of abscess.
ll. Define abscess.

mm. Recognize the signs and symptoms related to abscess.
nn. Correlate abnormal assessment findings with clinical significance in the patient with abscess.
oo. Differentiate among the various treatment and pharmacological interventions used in the management of abscess.
pp. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with abscess.
qq. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for stroke and intracranial hemorrhage.
rr. Discuss the pathophysiology of stroke and intracranial hemorrhage.
ss. Describe the types of stroke and intracranial hemorrhage.
tt. Discuss the assessment findings associated with stroke and intracranial hemorrhage.
uu. Discuss the management/treatment plan of stroke and intracranial hemorrhage.
vv. Define stroke and intracranial hemorrhage.
ww. Recognize the signs and symptoms related to stroke and intracranial hemorrhage.
xx. Correlate abnormal assessment findings with clinical significance in the patient with stroke and intracranial hemorrhage.
yy. Differentiate among the various treatment and pharmacological interventions used in the management of stroke and intracranial hemorrhage.
zz. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with stroke and intracranial hemorrhage.
aaa. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for transient ischemic attack.
bbb. Discuss the pathophysiology of transient ischemic attack.
ccc. Discuss the assessment findings associated with transient ischemic attack.
ddd. Discuss the management/treatment plan of transient ischemic attack.
eee. Define transient ischemic attack.
fff. Recognize the signs and symptoms related to transient ischemic attack.
ggg. Correlate abnormal assessment findings with clinical significance in the patient with transient ischemic attack.
hhh. Differentiate among the various treatment and pharmacological interventions used in the management of transient ischemic attack.
iii. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with transient ischemic attack.
jjj. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for degenerative neurological diseases.
kkk. Discuss the pathophysiology of degenerative neurological diseases.
lll. Discuss the assessment findings associated with degenerative neurological diseases.
mmm. Discuss the management/treatment plan of degenerative neurological diseases.
nnn. Define the following:
(1) Muscular dystrophy
(2) Multiple sclerosis
(3) Dystonia
(4) Parkinson’s disease

(5) Trigeminal neuralgia
(6) Bell's palsy
(7) Amyotrophic lateral sclerosis
(8) Peripheral neuropathy
(9) Myoclonus
(10 Spina bifida
(11) Poliomyelitis

ooo. Recognize the signs and symptoms related to degenerative neurological diseases.
ppp. Correlate abnormal assessment findings with clinical significance in the patient with degenerative neurological diseases.
qqq. Differentiate among the various treatment and pharmacological interventions used in the management of degenerative neurological iseases.
rrr. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with degenerative neurological diseases.
sss. Integrate the pathophysiological principles of the patient with a neurological emergency.
ttt. Differentiate between neurological emergencies based on assessment findings.
uuu. Correlate abnormal assessment findings with the clinical significance in the patient with neurological complaints.
vvv. Develop a patient management plan based on field impression in the patient with neurological emergencies.
www. Recognize the feelings of a patient who regains consciousness among strangers.
xxx. Formulate means of conveying empathy to patients whose ability to communicate is limited by their condition.
yyy. Perform an appropriate assessment of a patient with coma or altered mental status.
zzz. Perform a complete neurological examination as part of the comprehensive physical examination of a patient with coma or altered mental status.
aaaa. Manage a patient with a coma or an altered mental status, including the administration of oxygen, oral glucose, 50% dextrose, and narcotic reversal agents.
bbbb. Perform an appropriate assessment of a patient with syncope.
cccc. Manage a patient with syncope.
dddd. Perform an appropriate assessment of a patient with seizures.
eeee. Manage a patient with seizures, including the administration of diazepam or lorazepam.
ffff. Perform an appropriate assessment of a patient with stroke and intracranial hemorrhage or TIA.
gggg. Manage a patient with stroke and intracranial hemorrhage or TIA.
hhhh. Demonstrate an appropriate assessment of a patient with a chief complaint of weakness.

7. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an endocrine problem. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, and mortality of endocrinologic emergencies.
b. Identify the risk factors most predisposing to endocrinologic disease.
c. Discuss the anatomy and physiology of organs and structures related to

endocrinologic diseases.

d. Review the pathophysiology of endocrinologic emergencies.
e. Discuss the general assessment findings associated with endocrinologic emergencies.
f. Identify the need for rapid intervention of the patient with endocrinologic emergencies.
g. Discuss the management of endocrinologic emergencies.
h. Describe osmotic diuresis and its relationship to diabetes.
i. Describe the pathophysiology of adult onset diabetes mellitus.
j. Describe the pathophysiology of juvenile onset diabetes mellitus.
k. Describe the effects of decreased levels of insulin on the body.
l. Correlate abnormal findings in assessment with clinical significance in the patient with a diabetic emergency.
m. Discuss the management of diabetic emergencies.
n. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a diabetic emergency.
o. Differentiate between the pathophysiology of normal glucose metabolism and diabetic glucose metabolism.
p. Describe the mechanism of ketone body formation and its relationship to ketoacidosis.
q. Discuss the physiology of the excretion of potassium and ketone bodies by the kidneys.
r. Describe the relationship of insulin to serum glucose levels.
s. Describe the effects of decreased levels of insulin on the body.
t. Describe the effects of increased serum glucose levels on the body.
u. Discuss the pathophysiology of hypoglycemia.
v. Discuss the utilization of glycogen by the human body as it relates to the pathophysiology of hypoglycemia.
w. Describe the actions of epinephrine as it relates to the pathophysiology of hypoglycemia.
x. Recognize the signs and symptoms of the patient with hypoglycemia.
y. Describe the compensatory mechanisms utilized by the body to promote homeostasis relative to hypoglycemia.
z. Describe the management of a responsive hypoglycemic patient.
aa. Correlate abnormal findings in assessment with clinical significance in the patient with hypoglycemia.
bb. Discuss the management of the hypoglycemic patient.
cc. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hypoglycemia.
dd. Discuss the pathophysiology of hyperglycemia.
ee. Recognize the signs and symptoms of the patient with hyperglycemia.
ff. Describe the management of hyperglycemia.
gg. Correlate abnormal findings in assessment with clinical significance in the patient with hyperglycemia.

hh. Discuss the management of the patient with hyperglycemia.
ii. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hyperglycemia.
jj. Discuss the pathophysiology of nonketotic hyperosmolar coma.
kk. Recognize the signs and symptoms of the patient with nonketotic hyperosmolar coma.
ll. Describe the management of nonketotic hyperosmolar coma.
mm. Correlate abnormal findings in assessment with clinical significance in the patient with nonketotic hyperosmolar coma.
nn. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with nonketotic hyperosmolar coma.
oo. Discuss the management of the patient with hyperglycemia.
pp. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hyperglycemia.
qq. Discuss the pathophysiology of diabetic ketoacidosis.
rr. Recognize the signs and symptoms of the patient with diabetic ketoacidosis.
ss. Describe the management of diabetic ketoacidosis.
tt. Correlate abnormal findings in assessment with clinical significance in the patient with diabetic ketoacidosis.
uu. Discuss the management of the patient with diabetic ketoacidosis.
vv. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with diabetic ketoacidosis.
ww. Discuss the pathophysiology of thyrotoxicosis.
xx. Recognize signs and symptoms of the patient with thyrotoxicosis.
yy. Describe the management of thyrotoxicosis.
zz. Correlate abnormal findings in assessment with clinical significance in the patient with thyrotoxicosis.
aaa. Discuss the management of the patient with thyrotoxicosis.
bbb. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with thyrotoxicosis.
ccc. Discuss the pathophysiology of myxedema.
ddd. Recognize signs and symptoms of the patient with myxedema.
eee. Describe the management of myxedema.
fff. Correlate abnormal findings in assessment with clinical significance in the patient with myxedema.
ggg. Discuss the management of the patient with myxedema.
hhh. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with myxedema.
iii. Discuss the pathophysiology of Cushing’s syndrome.
jjj. Recognize signs and symptoms of the patient with Cushing’s syndrome.
kkk. Describe the management of Cushing’s syndrome.

lll. Correlate abnormal findings in assessment with clinical significance in the patient with Cushing's syndrome.
mmm. Discuss the management of the patient with Cushing's syndrome.
nnn. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with Cushing's syndrome.
ooo. Discuss the pathophysiology of adrenal insufficiency.
ppp. Recognize signs and symptoms of the patient with adrenal insufficiency.
qqq. Describe the management of adrenal insufficiency.
rrr. Correlate abnormal findings in assessment with clinical significance in the patient with adrenal insufficiency.
sss. Discuss the management of the patient with adrenal insufficiency.
ttt. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with adrenal insufficiency.
uuu. Integrate the pathophysiological principles to the assessment of a patient with an endocrinological emergency.
vvv. Differentiate between endocrine emergencies based on assessment and history.
www. Correlate abnormal findings in the assessment with clinical significance in the patient with endocrinologic emergencies.
xxx. Develop a patient management plan based on field impression in the patient with an endocrinologic emergency.

8. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a toxic exposure. (EMS2, EMS4, EMS9, EMS10)

a. Describe the incidence, morbidity, and mortality of toxic emergencies.
b. Identify the risk factors most predisposing to toxic emergencies.
c. Discuss the anatomy and physiology of the organs and structures related to toxic emergencies.
d. Describe the routes of entry of toxic substances into the body.
e. Discuss the role of the Poison Control Center in the United States.
f. List the toxic substances that are specific to your region.
g. Discuss the pathophysiology of the entry of toxic substances into the body.
h. Discuss the assessment findings associated with various toxidromes.
i. Identify the need for rapid intervention and transport of the patient with a toxic substance emergency.
j. Discuss the management of toxic substances.
k. Define poisoning by ingestion.
l. List the most common poisonings by ingestion.
m. Recognize the signs and symptoms related to the most common poisonings by ingestion.
n. Correlate the abnormal findings in assessment with the clinical significance in the patient with the most common poisonings by ingestion.
o. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by ingestion.
p. Discuss the factors affecting the decision to induce vomiting in a patient with

ingested poison.

q. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by ingestion.

r. Define poisoning by inhalation.

s. List the most common poisonings by inhalation.

t. Describe the pathophysiology of poisoning by inhalation.

u. Recognize the signs and symptoms related to the most common poisonings by inhalation.

v. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by inhalation.

w. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by inhalation.

x. Integrate pathophysiological principles and the assessment findings to formulate a field impression for the patient with the most common poisonings by inhalation.

y. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by inhalation.

z. Define poisoning by injection.

aa. List the most common poisonings by injection.

bb. Describe the pathophysiology of poisoning by injection.

cc. Recognize the signs and symptoms related to the most common poisonings by injection.

dd. Correlate the abnormal findings in assessment with the clinical significance in the patient with the most common poisonings by injection.

ee. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by injection.

ff. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by injection.

gg. Define poisoning by surface absorption.

hh. List the most common poisonings by surface absorption.

ii. Describe the pathophysiology of poisoning by surface absorption.

jj. Recognize the signs and symptoms related to the most common poisonings by surface absorption.

kk. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by surface absorption.

ll. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by surface absorption.

mm. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients with the most common poisonings by surface absorption.

nn. Define poisoning by overdose.

oo. List the most common poisonings by overdose.

pp. Describe the pathophysiology of poisoning by overdose.

qq. Recognize the signs and symptoms related to the most common poisonings by

overdose.

rr. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by overdose.

ss. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by overdose.

tt. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients with the most common poisonings by overdose.

uu. Define drug abuse.

vv. Discuss the incidence of drug abuse in the United States.

ww. Define the following terms:
- (1) Substance or drug abuse
- (2) Substance or drug dependence
- (3) Tolerance
- (4) Withdrawal
- (5) Addiction

xx. List the most commonly abused drugs (both by chemical names and street names).

yy. Describe the pathophysiology of commonly used drugs.

zz. Recognize the signs and symptoms related to the most commonly abused drugs.

aaa. Correlate the abnormal findings in assessment with the clinical significance in patients using the most commonly abused drugs.

bbb. Differentiate among the various treatments and pharmacological interventions in the management of the most commonly abused drugs.

ccc. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients using the most commonly abused drugs.

ddd. List the clinical uses, street names, pharmacology, assessment finding, and management for patients who have taken the following drugs or been exposed to the following substances:
- (1) Cocaine
- (2) Marijuana and cannabis compounds
- (3) Amphetamines and amphetamine-like drugs
- (4) Barbiturates
- (5) Sedative-hypnotics (including rave drugs)
- (6) Cyanide
- (7) Narcotics/opiates
- (8) Cardiac medications
- (9) Caustics
- (10) Common household substances
- (11) Drugs abused for sexual purposes/sexual gratification
- (12) Carbon monoxide
- (13) Alcohols
- (14) Hydrocarbons
- (15) Psychiatric medications
- (16) Newer antidepressants and serotonin syndromes
- (17) Lithium

(18) MAO inhibitors
(19) Nonprescription pain medications
(a) Nonsteroidal anitinflammatory agents
(b) Salicylates
(c) Acetaminophen
(20) Theophylline
(21) Metals
(22) Plants and mushrooms

eee. Discuss common causative agents, pharmacology, assessment findings, and management for a patient with food poisoning.

fff. Discuss common offending organisms, pharmacology, assessment findings, and management for a patient with a bite or sting.

ggg. Integrate pathophysiological principles of the patient with a toxic substance exposure.

hhh. Differentiate between toxic substance emergencies based on assessment findings.

iii. Correlate abnormal findings in the assessment with the clinical significance in the patient exposed to a toxic substance.

jjj. Develop a patient management plan based on field impression in the patient exposed to a toxic substance.

9. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with an environmentally induced or exacerbated medical or traumatic condition. (EMS2, EMS4, EMS9, EMS10, EMS12)

a. Define "environmental emergency."

b. Describe the incidence, morbidity, and mortality associated with environmental emergencies.

c. Identify risk factors most predisposing to environmental emergencies.

d. Identify environmental factors that may cause illness or exacerbate a pre-existing illness.

e. Identify environmental factors that may complicate treatment or transport decisions.

f. List the principal types of environmental illnesses.

g. Define "homeostasis," and relate the concept to environmental influences.

h. Identify normal, critically high, and critically low body temperatures.

i. Describe several methods of temperature monitoring.

j. Identify the components of the body's thermoregulatory mechanism.

k. Describe the general process of thermal regulation, including substances used and wastes generated.

l. Describe the body's compensatory process for overheating.

m. Describe the body's compensatory process for excess heat loss.

n. List the common forms of heat and cold disorders.

o. List the common predisposing factors associated with heat and cold disorders.

p. List the common preventative measures associated with heat and cold disorders.

q. Integrate the pathophysiological principles and complicating factors common to environmental emergencies, and discuss differentiating features between emergent and urgent presentations.

r. Define heat illness.

s. Describe the pathophysiology of heat illness.

t. Identify signs and symptoms of heat illness.
u. List the predisposing factors for heat illness.
v. List measures to prevent heat illness.
w. Discuss the symptomatic variations presented in progressive heat disorders.
x. Relate symptomatic findings to the commonly used terms heat cramps, heat exhaustion, and heatstroke.
y. Correlate the abnormal findings in assessment with their clinical significance in the patient with heat illness.
z. Describe the contribution of dehydration to the development of heat disorders.
aa. Describe the differences between classical and exertional heatstroke.
bb. Define fever, and discuss its pathophysiologic mechanism.
cc. Identify the fundamental thermoregulatory difference between fever and heatstroke.
dd. Discuss how one may differentiate between fever and heatstroke.
ee. Discuss the role of fluid therapy in the treatment of heat disorders.
ff. Differentiate among the various treatments and interventions in the management of heat disorders.
gg. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has dehydration, heat exhaustion, or heatstroke.
hh. Define hypothermia.
ii. Describe the pathophysiology of hypothermia.
jj. List predisposing factors for hypothermia.
kk. List measures to prevent hypothermia.
ll. Identify differences between mild and severe hypothermia.
mm. Describe differences between chronic and acute hypothermia.
nn. List signs and symptoms of hypothermia.
oo. Correlate abnormal findings in assessment with their clinical significance in the patient with hypothermia.
pp. Discuss the impact of severe hypothermia on standard BCLS and ACLS algorithms and transport considerations.
qq. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has either mild or severe hypothermia.
rr. Define frostbite.
ss. Define superficial frostbite (frostnip).
tt. Differentiate between superficial frostbite and deep frostbite.
uu. List predisposing factors for frostbite.
vv. List measures to prevent frostbite.
ww. Correlate abnormal findings in assessment with their clinical significance in the patient with frostbite.
xx. Differentiate among the various treatments and interventions in the management of frostbite.
yy. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with superficial or deep frostbite.
zz. Define near drowning.

aaa. Describe the pathophysiology of near drowning.
bbb. List signs and symptoms of near drowning.
ccc. Describe the lack of significance of fresh versus saltwater immersion, as it relates to near drowning.
ddd. Discuss the incidence of “wet” versus “dry” drownings and the differences in their management.
eee. Discuss the complications and protective role of hypothermia in the context of near drowning.
fff. Correlate the abnormal findings in assessment with the clinical significance in the patient with near drowning.
ggg. Differentiate among the various treatments and interventions in the management of near drowning.
hhh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the near drowning patient.
iii. Define self-contained underwater breathing apparatus (SCUBA).
jjj. Describe the laws of gasses, and relate them to diving emergencies.
kkk. Describe the pathophysiology of diving emergencies.
lll. Define decompression illness (DCI).
mmm. Identify the various forms of DCI.
nnn. Identify the various conditions that may result from pulmonary over-pressure accidents.
ooo. Differentiate among the various diving emergencies.
ppp. List signs and symptoms of diving emergencies.
qqq. Correlate abnormal findings in assessment with their clinical significance in the patient with a diving-related illness.
rrr. Describe the function of the Divers Alert Network (DAN) and how its members may aid in the management of diving-related illnesses.
sss. Differentiate among the various treatments and interventions for the management of diving accidents.
ttt. Describe the specific function and benefit of hyperbaric oxygen therapy for the management of diving accidents.
uuu. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a management plan for the patient who has had a diving accident.
vvv. Define altitude illness.
www. Describe the application of gas laws to altitude illness.
xxx. Describe the etiology and epidemiology of altitude illness.
yyy. List predisposing factors for altitude illness.
zzz. List measures to prevent altitude illness.
aaaa. Define acute mountain sickness (AMS).
bbbb. Define high altitude pulmonary edema (HAPE).
cccc. Define high altitude cerebral edema (HACE).
dddd. Discuss the symptomatic variations presented in progressive altitude illnesses.
eeee. List signs and symptoms of altitude illnesses.
ffff. Correlate abnormal findings in assessment with their clinical significance in the patient with altitude illness.

gggg. Discuss the pharmacology appropriate for the treatment of altitude illnesses.
hhhh. Differentiate among the various treatments and interventions for the management of altitude illness.
iiii. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient who has altitude illness.
jjjj. Integrate the pathophysiological principles of the patient affected by an environmental emergency.
kkkk. Differentiate between environmental emergencies based on assessment findings.
llll. Correlate abnormal findings in the assessment with their clinical significance in the patient affected by an environmental emergency.
mmmm. Develop a patient management plan based on the field impression of the patient affected by an environmental emergency.

10. Explain gynecological principles and assessment findings to formulate a field impression and implement the management plan for the patient experiencing a gynecological emergency. (EMS2, EMS4, EMS9, EMS10)
   a. Review the anatomic structures and physiology of the female reproductive system.
   b. Identify the normal events of the menstrual cycle.
   c. Describe how to assess a patient with a gynecological complaint.
   d. Explain how to recognize a gynecological emergency.
   e. Describe the general care for any patient experiencing a gynecological emergency.
   f. Describe the pathophysiology, assessment, and management of specific gynecological emergencies.
   g. Recognize the importance of maintaining a patient's modesty and privacy while still being able to obtain necessary information.
   h. Discuss the need to provide care for a patient of sexual assault, while still preventing destruction of crime scene information.
   i. Demonstrate serving as a role model for other EMS providers when discussing or caring for patients with gynecological emergencies.
   j. Demonstrate how to assess a patient with a gynecological complaint.
   k. Demonstrate how to provide care for a patient with the following:
      (1) Excessive vaginal bleeding
      (2) Abdominal pain
      (3) Sexual assault

11. Discuss safe, empathetic competence in caring for patients with behavioral emergencies.
   a. Define behavior and distinguish between normal and abnormal behavior. (EMS2, EMS4, EMS9, EMS10)
   b. Define behavioral emergency.
   c. Discuss the prevalence of behavior and psychiatric disorders.
   d. Discuss the factors that may alter the behavior or emotional status of an ill or injured individual.
   e. Describe the medical legal considerations for management of emotionally disturbed patients.
   f. Discuss the pathophysiology of behavioral and psychiatric disorders.
   g. Describe the overt behaviors associated with behavioral and psychiatric disorders.
   h. Define the following terms:
      (1) Affect

(2) Anger
(3) Anxiety
(4) Confusion
(5) Depression
(6) Fear
(7) Mental status
(8) Open-ended question
(9) Posture

i. Describe the verbal techniques useful in managing the emotionally disturbed patient.
j. List the reasons for taking appropriate measures to ensure the safety of the patient, paramedic, and others.
k. Describe the circumstances when relatives, by-standers, and others should be removed from the scene.
l. Describe the techniques that facilitate the systematic gathering of information from the disturbed patient.
m. List situations in which the paramedic is expected to transport a patient forcibly and against his or her will.
n. Identify techniques for physical assessment in a patient with behavioral problems.
o. Describe the pathophysiology and management of excited delirium.
p. Describe methods of restraint that may be necessary in managing the emotionally disturbed patient.
q. List the risk factors for suicide.
r. List the behaviors that may be seen indicating that the patient may be at risk for suicide.
s. Integrate the pathophysiological principles with the assessment of the patient with behavioral and psychiatric disorders.
t. Differentiate between the various behavioral and psychiatric disorders based on the assessment and history.
u. Formulate a field impression based on the assessment findings.
v. Develop a patient management plan based on the field impressions.
w. Recognize the need for empathetic and respectful treatment for individuals experiencing behavioral emergencies.
x. Demonstrate safe techniques for managing and restraining a violent patient.
y. Explain causes and plight of homelessness.
z. Explain the common medical issues that homeless patients face.
aa. Identify local resources needed by the homeless and indigent patients.

12. Apply and integrate anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, prognosis, and management of common or major nontraumatic musculoskeletal disorders. (EMS2, EMS4, EMS9, EMS10)
    - Disorders of the spine
    - Joint abnormalities
    - Muscle abnormalities
    - Overuse syndromes

13. Apply and integrate knowledge of anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, prognosis, management of common or major diseases

of the eyes, ears, nose, and throat, including nose bleed. (EMS2, EMS4, EMS9, EMS10)

~~Competencies and Suggested Objectives:~~

1. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory problems.~~
   - a. ~~Discuss the epidemiology of pulmonary diseases and conditions.~~
   - b. ~~Identify and describe the function of the structures located in the upper and lower airway.~~
   - c. ~~Discuss the physiology of ventilation and respiration.~~
   - d. ~~Identify common pathological events that affect the pulmonary system.~~
   - e. ~~Discuss abnormal assessment findings associated with pulmonary diseases and conditions.~~
   - f. ~~Compare various airway and ventilation techniques used in the management of pulmonary diseases.~~
   - g. ~~Review the pharmacological preparations that paramedics use for management of respiratory diseases and conditions.~~
   - h. ~~Review the pharmacological preparations used in managing patients with respiratory diseases that may be prescribed by physicians.~~
   - i. ~~Review the use of equipment used during the physical examination of patients with complaints associated with respiratory diseases and conditions.~~
   - j. ~~Identify the epidemiology, anatomy, physiology, pathophysiology, assessment findings, and management for the following respiratory diseases and conditions:~~
     - (1) ~~Adult respiratory distress syndrome~~
     - (2) ~~Bronchial asthma~~
     - (3) ~~Chronic bronchitis~~
     - (4) ~~Emphysema~~
     - (5) ~~Pneumonia~~
     - (6) ~~Pulmonary edema~~
     - (7) ~~Pulmonary thromboembolism~~
     - (8) ~~Neoplasms of the lung~~
     - (9) ~~Upper respiratory infections~~
     - (10) ~~Spontaneous pneumothorax~~
     - (11) ~~Hyperventilation syndrome~~
   - k. ~~Demonstrate the assessment and treatment of patients with respiratory diseases.~~
   - l. ~~Recognize the critical nature of accurate field impressions of patients with respiratory diseases and conditions.~~
   - m. ~~Demonstrate proper use of airway and ventilation devices.~~
   - n. ~~Conduct a history and patient assessment for patients with pulmonary diseases and conditions.~~
   - o. ~~Demonstrate the application of a CPAP/BiPAP unit.~~

2. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic or anaphylactic reaction.~~
   a. ~~Define allergic reaction.~~
   b. ~~Define anaphylaxis.~~
   c. ~~Describe the incidence, morbidity, and mortality of anaphylaxis.~~
   d. ~~Identify the risk factors most predisposing to anaphylaxis.~~
   e. ~~Discuss the anatomy and physiology of the organs and structures related to anaphylaxis.~~
   f. ~~Describe the prevention of anaphylaxis and appropriate patient education.~~
   g. ~~Discuss the pathophysiology of allergy and anaphylaxis.~~
   h. ~~Describe the common methods of entry of substances into the body.~~
   i. ~~Define natural and acquired immunity.~~
   j. ~~Define antigens and antibodies.~~
   k. ~~List common antigens most frequently associated with anaphylaxis.~~
   l. ~~Discuss the formation of antibodies in the body.~~
   m. ~~Describe physical manifestations in anaphylaxis.~~
   n. ~~Differentiate manifestations of an allergic reaction from anaphylaxis.~~
   o. ~~Recognize the signs and symptoms related to anaphylaxis.~~
   p. ~~Differentiate among the various treatment and pharmacological interventions used in the management of anaphylaxis.~~
   q. ~~Integrate the pathophysiological principles of the patient with anaphylaxis.~~
   r. ~~Correlate abnormal findings in assessment with the clinical significance in the patient with anaphylaxis.~~
   s. ~~Develop a treatment plan based on field impression in the patient with allergic reaction and anaphylaxis.~~

t. ~~Describe the factors that precipitate disease in the human body.~~
   u. ~~Discuss analyzing disease risk.~~

v. ~~Describe aging as a risk factor for disease.~~

w. ~~Discuss familial diseases and associated risk factors.~~

x. ~~Define the characteristics of the immune response.~~

y. ~~Discuss induction of the immune system.~~
   z. ~~Describe the inflammation response.~~
   aa. ~~Discuss the role of mast cells as part of the inflammation response.~~
   bb. ~~Discuss the cellular components of inflammation.~~
   cc. ~~Describe the systemic manifestations of the inflammation response.~~
   dd. ~~Describe the resolution and repair from inflammation.~~
   ee. ~~Discuss hypersensitivity.~~
   ff. ~~Describe deficiencies in immunity and inflammation~~
   gg. ~~Define anaphylactic shock~~

3. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterologic problem.~~
   a. ~~Describe the incidence, morbidity, and mortality of gastrointestinal emergencies.~~
   b. ~~Identify the risk factors most predisposing to gastrointestinal emergencies.~~

c. ~~Discuss the anatomy and physiology of the organs and structures related to gastrointestinal diseases.~~
d. ~~Discuss the pathophysiology of inflammation and its relationship to acute abdominal pain.~~
e. ~~Define somatic pain as it relates to gastroenterology.~~
f. ~~Define visceral pain as it relates to gastroenterology.~~
g. ~~Define referred pain as it relates to gastroenterology.~~
h. ~~Differentiate between hemorrhagic and non-hemorrhagic abdominal pain.~~
i. ~~Discuss the signs and symptoms of local inflammation relative to acute abdominal pain.~~
j. ~~Discuss the signs and symptoms of peritoneal inflammation relative to acute abdominal pain.~~
k. ~~List the signs and symptoms of general inflammation relative to acute abdominal pain.~~
l. ~~Based on assessment findings, differentiate between local, peritoneal, and general inflammation as they relate to acute abdominal pain.~~
m. ~~Describe the questioning technique and specific questions the paramedic should ask when gathering a focused history in a patient with abdominal pain.~~
n. ~~Describe the technique for performing a comprehensive physical examination on a patient complaining of abdominal pain.~~
o. ~~Define upper gastrointestinal bleeding.~~
p. ~~Discuss the pathophysiology of upper gastrointestinal bleeding.~~
q. ~~Recognize the signs and symptoms related to upper gastrointestinal bleeding.~~
r. ~~Describe the management for upper gastrointestinal bleeding.~~
s. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with upper GI bleeding.~~
t. ~~Define lower gastrointestinal bleeding.~~
u. ~~Discuss the pathophysiology of lower gastrointestinal bleeding.~~
v. ~~Recognize the signs and symptoms related to lower gastrointestinal bleeding.~~
w. ~~Describe the management for lower gastrointestinal bleeding.~~
x. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with lower GI bleeding.~~
y. ~~Define acute gastroenteritis.~~
z. ~~Discuss the pathophysiology of acute gastroenteritis.~~
aa. ~~Recognize the signs and symptoms related to acute gastroenteritis.~~
bb. ~~Describe the management for acute gastroenteritis.~~
cc. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute gastroenteritis.~~
dd. ~~Define colitis.~~
ee. ~~Discuss the pathophysiology of colitis.~~

ff. ~~Recognize the signs and symptoms related to colitis.~~
gg. ~~Describe the management for colitis.~~
hh. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with colitis.~~
ii. ~~Define gastroenteritis.~~
jj. ~~Discuss the pathophysiology of gastroenteritis.~~
kk. ~~Recognize the signs and symptoms related to gastroenteritis.~~
ll. ~~Describe the management for gastroenteritis.~~
mm. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with gastroenteritis.~~
nn. ~~Define diverticulitis.~~
oo. ~~Discuss the pathophysiology of diverticulitis.~~
pp. ~~Recognize the signs and symptoms related to diverticulitis.~~
qq. ~~Describe the management for diverticulitis.~~
rr. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with diverticulitis.~~
ss. ~~Define appendicitis.~~
tt. ~~Discuss the pathophysiology of appendicitis.~~
uu. ~~Recognize the signs and symptoms related to appendicitis.~~
vv. ~~Describe the management for appendicitis.~~
ww. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with appendicitis.~~
xx. ~~Define peptic ulcer disease.~~
yy. ~~Discuss the pathophysiology of peptic ulcer disease.~~
zz. ~~Recognize the signs and symptoms related to peptic ulcer disease.~~
aaa. ~~Describe the management for peptic ulcer disease.~~
bbb. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with peptic ulcer disease.~~
ccc. ~~Define bowel obstruction.~~
ddd. ~~Discuss the pathophysiology of bowel obstruction.~~
eee. ~~Recognize the signs and symptoms related to bowel obstruction.~~
fff. ~~Describe the management for bowel obstruction.~~
ggg. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with bowel obstruction.~~
hhh. ~~Define Crohn's disease.~~
iii. ~~Discuss the pathophysiology of Crohn's disease.~~
jjj. ~~Recognize the signs and symptoms related to Crohn's disease.~~
kkk. ~~Describe the management for Crohn's disease.~~

~~lll. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with Crohn's disease.~~

~~mmm. Define pancreatitis.~~

~~nnn. Discuss the pathophysiology of pancreatitis.~~

~~ooo. Recognize the signs and symptoms related to pancreatitis.~~

~~ppp. Describe the management for pancreatitis.~~

~~qqq. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with pancreatitis.~~

~~rrr. Define esophageal varices.~~

~~sss. Discuss the pathophysiology of esophageal varices.~~

~~ttt. Recognize the signs and symptoms related to esophageal varices.~~

~~uuu. Describe the management for esophageal varices.~~

~~vvv. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with esophageal varices.~~

~~www. Define hemorrhoids.~~

~~xxx. Discuss the pathophysiology of hemorrhoids.~~

~~yyy. Recognize the signs and symptoms related to hemorrhoids.~~

~~zzz. Describe the management for hemorrhoids.~~

~~aaaa. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with hemorrhoids.~~

~~bbbb. Define cholecystitis.~~

~~cccc. Discuss the pathophysiology of cholecystitis.~~

~~dddd. Recognize the signs and symptoms related to cholecystitis.~~

~~eeee. Describe the management for cholecystitis.~~

~~ffff. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with cholecystitis.~~

~~gggg. Define acute hepatitis.~~

~~hhhh. Discuss the pathophysiology of acute hepatitis.~~

~~iiii. Recognize the signs and symptoms related to acute hepatitis.~~

~~jjjj. Describe the management for acute hepatitis.~~

~~kkkk. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute hepatitis.~~

~~llll. Integrate pathophysiological principles of the patient with a gastrointestinal emergency.~~

~~mmmm. Differentiate between gastrointestinal emergencies based on assessment findings.~~

~~nnnn. Correlate abnormal findings in the assessment with the clinical significance in the patient with abdominal pain.~~

~~oooo. Develop a patient management plan based on field impression in the patient with abdominal pain.~~

4. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a renal or urologic problem.~~
   a. ~~Describe the incidence, morbidity, mortality, and risk factors predisposing to urological emergencies.~~
   b. ~~Discuss the anatomy and physiology of the organs and structures related to urogenital diseases.~~
   c. ~~Define referred pain and visceral pain as it relates to urology.~~
   d. ~~Describe the questioning technique and specific questions the paramedic should utilize when gathering a focused history in a patient with abdominal pain.~~
   e. ~~Describe the technique for performing a comprehensive physical examination of a patient complaining of abdominal pain.~~
   f. ~~Define acute renal failure.~~
   g. ~~Discuss the pathophysiology of acute renal failure.~~
   h. ~~Recognize the signs and symptoms related to acute renal failure.~~
   i. ~~Describe the management for acute renal failure.~~
   j. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with acute renal failure.~~
   k. ~~Define chronic renal failure.~~
   l. ~~Discuss the pathophysiology of chronic renal failure.~~
   m. ~~Recognize the signs and symptoms related to chronic renal failure.~~
   n. ~~Describe the management for chronic renal failure.~~
   o. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with chronic renal failure.~~
   p. ~~Define renal dialysis.~~
   q. ~~Discuss the common complication of renal dialysis.~~
   r. ~~Define renal calculi.~~
   s. ~~Discuss the pathophysiology of renal calculi.~~
   t. ~~Recognize the signs and symptoms related to renal calculi.~~
   u. ~~Describe the management for renal calculi.~~
   v. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with renal calculi.~~
   w. ~~Define urinary tract infection.~~
   x. ~~Discuss the pathophysiology of urinary tract infection.~~
   y. ~~Recognize the signs and symptoms related to urinary tract infection.~~
   z. ~~Describe the management for a urinary tract infection.~~
   aa. ~~Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a urinary tract infection.~~
   bb. ~~Apply the epidemiology to develop prevention strategies for urological emergencies.~~

cc. Integrate pathophysiological principles to the assessment of a patient with abdominal pain.
dd. Synthesize assessment findings and patient history information to accurately differentiate between pain of a urogenital emergency and that of other origins.
ee. Formulate a treatment plan based on the field impression made in the assessment.
ff. Describe the pathophysiology of rhabdomyolysis including its causes.
gg. Recognize signs and symptoms of rhabdomyolysis.
hh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with rhabdomyolosis.

5. Discuss the pathophysiological principles of the hematopoietic system to formulate a field impression and implement a treatment plan.
   a. Identify the anatomy of the hematopoietic system.
   b. Describe volume and volume-control related to the hematopoietic system.
   c. Describe the blood-forming organs.
   d. Describe normal red blood cell (RBC) production, function, and destruction.
   e. Explain the significance of the hematocrit with respect to red cell size and number.
   f. Explain the correlation of the RBC count, hematocrit, and hemoglobin values.
   g. Define anemia.
   h. Describe normal white blood cell (WBC) production, function, and destruction.
   i. Identify the characteristics of the inflammatory process.
   j. Identify the difference between cellular and humoral immunity.
   k. Identify alterations in immunologic response.
   l. Describe the number, normal function, types, and life span of leukocytes.
   m. List the leukocyte disorders.
   n. Describe platelets with respect to normal function, life span, and numbers.
   o. Describe the components of the hemostatic mechanism.
   p. Describe the function of coagulation factors, platelets, and blood vessels necessary for normal coagulation.
   q. Describe the intrinsic and extrinsic clotting systems with respect to identification of factor deficiencies in each stage.
   r. Identify blood groups.
   s. Describe how acquired factor deficiencies may occur.
   t. Define fibrinolysis.
   u. Identify the components of physical assessment as they relate to the hematologic system.
   v. Describe the pathology and clinical manifestations and prognosis associated with:
      (1) Anemia
      (2) Leukemia

(3) Lymphomas
(4) Polycythemia
(5) Disseminated intravascular coagulopathy
(6) Hemophilia
(7) Sickle cell disease
(8) Multiple myeloma

w. Integrate pathophysiological principles into the assessment of a patient with hematologic disease.
x. Recognize the sense of urgency for initial assessment and interventions for patients with hematologic crises.
y. Perform an assessment of the patient with hematologic disorder.
z. Define septic shock.
aa. Utilize the pathophysiology behind septic shock and formulate a treatment plan for the patient with septic shock.

6. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a neurological problem.
   a. Describe the incidence, morbidity, and mortality of neurological emergencies.
   b. Identify the risk factors most predisposing to the nervous system.
   c. Discuss the anatomy and physiology of the organs and structures related to nervous system.
   d. Discuss the pathophysiology of non-traumatic neurologic emergencies.
   e. Discuss the assessment findings associated with non-traumatic neurologic emergencies.
   f. Identify the need for rapid intervention and the transport of the patient with non-traumatic emergencies.
   g. Discuss the management of non-traumatic neurological emergencies.
   h. Discuss the pathophysiology of coma and altered mental status.
   i. Discuss the assessment findings associated with coma and altered mental status.
   j. Discuss the management/treatment plan of coma and altered mental status.
   k. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for seizures.
   l. Discuss the pathophysiology of seizures.
   m. Discuss the assessment findings associated with seizures.
   n. Define seizure.
   o. Differentiate the major types of seizures.
   p. List the most common causes of seizures.
   q. Describe the phases of a generalized seizure.
   r. Discuss the pathophysiology of syncope.
   s. Discuss the assessment findings associated with syncope.
   t. Discuss the management/treatment plan of syncope.
   u. Discuss the pathophysiology of headache.
   v. Discuss the assessment findings associated with headache.

w. ~~Discuss the management/treatment plan of headache.~~
x. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies, for neoplasms.~~
y. ~~Discuss the pathophysiology of neoplasms.~~
z. ~~Describe the types of neoplasms.~~
aa. ~~Discuss the assessment findings associated with neoplasms.~~
bb. ~~Discuss the management/treatment plan of neoplasms.~~
cc. ~~Define neoplasms.~~
dd. ~~Recognize the signs and symptoms related to neoplasms.~~
ee. ~~Correlate abnormal assessment findings with clinical significance in the patient with neoplasms.~~
ff. ~~Differentiate among the various treatment and pharmacological interventions used in the management of neoplasms.~~
gg. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with neoplasms.~~
hh. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies, for abscess.~~
ii. ~~Discuss the pathophysiology of abscess.~~
jj. ~~Discuss the assessment findings associated with abscess.~~
kk. ~~Discuss the management/treatment plan of abscess.~~
ll. ~~Define abscess.~~
mm. ~~Recognize the signs and symptoms related to abscess.~~
nn. ~~Correlate abnormal assessment findings with clinical significance in the patient with abscess.~~
oo. ~~Differentiate among the various treatment and pharmacological interventions used in the management of abscess.~~
pp. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with abscess.~~
qq. ~~Describe the epidemiology, including the morbidity/mortality and prevention strategies, for stroke and intracranial hemorrhage.~~
rr. ~~Discuss the pathophysiology of stroke and intracranial hemorrhage.~~
ss. ~~Describe the types of stroke and intracranial hemorrhage.~~
tt. ~~Discuss the assessment findings associated with stroke and intracranial hemorrhage.~~
uu. ~~Discuss the management/treatment plan of stroke and intracranial hemorrhage.~~
vv. ~~Define stroke and intracranial hemorrhage.~~
ww. ~~Recognize the signs and symptoms related to stroke and intracranial hemorrhage.~~
xx. ~~Correlate abnormal assessment findings with clinical significance in the patient with stroke and intracranial hemorrhage.~~
yy. ~~Differentiate among the various treatment and pharmacological interventions used in the management of stroke and intracranial hemorrhage.~~

zz. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with stroke and intracranial hemorrhage.
aaa. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for transient ischemic attack.
bbb. Discuss the pathophysiology of transient ischemic attack.
ccc. Discuss the assessment findings associated with transient ischemic attack.
ddd. Discuss the management/treatment plan of transient ischemic attack.
eee. Define transient ischemic attack.
fff. Recognize the signs and symptoms related to transient ischemic attack.
ggg. Correlate abnormal assessment findings with clinical significance in the patient with transient ischemic attack.
hhh. Differentiate among the various treatment and pharmacological interventions used in the management of transient ischemic attack.
iii. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with transient ischemic attack.
jjj. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for degenerative neurological diseases.
kkk. Discuss the pathophysiology of degenerative neurological diseases.
lll. Discuss the assessment findings associated with degenerative neurological diseases.
mmm. Discuss the management/treatment plan of degenerative neurological diseases.
nnn. Define the following:
(1) Muscular dystrophy
(2) Multiple sclerosis
(3) Dystonia
(4) Parkinson’s disease
(5) Trigeminal neuralgia
(6) Bell’s palsy
(7) Amyotrophic lateral sclerosis
(8) Peripheral neuropathy
(9) Myoclonus
(10 Spina bifida
(11) Poliomyelitis
ooo. Recognize the signs and symptoms related to degenerative neurological diseases.
ppp. Correlate abnormal assessment findings with clinical significance in the patient with degenerative neurological diseases.
qqq. Differentiate among the various treatment and pharmacological interventions used in the management of degenerative neurological diseases.

rrr. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with degenerative neurological diseases.
sss. Integrate the pathophysiological principles of the patient with a neurological emergency.
ttt. Differentiate between neurological emergencies based on assessment findings.
uuu. Correlate abnormal assessment findings with the clinical significance in the patient with neurological complaints.
vvv. Develop a patient management plan based on field impression in the patient with neurological emergencies.
www. Recognize the feelings of a patient who regains consciousness among strangers.
xxx. Formulate means of conveying empathy to patients whose ability to communicate is limited by their condition.
yyy. Perform an appropriate assessment of a patient with coma or altered mental status.
zzz. Perform a complete neurological examination as part of the comprehensive physical examination of a patient with coma or altered mental status.
aaaa. Manage a patient with coma or altered mental status, including the administration of oxygen, oral glucose, 50% dextrose, and narcotic reversal agents.
bbbb. Perform an appropriate assessment of a patient with syncope.
cccc. Manage a patient with syncope.
dddd. Perform an appropriate assessment of a patient with seizures.
eeee. Manage a patient with seizures, including the administration of diazepam or lorazepam.
ffff. Perform an appropriate assessment of a patient with stroke and intracranial hemorrhage or TIA.
gggg. Manage a patient with stroke and intracranial hemorrhage or TIA.
hhhh. Demonstrate an appropriate assessment of a patient with a chief complaint of weakness.

7. Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an endocrine problem.
   a. Describe the incidence, morbidity, and mortality of endocrinologic emergencies.
   b. Identify the risk factors most predisposing to endocrinologic disease.
   c. Discuss the anatomy and physiology of organs and structures related to endocrinologic diseases.
   d. Review the pathophysiology of endocrinologic emergencies.
   e. Discuss the general assessment findings associated with endocrinologic emergencies.
   f. Identify the need for rapid intervention of the patient with endocrinologic emergencies.

g. ~~Discuss the management of endocrinologic emergencies.~~
h. ~~Describe osmotic diuresis and its relationship to diabetes.~~
i. ~~Describe the pathophysiology of adult onset diabetes mellitus.~~
j. ~~Describe the pathophysiology of juvenile onset diabetes mellitus.~~
k. ~~Describe the effects of decreased levels of insulin on the body.~~
l. ~~Correlate abnormal findings in assessment with clinical significance in the patient with a diabetic emergency.~~
m. ~~Discuss the management of diabetic emergencies.~~
n. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a diabetic emergency.~~
o. ~~Differentiate between the pathophysiology of normal glucose metabolism and diabetic glucose metabolism.~~
p. ~~Describe the mechanism of ketone body formation and its relationship to ketoacidosis.~~
q. ~~Discuss the physiology of the excretion of potassium and ketone bodies by the kidneys.~~
r. ~~Describe the relationship of insulin to serum glucose levels.~~
s. ~~Describe the effects of decreased levels of insulin on the body.~~
t. ~~Describe the effects of increased serum glucose levels on the body.~~
u. ~~Discuss the pathophysiology of hypoglycemia.~~
v. ~~Discuss the utilization of glycogen by the human body as it relates to the pathophysiology of hypoglycemia.~~
w. ~~Describe the actions of epinephrine as it relates to the pathophysiology of hypoglycemia.~~
x. ~~Recognize the signs and symptoms of the patient with hypoglycemia.~~
y. ~~Describe the compensatory mechanisms utilized by the body to promote homeostasis relative to hypoglycemia.~~
z. ~~Describe the management of a responsive hypoglycemic patient.~~
aa. ~~Correlate abnormal findings in assessment with clinical significance in the patient with hypoglycemia.~~
bb. ~~Discuss the management of the hypoglycemic patient.~~
cc. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hypoglycemia.~~
dd. ~~Discuss the pathophysiology of hyperglycemia.~~
ee. ~~Recognize the signs and symptoms of the patient with hyperglycemia.~~
ff. ~~Describe the management of hyperglycemia.~~
gg. ~~Correlate abnormal findings in assessment with clinical significance in the patient with hyperglycemia.~~
hh. ~~Discuss the management of the patient with hyperglycemia.~~
ii. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hyperglycemia.~~
jj. ~~Discuss the pathophysiology of nonketotic hyperosmolar coma.~~

kk. Recognize the signs and symptoms of the patient with nonketotic hyperosmolar coma.
ll. Describe the management of nonketotic hyperosmolar coma.
mm. Correlate abnormal findings in assessment with clinical significance in the patient with nonketotic hyperosmolar coma.
nn. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with nonketotic hyperosmolar coma.
oo. Discuss the management of the patient with hyperglycemia.
pp. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with hyperglycemia.
qq. Discuss the pathophysiology of diabetic ketoacidosis.
rr. Recognize the signs and symptoms of the patient with diabetic ketoacidosis.
ss. Describe the management of diabetic ketoacidosis.
tt. Correlate abnormal findings in assessment with clinical significance in the patient with diabetic ketoacidosis.
uu. Discuss the management of the patient with diabetic ketoacidosis.
vv. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with diabetic ketoacidosis.
ww. Discuss the pathophysiology of thyrotoxicosis.
xx. Recognize signs and symptoms of the patient with thyrotoxicosis.
yy. Describe the management of thyrotoxicosis.
zz. Correlate abnormal findings in assessment with clinical significance in the patient with thyrotoxicosis.
aaa. Discuss the management of the patient with thyrotoxicosis.
bbb. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with thyrotoxicosis.
ccc. Discuss the pathophysiology of myxedema.
ddd. Recognize signs and symptoms of the patient with myxedema.
eee. Describe the management of myxedema.
fff. Correlate abnormal findings in assessment with clinical significance in the patient with myxedema.
ggg. Discuss the management of the patient with myxedema.
hhh. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with myxedema.
iii. Discuss the pathophysiology of Cushing's syndrome.
jjj. Recognize signs and symptoms of the patient with Cushing's syndrome.
kkk. Describe the management of Cushing's syndrome.
lll. Correlate abnormal findings in assessment with clinical significance in the patient with Cushing's syndrome.
mmm. Discuss the management of the patient with Cushing’s syndrome.

nnn. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with Cushing's syndrome.~~
ooo. ~~Discuss the pathophysiology of adrenal insufficiency.~~
ppp. ~~Recognize signs and symptoms of the patient with adrenal insufficiency.~~
qqq. ~~Describe the management of adrenal insufficiency.~~
rrr. ~~Correlate abnormal findings in assessment with clinical significance in the patient with adrenal insufficiency.~~
sss. ~~Discuss the management of the patient with adrenal insufficiency.~~
ttt. ~~Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with adrenal insufficiency.~~
uuu. ~~Integrate the pathophysiological principles to the assessment of a patient with an endocrinological emergency.~~
vvv. ~~Differentiate between endocrine emergencies based on assessment and history.~~
www. ~~Correlate abnormal findings in the assessment with clinical significance in the patient with endocrinologic emergencies.~~
xxx. ~~Develop a patient management plan based on field impression in the patient with an endocrinologic emergency.~~

8. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a toxic exposure.~~
   a. ~~Describe the incidence, morbidity, and mortality of toxic emergencies.~~
   b. ~~Identify the risk factors most predisposing to toxic emergencies.~~
   c. ~~Discuss the anatomy and physiology of the organs and structures related to toxic emergencies.~~
   d. ~~Describe the routes of entry of toxic substances into the body.~~
   e. ~~Discuss the role of the Poison Control Center in the United States.~~
   f. ~~List the toxic substances that are specific to your region.~~
   g. ~~Discuss the pathophysiology of the entry of toxic substances into the body.~~
   h. ~~Discuss the assessment findings associated with various toxidromes.~~
   i. ~~Identify the need for rapid intervention and transport of the patient with a toxic substance emergency.~~
   j. ~~Discuss the management of toxic substances.~~
   k. ~~Define poisoning by ingestion.~~
   l. ~~List the most common poisonings by ingestion.~~
   m. ~~Recognize the signs and symptoms related to the most common poisonings by ingestion.~~
   n. ~~Correlate the abnormal findings in assessment with the clinical significance in the patient with the most common poisonings by ingestion.~~
   o. ~~Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by ingestion.~~

p. ~~Discuss the factors affecting the decision to induce vomiting in a patient with ingested poison.~~
q. ~~Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by ingestion.~~
r. ~~Define poisoning by inhalation.~~
s. ~~List the most common poisonings by inhalation.~~
t. ~~Describe the pathophysiology of poisoning by inhalation.~~
u. ~~Recognize the signs and symptoms related to the most common poisonings by inhalation.~~
v. ~~Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by inhalation.~~
w. ~~Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by inhalation.~~
x. ~~Integrate pathophysiological principles and the assessment findings to formulate a field impression for the patient with the most common poisonings by inhalation.~~
y. ~~Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by inhalation.~~
z. ~~Define poisoning by injection.~~
aa. ~~List the most common poisonings by injection.~~
bb. ~~Describe the pathophysiology of poisoning by injection.~~
cc. ~~Recognize the signs and symptoms related to the most common poisonings by injection.~~
dd. ~~Correlate the abnormal findings in assessment with the clinical significance in the patient with the most common poisonings by injection.~~
ee. ~~Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by injection.~~
ff. ~~Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with the most common poisonings by injection.~~
gg. ~~Define poisoning by surface absorption.~~
hh. ~~List the most common poisonings by surface absorption.~~
ii. ~~Describe the pathophysiology of poisoning by surface absorption.~~
jj. ~~Recognize the signs and symptoms related to the most common poisonings by surface absorption.~~
kk. ~~Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by surface absorption.~~
ll. ~~Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by surface absorption.~~

mm. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients with the most common poisonings by surface absorption.
nn. Define poisoning by overdose.
oo. List the most common poisonings by overdose.
pp. Describe the pathophysiology of poisoning by overdose.
qq. Recognize the signs and symptoms related to the most common poisonings by overdose.
rr. Correlate the abnormal findings in assessment with the clinical significance in patients with the most common poisonings by overdose.
ss. Differentiate among the various treatments and pharmacological interventions in the management of the most common poisonings by overdose.
tt. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients with the most common poisonings by overdose.
uu. Define drug abuse.
vv. Discuss the incidence of drug abuse in the United States.
ww. Define the following terms:
(1) Substance or drug abuse
(2) Substance or drug dependence
(3) Tolerance
(4) Withdrawal
(5) Addiction
xx. List the most commonly abused drugs (both by chemical names and street names).
yy. Describe the pathophysiology of commonly used drugs.
zz. Recognize the signs and symptoms related to the most commonly abused drugs.
aaa. Correlate the abnormal findings in assessment with the clinical significance in patients using the most commonly abused drugs.
bbb. Differentiate among the various treatments and pharmacological interventions in the management of the most commonly abused drugs.
ccc. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for patients using the most commonly abused drugs.
ddd. List the clinical uses, street names, pharmacology, assessment finding, and management for patients who have taken the following drugs or been exposed to the following substances:
(1) Cocaine
(2) Marijuana and cannabis compounds
(3) Amphetamines and amphetamine-like drugs
(4) Barbiturates
(5) Sedative-hypnotics (including rave drugs)
(6) Cyanide
(7) Narcotics/opiates

~~(8) Cardiac medications~~
~~(9) Caustics~~
~~(10) Common household substances~~
~~(11) Drugs abused for sexual purposes/sexual gratification~~
~~(12) Carbon monoxide~~
~~(13) Alcohols~~
~~(14) Hydrocarbons~~
~~(15) Psychiatric medications~~
~~(16) Newer anti-depressants and serotonin syndromes~~
~~(17) Lithium~~
~~(18) MAO inhibitors~~
~~(19) Non-prescription pain medications~~
~~(a) Nonsteroidal anitinflammatory agents~~
~~(b) Salicylates~~
~~(c) Acetaminophen~~
~~(20) Theophylline~~
~~(21) Metals~~
~~(22) Plants and mushrooms~~

~~eee. Discuss common causative agents, pharmacology, assessment findings, and management for a patient with food poisoning.~~

~~fff. Discuss common offending organisms, pharmacology, assessment findings, and management for a patient with a bite or sting.~~

~~ggg. Integrate pathophysiological principles of the patient with a toxic substance exposure.~~

~~hhh. Differentiate between toxic substance emergencies based on assessment findings.~~

~~iii. Correlate abnormal findings in the assessment with the clinical significance in the patient exposed to a toxic substance.~~

~~jjj. Develop a patient management plan based on field impression in the patient exposed to a toxic substance.~~

9. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with an environmentally induced or exacerbated medical or traumatic condition.~~
   a. ~~Define "environmental emergency."~~
   b. ~~Describe the incidence, morbidity, and mortality associated with environmental emergencies.~~
   c. ~~Identify risk factors most predisposing to environmental emergencies.~~
   d. ~~Identify environmental factors that may cause illness or exacerbate a preexisting illness.~~
   e. ~~Identify environmental factors that may complicate treatment or transport decisions.~~
   f. ~~List the principal types of environmental illnesses.~~
   g. ~~Define “homeostasis" and relate the concept to environmental influences.~~
   h. ~~Identify normal, critically high, and critically low body temperatures.~~
   i. ~~Describe several methods of temperature monitoring.~~
   j. ~~Identify the components of the body’s thermoregulatory mechanism.~~
   k. ~~Describe the general process of thermal regulation, including substances used and wastes generated.~~
   l. ~~Describe the body’s compensatory process for overheating.~~
   m. ~~Describe the body’s compensatory process for excess heat loss.~~
   n. ~~List the common forms of heat and cold disorders.~~
   o. ~~List the common predisposing factors associated with heat and cold disorders.~~
   p. ~~List the common preventative measures associated with heat and cold disorders.~~
   q. ~~Integrate the pathophysiological principles and complicating factors common to environmental emergencies and discuss differentiating features between emergent and urgent presentations.~~
   r. ~~Define heat illness.~~
   s. ~~Describe the pathophysiology of heat illness.~~
   t. ~~Identify signs and symptoms of heat illness.~~
   u. ~~List the predisposing factors for heat illness.~~
   v. ~~List measures to prevent heat illness.~~
   w. ~~Discuss the symptomatic variations presented in progressive heat disorders.~~
   x. ~~Relate symptomatic findings to the commonly used terms: heat cramps, heat exhaustion, and heatstroke.~~
   y. ~~Correlate the abnormal findings in assessment with their clinical significance in the patient with heat illness.~~
   z. ~~Describe the contribution of dehydration to the development of heat disorders.~~
   aa. ~~Describe the differences between classical and exertional heatstroke.~~
   bb. ~~Define fever and discuss its pathophysiologic mechanism.~~
   cc. ~~Identify the fundamental thermoregulatory difference between fever and heatstroke.~~
   dd. ~~Discuss how one may differentiate between fever and heatstroke.~~

~~ee. Discuss the role of fluid therapy in the treatment of heat disorders.~~
~~ff. Differentiate among the various treatments and interventions in the management of heat disorders.~~
~~gg. Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has dehydration, heat exhaustion, or heatstroke.~~
~~hh. Define hypothermia.~~
~~ii. Describe the pathophysiology of hypothermia.~~
~~jj. List predisposing factors for hypothermia.~~
~~kk. List measures to prevent hypothermia.~~
~~ll. Identify differences between mild and severe hypothermia.~~
~~mm. Describe differences between chronic and acute hypothermia.~~
~~nn. List signs and symptoms of hypothermia.~~
~~oo. Correlate abnormal findings in assessment with their clinical significance in the patient with hypothermia.~~
~~pp. Discuss the impact of severe hypothermia on standard BCLS and ACLS algorithms and transport considerations.~~
~~qq. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has either mild or severe hypothermia.~~
~~rr. Define frostbite.~~
~~ss. Define superficial frostbite (frostnip).~~
~~tt. Differentiate between superficial frostbite and deep frostbite.~~
~~uu. List predisposing factors for frostbite.~~
~~vv. List measures to prevent frostbite.~~
~~ww. Correlate abnormal findings in assessment with their clinical significance in the patient with frostbite.~~
~~xx. Differentiate among the various treatments and interventions in the management of frostbite.~~
~~yy. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with superficial or deep frostbite.~~
~~zz. Define near-drowning.~~
~~aaa. Describe the pathophysiology of near-drowning.~~
~~bbb. List signs and symptoms of near-drowning.~~
~~ccc. Describe the lack of significance of fresh versus saltwater immersion, as it relates to near-drowning.~~
~~ddd. Discuss the incidence of "wet" versus "dry" drownings and the differences in their management.~~
~~eee. Discuss the complications and protective role of hypothermia in the context of near-drowning.~~
~~fff. Correlate the abnormal findings in assessment with the clinical significance in the patient with near-drowning.~~
~~ggg. Differentiate among the various treatments and interventions in the management of near-drowning.~~

hhh. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the neardrowning patient.
iii. Define self-contained underwater breathing apparatus (SCUBA).
jjj. Describe the laws of gasses and relate them to diving emergencies.
kkk. Describe the pathophysiology of diving emergencies.
lll. Define decompression illness (DCI).
mmm. Identify the various forms of DCI.
nnn. Identify the various conditions that may result from pulmonary over-pressure accidents.
ooo. Differentiate among the various diving emergencies.
ppp. List signs and symptoms of diving emergencies.
qqq. Correlate abnormal findings in assessment with their clinical significance in the patient with a diving-related illness.
rrr. Describe the function of the Divers Alert Network (DAN) and how its members may aid in the management of diving-related illnesses.
sss. Differentiate among the various treatments and interventions for the management of diving accidents.
ttt. Describe the specific function and benefit of hyperbaric oxygen therapy for the management of diving accidents.
uuu. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a management plan for the patient who has had a diving accident.
vvv. Define altitude illness.
www. Describe the application of gas laws to altitude illness.
xxx. Describe the etiology and epidemiology of altitude illness.
yyy. List predisposing factors for altitude illness.
zzz. List measures to prevent altitude illness.
aaaa. Define acute mountain sickness (AMS).
bbbb. Define high altitude pulmonary edema (HAPE).
cccc. Define high altitude cerebral edema (HACE).
dddd. Discuss the symptomatic variations presented in progressive altitude illnesses.
eeee. List signs and symptoms of altitude illnesses.
ffff. Correlate abnormal findings in assessment with their clinical significance in the patient with altitude illness.
gggg. Discuss the pharmacology appropriate for the treatment of altitude illnesses.
hhhh. Differentiate among the various treatments and interventions for the management of altitude illness.
iiii. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient who has altitude illness.
jjjj. Integrate the pathophysiological principles of the patient affected by an environmental emergency.

~~kkkk. Differentiate between environmental emergencies based on assessment findings.~~
~~llll. Correlate abnormal findings in the assessment with their clinical significance in the patient affected by an environmental emergency.~~
~~mmmm. Develop a patient management plan based on the field impression of the patient affected by an environmental emergency.~~

STANDARDS

National EMS Educational Standards

~~*Related Academic Topics*~~

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the~~ EMS2 Anatomy and Physiology ~~of the human body.~~
~~S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~
~~S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts~~
~~T2~~EMS4 Pathophysiology
EMS9 Assessment

EMS10 Medicine
EMS12 Trauma

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy

CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~
~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT 1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT 2 The paramedic student will be able to establish and/or maintain a patient airway, oxygenate, and ventilate a patient.~~
~~EMT 3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT 4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT 7 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT 8 The paramedic student will be able to safely manage the scene of an emergency.~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Bledsoe, B., Porter, R., & Cherry, R. (2010). *Essentials of paramedic care update*. Englewood Cliffs: Prentice Hall.

Caroline, N., Elling, B., Smith, M., & Pollak, A. (2007). *Nancy Caroline's emergency care in the streets* (6th ed.). Boston, MA: Jones and Bartlett Publishers.

Derr, P. (2005). *Emergency and critical care pocket guide* (4th ed.). Informed Publishing.

Porter, W., & Phipps, D. (2007). *Porter's pocket guide to emergency and critical care* (9th ed.). Sudbury: Jones & Bartlett Publishers.

Course Name: EMS ~~Team Management~~Operations

Course Abbreviation: ~~EMT 2913~~ EMS 2912

Classification: Vocational~~-~~–Technical Core

Description: This course teaches the leadership skills necessary to manage complex situations including patient care, management of the hazardous and crime scene, supervision, mentoring, and leading other personnel. (2 sch: 1-hr lecture, 2-hr lab)

Prerequisites: All first semester courses

Competencies and Suggested Objectives
1. Discuss the principles of assessment based management to perform an appropriate assessment and implement the management plan for patients with common complaints. (EMS1, EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14) a. Explain how effective assessment is critical to clinical decision making. b. Explain how the paramedic's attitude affects assessment and decision making. c. Explain how uncooperative patients affect assessment and decision making. d. Explain strategies to prevent labeling and tunnel vision. e. Develop strategies to decrease environmental distractions. f. Describe how man power considerations and staffing configurations affect assessment and decision making. g. Synthesize concepts of scene management and choreography to simulated emergency calls. h. Explain the roles of the team leader and the patient care person. i. Explain the rationale for carrying the essential patient care items. j. When given a simulated call, list the appropriate equipment to be taken to the patient. k. Explain the general approach to the emergency patient. l. Explain the general approach, patient assessment, differentials, and management priorities for patients with the following problems: (1) Chest pain (2) Medical and traumatic cardiac arrest (3) Acute abdominal pain (4) GI bleed (5) Altered mental status (6) Dyspnea (7) Syncope (8) Seizures (9) Environmental or thermal problem (10) Hazardous material or toxic exposure (11) Trauma or multi-trauma patients (12) Allergic reactions (13) Behavioral problems (14) Obstetric or gynecological problems

(15) Pediatric patients

m. Describe how to effectively communicate patient information face to face, over the telephone, by radio, and in writing.

n. Utilize scenarios to develop high level clinical decision-making skills.

o. Defend the importance of considering differentials in patient care.

p. Practice the process of complete patient assessment on all patients.

q. Recognize the importance of presenting the patient accurately and clearly.

2. Perform as a team leader. (EMS1, EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)

a. Organize the EMS response team.

b. Perform a patient assessment.

c. Provide local/regionally appropriate treatment.

d. Present cases verbally and in writing given a moulaged and programmed simulated patient.

3. Perform as a team member. (EMS1, EMS2, EMS3, EMS4, EMS5, EMS7, EMS8, EMS9, EMS10, EMS11, EMS12, EMS13, EMS14)

a. Assess a programmed patient or mannequin.

b. Consider differentials.

c. Make decisions relative to interventions and transportation.

d. Provide the interventions, patient packaging, and transportation.

e. As a team, practice various roles for the following common emergencies.

(1) Chest pain

(2) Cardiac arrest

(3) Traumatic arrest

(4) Medical arrest

(5) Acute abdominal pain

(6) GI bleed

(7) Altered mental status

(8) Dyspnea

(9) Syncope

(10) Seizure

(11) Thermal/ environmental problem

(12) Hazardous materials/toxicology

(13) Trauma

(a) Isolated extremity fracture (tibia/fibula or radius/ulna)

(b) Femur fracture

(c) Shoulder dislocation

(d) Clavicular fracture or A-C separation

(e) Minor wound (no sutures required, sutures required, high risk wounds, with tendon and/or nerve injury)

(f) Spine injury (no neurologic deficit, with neurologic deficit)

(g) Multiple trauma-blunt

(h) Penetrating trauma

(i) Impaled object

(j) Elderly fall

(k) Athletic injury

(l) Head injury (concussion, subdural/epidural)

(14) Allergic reactions/bites/envenomation

(a) Local allergic reaction

(b) Systemic allergic reaction

(c) Envenomation

(15) Behavioral

(a) Mood disorders

(b) Schizophrenic and delusional disorders

(c) Suicidal

(16) Obstetrics/gynecology

(a) Vaginal bleeding

(b) Childbirth (normal and abnormal)

(17) Pediatric

(a) Respiratory distress

(b) Fever

(c) Seizures

4. Explain the principles of rescue awareness and operations to safely rescue a patient from water, hazardous atmospheres, trenches, highways, and hazardous terrain. (EMS1, EMS14)

a. Define the term rescue.

b. Explain the medical and mechanical aspects of rescue situations.

c. Explain the role of the paramedic in delivering care at the site of the injury, continuing through the rescue process and to definitive care.

d. Describe the phases of a rescue operation.

e. Describe the types of personal protective equipment needed to safely operate in the rescue environment to include the following:

(1) Head protection

(2) Eye protection

(3) Hand protection

(4) Personal flotation devices

(5) Thermal protection/layering systems

(6) High visibility clothing

(7) Specialized footwear

f. Explain the differences in risk between moving water and flat water rescue.

g. Explain the effects of immersion hypothermia on the ability to survive sudden immersion and self-rescue.

h. Explain the phenomenon of the cold protective response in cold water drowning situations.

i. Identify the risks associated with low head dams and the rescue complexities they pose.

j. Given a picture of moving water, identify and explain the following features and hazards associated with the following:

(1) Hydraulics

(2) Strainers

(3) Dams/hydro-electric sites

k. Explain why water entry or go techniques are methods of last resort.

l. Explain the rescue techniques associated with reach-throw-row-go.

m. Given a list of rescue scenarios, identify the victim survivability profile and which are rescue versus body recovery situations.

n. Explain the self-rescue position if unexpectedly immersed in moving water.

o. Given a series of pictures, identify which would be considered “confined spaces” and potentially oxygen deficient.

p. Identify the hazards associated with confined spaces and risks posed to potential rescuers to include the following:
   (1) Oxygen deficiency
   (2) Chemical/toxic exposure/explosion
   (3) Engulfment
   (4) Machinery entrapment
   (5) Electricity

q. Identify components necessary to ensure site safety prior to confined space rescue attempts.

r. Identify the poisonous gases commonly found in confined spaces to include the following:
   (1) Hydrogen sulfide (H2S)
   (2) Carbon dioxide (CO2)
   (3) Carbon monoxide (CO)
   (4) Low/high oxygen concentrations (Fi02)
   (5) Methane (CH4)
   (6) Ammonia (NH3)
   (7) Nitrogen dioxide (NO_2)

s. Explain the hazard of cave-in during trench rescue operations.

t. Describe the effects of traffic flow on the highway rescue incident including limited access super highways and regular access highways.

u. Describe the following techniques to reduce scene risk at highway incidents:
   (1) Apparatus placement
   (2) Headlights and emergency vehicle lighting
   (3) Cones, flares
   (4) Reflective and high visibility clothing

v. Describe the hazards associated with the following auto/truck components:
   (1) Energy absorbing bumpers
   (2) Air bag/supplemental restraint systems
   (3) Catalytic converters and conventional fuel systems
   (4) Stored energy
   (5) Alternate fuel systems

w. Given a diagram of a passenger auto, identify the following structures:
   (1) A, B, C, D posts
   (2) Fire wall
   (3) Unibody versus frame designs

x. Describe methods for emergency stabilization using rope, cribbing, jacks, spare tire, and come-a-longs for vehicles found on the following:
   (1) Wheels
   (2) Side
   (3) Roof

(4) Inclines

y. Describe the electrical hazards commonly found at highway incidents (above and below ground).

z. Explain the difference between tempered and safety glass, identify its locations on a vehicle, and discuss how to break it safely.

aa. Explain typical door anatomy and methods to access through stuck doors.

bb. Explain SRS or “air bag” systems and methods to neutralize them.

cc. Define the following terms:
(1) Low angle
(2) High angle
(3) Belay
(4) Rappel
(5) Scrambling
(6) Hasty rope slide

dd. Describe the procedure for Stokes litter packaging for low angle evacuations.

ee. Explain the procedures for low angle litter evacuation to include the following:
(1) Anchoring
(2) Litter/rope attachment
(3) Lowering and raising procedures

ff. Explain techniques to be used in non-technical litter carries over rough terrain.

gg. Explain non-technical high angle rescue procedures using aerial apparatus.

hh. Develop specific skill in emergency stabilization of vehicles and access procedures and an awareness of specific extrication strategies.

ii. Explain assessment procedures and modifications necessary when caring for entrapped patients.

jj. List the equipment necessary for an “off road” medical pack.

kk. Explain specific methods of improvisation for assessment, spinal immobilization, and extremity splinting.

ll. Explain the indications, contraindications, and methods of pain control for entrapped patients.

mm. Explain the need for and techniques of thermal control for entrapped patients.

nn. Explain the pathophysiology of “crush trauma” syndrome.

oo. Develop an understanding of the medical issues involved in providing care for a patient in a rescue environment.

pp. Develop proficiency in patient packaging and evacuation techniques that pertain to hazardous or rescue environments.

qq. Explain the different types of “Stokes” or basket stretchers and the advantages and disadvantages associated with each.

rr. Using cribbing, ropes, lifting devices, spare tires, chains, and hand winches, demonstrate the following stabilization procedures:
(1) Stabilization on all four wheels
(2) Stabilization on its side
(3) Stabilization on its roof
(4) Stabilization on an incline/embankments

ss. Using basic hand tools, demonstrate the following:
(1) Access through a stuck door

(2) Access through safety and tempered glass
(3) Access through the trunk
(4) Access through the floor
(5) Roof removal
(6) Dash displacement/roll-up
(7) Steering wheel/column displacement
(8) Access through the roof

tt. Demonstrate methods of “Stokes” packaging for patients being the following:
(1) Vertically lifted (high angle)
(2) Horizontally lifted (low angle)
(3) Carried over rough terrain

uu. Demonstrate methods of packaging for patients being vertically lifted without Stokes litter stretcher packaging.

vv. Demonstrate the following litter carrying techniques:
(1) Stretcher lift straps
(2) “Leap frogging”
(3) Passing litters over and around obstructions

ww. Demonstrate litter securing techniques for patients being evacuated by aerial apparatus.

xx. Demonstrate in-water spinal immobilization techniques.

yy. Demonstrate donning and properly adjusting a PFD.

zz. Demonstrate use of a throw bag.

5. Analyze hazardous materials emergencies, call for appropriate resources, and work in the cold zone. (EMS1, EMS14)

a. Explain the role of the paramedic/EMS responder in terms of the following:
(1) Incident size-up
(2) Assessment of toxicologic risk
(3) Appropriate decontamination methods
(4) Treatment of semi-decontaminated patients
(5) Transportation of semi-decontaminated patients

b. Recognize a hazardous materials (haz-mat) incident, and determine the following:
(1) Potential hazards to the rescuers, public, and environment
(2) Potential risk of primary contamination to patients
(3) Potential risk of secondary contamination to rescuers

c. Identify resources for substance identification, decontamination, and treatment information including the following:
(1) Poison control center
(2) Medical control
(3) Material safety data sheets (MSDSs)
(4) Reference textbooks
(5) Computer databases (CAMEO)
(6) CHEMTREC
(7) Technical specialists
(8) Agency for toxic substances and disease registry
(9) Primary contamination risk
(10) Secondary contamination risk

(11) Describe the following routes of exposure:
    (a) Topical
    (b) Respiratory
    (c) Gastrointestinal
    (d) Parenteral

d. Explain the following toxicologic principles:
    (1) Acute and delayed toxicity
    (2) Route of exposure
    (3) Local versus systemic effects
    (4) Dose response
    (5) Synergistic effects

e. Explain how the substance and route of contamination alters triage and decontamination methods.

f. Explain the limitations of field decontamination procedures.

g. Explain the use and limitations of personal protective equipment (PPE) in hazardous material situations.

h. Explain the common signs, symptoms, and treatment for the following substances:
    (1) Corrosives (acids/alkalis)
    (2) Pulmonary irritants (ammonia/chlorine)
    (3) Pesticides (carbamates/organophosphates)
    (4) Chemical asphyxiants (cyanide/carbon monoxide)
    (5) Hydrocarbon solvents (xylene, methlyene chloride)

i. Explain the potential risk associated with invasive procedures performed on contaminated patients.

j. Given a contaminated patient, determine the level of decontamination necessary and the following:
    (1) Level of rescuer PPE
    (2) Decontamination methods
    (3) Treatment
    (4) Transportation and patient isolation techniques

k. Identify local facilities and resources capable of treating patients exposed to hazardous materials.

l. Determine the hazards present to the patient and paramedic given an incident involving hazardous materials.

m. Explain the importance of the following to the risk assessment process:
    (1) Boiling point
    (2) Flammable/ explosive limits
    (3) Flash point
    (4) Ignition temperature
    (5) Specific gravity
    (6) Vapor density
    (7) Vapor pressure
    (8) Water solubility
    (9) Alpha radiation
    (10) Beta radiation
    (11) Gamma radiation

n. Define the toxicologic terms and their use in the risk assessment process:
   (1) Threshold limit value (TLV)
   (2) Lethal concentration and doses (LD)
   (3) Parts per million/billion (ppm/ppb)
   (4) Immediately dangerous to life and health (IDLH)
   (5) Permissible exposure limit (PEL)
   (6) Short term exposure limit (TLV-STEL)
   (7) Ceiling level (TLV-C)

o. Given a specific hazardous material, be able to do the following:
   (1) Research the appropriate information about its physical and chemical characteristics and hazards.
   (2) Suggest the appropriate medical response.
   (3) Determine risk of secondary contamination.

p. Determine the factors that determine where and when to treat a patient to include the following:
   (1) Substance toxicity
   (2) Patient condition
   (3) Availability of decontamination

q. Determine the appropriate level of PPE to include the following:
   (1) Types, application, use, and limitations
   (2) Use of chemical compatibility chart

r. Explain decontamination procedures when functioning in the following modes:
   (1) Critical patient rapid two-step decontamination process
   (2) Non-critical patient eight-step decontamination process

s. Explain specific decontamination procedures.

t. Explain the four most common decontamination solutions used to include the following:
   (1) Water
   (2) Water and tincture of green soap
   (3) Isopropyl alcohol
   (4) Vegetable oil

u. Identify the areas of the body difficult to decontaminate to include the following:
   (1) Scalp/hair
   (2) Ears/ear canals/nostrils
   (3) Axilla
   (4) Finger nails
   (5) Navel
   (6) Groin/buttocks/genitalia
   (7) Behind knees
   (8) Between toes, toe nails

v. Explain the medical monitoring procedures of hazardous material team members to be used both pre- and post-entry, to include the following:
   (1) Vital signs
   (2) Body weight
   (3) General health
   (4) Neurologic status

(5) ECG

w. Explain the factors that influence the heat stress of hazardous material team personnel to include the following:
   (1) Hydration
   (2) Physical fitness
   (3) Ambient temperature
   (4) Activity
   (5) Level of PPE
   (6) Duration of activity

x. Explain the documentation necessary for haz-mat medical monitoring and rehabilitation operations, including the following:
   (1) The substance
   (2) The toxicity and danger of secondary contamination
   (3) Appropriate PPE and suit breakthrough time
   (4) Appropriate level of decontamination
   (5) Appropriate antidote and medical treatment
   (6) Transportation method

y. Given a simulated hazardous substance, use reference material to determine the appropriate actions.

z. Integrate the principles and practices of hazardous materials response in an effective manner to prevent and limit contamination, morbidity, and mortality.

aa. Demonstrate the donning and doffing of appropriate PPE.

bb. Demonstrate an emergency two step decontamination process.

cc. Demonstrate an eight-step decontamination process.

6. Outline the human hazard of crime and violence and the safe operation at crime scenes and other emergencies. (EMS1, EMS14)

a. Explain how EMS providers are often mistaken for the police.

b. Explain specific techniques for risk reduction when approaching the following types of routine EMS scenes:
   (1) Highway encounters
   (2) Violent street incidents
   (3) Residences and “dark houses”

c. Describe warning signs of potentially violent situations.

d. Explain emergency evasive techniques for potentially violent situations, including the following:
   (1) Threats of physical violence
   (2) Fire arms encounters
   (3) Edged weapon encounters

e. Explain EMS considerations for the following types of violent or potentially violent situations:
   (1) Gangs and gang violence
   (2) Hostage/sniper situations
   (3) Clandestine drug labs
   (4) Domestic violence
   (5) Emotionally disturbed people
   (6) Hostage/sniper situations

f. Explain the following techniques: (1) Field “contact and cover” procedures during assessment and care (2) Evasive tactics (3) Concealment techniques g. Describe police evidence considerations and techniques to assist in evidence preservation. h. Demonstrate the following techniques: (1) Field “contact and cover” procedures during assessment and care (2) Evasive tactics (3) Concealment techniques
7. Discuss the following diverse types of ambulance services and how this affects the delivery of advanced pre-hospital care: (EMS14) a. Municipal b. Private c. Volunteer d. Hospital based e. Third service f. Other
8. Demonstrate the necessary qualities of a paramedic supervisor including the following: (EMS1) a. Organizational skills b. Interpersonal skills (1) Verbal skills (2) Written skills c. Conflict/dispute resolution d. Privacy and confidentiality e. Mentorship f. Financial responsibility g. Education of other health-care providers
9. Discuss how regulations and rules affect the paramedic in delivering care including the following: (EMS1) a. Federal regulations and rules b. State regulations and rules c. Regional regulations and rules d. Local regulations and rules
10. Describe how to influence the modification of the regulations and rules that affect the paramedic including the following: (EMS1) a. How a bill becomes a law b. National, state, and local organizational influence on current and new regulations c. Ambulance and fire industry’s influence on current and new regulations d. The local government’s influences on current and new regulations

STANDARDS

National EMS Educational Standards

EMS1 Preparatory
EMS2 Anatomy and Physiology
EMS3 Medical Terminology
EMS4 Pathophysiology
EMS5 Life Span Development
EMS7 Pharmacology
EMS8 Airway Management, Respiration, and Artificial Ventilation
EMS9 Assessment
EMS10 Medicine
EMS11 Shock and Resuscitation
EMS12 Trauma
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)

L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS4 Health Literacy
CS5 Environmental Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy
CS11 ICT Literacy
CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social and Cross-Cultural Skills
CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

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Course Name: Professional Development Seminar

Course Abbreviation: EMS 2923

Classification: Vocational–Technical Core

Description: This course teaches the leadership skills necessary to manage complex situations including patient care, management of the hazardous and crime scene, supervision, mentoring, and leading other personnel. (3 sch: ~~1~~ 2-hr~~.~~ lecture, ~~4~~ 2-hr~~.~~ lab)

~~**Prerequisites:** All first semester courses~~

~~**Competencies and Suggested Objectives:**~~

~~1. Discuss the principles of assessment based management to perform an appropriate assessment and implement the management plan for patients with common complaints.~~
   ~~a. Explain how effective assessment is critical to clinical decision making.~~
   ~~b. Explain how the paramedic's attitude affects assessment and decision making.~~
   ~~c. Explain how uncooperative patients affect assessment and decision making.~~
   ~~d. Explain strategies to prevent labeling and tunnel vision.~~
   ~~e. Develop strategies to decrease environmental distractions.~~
   ~~f. Describe how manpower considerations and staffing configurations affect assessment and decision making.~~
   ~~g. Synthesize concepts of scene management and choreography to simulated emergency calls~~
   ~~h. Explain the roles of the team leader and the patient care person.~~
   ~~i. Explain the rationale for carrying the essential patient care items.~~
   ~~j. When given a simulated call, list the appropriate equipment to be taken to the patient.~~
   ~~k. Explain the general approach to the emergency patient.~~
   ~~l. Explain the general approach, patient assessment, differentials, and management priorities for patients with the following problems:~~
      ~~(1) Chest pain~~
      ~~(2) Medical and traumatic cardiac arrest~~
      ~~(3) Acute abdominal pain~~
      ~~(4) GI bleed~~
      ~~(5) Altered mental status~~
      ~~(6) Dyspnea~~
      ~~(7) Syncope~~
      ~~(8) Seizures~~
      ~~(9) Environmental or thermal problem~~
      ~~(10) Hazardous material or toxic exposure~~
      ~~(11) Trauma or multi-trauma patients~~

~~(12) Allergic reactions~~
~~(13) Behavioral problems~~
~~(14) Obstetric or gynecological problems~~
~~(15) Pediatric patients~~

~~m. Describe how to effectively communicate patient information face to face, over the telephone, by radio, and in writing.~~
~~n. Utilize scenarios to develop high level clinical decision making skills.~~
~~o. Defend the importance of considering differentials in patient care.~~
~~p. Practice the process of complete patient assessment on all patients.~~
~~q. Recognize the importance of presenting the patient accurately and clearly.~~
~~2. Perform as a team leader.~~
~~a. Organize the EMS response team.~~
~~b. Perform a patient assessment.~~
~~c. Provide local/regionally appropriate treatment.~~
~~d. Present cases verbally and in writing given a moulaged and programmed simulated patient.~~
~~3. Perform as a team member.~~
~~a. Assess a programmed patient or mannequin.~~
~~b. Consider differentials.~~
~~c. Make decisions relative to interventions and transportation.~~
~~d. Provide the interventions, patient packaging, and transportation.~~
~~e. As a team, practice various roles for the following common emergencies:~~
~~(1) Chest pain~~
~~(2) Cardiac arrest~~
~~(3) Traumatic arrest~~
~~(4) Medical arrest~~
~~(5) Acute abdominal pain~~
~~(6) GI bleed~~
~~(7) Altered mental status~~
~~(8) Dyspnea~~
~~(9) Syncope~~
~~(10) Seizure~~
~~(11) Thermal/ environmental problem~~
~~(12) Hazardous materials/toxicology~~
~~(13) Trauma~~
~~(a) Isolated extremity fracture (tibia/fibula or radius/ulna)~~
~~(b) Femur fracture~~
~~(c) Shoulder dislocation~~
~~(d) Clavicular fracture or A-C separation~~
~~(e) Minor wound (no sutures required, sutures required, high risk wounds, with tendon and/or nerve injury)~~
~~(f) Spine injury (no neurologic deficit, with neurologic deficit)~~
~~(g) Multiple trauma-blunt~~
~~(h) Penetrating trauma~~
~~(i) Impaled object~~
~~(j) Elderly fall~~

~~(k) Athletic injury~~
~~(l) Head injury (concussion, subdural/epidural)~~
~~(14) Allergic reactions/bites/envenomation~~
~~(a) Local allergic reaction~~
~~(b) Systemic allergic reaction~~
~~(c) Envenomation~~
~~(15) Behavioral~~
~~(a) Mood disorders~~
~~(b) Schizophrenic and delusional disorders~~
~~(c) Suicidal~~
~~(16) Obstetrics/gynecology~~
~~(a) Vaginal bleeding~~
~~(b) Childbirth (normal and abnormal)~~
~~(17) Pediatric~~
~~(a) Respiratory distress~~
~~(b) Fever~~
~~(c) Seizures~~

~~4. Explain the principles of rescue awareness and operations to safely rescue a patient from water, hazardous atmospheres, trenches, highways, and hazardous terrain.~~

~~a. Define the term rescue.~~
~~b. Explain the medical and mechanical aspects of rescue situations.~~
~~c. Explain the role of the paramedic in delivering care at the site of the injury, continuing through the rescue process and to definitive care.~~
~~d. Describe the phases of a rescue operation.~~
~~e. Describe the types of personal protective equipment needed to safely operate in the rescue environment to include:~~
~~(1) Head protection~~
~~(2) Eye protection~~
~~(3) Hand protection~~
~~(4) Personal flotation devices~~
~~(5) Thermal protection/layering systems~~
~~(6) High visibility clothing~~
~~(7) Specialized footwear~~
~~f. Explain the differences in risk between moving water and flat water rescue.~~
~~g. Explain the effects of immersion hypothermia on the ability to survive sudden immersion and self-rescue.~~
~~h. Explain the phenomenon of the cold protective response in cold water drowning situations.)~~
~~i. Identify the risks associated with low head dams and the rescue complexities they pose.~~
~~j. Given a picture of moving water, identify and explain the following features and hazards associated with:~~
~~(1) Hydraulics~~
~~(2) Strainers~~
~~(3) Dams/hydro-electric sites~~

k. Explain why water entry or go techniques are methods of last resort.
l. Explain the rescue techniques associated with reach-throw-row-go.
m. Given a list of rescue scenarios, identify the victim survivability profile and which are rescue versus body recovery situations.
n. Explain the self-rescue position if unexpectedly immersed in moving water.
o. Given a series of pictures, identify which would be considered "confined spaces" and potentially oxygen deficient.
p. Identify the hazards associated with confined spaces and risks posed to potential rescuers to include:
    (1) Oxygen deficiency
    (2) Chemical/toxic exposure/explosion
    (3) Engulfment
    (4) Machinery entrapment
    (5) Electricity
q. Identify components necessary to ensure site safety prior to confined space rescue attempts.
r. Identify the poisonous gases commonly found in confined spaces to include:
    (1) Hydrogen sulfide (H_2S)
    (2) Carbon dioxide ($C0_2$)
    (3) Carbon monoxide (CO)
    (4) Low/high oxygen concentrations ($Fi0_2$)
    (5) Methane (CH_4)
    (6) Ammonia (NH_3)
    (7) Nitrogen dioxide (NO_2)
s. Explain the hazard of cave-in during trench rescue operations.
t. Describe the effects of traffic flow on the highway rescue incident including limited access superhighways and regular access highways.
u. Describe the following techniques to reduce scene risk at highway incidents:
    (1) Apparatus placement
    (2) Headlights and emergency vehicle lighting
    (3) Cones, flares
    (4) Reflective and high visibility clothing
v. Describe the hazards associated with the following auto/truck components:
    (1) Energy absorbing bumpers
    (2) Air bag/supplemental restraint systems
    (3) Catalytic converters and conventional fuel systems
    (4) Stored energy
    (5) Alternate fuel systems
w. Given a diagram of a passenger auto, identify the following structures:
    (1) A, B, C, D posts
    (2) Fire wall
    (3) Unibody versus frame designs

x. ~~Describe methods for emergency stabilization using rope, cribbing, jacks, spare tire, and come-a-longs for vehicles found on their:~~
   (1) ~~Wheels~~
   (2) ~~Side~~
   (3) ~~Roof~~
   (4) ~~Inclines~~
y. ~~Describe the electrical hazards commonly found at highway incidents (above and below ground).~~
z. ~~Explain the difference between tempered and safety glass, identify its locations on a vehicle, and discuss how to break it safely.~~
aa. ~~Explain typical door anatomy and methods to access through stuck doors.~~
bb. ~~Explain SRS or “air bag” systems and methods to neutralize them.~~
cc. ~~Define the following terms:~~
   (1) ~~Low angle~~
   (2) ~~High angle~~
   (3) ~~Belay~~
   (4) ~~Rappel~~
   (5) ~~Scrambling~~
   (6) ~~Hasty rope slide~~
dd. ~~Describe the procedure for Stokes litter packaging for low angle evacuations.~~
ee. ~~Explain the procedures for low angle litter evacuation to include:~~
   (1) ~~Anchoring~~
   (2) ~~Litter/rope attachment~~
   (3) ~~Lowering and raising procedures~~
ff. ~~Explain techniques to be used in non-technical litter carries over rough terrain.~~
gg. ~~Explain non-technical high angle rescue procedures using aerial apparatus.~~
hh. ~~Develop specific skill in emergency stabilization of vehicles and access procedures and an awareness of specific extrication strategies.~~
ii. ~~Explain assessment procedures and modifications necessary when caring for entrapped patients.~~
jj. ~~List the equipment necessary for an “off road” medical pack.~~
kk. ~~Explain specific methods of improvisation for assessment, spinal immobilization, and extremity splinting.~~
ll. ~~Explain the indications, contraindications, and methods of pain control for entrapped patients.~~
mm. ~~Explain the need for and techniques of thermal control for entrapped patients.~~
nn. ~~Explain the pathophysiology of “crush trauma” syndrome.~~
oo. ~~Develop an understanding of the medical issues involved in providing care for a patient in a rescue environment.~~
pp. ~~Develop proficiency in patient packaging and evacuation techniques that pertain to hazardous or rescue environments.~~
qq. ~~Explain the different types of "Stokes" or basket stretchers and the~~

~~advantages and disadvantages associated with each.~~

~~rr. Using cribbing, ropes, lifting devices, spare tires, chains, and hand winches, demonstrate the following stabilization procedures:~~

~~(1) Stabilization on all four wheels~~

~~(2) Stabilization on its side~~

~~(3) Stabilization on its roof~~

~~(4) Stabilization on an incline/embankments~~

~~ss. Using basic hand tools, demonstrate the following:~~

~~(1) Access through a stuck door~~

~~(2) Access through safety and tempered glass~~

~~(3) Access through the trunk~~

~~(4) Access through the floor~~

~~(5) Roof removal~~

~~(6) Dash displacement/roll-up~~

~~(7) Steering wheel/column displacement~~

~~(8) Access through the roof~~

~~tt. Demonstrate methods of "Stokes" packaging for patients being:~~

~~(1) Vertically lifted (high angle)~~

~~(2) Horizontally lifted (low angle)~~

~~(3) Carried over rough terrain~~

~~uu. Demonstrate methods of packaging for patients being vertically lifted without Stokes litter stretcher packaging.~~

~~vv. Demonstrate the following litter carrying techniques:~~

~~(1) Stretcher lift straps~~

~~(2) "Leap frogging"~~

~~(3) Passing litters over and around obstructions~~

~~ww. Demonstrate litter securing techniques for patients being evacuated by aerial apparatus.~~

~~xx. Demonstrate in-water spinal immobilization techniques.~~

~~yy. Demonstrate donning and properly adjusting a PFD.~~

~~zz. Demonstrate use of a throw bag.~~

Prerequisites: A student must be a nationally registered paramedic, as well as a Mississippi certified paramedic; pass a 100-question exam covering the entire paramedic curriculum with 75% accuracy; demonstrate competency in airway, cardiology, IV therapy, and trauma assessment skills; and be currently enrolled in the Associate of Applied Science Program.

Competencies and Suggested Objectives
1. Discuss the need for leadership skills in EMS. (EMS14) i. Define leadership as it is applicable to EMS. j. Describe the challenges of a “street EMT” moving into a leadership role. k. Explain the difference between legal, earned, and moral authority. l. Explain delegation of authority. m. Explain the role of accountability as it is related to an EMS leader. n. Contrast an effective leader with an ineffective leader. o. List positive leadership qualities.

p. List negative leadership qualities.
2. Discuss the various leadership styles an EMS leader may utilize. (EMS14) l. Describe the following leadership styles. m. Describe task and relationship behavior as a leadership style. n. Describe situational leadership. o. Describe autocratic leadership. p. Describe transactional leadership. q. Describe servant leadership. r. Describe participation leadership. s. Describe charismatic leadership. t. Describe laissez-faire leadership. u. Describe bureaucratic leadership. v. Describe transformational leadership.
3. Discuss the importance of ethics in leadership. (EMS9, EMS14) i. Distinguish the difference between ethics and morals. j. Explain values as they apply to an EMS leader. k. Explain integrity as it applies to a EMS leader. l. Discuss the importance of a leader with honesty and integrity. m. Compare the difference between ethical and unethical behavior. n. Discuss the role of the EMS leader in discouraging discrimination and harassment in the workplace. o. Compare objective to subjective ethics. p. Explain how to create an ethical climate in the EMS workplace.
~~7.~~6. Discuss positive interpersonal leadership skills used when interacting with the public. (EMS9, EMS13, EMS14) j. Explain the importance of developing good interpersonal skills as a leader in EMS. k. Describe the importance of listening as an interpersonal skill. l. Explain the importance of empathy as an interpersonal skill. m. Explain professional etiquette and how it affects interpersonal relationships. n. Define empathy as it relates to patients and EMS personnel. o. Explain how the values of the EMS leader and employees can affect the EMS organization. p. Explain how vision can play a major role in an EMS organization. q. Explain how to properly deal with diversity in the workplace. r. Identify steps to resolve conflict.
5. Discuss the positive and negative impact of effective communication. (EMS1) h. Describe the relationship of persuasion with effective communication. i. Explain the three modes of persuasion: ethos, pathos, and logos. j. List characteristics of nonverbal communication. k. Explain the importance of physical space when communicating with patients. l. Explain the importance of active listening when engaged with peers, employees, and patients. m. Explain the importance of developing good written communication skills. n. Describe the importance of written communication skills in EMS.
6. Discuss the psychology of leadership in general and what motivates people to lead and follow. (EMS1, EMS14)

o. Explain the theory of hierarchy as it relates to leaders and followers. p. Describe intrinsic motivation. q. Describe extrinsic motivation. r. Explain the relationship of extrinsic and intrinsic motivation as they relate to leadership in EMS. s. Explain Maslow's hierarchy of needs. t. Categorize Maslow's hierarchy of needs into lower-order and higher-order needs. u. Describe transparency and authenticity. v. Explain how transparency and authenticity are related to EMS. w. Relate the role of empowerment in EMS leadership. x. Explain how manipulation and empowerment are incongruent. y. Contrast the characteristics of a narcissistic leader as opposed to a servant leader. z. Describe the various situations and events that may create stress. aa. List common causes of stress in EMS. bb. List warning signs of stress.
7. Discuss the principles of mentoring along with characteristics synonymous to a good mentor. (EMS1) j. Explain how "delegation" can be used as a mentoring tool to develop employees. k. Describe the role of a mentor in an organization. l. Compare the role of a mentor to that of a preceptor. m. Describe the relationship between a protege and his or her mentor. n. Describe the benefits of mentoring to the protégé. o. Describe the benefits of becoming a mentor in EMS. p. Explain the role of providing feedback in the mentor-protege relationship. q. Identify ways a leader can be a positive role model for employees. r. Explain ways to develop employees into future leaders in EMS.
8. Discuss the role of the EMS leader in promoting quality assurance/quality improvement in the EMS organization. (EMS14) h. Compare differences between blaming and encouraging employees when mistakes are made. i. Describe methods that may be used to encourage employees to change behavior detrimental to the organization. j. Contrast the difference between retaliatory and non-retaliatory consequences. k. Explain the importance of quality assurance/improvement in an EMS system and ways to implement this program. l. Define the relationship of critical-thinking skills with being a leader in EMS. m. Describe the role of the leader performing employee evaluations. n. Explain how to offer constructive criticism to employees.
9. Discuss the challenges associated with making changes in an EMS organization from the attitude of "We've always done it this way" to the attitude of "We're going to try something new to improve what we are doing." (EMS1, EMS14) d. Explain ways an EMS leader can depart from the status quo by fostering positive change within an EMS organization. e. Compare the benefits of change as opposed to continuing with the status quo. f. Describe ways to bring EMS employees on board when there is resistance to change in the organization.

10. Discuss ways to develop and transform an EMS organization into a cohesive team. (EMS1, EMS14)

d. Explain the importance of trust in a EMS team.
e. Describe ways to build trust in an EMS organization.
f. Define ways to turn conflict into positive outcomes.

~~5. Analyze hazardous materials emergencies, call for appropriate resources, and work in the cold zone.~~

~~a. Explain the role of the paramedic/EMS responder in terms of the following:~~
~~(1) Incident size-up~~
~~(2) Assessment of toxicologic risk~~
~~(3) Appropriate decontamination methods~~
~~(4) Treatment of semi-decontaminated patients~~
~~(5) Transportation of semi-decontaminated patients~~

~~b. Recognize a hazardous materials (haz-mat) incident and determine the following:~~
~~(1) Potential hazards to the rescuers, public, and environment~~
~~(2) Potential risk of primary contamination to patients~~
~~(3) Potential risk of secondary contamination to rescuers~~

~~c. Identify resources for substance identification, decontamination, and treatment information including the following:~~
~~(1) Poison control center~~
~~(2) Medical control~~
~~(3) Material safety data sheets (MSDS)~~
~~(4) Reference textbooks~~
~~(5) Computer databases (CAMEO)~~
~~(6) CHEMTREC~~
~~(7) Technical specialists~~
~~(8) Agency for toxic substances and disease registry~~
~~(9) Explain the following terms/concepts:~~
~~(10) Primary contamination risk~~
~~(11) Secondary contamination risk~~
~~(12) Describe the following routes of exposure:~~
~~(a) Topical~~
~~(b) Respiratory~~
~~(c) Gastrointestinal~~
~~(d) Parenteral~~

~~d. Explain the following toxicologic principles:~~
~~(1) Acute and delayed toxicity~~
~~(2) Route of exposure~~
~~(3) Local versus systemic effects~~
~~(4) Dose response~~
~~(5) Synergistic effects~~

~~e. Explain how the substance and route of contamination alters triage and decontamination methods.~~

~~f. Explain the limitations of field decontamination procedures.~~

~~g. Explain the use and limitations of personal protective equipment (PPE) in~~

~~hazardous material situations.~~

~~h. Explain the common signs, symptoms, and treatment for the following substances:~~

~~(1) Corrosives (acids/alkalis)~~

~~(2) Pulmonary irritants (ammonia/chlorine)~~

~~(3) Pesticides (carbamates/organophosphates)~~

~~(4) Chemical asphyxiants (cyanide/carbon monoxide)~~

~~(5) Hydrocarbon solvents (xylene, methlyene chloride)~~

~~i. Explain the potential risk associated with invasive procedures performed on contaminated patients.~~

~~j. Given a contaminated patient, determine the level of decontamination necessary and:~~

~~(1) Level of rescuer PPE~~

~~(2) Decontamination methods~~

~~(3) Treatment~~

~~(4) Transportation and patient isolation techniques~~

~~k. Identify local facilities and resources capable of treating patients exposed to hazardous materials.~~

~~l. Determine the hazards present to the patient and paramedic given an incident involving hazardous materials.~~

~~m. Explain the importance of the following to the risk assessment process:~~

~~(1) Boiling point~~

~~(2) Flammable/ explosive limits~~

~~(3) Flash point~~

~~(4) Ignition temperature~~

~~(5) Specific gravity~~

~~(6) Vapor density~~

~~(7) Vapor pressure~~

~~(8) Water solubility~~

~~(9) Alpha radiation~~

~~(10) Beta radiation~~

~~(11) Gamma radiation~~

~~n. Define the toxicologic terms and their use in the risk assessment process:~~

~~(1) Threshold limit value (TLV)~~

~~(2) Lethal concentration and doses (LD)~~

~~(3) Parts per million/billion (ppm/ppb)~~

~~(4) Immediately dangerous to life and health (IDLH)~~

~~(5) Permissible exposure limit (PEL)~~

~~(6) Short term exposure limit (TLV-STEL)~~

~~(7) Ceiling level (TLV-C)~~

~~o. Given a specific hazardous material, be able to do the following:~~

~~(1) Research the appropriate information about its physical and chemical characteristics and hazards~~

~~(2) Suggest the appropriate medical response~~

~~(3) Determine risk of secondary contamination~~

~~p. Determine the factors which determine where and when to treat a patient~~

~~to include:~~

~~(1) Substance toxicity~~

~~(2) Patient condition~~

~~(3) Availability of decontamination~~

~~q. Determine the appropriate level of PPE to include:~~

~~(1) Types, application, use, and limitations~~

~~(2) Use of chemical compatibility chart~~

~~r. Explain decontamination procedures when functioning in the following modes:~~

~~(1) Critical patient rapid two step decontamination process~~

~~(2) Non-critical patient eight step decontamination process~~

~~s. Explain specific decontamination procedures.~~

~~t. Explain the four most common decontamination solutions used to include:~~

~~(1) Water~~

~~(2) Water and tincture of green soap~~

~~(3) Isopropyl alcohol~~

~~(4) Vegetable oil~~

~~u. Identify the areas of the body difficult to decontaminate to include:~~
~~(1) Scalp/hair~~
~~(2) Ears/ear canals/nostrils~~
~~(3) Axilla~~
~~(4) Finger nails~~
~~(5) Navel~~
~~(6) Groin/buttocks/genitalia~~
~~(7) Behind knees~~
~~(8) Between toes, toe nails~~
~~v. Explain the medical monitoring procedures of hazardous material team members to be used both pre- and post-entry, to include:~~
~~(1) Vital signs~~
~~(2) Body weight~~
~~(3) General health~~
~~(4) Neurologic status~~
~~(5) ECG~~
~~w. Explain the factors which influence the heat stress of hazardous material team personnel to include:~~
~~(1) Hydration~~
~~(2) Physical fitness~~
~~(3) Ambient temperature~~
~~(4) Activity~~
~~(5) Level of PPE~~
~~(6) Duration of activity~~
~~x. Explain the documentation necessary for haz-mat medical monitoring and rehabilitation operations including the following:~~
~~(1) The substance~~
~~(2) The toxicity and danger of secondary contamination~~
~~(3) Appropriate PPE and suit breakthrough time~~
~~(4) Appropriate level of decontamination~~
~~(5) Appropriate antidote and medical treatment~~
~~(6) Transportation method~~
~~y. Given a simulated hazardous substance, use reference material to determine the appropriate actions.~~
~~z. Integrate the principles and practices of hazardous materials response in an effective manner to prevent and limit contamination, morbidity, and mortality.~~
~~aa. Demonstrate the donning and doffing of appropriate PPE.~~
~~bb. Demonstrate an emergency two step decontamination process.~~
~~cc. Demonstrate an eight step decontamination process.~~
~~6. Outline the human hazard of crime and violence and the safe operation at crime scenes and other emergencies.~~
~~a. Explain how EMS providers are often mistaken for the police.~~
~~b. Explain specific techniques for risk reduction when approaching the following types of routine EMS scenes:~~
~~(1) Highway encounters~~

~~(2) Violent street incidents~~
~~(3) Residences and "dark houses"~~
~~c. Describe warning signs of potentially violent situations.~~
~~d. Explain emergency evasive techniques for potentially violent situations, including:~~
~~(1) Threats of physical violence~~
~~(2) Firearms encounters~~
~~(3) Edged weapon encounters~~
~~e. Explain EMS considerations for the following types of violent or potentially violent situations:~~
~~(1) Gangs and gang violence~~
~~(2) Hostage/sniper situations~~
~~(3) Clandestine drug labs~~
~~(4) Domestic violence~~
~~(5) Emotionally disturbed people~~
~~(6) Hostage/sniper situations~~
~~f. Explain the following techniques:~~
~~(1) Field "contact and cover" procedures during assessment and care~~
~~(2) Evasive tactics~~
~~(3) Concealment techniques~~
~~g. Describe police evidence considerations and techniques to assist in evidence preservation.~~
~~h. Demonstrate the following techniques:~~
~~(1) Field “contact and cover” procedures during assessment and care~~
~~(2) Evasive tactics~~
~~(3) Concealment techniques~~
~~7. Discuss the following diverse types of ambulance services and how this affects the delivery of advanced pre-hospital care:~~
~~a. Municipal~~
~~b. Private~~
~~c. Volunteer~~
~~d. Hospital based~~
~~e. Third service~~
~~f. Other~~
~~8. Demonstrate the necessary qualities of a paramedic supervisor including the following:~~
~~a. Organizational skills~~
~~b. Interpersonal skills~~
~~(1) Verbal Skills~~
~~(2) Written Skills~~
~~c. Conflict/dispute resolution~~
~~d. Privacy and confidentiality~~
~~e. Mentorship~~
~~f. Financial responsibility~~

~~g. Education of other healthcare providers~~

~~9. Discuss how regulations and rules affect the paramedic in delivering care including the following:~~

~~a. Federal regulations and rules~~

~~b. State regulations and rules~~

~~c. Regional regulations and rules~~

~~d. Local regulations and rules~~

~~10. Describe how to influence the modification of the regulations and rules which affect the paramedic including the following:~~

~~a. How a bill becomes a law~~

~~b.~~

STANDARDS

National~~, state, and local organizational influence on current and new regulations.~~

~~c. Ambulance and fire industry's influence on current and new regulations.~~

~~d. The local government's influences on current and new regulations.~~

EMS Educational Standards

EMS1 Preparatory
EMS9 Assessment
EMS13 Special Patient Populations
EMS14 EMS Operations

Related Academic ~~Topics~~*Standards*

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend, and take appropriate actions.~~
~~C4 Access, organize, and evaluate information.~~
~~C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.~~
~~C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~
~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~
~~S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment;~~

~~interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~*Workplace Skills*~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~
~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse populations.~~
~~WP5 Selects, applies, and maintains/troubleshoots technology.~~
~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~
~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~
~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~*National Educational Technology Standards for Students*~~

~~T1 Basic operations and concepts~~
~~T2~~R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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21st Century Skills

CS1 Global Awareness
CS2 Financial, Economic, Business, and Entrepreneurial Literacy
CS4 Health Literacy
CS6 Creativity and Innovation
CS7 Critical Thinking and Problem Solving
CS8 Communication and Collaboration
CS9 Information Literacy

CS12 Flexibility and Adaptability
CS13 Initiative and Self-Direction
CS14 Social~~, ethical,~~ and ~~human issues~~Cross-Cultural Skills
~~T3 Technology productivity tools~~
~~T4 Technology communications tools~~
~~T5 Technology research tools~~
~~T6 Technology problem-solving and decision-making tools~~

~~*EMT-Paramedic: National Standard Curriculum*~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, pathophysiology, and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~
~~EMT2 The paramedic student will be able to establish and/or maintain a patient airway, oxygenate, and ventilate a patient.~~
~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~
~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~
~~EMT5 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~
~~EMT6 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~
~~EMT7 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~
~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

RELATED ACADEMIC COURSES

~~**Course Abbreviation:** BIO 2524~~

~~**Classification:** Academic Core~~

~~**Description:** A lecture/laboratory course of the systems listed but not covered in BIO 2514.~~

~~SECTION II:~~

~~RECOMMENDED TOOLS AND EQUIPMENT~~

~~FOR~~

~~POSTSECONDARY EMERGENCY MEDICAL TECHNOLOGY - PARAMEDIC~~

~~RECOMMENDED TOOLS AND EQUIPMENT FOR POSTSECONDARY EMERGENCY MEDICAL TECHNOLOGY CLUSTER~~

CS15 Productivity and Accountability
CS16 Leadership and Responsibility

SUGGESTED REFERENCES

Books

Brophy, J.R. (2009). *Leadership essentials for emergency medical services*. Jones & Bartlett Learning.

Recommended Tools and Equipment

CAPITALIZED ITEMS

39. ~~1.~~ Anatomical Manikin w/removable organs (1 per program)
40. ~~2.~~ ACLS Training Manikin w/remote and recorder (1 per program)
41. ~~3.~~ Chair, stair (1 per program)
42. ~~4.~~ Cot, ambulance (1 per program)
43. ~~5.~~ Defibrillator, automated external, educational (1 per program)
44. ~~6.~~ ECG monitor, defibrillator, portable w/pacing, educational (1 per program)
45. ~~7.~~ Generator, arrhythmia (1 per program)
46. ~~8.~~ Heart model, external/internal (1 per program)
47. ~~9.~~ Intubation manikin, adult (1 per program)
48. ~~10.~~ Manikin, full body, CPR (1 per program)
49. ~~11.~~ Manikin, obstetrical (1 per program)
50. ~~12.~~ Manikin, trauma/burn, full body (1 per program)
51. ~~13.~~ Pulse oximeter [CO2 detector] (2 per program)
52. ~~14.~~ Radio transmitter/receiver, base station (1 per program)
53. ~~15.~~ Radio transmitter/receiver, 2-way portable (2 per program)
54. ~~16.~~ Skeleton, human (replica) (1 per program)
55. ~~17.~~ Ventilator, automatic transport (1 per program)
56. ~~18.~~ Pneumatic anti-shock garment (1 per program)
57. ~~19.~~ Computer w/monitor (1 per 4 students)
58. ~~20.~~ Printer, laser (1 per 2 computers)
59. Manikins, advanced (Adult, child, and neonate - code crisis manikins)
60. Quantitive CO2 monitor
61. 12-lead cardiac monitor/deffibulator with pacing
62. 12-lead simulator
63. IV pumps and poles
64. Neonatoal umbilical cannulation
65. Vascular access device
66. VAD needles
67. Naso/Oro gastric manikin
68. Cricoid manikin
69. CPAP/BiPAP
70. External jugular access device
71. Implanted ports/external ~~&~~and peripheral cath manikin
72. Multi-dooplex model (fetal ~~&~~and peripheral pulses)
73. Broselow pediatric resusitation system
74. Scalp-vein manikin
75. Multi-purpose manikins
76. T.V., color, 31~~"~~ in.

NON-CAPITALIZED ITEMS

56. ~~1.~~ Arm sling (1 per 2 students)
57. ~~2.~~ Bag-Valve-Mask device (1 per 2 students)
58. ~~3.~~ Blanket (1 per stretcher/cot)
59. ~~4.~~ Blood glucose monitor (1 per program)
60. ~~5.~~ Blood pressure cuff (4 per program)
61. ~~6.~~ Cervical collar (4 per program)
62. ~~7.~~ Containers, assorted medication
63. ~~8.~~ Cravats (1 per 2 students)
64. ~~9.~~ Cricothyrotomy device (1 per program)
65. ~~10.~~ FROPVD Flow Restricted Oxygen Powered Ventilation Device
66. ~~11.~~ ECG monitoring cables (2)
67. ~~12.~~ ECG electrodes (1 per program)
68. ~~13.~~ Esophogeal gastric tube airway (2)
69. ~~14.~~ Esophageal obturator airway (2)
70. ~~15.~~ Head immobilizer (CID) (1 per program)
71. ~~16.~~ Immobilization/extrication device (1 per program)
72. ~~17.~~ Intraosseus infusion simulator (1 per program)
73. ~~18.~~ IV training arm ~~&~~ and hand, adult (2 per program)
74. ~~19.~~ IV training arm, pediatric (2 per program)
75. ~~20.~~ Laryngoscope intubation kit (1 per program)
76. ~~21.~~ Spine back board (2)
77. ~~22.~~ Manikin, child, CPR (1 per program)
78. ~~23.~~ Manikin, infant, CPR (1 per program)
79. ~~24.~~ Manikin, intubation, infant (1 per program)
80. ~~25.~~ Manikin, pneumothorax emergency training (1 per program)
81. ~~26.~~ Moulage kit (1 per program)
82. ~~27.~~ Nasal cannula (5)
83. ~~28.~~ Nasopharyngeal airway (2)
84. ~~29.~~ Non-rebreather masks (5)
85. ~~30.~~ Oropharyngeal airway, various sizes
86. ~~31.~~ Oxygen cylinder (2)
87. ~~32.~~ Oxygen regulator and flowmeter (1 per program)
88. ~~33.~~ Pen light (1 per 2 students)
89. ~~34.~~ Pillows (6 per program)
90. ~~35.~~ Pocket mask w/1-way valve and O2 port (2 per program)
91. ~~36.~~ Scissors, trauma (4 per program)
92. ~~37.~~ Sheets, ambulance Cot (2 per program)
93. ~~38.~~ Short spine board (2 per program)
94. ~~39.~~ Simulator, cricothyrotomy (1 per program)
95. ~~40.~~ Simulator, intramuscular injection (1 per program)
96. ~~41.~~ Splint, air, various sizes
97. ~~42.~~ Splint, ladder (1 per program)
98. ~~43.~~ Splint, traction, sager-hare (2)
99. ~~44.~~ Stethoscope (1 per 2 students)

100. ~~45.~~ Stethoscope, dual head (1 per program)
101. ~~46.~~ Straps, various sizes
102. ~~47.~~ Stretcher, scoop (1 per program)
103. ~~48.~~ Suction device, portable (1 per program)
104. ~~49.~~ Syringes, various cc volumes
105. ~~50.~~ Venturi mask (1 per program)
106. Lighted styletts
107. Ear thermometer
108. Opthalmic diagnostic trainer
109. Otic simulator trainer
110. Naso & orgastric tubes

RECOMMENDED INSTRUCTIONAL AIDS

~~Recommend~~It is recommended that ~~teachers~~instructors have access to the following items:

6. ~~1.~~ Screen, projection (1 per program)
7. ~~2.~~ LCD projector (1 per program)
8. ~~3.~~ VCR/DVD (1 per program)
9. ~~4.~~ Computer table (1 per computer)
10. ~~5.~~ ELMO opaque projector

Assessment

Students will be assessed using the *National Registry of Emergency Medical Technicians-Paramedic Exam*. https://www.nremt.org/nremt/about/reg_para_history.aspSUGGESTED REFERENCES: Latest Editions (1 of each per program)

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Appendix A: National EMS Educational Standards

EMB1 Preparatory
EMB2 Anatomy and Physiology
EMB3 Medical Terminology
EMB4 Pathophysiology
EMB5 Life Span Development
EMB6 Public Health
EMB7 Pharmacology
EMB8 Airway Management, Respiration, and Artificial Ventilation
EMB9 Assessment
EMB10 Medicine
EMB11 Shock and Resuscitation
EMB12 Trauma
EMB13 Special Patient Populations
EMB14 EMS Operations

Appendix B: Related Academic Standards[3]

Reading
R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare–contrast, cause–effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Mathematics Computation
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations

Applied Mathematics
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)

Language
L1 Usage (pronoun, tense, subject–verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)

Spelling
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

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[3] CTB/McGraw-Hill LLC. (1994). *Tests of adult basic education, forms 7 and 8.* Monterey, CA: Author.
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Appendix C: 21st Century Skills[4]

CSS1-21st Century Themes

CS1 Global Awareness

4. Using 21st century skills to understand and address global issues
5. Learning from and working collaboratively with individuals representing diverse cultures, religions, and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts
6. Understanding other nations and cultures, including the use of non-English languages

CS2 Financial, Economic, Business, and Entrepreneurial Literacy

4. Knowing how to make appropriate personal economic choices
5. Understanding the role of the economy in society
6. Using entrepreneurial skills to enhance workplace productivity and career options

CS3 Civic Literacy

4. Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
5. Exercising the rights and obligations of citizenship at local, state, national, and global levels
6. Understanding the local and global implications of civic decisions

CS4 Health Literacy

6. Obtaining, interpreting, and understanding basic health information and services and using such information and services in ways that enhance health
7. Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction
8. Using available information to make appropriate health-related decisions

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~~7.~~9. ~~Wiederhold, R. (1999). *Electrocardiography: The*~~Establishing and monitoring personal and ~~*diagnostic leads* (2nd~~ family health goals ~~ed.). Philadelphia: Saunders.~~

~~APPENDIX A:~~

~~RELATED ACADEMIC TOPICS~~

~~APPENDIX A~~

~~RELATED ACADEMIC TOPICS FOR COMMUNICATIONS~~

~~C1 Interpret written material.~~
~~C2 Interpret visual materials (maps, charts, graphs, tables, etc.).~~
~~C3 Listen, comprehend,~~Understanding national and ~~take appropriate actions.~~
~~8.~~10. ~~C4 Access, organize,~~international public health and ~~evaluate information.~~safety issues
~~C5 Use written and/or oral language skills to work cooperatively to solve problems,~~**CS5 Environmental Literacy**

5. Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems.
6. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).
7. Investigate and analyze environmental issues, and make ~~decisions, take~~accurate conclusions about effective solutions.

~~5.~~8. Take individual and collective action towards addressing environmental challenges (e.g., participating in global actions, ~~and reach agreement.~~designing solutions that inspire action on environmental issues).

~~C6~~ CSS2-Learning and Innovation Skills

CS6 Creativity and Innovation

4. Think Creatively
5. Work Creatively with Others
6. Implement Innovations

CS7 Critical Thinking and Problem Solving

5. Reason Effectively
6. Use Systems Thinking
7. Make Judgments and Decisions
8. Solve Problems

CS8 Communication and Collaboration

3. Communicate ~~ideas and information effectively using various oral and written forms for a variety of audiences and purposes.~~ Clearly

~~EXPANDED TOPICS FOR COMMUNICATIONS~~

~~TOPIC C1: Interpret written material.~~

~~C1.01 Read and follow complex written directions.~~
~~C1.02 Recognize common words and meanings associated with a variety of occupations.~~
~~C1.03 Adjust reading strategy to purpose and type of reading.~~
~~C1.04 Use sections of books and reference sources to obtain information.~~
~~C1.05 Compare information from multiple sources and check validity.~~
~~C1.06 Interpret items and abbreviations used in multiple forms.~~

~~C1.07 Interpret short notes, memos, and letters.~~
~~C1.08 Comprehend technical words and concepts.~~
~~C1.09 Use various reading techniques depending on purpose for reading.~~
~~C1.10 Find, read, understand, and use information from printed matter or electronic sources.~~

~~TOPIC C2: Interpret visual materials (maps, charts, graphs, tables, etc.).~~

~~C2.01 Use visuals in written and in oral presentations.~~
~~C2.02 Recognize visual cues to meaning (layout, typography, etc.).~~
~~C2.03 Interpret and apply information using visual materials.~~

~~TOPIC C3: Listen, comprehend, and take appropriate action.~~

~~C3.01 Identify and evaluate orally-presented messages according to purpose.~~
~~C3.02 Recognize barriers to effective listening.~~
~~C3.03 Recognize how voice inflection changes meaning.~~
~~C3.04 Identify speaker signals requiring a response and respond accordingly.~~
~~C3.05 Listen attentively and take accurate notes.~~
~~C3.06 Use telephone to receive information.~~
~~C3.07 Analyze and distinguish information from formal and informal oral presentations.~~

~~TOPIC C4: Access, organize, and evaluate information.~~

~~C4.01 Distinguish fact from opinion.~~
~~C4.02 Use various print and non-print sources for specialized information.~~
~~C4.03 Interpret and distinguish between literal and figurative meaning.~~
~~C4.04 Interpret written or oral communication in relation to context and writer's point of view.~~
~~C4.05 Use relevant sources to gather information for written or oral communication.~~

~~TOPIC C5: Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.~~

~~C5.01 Select appropriate words for communication needs.~~
~~C5.02 Use reading, writing, listening, and speaking skills to solve problems.~~
~~C5.03 Compose inquiries and requests.~~
~~C5.04 Write persuasive letters and memos.~~
~~C5.05 Edit written reports, letters, memos, and short notes for clarity, correct grammar, and effective sentences.~~
~~C5.06 Write logical and understandable statements, phrases, or sentences for filling out forms, for correspondence or reports.~~
~~C5.07 Write directions or summaries of processes, mechanisms, events, or concepts.~~
~~C5.08 Select and use appropriate formats for presenting reports.~~
~~C5.09 Convey information to audiences in writing.~~
~~C5.10 Compose technical reports and correspondence that meet accepted standards for written communications.~~

~~TOPIC C6: Communicate ideas and information using oral and written forms for a variety of audiences and purposes.~~

~~C6.01 Give complex oral instructions.~~
~~C6.02 Describe a business or industrial process/mechanism.~~
~~C6.03 Participate effectively in group discussions and decision making.~~
~~C6.04 Produce effective oral messages utilizing different media.~~
~~C6.05 Explore ideas orally with partners.~~
~~C6.06 Participate in conversations by volunteering information when appropriate and asking relevant questions when appropriate.~~
~~C6.07 Restate or paraphrase a conversation to confirm one's own understanding.~~
~~C6.08 Gather and provide information utilizing different media.~~
~~C6.09 Prepare and deliver persuasive, descriptive, and demonstrative oral presentations.~~

~~RELATED ACADEMIC TOPICS FOR MATHEMATICS~~

~~M1 Relate number relationships, number systems, and number theory.~~
~~M2 Explore patterns and functions.~~
~~M3 Explore algebraic concepts and processes.~~
~~M4 Explore the concepts of measurement.~~
~~M5 Explore the geometry of one-, two-, and three-dimensions.~~
~~M6 Explore concepts of statistics and probability in real world situations.~~
~~M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems~~

~~EXPANDED TOPICS FOR MATHEMATICS~~

~~TOPIC M1: Relate number relationships, number systems, and number theory.~~

~~M1.01 Understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, and scientific notation) in real world and mathematical problem situations.~~
~~M1.02 Develop number sense for whole numbers, fractions, decimals, integers, and rational numbers.~~
~~M1.03 Understand and apply ratios, proportions, and percents in a wide variety of situations.~~
~~M1.04 Investigate relationships among fractions, decimals, and percents.~~
~~M1.05 Compute with whole numbers, fractions, decimals, integers, and rational numbers.~~
~~M1.06 Develop, analyze, and explain procedures for computation and techniques for estimations.~~
~~M1.07 Select and use an appropriate method for computing from among mental arithmetic, paper-and-pencil, calculator, and computer methods.~~
~~M1.08 Use computation, estimation, and proportions to solve problems.~~
~~M1.09 Use estimation to check the reasonableness of results.~~

~~TOPIC M2: Explore patterns and functions.~~

~~M2.01 Describe, extend, analyze, and create a wide variety of patterns.~~
~~M2.02 Describe and represent relationships with tables, graphs, and rules.~~
~~M2.03 Analyze functional relationships to explain how a change in one quantity results in a change in another.~~
~~M2.04 Use patterns and functions to represent and solve problems.~~
~~M2.05 Explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.~~
~~M2.06 Use a mathematical idea to further their understanding of other mathematical ideas.~~
~~M2.07 Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as art, music, and business.~~

~~TOPIC M3: Explore algebraic concepts and processes.~~

~~M3.01 Represent situations and explore the interrelationships of number patterns with tables, graphs, verbal rules, and equations.~~
~~M3.02 Analyze tables and graphs to identify properties and relationships and to interpret expressions and equations.~~
~~M3.03 Apply algebraic methods to solve a variety of real world and mathematical problems.~~

~~TOPIC M4: Explore the concepts of measurement.~~

~~M4.01 Estimate, make, and use measurements to describe and compare phenomena.~~
~~M4.02 Select appropriate units and tools to measure to the degree of accuracy required in a particular situation.~~
~~M4.03 Extend understanding of the concepts of perimeter, area, volume, angle measure, capacity, and weight and mass.~~
~~M4.04 Understand and apply reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs.~~

~~TOPIC M5: Explore the geometry of one-, two-, and three-dimensions.~~

~~M5.01 Identify, describe, compare, and classify geometric figures.~~
~~M5.02 Visualize and represent geometric figures with special attention to developing spatial sense.~~
~~M5.03 Explore transformations of geometric figures.~~
~~M5.04 Understand and apply geometric properties and relationships.~~
~~M5.05 Classify figures in terms of congruence and similarity and apply these relationships.~~

~~TOPIC M6: Explore the concepts of statistics and probability in real world situations.~~

~~M6.01 Systematically collect, organize, and describe data.~~
~~M6.02 Construct, read, and interpret tables, charts, and graphs.~~
~~M6.03 Develop an appreciation for statistical methods as powerful means for decision making.~~
~~M6.04 Make predictions that are based on exponential or theoretical probabilities.~~
~~M6.05 Develop an appreciation for the pervasive use of probability in the real world.~~

~~TOPIC M7: Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.~~

~~M7.01 Use computers and/or calculators to process information for all mathematical situations.~~
~~M7.02 Use problem-solving approaches to investigate and understand mathematical content.~~

~~M7.03 Formulate problems from situations within and outside mathematics.~~
~~M7.04 Generalize solutions and strategies to new problem situations.~~

~~RELATED ACADEMIC TOPICS FOR SCIENCE~~

~~S1 Explain the Anatomy and Physiology of the human body.~~
~~S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.~~
~~S3 Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.~~
~~S4 Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.~~
~~S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~
~~S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~
~~S7 Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance, population genetics, the structure and function of DNA, and current applications of DNA technology.~~
~~S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~EXPANDED TOPICS FOR SCIENCE~~

~~TOPIC S1: Explain the Anatomy and Physiology of the human body.~~

~~S1.01 Recognize common terminology and meanings.~~
~~S1.02 Explore the relationship of the cell to more complex systems within the body.~~
~~S1.03 Summarize the functional anatomy of all the major body systems.~~
~~S1.04 Relate the physiology of the major body systems to its corresponding anatomy.~~
~~S1.05 Compare and contrast disease transmission and treatment within each organ system.~~
~~S1.06 Explore the usage of medical technology as related to human organs and organ systems.~~
~~S1.07 Explain the chemical composition of body tissue.~~

~~TOPIC S2: Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.~~

~~S2.01 Identify the major types and structures of plants, viruses, monera, algae protista, and fungi.~~

~~S2.02 Explain sexual and asexual reproduction.~~
~~S2.03 Describe the ecological importance of plants as related to the environment.~~
~~S2.04 Analyze the physical chemical and behavioral process of a plant.~~

~~TOPIC S3: Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.~~

~~S3.01 Explain the morphology, anatomy, and physiology of animals.~~
~~S3.02 Describe the characteristics, behaviors, and habitats of selected animals.~~

~~TOPIC S4: Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.~~

~~S4.01 Examine minerals and their identification, products of the rock cycle, byproducts of weathering, and the effects of erosion.~~
~~S4.02 Relate the Hydrologic Cycle to include groundwater its zones, movement, and composition; surface water systems, deposits, and runoff.~~
~~S4.03 Consider the effects of weather and climate on the environment.~~
~~S4.04 Examine the composition of seawater; wave, tides, and currents; organisms, environment, and production of food; energy, food and mineral resources of the oceans.~~

~~TOPIC S5: Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.~~

~~S5.01 Examine the science of chemistry to include the nature of matter, symbols, formulas and nomenclature, and chemical equations.~~
~~S5.02 Identify chemical reactions including precipitation, acids-bases, and reduction-oxidation.~~
~~S5.03 Explore the fundamentals of chemical bonding and principles of equilibrium.~~
~~S5.04 Relate the behavior of gases.~~
~~S5.05 Investigate the structure, reactions, and uses of organic compounds; and investigate nuclear chemistry and radiochemistry.~~

~~TOPIC S6: Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.~~

~~S6.01 Examine fundamentals of motion of physical bodies and physical dynamics.~~
~~S6.02 Explore the concepts and relationships among work, power, and energy.~~
~~S6.03 Explore principles, characteristics, and properties of electricity, magnetism, light energy, thermal energy, and wave energy.~~
~~S6.04 Identify principles of modern physics related to nuclear physics.~~

~~TOPIC S7: Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance; population genetics, the structure and function of DNA, and current applications of DNA technology.~~

~~S7.01 Examine principles, techniques, and patterns of traits and inheritance in organisms.~~
~~S7.02 Apply the concept of population genetics to both microbial and multicellular organisms.~~
~~S7.03 Identify the structure and function of DNA and the uses of DNA technology in science, industry, and society.~~

~~TOPIC S8: Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.~~

~~S8.01 Apply the components of scientific processes and methods in classroom and laboratory investigations.~~
~~S8.02 Observe and practice safe procedures in the classroom and laboratory.~~
~~S8.03 Demonstrate proper use and care for scientific equipment.~~
~~S8.04 Investigate science careers, and advances in technology.~~
~~S8.05 Communicate results of scientific investigations in oral, written, and graphic form.~~

~~APPENDIX B:~~

~~WORKPLACE SKILLS~~

~~WORKPLACE SKILLS FOR THE 21ST CENTURY~~

~~WP1 Allocates resources (time, money, materials and facilities, and human resources).~~

~~WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.~~

~~WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.~~

~~WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.~~

~~WP5 Selects, applies, and maintains/troubleshoots technology.~~

~~WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.~~

~~WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.~~

~~WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.~~

~~APPENDIX C:~~

~~NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS FOR STUDENTS~~

4. ~~National Educational~~ Collaborate with Others

CSS3-Information, Media and Technology ~~Standards for Students~~Skills

~~T1 Basic operations~~**CS9 Information Literacy**

3. Access and ~~concepts~~ Evaluate Information
   - ~~Students demonstrate a sound understanding of the nature and operation of technology systems.~~
   - ~~Students are proficient in the use of technology.~~
4. ~~T2~~Use and Manage Information

CS10 Media Literacy

3. Analyze Media
4. Create Media Products

CS11 ICT Literacy

2. Apply Technology Effectively

CSS4-Life and Career Skills

CS12 Flexibility and Adaptability

3. Adapt to Change
4. Be Flexible

CS13 Initiative and Self-Direction

4. Manage Goals and Time
5. Work Independently
6. Be Self-directed Learners

CS14 Social~~, ethical,~~ **and** ~~human issues~~ **Cross-Cultural Skills**

- ~~Students understand the ethical, cultural, and societal issues related to technology.~~
- ~~Students practice responsible use of technology systems, information, and software.~~
- ~~Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.~~

~~T3 Technology productivity tools~~

- ~~Students use technology tools to enhance learning, increase productivity, and promote creativity.~~
- ~~Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.~~

~~T4 Technology communications tools~~

- ~~Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.~~
- ~~Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.~~

~~T5 Technology research tools~~

- ~~Students use technology to locate, evaluate, and collect information from a variety of sources.~~
- ~~Students use technology tools to process data and report results.~~
- ~~Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.~~

~~T6 Technology problem-solving and decision-making tools~~

- ~~Students use technology resources for solving problems and making informed decisions.~~
- ~~Students employ technology in the development of strategies for solving problems in the real world.~~

~~APPENDIX D:~~

~~EMERGENCY MEDICAL TECHNOLOGY STANDARDS~~

~~Standards based on the EMT-Paramedic: National Standard Curriculum~~

~~EMT1 The paramedic student will understand the roles and responsibilities of a Paramedic within an EMS system, apply the basic concepts of development, pathophysiology and pharmacology to assessment and management of emergency patients, be able to properly administer medications, and communicate effectively with patients.~~

~~EMT2 The paramedic student will be able to establish and/or maintain a patient airway, oxygenate, and ventilate a patient.~~

~~EMT3 The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient, and communicate the findings to others.~~

~~EMT4 The paramedic student will be able to integrate pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient.~~

~~EMT5 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the medical patient.~~

~~EMT6 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for neonatal, pediatric, and geriatric patients, diverse patients, and chronically ill patients.~~

~~EMT7 The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for patients with common complaints.~~

~~EMT8 The paramedic student will be able to safely manage the scene of an emergency.~~

~~APPENDIX E:~~

~~STUDENT COMPETENCY PROFILE~~

~~STUDENT COMPETENCY PROFILE~~
~~EMERGENCY MEDICAL TECHNOLOGY - PARAMEDIC~~

~~Student: _____~~

~~This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.~~
~~In the blank before each competency, place the date on which the student mastered the competency.~~

~~Fundamentals of Pre-hospital Care (EMT 1122)~~

_____ ~~1. Discuss roles and responsibilities within an EMS system, and how these roles and responsibilities differ from other levels of providers.~~
_____ ~~2. Comprehend the importance of personal wellness in EMS and serve as a healthy role model for peers.~~
_____ ~~3. Explain the implementation of primary injury prevention activities as an effective way to reduce death, disabilities, and health care costs.~~
_____ ~~4. Discuss the legal issues that impact decisions made in the out-of-hospital environment.~~
_____ ~~5. Explain the role that ethics plays in decision making in the out-of-hospital environment.~~
_____ ~~6. Integrate the principles of therapeutic communication to effectively communicate with any patient while providing care.~~
_____ ~~7. Integrate the physiological, psychological, and sociological changes throughout human development with assessment and communication strategies for patients of all ages.~~

_____

~~Airway Management and Ventilation (EMT 1315)~~

_____

_____ ~~1. Explain how to establish and maintain a patent airway.~~
_____ ~~2. Demonstrate how to maintain a patent airway.~~

_____

~~Patient Assessment (EMT 1415)~~

_____

_____ ~~1. Discuss techniques to obtain a medical history from a patient.~~
_____ ~~2. Explain the pathophysiological significance of physical exam findings.~~
_____ ~~3. Discuss the principles of history taking and techniques of physical exam to perform a patient assessment.~~
_____ ~~4. Demonstrate the process of clinical decision making to use the assessment findings to help form a field impression.~~
_____ ~~5. Outline an accepted format for dissemination of patient information in verbal form, either in person or over the radio.~~
_____ ~~6. Effectively document the essential elements of patient assessment, care, and transport.~~

~~EMS Special Considerations (EMT 1423)~~

_____ 1. ~~Explain the pathophysiological principles and the assessment findings to formulate and implement a treatment plan for the geriatric patient.~~
_____ 2. ~~Discuss the assessment findings to formulate a field impression and implement a treatment plan for the patient who has sustained abuse or assault.~~
_____ 3. ~~Explain the pathophysiological and psychosocial principles to adapt the assessment and treatment plan for diverse patients and those who face physical, mental, social, and financial challenges.~~
_____ 4. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the acute deterioration of a chronic care patient.~~
_____ 5. ~~Discuss safe, empathetic competence in caring for patients with behavioral emergencies.~~

~~EMS Clinical Internship I (EMT 1513)~~

_____ 1. ~~Practice basic level EMT skills.~~
_____ 2. ~~Practice advanced EMT skills.~~
_____ 3. ~~Apply ACLS skills.~~
_____ 4. ~~Perform comprehensive advanced level patient assessment and management for the OB/GYN, pediatric, and neonate patients.~~

~~EMS Clinical Internship II (EMT 1523)~~

_____ 1. ~~Critique basic level EMT skills.~~
_____ 2. ~~Critique advanced EMT skills.~~
_____ 3. ~~Practice ACLS skills.~~
_____ 4. ~~Practice comprehensive advanced level patient assessment and management for the OB/GYN, pediatric, and neonate patients.~~
_____ 5. ~~Perform comprehensive advanced level patient assessment and management for the medical patient in critical care units.~~

~~Pre-hospital Pharmacology (EMT 1613)~~

_____ 1. ~~Explain the pathophysiological principles of pharmacology and the assessment findings to formulate a field impression and implement a pharmacologic management plan.~~
_____ 2. ~~Integrate pathophysiological principles of pharmacology and assessment findings to formulate a field impression and implement a pharmacologic management plan.~~
_____ 3. ~~Demonstrate vascular access and medication administration.~~

~~Pre-hospital Cardiology (EMT 1825)~~

_____ 1. ~~Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.~~
_____ 2. ~~Demonstrate the pathophysiology principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.~~
_____ 3. ~~Explain pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with chronic cardiovascular disease.~~
_____ 4. ~~Demonstrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatments plan for the patient with chronic cardiovascular disease.~~
_____ 5. ~~Demonstrate correct application and interpretation of 12-lead ECGs.~~

_____

~~Pre-hospital OB/GYN (EMT 2412)~~

_____

_____ 1. ~~Explain gynecological principles and assessment findings to formulate a field impression and implement the management plan for the patient experiencing a gynecological emergency.~~
_____ 2. ~~Explain the anatomy and physiology of the female reproductive system to the assessment and management of a patient experiencing normal or abnormal labor.~~

_____

~~Pre-hospital Pediatrics (EMT 2423)~~

_____

_____ 1. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for a neonatal patient.~~
_____ 2. ~~Explain the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the pediatric patient.~~

_____

~~EMS Field Internship I (EMT 2552)~~

_____

_____ 1. ~~Perform EMT-Paramedic activities.~~
_____ 2. ~~Demonstrate professional behavior.~~

_____

~~EMS Field Internship II (EMT 2564)~~

_____

_____ 1. ~~Coordinate the following EMT-Paramedic activities.~~
_____ 2. ~~Exemplify professional behavior.~~

~~Pre-hospital Trauma (EMT 2714)~~

1. ~~Discuss the principles of kinematics to enhance the patient assessment and predict the likelihood of injuries based on the patient's mechanism of injury.~~
2. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with shock or hemorrhage.~~
3. ~~Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with soft tissue trauma.~~
4. ~~Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement the management plan for the patient with a burn injury.~~
5. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the trauma patient with a suspected head injury.~~
6. ~~Explain the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a suspected spinal injury.~~
7. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for a patient with a thoracic injury.~~
8. ~~Explain the pathophysiologic principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with suspected abdominal trauma.~~
9. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement the treatment plan for the patient with a musculoskeletal injury.~~

~~Pre-hospital Medical Care (EMT 2855)~~

1. ~~iscuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory problems.~~
2. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic or anaphylactic reaction.~~
3. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterologic problem.~~
4. ~~Discuss the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a renal or urologic problem.~~
5. ~~Discuss the pathophysiological principles of the hematopoietic system to formulate a field impression and implement a treatment plan.~~

_____ 6. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a neurological problem.~~

_____ 7. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an endocrine problem.~~

_____ 8. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a toxic exposure.~~

_____ 9. ~~Discuss the pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with an environmentally induced or exacerbated medical or traumatic condition.~~

_____

~~EMS Team Management (EMT 2913)~~

_____

_____ 1. ~~Discuss the principles of assessment based management to perform an appropriate assessment and implement the management plan for patients with common complaints.~~

_____ 2. ~~Perform as a team leader.~~

_____ 3. ~~Perform as a team member.~~

_____ 4. ~~Explain the principles of rescue awareness and operations to safely rescue a patient from water, hazardous atmospheres, trenches, highways, and hazardous terrain.~~

_____ 5. ~~Analyze hazardous materials emergencies, call for appropriate resources, and work in the cold zone.~~

_____ 6. ~~Outline the human hazard of crime and violence and the safe operation at crime scenes and other emergencies.~~

_____ 7. ~~Discuss the diverse types of ambulance services and how this affects the delivery of advanced pre-hospital care.~~

_____ 8. ~~Demonstrate the necessary qualities of a paramedic supervisor.~~

_____ 9. ~~Discuss how regulations and rules affect the paramedic in delivering care.~~

_____ 10. ~~Describe how to influence the modification of the regulations and rules which affect the paramedic.~~

~~APPENDIX F:~~

~~BASELINE COMPETENCIES~~

~~BASELINE COMPETENCIES FOR EMERGENCY MEDICAL TECHNOLOGY - PARAMEDIC~~

~~The following competencies and suggested objectives are taken from the publication *Mississippi Curriculum Framework for Allied Health*. These competencies and objectives represent the baseline which was used to develop the community/junior college Emergency Medical Technology courses. Students enrolled in postsecondary courses should either (1) have documented mastery of these competencies, or (2) be provided with these competencies before studying the advanced competencies in the Emergency Medical Technology program.~~

~~Baseline competencies may be integrated into existing courses in the curriculum or taught as special "Introduction" courses. The "Introduction" courses may be taught for up to six semester hours of institutional credit and may be divided into two courses. If the Baseline Competencies are to be taught as "Introduction" courses, each course should be at least 3 credit hours. The following course number(s) and description should be used:~~

~~**Course Name(s):** Introduction to Emergency Medical Technology, Introduction to Emergency Medical Technology I, or Introduction to Technology II~~

~~**Course Abbreviation(s):** EMT 100(3-6), EMT 1013, EMT 1023~~

~~**Classification:** Vocational-Technical Core~~

~~**Description:** These courses contain the baseline competencies and suggested objectives from the high school Allied Health curriculum which directly relate to the community college Emergency Medical Technology program. The courses are designed for students entering the community college who have had no previous training or documented experience in the field. (3-6 semester hours based upon existing skills for each student. May be divided into 2 courses for a maximum total of 6 hours of institutional credit.)~~

~~**Competencies and Suggested Objectives:**~~

~~1. Review material related to course and professional organizations.~~
   ~~a. Identify student and course expectations.~~
   ~~b. Identify allied health professional student organizations and their roles in individual career development.~~
   ~~c. Compare the timeline of medical history.~~
~~2. Recognize safety procedures and policies.~~
   ~~a. Describe basic safety procedures.~~
   ~~b. Describe accident prevention methods and disaster plans of the local school district.~~
   ~~c. Discuss a safe and clean environment.~~

~~d. Follow state and facility guidelines, including dress requirements for clinical-type experiences.~~

~~3. Explain effective communication skills.~~

~~a. Identify the main factors required for the communication process.~~

~~b. Identify factors which can interfere with the communication process.~~

~~c. Demonstrate effective teamwork skills.~~

~~d. Explore professional literature and medical references.~~

~~4. Introduce careers in the health care industry.~~

~~a. Introduce careers in health care information and administration.~~

~~b. Introduce careers in direct health care.~~

~~c. Introduce careers in medical therapy.~~

~~d. Introduce careers in diagnostic health care.~~

~~5. Discuss education and credentials required for health care careers.~~

~~a. Discuss educational levels for health careers, including certification, associate degree, bachelor's degree, master's degree, and doctoral degree.~~

~~b. Compare the credentials needed for careers in health care, including certification, registration, and licensure.~~

~~6. Discuss professional ethics.~~

~~a. Explain professional ethics.~~

~~b. Discuss confidentiality.~~

3. ~~c. Discuss HIPAA, the Health Insurance Portability~~Interact Effectively with Others

4. Work Effectively in Diverse Teams

CS15 Productivity and Accountability ~~Act of 1996.~~

~~7. Discuss legal responsibility and client's rights.~~

~~a. Explain torts and legal responsibility.~~

~~b. Identify ways to promote clients' rights and privacy.~~

~~c. Discuss the requirement for health care workers to undergo a background check.~~

~~8. Explain standard precautions.~~

~~a. Explain importance of standard precautions in life practices and health care.~~

~~b. Explain the state and federal government's role in standard precautions.~~

~~c. Relate standard precautions to the transmission of infectious diseases including HIV, AIDS, HBV, and TB.~~

~~9. Utilize standard precautions.~~

~~a. Demonstrate hand-washing technique.~~

~~b. Demonstrate donning and removing clean gloves.~~

~~10. Perform basic emergency procedures.~~

~~a. Explain first aid procedures for sudden illness.~~

~~b. Explain first aid procedures for accidents.~~

~~11. Perform advanced emergency procedures.~~

~~a. Perform CPR.~~

~~b. Demonstrate first aid for an obstructed airway.~~

~~12. Explain medical terminology.~~

a. ~~Spell designated medical terms correctly.~~
b. ~~Demonstrate the use of medical references to spell medical terms correctly.~~
c. ~~Define and divide medical terms into root words, prefixes, and suffixes.~~

13. ~~Recognize and use medical terminology.~~
    a. ~~Interpret the common medical abbreviations and symbols including meanings and uses.~~
    b. ~~Demonstrate the use of medical terms and abbreviations in reading, speaking, interpreting, and writing simulated medical records.~~
14. ~~Review the relationship among cells, tissues, organs, and systems.~~
    a. ~~Review the main parts of a cell.~~
    b. ~~Review the functions of the main parts of a cell.~~
    c. ~~Compare types of tissues and their relationships to body organs and systems.~~
15. ~~Identify the body planes, directions, and cavities.~~
    a. ~~Identify the names of the planes and the directional terms.~~
    b. ~~Locate the body cavities.~~
    c. ~~Identify the body organs in each cavity.~~
    d. ~~Describe the abdominal regions.~~
16. ~~Interpret the basic structures and functions of the integumentary system.~~
    a. ~~Identify the parts of the integumentary system.~~
    b. ~~Explain the functions of the integumentary system.~~
    c. ~~Discuss related diseases and disorders.~~
17. ~~Interpret the basic structures and functions of the muscular system.~~
    a. ~~Identify major muscles.~~
    b. ~~Explain the function of the muscles.~~
    c. ~~Discuss related diseases and disorders.~~
    d. ~~Demonstrate active range of motion exercises and indications for use.~~
18. ~~Interpret the basic structure and function of the skeletal system.~~
    a. ~~Identify the bones of the body.~~
    b. ~~Explain functions of the skeletal system.~~
    c. ~~Discuss related diseases and disorders.~~
    d. ~~Demonstrate procedures for patient transfer using a stretcher, wheelchair, or a pneumatic lift.~~
19. ~~Interpret the basic structures and functions of the circulatory system.~~
    a. ~~Identify components of blood and their function.~~
    b. ~~Identify the types of blood vessels and the action of each.~~
    c. ~~Identify the anatomy of the heart.~~
    d. ~~Explain the flow of blood through the heart.~~
    e. ~~Discuss related diseases and disorders.~~
20. ~~Measure vital signs.~~
    a. ~~Measure oral temperature.~~
    b. ~~Explain procedures for measuring axillary, rectal, and tympanic temperatures.~~
    c. ~~Identify the body's pulse points.~~
    d. ~~Demonstrate radial pulse measurement.~~

e. ~~Measure blood pressure.~~

21. ~~Interpret the basic structures of the respiratory system.~~
    a. ~~Identify the structures of the respiratory system.~~
    b. ~~Discuss related diseases and disorders.~~
    c. ~~Auscultate lung sounds.~~
22. ~~Interpret the basic functions of the respiratory system.~~
    a. ~~Discuss how gas exchange occurs in the lungs.~~
    b. ~~Recognize factors that cause respiratory disorders.~~
    c. ~~Count respirations.~~
23. ~~Interpret the basic structures and functions of the digestive system.~~
    a. ~~Identify organs of the digestive system.~~
    b. ~~Discuss the functions of organs of the digestive system.~~
    c. ~~Discuss related diseases and disorders.~~
24. ~~Interpret the basic structures and functions of the urinary system.~~
    a. ~~Identify structures of the urinary system.~~
    b. ~~State the functions of each structure of the urinary system.~~
    c. ~~Discuss related diseases and disorders.~~
25. ~~Interpret the basic structures and functions of the nervous system.~~
    a. ~~Identify the major structures and functions of the nervous system.~~
    b. ~~Recognize procedures for neurological exam.~~
    c. ~~Perform neurological exams.~~
    d. ~~Discuss related diseases and disorders.~~
26. ~~Interpret basic structure and functions of the sensory systems.~~
    a. ~~Label the basic structures of the sensory organs.~~
    b. ~~Identify the functions of the sensory organs.~~
27. ~~Interpret the basic structures and functions of the female reproductive system.~~
    a. ~~Identify the major structures and functions of the female reproductive system.~~
    b. ~~Discuss diseases and disorders of the female reproductive system.~~
    c. ~~Discuss the procedures of a breast exam.~~
    d. ~~Perform breast exam on model in lab.~~
28. ~~Interpret the basic structures and functions of the male reproductive system.~~
    a. ~~Identify major structures and functions of the male reproductive system.~~
    b. ~~Discuss diseases and disorders of the male reproductive system.~~
    c. ~~Discuss procedures of a testicular exam.~~
    d. ~~Perform testicular exam on model in lab.~~
29. ~~Interpret the basic structures of the endocrine system.~~
    a. ~~Define key terms related to the endocrine system.~~
    b. ~~Label structures of the endocrine system.~~
30. ~~Interpret the basic functions of the endocrine system.~~
    a. ~~Analyze the actions of hormones on various body functions.~~
    b. ~~Recognize diseases and disorders of the endocrine system.~~
31. ~~Discuss stages of growth and development.~~
    a. ~~Review the reproductive system.~~

~~b. Identify physical, mental, emotional, and social development characteristics of each of Erikson's stages of development from infancy through late adulthood.~~
~~c. Identify Maslow's Hierarchy of Human Needs.~~
~~d. Discuss cultural practices that affect needs.~~
~~32. Describe careers available in the field of emergency health care.~~
~~a. Compare job descriptions in the field of emergency health care.~~
~~b. Differentiate educational levels and credentials required.~~
~~33. Explain procedures related to emergency health care.~~
~~a. Qualify for certification for CPR at the professional health care level.~~
~~b. Review first aid skills.~~
~~c. Discuss triage for medical emergency health care.~~

3. Manage Projects
4. Produce Results

CS16 Leadership and Responsibility

3. Guide and Lead Others
4. Be Responsible to Others