Program Profile
Primary Care Paramedic

MEDAVIE
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ÉduSanté

Property of:
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50 Eileen Stubbs Avenue, Unit 154
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Contents

Resource Materials

Paramedic Textbook:	Emergency Care in the Streets 8e, Caroline with Navigate 2 Advantage Access
Medical Terminology:	Medical Terminology, An Illustrated Guide 9e, Cohen and Jones with Navigate 2 Advantage Access
Anatomy Textbook:	Anatomy and Physiology for the Prehospital Provider 2e, Elling with Navigate 2 Advantage Access

Module 01

Program Orientation

Module 01 (Program Orientation)

With this module the student will examine the development of EMS throughout history to the present day. The student will also focus on the safe work environment while examining Occupational Health and Safety as described by Joint Health and Safety Committee as well as completing WHMIS training. Focusing on the accountability and responsibility of his/her own behaviours, the students will discuss harassment in the classroom and workplace and get information about the harassment resolution process.

Contents

Module 01 NOCP References

Area 3.0 (Health and Safety)

Time Requirements:

Didactic:	Theoretical	12
	Self-Directed	2
	In-class Total	14

Reference Materials: Module Slide Sets
Learning Management System Resources
WHMIS Online Training Module (includes online evaluation)
Internet

Section 01 WHMIS

1. Outline the responsibility of the employer and employee for safety.
2. Describe the three levels of legislation involved in safety, and state which are responsible for: (NOCP 3.3.e)
    a. WHMIS
    b. Fire
    c. Waste disposal
3. List the essential components of personal safety with examples of how each contributes to a safe work environment.
4. List the three components of WHMIS.
5. State who is responsible for providing MSDS and, give an overview of the type of information contained, and state how MSDS is used in the workplace.
6. Identify the following WHMIS symbols:
    a. Compressed gas
    b. Flammable and combustible
    c. Oxidizing material
    d. Poisonous and infectious material
    e. Immediate and serious toxic effects
    f. Other toxic effects
    g. Biohazardous infectious material
    h. Corrosive material
    i. Dangerously reactive material
7. Differentiate between a supplier label and a workplace label.
8. Discuss the supplier and workplace labels, style, required content, exceptions, decanting:
    a. The Material Safety Data Sheet (MSDS)
    b. Product information
    c. Hazardous ingredients
    d. Physical data
    e. Toxicological
    f. Fire / Explosion
    g. Preventive measures
    h. Reactivity data
    i. First aid
    j. Preparation
9. Describe the employer and employee responsibility for WHMIS education.
10. Identify and explain personal protection symbols.
11. State the jurisdiction responsible for the use, storage and shipping of radioactive material.
12. Name the regulations governing the transportation of dangerous goods and state who in a health care facility needs be familiar with them.
13. Apply regulations. (NOCP 3.3.e)

Section 02 Occupational Health and Safety

1. Describe what is Occupational Health and Safety as it relates to paramedicine
2. Describe the roles of OHS in the workplace
3. Describe the responsibilities of the following in terms of providing a safe workplace:
    a. Government
    b. Employer
    c. Employee
4. Discuss the Internal Responsibility System in Canada
5. Discuss the Paramedic's rights as described under the Occupational Health and Safety Act in Canada
6. Describe how to address safety concerns in the workplace
7. Describe the right to refuse work
8. Describe when the paramedic may not refuse work as outlined in the Occupation Health and Safety Act in Canada

Section 03 Violence and Harassment in the Workplace

1. Define harassment and discrimination and accommodation as outlined by the Canadian Human Rights Commission
2. Be aware of the rights of an individual if they are:
    a. Being harassed
    b. Being accused
3. Be aware of the complaint process and resolution process used by Medavie HealthEd.

Section 04 History of EMS

1. Understand the historical progression of EMS in Canada and other countries
2. Understand the transition of war time medicine to civilian practice in relation to EMS
3. Identify the key figures involved in the development of EMS worldwide, as well as the evolutionary change that has occurred within EMS.
4. Understand some of the significant changes to EMS as a result of:
    a. Public perception
    b. Governmental changes
    c. Evidence based practice

Module 02

Foundations of Paramedicine

Module 02 (Foundations of Paramedicine)

With this module, the student will examine the Emergency Medical Services (EMS) system and their role within it. Paramedics are a part of a complex health care system made up of personnel, equipment, and resources established to deliver aid and emergency medical care to the community. It comprises of both prehospital and in-hospital care. The roles and responsibilities of the paramedic in this system have changed dramatically in the past 10 years and paramedicine has branched into numerous areas of healthcare from the traditional role to providing community support in a clinic. Prehospital care is an enormous responsibility for which the paramedic must be mentally, physically, and emotionally prepared.

Contents

Module 02 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Time Requirements:

Didactic:	Theoretical	18
	Evaluations	1.5
	In-class Total	19.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Professionalism

1. Description of the profession
2. Define professional
3. Identify and apply appropriate dress for situation and environment. (NOCP 1.1.c)
4. Discuss the common attributes of being a professional.
5. Identify and apply characteristics of appropriate appearance and personal hygiene. (NOCP 1.1.c)
6. Identify characteristics of personal hygiene. (NOCP 1.1.c)
7. Describe how professionalism applies to the paramedic while on and off duty.
8. Acknowledge appearance and personal hygiene. (NOCP 1.1.c)
9. Value importance of leadership. (NOCP 1.6.c)
10. Define “patient advocacy.” (NOCP 1.1.j)
11. Discuss situations where patient advocacy is required. (NOCP 1.1.j)
12. Value patient advocacy. (NOCP 1.1.j)
13. Integrate patient advocacy into patient care. (NOCP 1.1.j)
14. Understand the importance of and promote patient advocacy. (NOCP 1.1.j)
15. Discuss “accountability.”
16. Define respect. (NOCP 2.4.a)
17. Value respect in patient care (NOCP 2.4.a)
18. List examples of ways to demonstrate respect. (NOCP 2.4.a)
19. Demonstrate behaviour that is respectful of patients. (NOCP 2.4.a)
20. Identify cultural differences that affect the demonstration of respect. (NOCP 2.4.a)
21. Adjust actions as appropriate, consistent with others expectations of respectful behaviour (NOCP 2.4.a)
22. Define “empathy”. (NOCP 2.4.b)
23. Understand the value of empathy and compassion as it pertains to patient care. (NOCP 2.4.b)
24. Demonstrate empathy and compassion. (NOCP 2.4.b)
25. Define “compassion”. (NOCP 2.4.b)
26. Define “sincerity”
27. Define “sympathy”. (NOCP 2.4.b)
28. Discuss “dignity”. (NOCP 1.1.a)
29. Identify cultural characteristics that impact patient dignity. (NOCP 1.1.a)
30. Distinguish between empathy, sympathy, and compassion. (NOCP 2.4.b)
31. Describe behaviours that convey empathy and compassion. (NOCP 2.4.b)
32. Define “diplomacy”. (NOCP 2.4.f)
33. Define “tact” and “discretion”. (NOCP 2.4.f)
34. Evaluate the impact of diplomacy, tact and discretion. (NOCP 2.4.f)
35. Discuss confidence. (NOCP 2.4.d)
36. Identify the impact of confidence on patient care. (NOCP 2.4.d)
37. Identify risks associated with overconfidence. (NOCP 2.4.d)
38. Discuss professional competency.
39. Discuss constructive feedback. (NOCP 1.5.b)

40. Receive constructive feedback from peers, preceptors, and other health care practitioners. (NOCP 1.5.b)
41. Acknowledge feedback. (NOCP 1.5.b)
42. Communicate with intent to provide constructive feedback. (NOCP 1.5.b)
43. Integrate constructive feedback within professional practice (NOCP 1.5.b)
44. Define “conflict”. (NOCP 2.4.g)
45. Identify situations of potential conflict. (NOCP 2.4.g)
46. Discuss basic strategies of conflict resolution between prehospital practitioners and patients, family members, bystanders, and allied health professionals. (NOCP 2.4.g)
47. Justify the use of basic conflict resolution skills. (NOCP 2.4.g)
48. Demonstrate basic conflict resolution skills. (NOCP 2.4.g)
49. Discuss the common characteristics of a Paramedic
50. Discuss the principles of ethical behavior in paramedicine.

Section 02 Professional Regulation

1. Discuss the Canada Health Act and how it pertains to the Paramedic. (NOCP 1.4.a)
2. Understand how ground ambulance systems are funded and regulated in Canada. (NOCP 1.4.a)
3. Distinguish federal versus provincial roles as it pertains to the health care system. (NOCP 1.4.a)
4. Describe the characteristics of local emergency medical services. (NOCP 1.1.g)
5. Describe the characteristics of EMS in Canada. (NOCP 1.1.g)
6. Analyze strengths and weaknesses of EMS in Canada. (NOCP 1.1.g)
7. Discuss the National Occupational Competency Profile (NOCP) and how it relates to practice.
8. Discuss the recognized practitioner levels as outline by the NOCP document.
9. Discuss the differences between licensure, certification and reciprocity
10. Identify professional associations for paramedics in Canada. (NOCP 1.1.h)
11. Discuss participation in professional associations. (NOCP 1.1.h)
12. Describe the role of professional associations. (NOCP 1.1.h)
13. Acknowledge the benefits of participation in, and describe the role of professional associations. (NOCP 1.1.h)
14. Understand the role of a professional college
15. Discuss the importance of professional accountability to the public

Section 03 Roles and Responsibilities

1. List the primary and additional responsibilities of paramedics.
2. Define the role of the paramedic relative to the safety of the crew, the patient, and the bystanders.
3. Describe professional development. (NOCP 1.2.a)
4. Describe continuing education. (NOCP 1.2.a)
5. Discuss examples of local requirements pertaining to continuing education. (NOCP 1.2.a)
6. Value professional development options. (NOCP 1.2.a)
7. Understand the importance of and promote professional development. (NOCP 1.2.a)
8. Discuss strategies for professional improvement. (NOCP 1.2.b)
9. Value goal setting and self-evaluation. (NOCP 1.2.b)
10. Discuss tasks delegated to non-healthcare professionals. (NOCP 1.6.c)

Section 04 Roles of the Modern Paramedic

1. Discuss the expanding and changing roles of the paramedic in Canada including:
    a. Primary Care (Community Paramedic)
    b. Industrial Paramedic
    c. Sports Medicine
    d. Tactical EMS
    e. Expanded Scope Paramedic
    f. Clinical Paramedic
    g. Collaborative Emergency Center
2. Discuss other roles of paramedics in the community
    a. Public Education
    b. Health Promotion
    c. Prevention Programs

Module 03

Health Promotion

Module 03 (Health Promotion)

With this module the student will understand that during their careers as paramedics they will be exposed to many kinds of physical and emotional stress. They will face situations involving infectious diseases, fear, physical danger, death, and dying. They need to become familiar with the use of equipment and strategies that will help them remain physically and emotionally safe and healthy. By understanding safe practices, they will be better able to avoid harm from violent people, roadway hazards, and infectious diseases. They will be able to make appropriate choices about how they live rather than having a physical or emotional injury make that decision for them. They will also learn how they can take action to prevent illness and injury, not only in their own lives but in those of their coworkers and the patients they encounter.

Contents

Module 03 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Area 3.0 (Health and Safety)

Area 4.0 (Assessment and Diagnostics)

Area 8.0 (Health Promotion and Public Safety)

Appendix 4 - Pathophysiology

Time Requirements:

Didactic:	Theoretical	30
	Evaluations	1.5
	In-class Total	31.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Health Promotion

1. Define safe biomechanics. (NOCP 3.2.a)
2. Describe potential injuries common to EMS practitioners. (NOCP 3.2.a)
3. Describe strategies to reduce risk of injury. (NOCP 3.2.a)
4. Choose strategies to reduce the risk of injury. (NOCP 3.2.a)
5. Adapt proper lifting techniques. (NOCP 3.2.a)
6. Perform safe lifting techniques. (NOCP 3.2.a)
7. Integrate safe and proper lifting techniques. (NOCP 3.2.a)
8. Demonstrate adequate strength and fitness. (NOCP 3.1.e)
9. Describe the physical capabilities required of an EMS practitioner. (NOCP 3.1.e)
10. Describe strategies to develop and maintain physical strength and fitness. (NOCP 3.1.e)
11. Choose strategies to develop and maintain physical strength and fitness. (NOCP 3.1.e)
12. List the components of a balanced healthy lifestyle. (NOCP 3.1.a)
13. Describe and choose personal activities/habits, which promote a balanced, healthy lifestyle. (NOCP 3.1.a)
14. Understand the difficulties of shift work and some solutions to develop a healthy lifestyle while working shift work
15. Describe strategies to promote physical and mental health. (NOCP 3.1.d)
16. Choose strategies to promote physical and mental health. (NOCP 3.1.d)
17. Explain the purpose of health promotion and prevention strategies. (NOCP 8.1.a)
18. Develop a community paramedicine health promotion event
19. Describe common health promotion and prevention strategies. (NOCP 8.1.a)
20. Describe health promotion and prevention strategies for individuals and communities. (NOCP 8.1.a)
21. Describe tissue and organ donation programs. (NOCP 8.1.a)
22. Participate in injury prevention and public safety activities and initiatives. (NOCP 8.1.b)
23. Explain the purpose of injury prevention and public safety initiatives. (NOCP 8.1.b)
24. Describe common injury prevention and public safety initiatives. (NOCP 8.1.b)
25. Describe injury prevention strategies for individuals, households, workplaces and communities. (NOCP 8.1.b)
26. Differentiate between primary, secondary and tertiary care strategies. (NOCP 8.1.a)

Section 02 Mental Health

1. Understand the human bodies stress response.
2. Define “stress” and “stress disorder.” (NOCP 3.1.c)
3. Describe factors that typically contribute to personal stress. (NOCP 3.1.c)
4. List factors that contribute to stress in patients, relatives, and bystanders. (NOCP 2.1.e)
5. List common emotional reactions exhibited by patients relatives, bystanders and paramedics. (NOCP 2.4.c)
6. Identify verbal and nonverbal indicators of stress, delayed stress reaction, and PTSD. (NOCP 2.1.e)
7. Recognize behaviours suggesting a negative response to stress. (NOCP 3.1.c)
8. List the effects of shift work on physical and mental health. (NOCP 3.1.d)
9. Describe strategies to promote physical and mental health. (NOCP 3.1.d)
10. Choose strategies to promote physical and mental health. (NOCP 3.1.d)
11. List common coping mechanisms. (NOCP 2.4.c)
12. Discuss techniques to manage stress. (NOCP 3.1.c)
13. Describe positive and negative aspects of coping mechanisms. (NOCP 2.4.c)
14. Identify verbal and nonverbal means of supporting others displaying emotional reactions and coping mechanisms. (NOCP 2.4.c)
15. Demonstrate behaviours that provide emotional support to those in need of support. (NOCP 2.4.c)
16. Value the provision of emotional support. (NOCP 2.4.c)
17. Understand the spectrum of acute stress to include post-traumatic stress disorder (PTSD) and suicide awareness.
18. Discuss the stigma associated with Acute Stress Disorder (ASD) and PTSD.
19. Understand the epidemiology of ASD, PTSD, and suicide in the first responder population.
20. Be familiar with the Clinician-Administered PTSD Scale (CAPS).
21. Describe the benefits of a personal support system. (NOCP 3.1.b)
22. List and discuss some personal support systems, which promote the maintenance of physical and mental health. (NOCP 3.1.b)
23. Discuss situations that may require assistance from available community support programs. (NOCP 1.1.g, 3.1.b)
24. Value the benefits of a personal support system (NOCP 3.1.b)
25. Identify common community support programs as they relate to EMS. (NOCP 1.1.g, 3.1.b)
26. Identify community resources that may assist those in need of emotional support. (NOCP 2.4.c)
27. Discuss national organizations that support first responder’s mental health.
28. Discuss techniques to maximize the effectiveness of communication in emergency, non-emergency, and everyday activities. (NOCP 2.1.e)
29. Explain the concept of critical incident stress management in the prevention

of PSTD. (NOCP 3.1.c)

30. Understand the use of a multimodal approach to managing acute stress
31. Chose techniques for managing personal stress. (NOCP 3.1.c)
32. Adapt communication techniques during stressful situations. (NOCP 2.1.e)
33. Distinguish threatening and non-threatening behaviours. (NOCP 2.3.d)
34. Communicate appropriately with other health care providers when dealing with a patient suffering psychiatric disorders. (NOCP 4.3.m)
35. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following anxiety disorders: (NOCP 4.3.m)
    a. Generalized anxiety disorder
    b. Situational disturbances
    c. Panic disorder
    d. Post-traumatic stress disorder
    e. Acute stress disorder

Section 03 Lifting and Moving Patients

1. Practice safe biomechanics. (NOCP 3.2.a)
   a. Define safe biomechanics
   b. Describe potential injuries common to EMS practitioners.
   c. Describe strategies to reduce risk of injury.
   d. Choose strategies to reduce risk of injury.
   e. Adapt proper lifting techniques.
2. Transfer patients from various positions using applicable equipment and techniques. (NOCP 3.2.b)
   a. List equipment for patient transfer.
   b. Describe indications for equipment use.
   c. Identify specifications of the equipment to be used, including equipment for special patient populations.
   d. Explain techniques of transfer using specified equipment.
3. Transfer patient using emergency evacuation techniques. (NOCP 3.2.c)
   a. Describe situations where emergency evacuation may be required
   b. Describe emergency lifting and moving techniques
   c. Distinguish alternative techniques and conditions for use.
   d. Demonstrate emergency lifting and moving techniques.
4. Secure patient to applicable equipment. (NOCP 3.2.d)
   a. Identify safe and secure methods.
   b. Integrate safe and secure procedures for patient movement and transfer.

Section 04 Patient Safety

1. Define Patient Safety and its elements including
2. Define an adverse event
3. Define a near miss
4. Discuss common safety focused organizations
5. Understand the history to date of patient safety
6. Understand patient safety as it pertains to the Canadian health care system
7. Discuss the role of the Paramedic in patient safety

Section 05 Road to Mental Readiness (R2MR)

The Road to Mental Readiness (R2MR) program exists to build awareness of mental illness and operational stress injuries (OSIs) through education, to reduce the stigma associated with mental illness, and to increase understanding and support for these conditions. The goal of R2MR is to improve short term performance and long term mental health outcomes.

Objectives

- Use the mental health continuum to define mental health in themselves and others
- Be prepared to use skills to improve their coping and resiliency
- Reduce both public and self-stigma

Be willing to be a part of a supportive environment

Introduction to Anatomy

Module 04

Module 04 (Introduction to Anatomy)

Anatomy is the study of body structure; physiology is the study of body functions. As paramedics, they will be expected to expand this knowledge, which is essential to operating at the highest level professionally.

With this module, the student will learn the structure and function of the different organs of the human body and the systems they are part of. By understanding the anatomy and physiology of each system, the student will be able to use critical reasoning when the systems are not functioning normally.

Contents

Module 4 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Time Requirements:

Didactic:	Theoretical	24
	Evaluations	3
	In-class Total	27

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Introduction to Anatomy and Physiology

1. Define anatomy and physiology.
2. Differentiate between gross and microscopic anatomy.
3. Differentiate between theory and law as it pertains to anatomy and physiology
4. List the characteristics of Life
5. List the life processes
6. Describe catabolism and give an example
7. Describe anabolism and give an example
8. List and define the seven levels of structural organization of the human body in order from most simple to most complex.
9. List the principal systems of the human body
10. Describe anatomical position.
11. Describe bilateral symmetry
12. Define and apply the following directional terms and body planes:
    a. Axial
    b. Appendicular
    c. Supine
    d. Prone
    e. Lateral recumbent
    f. Superior
    g. Inferior
    h. Anterior (ventral)
    i. Posterior (dorsal)
    j. Medial
    k. Lateral
    l. Proximal
    m. Distal
    n. Superficial
    o. Deep
    p. Ipsilateral
    q. Contralateral
    r. Sagittal
    s. Midsagittal
    t. Parasagittal
    u. Frontal
    v. Transverse
    w. Oblique
13. Name the two principle body cavities.
14. Name the two subdivisions of the ventral body cavity and name the major organs found in each.
15. Describe the virtual body cavities within the thorax and abdomen, and differentiate between parietal and visceral layers of each.
    a. Pleural space

    b. Pericardium
    c. Peritoneum
16. Name and describe the location of four quadrants and nine regions of the abdominopelvic cavity.
17. Discuss the types of movement as they relate to anatomy
    a. Flexion
    b. Extension
    c. Abduction
    d. Adduction
    e. Medial rotation
    f. Lateral rotation
    g. Circumduction
    h. Pronation
    i. Supination
    j. Dorsiflexion
    k. Plantar flexion
18. Identify the different body types
19. Describe homeostasis
20. Describe the mechanisms used to maintain a homeostatic environment within the body and provide examples of each
    a. Negative feedback loops
    b. Positive feedback loops
    c. Feed forward loops

Section 02 Chemistry, Matter and Life

1. Define matter
2. Define an element and name the four elements that comprise approximately 96 % of the human body mass.
3. Describe the composition of an element using and defining the following terms:
    a. Atom
    b. Nucleus
    c. Proton
    d. Electron
    e. Neutron
4. Define the following:
    a. Atomic number
    b. Atomic weight
    c. Energy levels
        i. Bohr model
        ii. Octet rule
    d. Ions
    e. Isotope
5. Define the following:
    a. Molecule
    b. Compound
6. Describe the following types of chemical bonds:
    a. Non-polar Covalent bonding
    b. Polar covalent bonding
    c. Ionic bonding
    d. Hydrogen bonding
7. Understand the difference between a molecular formula and a structural formula
8. Describe the following types of chemical equations and its components:
    a. Reactants
    b. Products
    c. Synthesis reactions
    d. Decomposition reactions
    e. Exchange reactions
    f. Reversible reactions
    g. Exergonic reactions
    h. Endergonic reactions
    i. Neutralizing reactions
9. Describe items that can affect the rate of a reaction to include:
    a. Temperature
    b. Catalysts
    c. Concentration
    d. Surface area
10. Define the following:

a. Mixture
b. Solution
c. Suspensions
d. Colloidal suspensions
e. Tinctures
f. Solvent
g. Solute
h. Solution

11. Describe the difference between organic and inorganic compounds
12. Describe electrolytes
13. Define the following:
    a. Acids
    b. Bases
    c. Buffers
14. Understand the following organic compounds:
    a. Carbohydrates
        i. Monosaccharides
        ii. Disaccharides
        iii. Polysaccharides
    b. Proteins
    c. Lipids
    d. Triglycerides
        i. Phospholipids
        ii. Steroids
        iii. Prostaglandins
    e. Nucleic acids
        i. DNA
        ii. RNA

Section 03 Cells

1. Describe the following organelles as outlined using a composite cell model and describe their function:
    a. Plasma membrane
    b. Cytoplasm
    c. Endoplasmic reticulum
        i. Smooth endoplasmic reticulum
        ii. Rough endoplasmic reticulum
    d. Ribosomes
    e. Golgi apparatus
    f. Mitochondria
    g. Lysosome
    h. Proteasomes
    i. Peroxisomes
    j. Centrosome
    k. Centrioles
    l. Centromere
    m. Nucleus
    n. Nucleolus
    o. Nuclear membrane
    p. Nucleoplasm
2. Describe the components of the cytoskeleton and their function:
    a. Microfilaments
    b. Intermediate filaments
    c. Microtubules
    d. Microvilli
    e. Cilia
    f. Flagella
3. Describe the structure and function of the plasma membrane to include the following:
    a. Fluid mosaic model
    b. Phospholipid bilayer
    c. Cholesterol
    d. Integral proteins
    e. Peripheral proteins
    f. Glycolipids
    g. Glycoproteins
4. List three types of connections between cells:
    a. Desmosomes
    b. Gap junctions
    c. Tight junctions
5. Explain how material is moved across a semi permeable membrane by the following processes:
    a. Diffusion

    b. Dialysis
    c. Facilitated diffusion
    d. Osmosis
    e. Filtration
    f. Active Transport
    g. Endocytosis
    h. Exocytosis
6. Discuss protein synthesis to include the following:
    a. Transcription
    b. Translation
7. Define the following terms:
    a. Mitosis
    b. Meiosis

Section 04 Fluids and Electrolytes

1. Define body fluid and identify the major fluid compartments of the body. (NOCP 6.1.a, h)
2. List the five functions of water in the body.
3. Describe how we maintain homeostasis in our fluid levels.
4. Define electrolytes.
5. List the main cation and anion in the plasma, interstitial fluid, and extracellular fluid.
6. Describe the bulk flow of fluids between the capillaries, interstitium, cells, and lymph vessels.
7. Describe edema and explain the factors that lead to edema. (NOCP 6.1.a)
8. Describe where the greatest concentration of each of the following elements is found, and the role of each: (NOCP 5.5.h)
    a. Sodium
    b. Chloride
    c. Potassium
    d. Calcium

Section 05 Tissues

1. Define tissue and list the four principal types and explain their general functions.
2. Define extracellular fluid and name and define the two major types.
3. Describe how cells are held together by tight junctions, anchoring junctions, and gap junctions, and state the general function of each type.
4. Name the two layers of the basement membrane and the tissue responsible for their secretions.
5. Describe the basis of classification for covering and lining epithelium.
6. List the types of epithelium using the above classification system.
7. Describe the structure and function of the following types of epithelial tissue giving sample locations that illustrate the functions:
    a. Simple squamous
    b. Simple cuboidal
    c. Simple columnar
    d. Stratified squamous
    e. Stratified cuboidal
    f. Stratified columnar
    g. Stratified transitional
    h. Pseudostratified columnar
8. List the organs that make up the integumentary system. (NOCP 4.3.i)
9. Briefly describe the functions of the skin. (NOCP 4.3.i)
10. Name the two principal parts of the skin and state the location of each. (NOCP 4.3.i)
11. State the name of the tissue immediately under the skin and state the function of this layer. (NOCP 4.3.i)
12. State the type of tissue making up the epidermis. (NOCP 4.3.i)
13. Explain how the epidermis is regenerated to include: (NOCP 4.3.i)
    a. Name of germinal and outer layer
    b. How cells change from inner to outer
14. Describe the function of keratinocytes and melanocytes. (NOCP 4.3.i)
15. Describe the dermis. (NOCP 4.3.i)
16. Describe the effect of melanin, carotene, and hemoglobin on skin colour. (NOCP 4.3.i)
17. Describe the following abnormal skin colors with possible causes: (NOCP 4.3.i)
    a. Cyanosis
    b. Erythema
    c. Pallor
    d. Jaundice
18. Name four types of glands associated with the skin and state the location, secretions, and functions of each. (NOCP 4.3.i)

Section 06 Pathophysiology

1. List the systems of the human body
    a. Cardiovascular
    b. Digestive
    c. Endocrine
    d. Gastrointestinal
    e. Genitourinary
    f. Immune
    g. Integumentary
    h. Muscular
    i. Neurovascular
    j. Reproductive
    k. Respiratory
    l. Skeletal
2. Describe the basic function of each system

Module 05

Ethical and Legal Issues

Module 05 (Ethical and Legal Issues)

With this module the student will examine the laws and regulations that govern their scope of practice, licensing, certification as well as the National Occupational Competency Profile (NOCP) as described by the Paramedic Association of Canada. Frequently dealing with high-pressure, life-or-death situations, paramedics frequently face ethical problems such as patients refusing care, trip destinations, and difficulties with advance directives. This module will also explore the fundamental principles and methods of ethics that apply to common prehospital situations.

Contents

Module 04 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Time Requirements:

Didactic:	Theoretical	15
	Self-Directed	6
	Evaluations	1.5
	In-class Total	22.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Paramedic Evidence Based Practice Program Online
Internet

Section 01 Medical Legal Aspects

1. Differentiate legal, ethical, and moral responsibilities
2. Describe the basic structure of the Canadian legal system and differentiate civil and criminal law.
3. Discuss legislative and regulatory requirements related to patient confidentiality and privacy laws (NOCP 1.1.e)
4. Define consent and differentiate among expressed, informed, implied, and involuntary consent.
5. Describe the process used to obtain informed or implied consent.
6. Discuss the assessment of capacity and competence as it relates to consent.
7. Define negligence
8. Describe the four elements necessary to prove negligence:
    - Duty to Act
    - Breach of Duty
    - Causation
    - Proximate Cause
9. Define:
    - Abandonment
    - Advance directives
    - Assault and battery
    - False Imprisonment
    - Standard of Care
10. Explain liability as it applies to emergency medical services.
11. Discuss immunity, including provincial statutes, including the Good Samaritan Act, as it applies to the paramedic.
12. Define confidentiality. (NOCP 1.1.e)
13. Acknowledge conduct necessary to maintain patient confidentiality. (NOCP 1.1.e)
14. Integrate confidentiality into effective patient care. (NOCP 1.1.e)
15. Identify information that should be communicated to the patient. (NOCP 2.1.d)
16. Describe how to communicate this information and options to the patient. (NOCP 2.1.d)
17. Identify what patient documentation can be shared with the patient during a call.
18. Identify the legislative requirements in regards to patient rights. (NOCP 1.3.b)
19. Discuss legal issues pertaining to patient rights. (NOCP 1.3.b)
20. Value and promote patient rights. (NOCP 1.3.b)
21. Discuss legislation, policies, and procedures. (NOCP 1.4.a)
22. Acknowledge the importance of legislation, policies, and procedures. (NOCP 1.4.a)
23. Perform in a manner consistent with legislation, policies and procedures. (NOCP 1.4.a)
24. Define “Scope of practice”. (NOCP 1.3.a)
25. Discuss the roles of Online and Offline Medical Direction. (NOCP 1.3.a)
26. Discuss protocols, standing orders, directives and guidelines. (NOCP 1.3.a)
27. Identify differences in specific protocols, standing orders and advanced directives between various clinical sites. (NOCP 1.3.a)
28. Describe the process to be followed for situations not covered by protocols, standing

orders and advanced directives as per the orders of the provincial medical director. (NOCP 1.3.a)

29. Justify deviation from protocols, standing orders and advanced directives. (NOCP 1.3.a)
30. Discuss appropriate patient interaction and documentation techniques regarding refusal of care.
31. Identify legal issues involved in the decision not to transport a patient, or to reduce the level of care being provided.
32. Discuss related legislative requirements (NOCP 1.4.a)
33. Understand the legal decision maker for a person whom the courts have deemed incompetent
34. Understand how a legal decision maker is appointed
35. Understand the term emancipated minor
36. Understand controversies with end of life documentation
37. Understand the necessary components of legal documents such as living wills, advanced directives, do not resuscitate orders, and substitute decision makers

Section 02 Ethics

1. Define ethics and morals and distinguish between ethical and moral decisions in emergency medical service. (NOCP 1.1.i)
2. Discuss ethical behaviour. (NOCP 1.1.i)
3. Identify the premise that should underlie the paramedic's ethical decisions in prehospital care.
4. Discuss the paramedic code of ethics
5. Integrate ethical behaviour with patients, peers, co-workers, medical staff and allied agencies and value professional code of ethics and beliefs. (NOCP 1.1.i)
6. Understand situations when ethical and legal controversies arise
7. Discuss situations when laws and regulations conflict with your code of ethics

Section 03 Research

1. Explain the importance of research as it applies specifically to the field of EMS and as well to health care in general. (NOCP 1.2.c)
2. Understand the importance of research applicability. (NOCP 1.2.c)
3. Evaluate research evidence. (NOCP 1.2.c)
4. Explain the importance of research in Emergency Medical Services (NOCP 1.2.c)
5. Define academic and clinical research. (NOCP 1.2.c)
6. Understand the difference between primary, secondary, and tertiary literature
7. Describe Quantitative research methodology. (NOCP 1.2.c)
8. Describe Qualitative research methodology. (NOCP 1.2.c)
9. Recognize when each style might be applicable. (NOCP 1.2.c)
10. Discuss ethical considerations in research. (NOCP 1.2.c)
11. Define Evidence Based Practice (NOCP 1.2.c)
12. Describe limitations and benefits with evidence based practice. (NOCP 1.2.c)
13. Describe how to develop a research question. (NOCP 1.2.c)
14. Understand steps in evidence based paramedicine
15. Using the PICO format form a research question. (NOCP 1.2.c)
16. Identify sources of research, access and evaluation. (NOCP 1.2.c)
17. Discuss levels of evidence. (NOCP 1.2.c)
18. Understand what is meant by peer review
19. Given a specific topic, review literature and analyze the information obtained. (NOCP 1.2.c)
20. Apply research findings to personal practice. (NOCP 1.2.c)
21. Describe the role of ethics in professional practice. (NOCP 1.1.i)
22. Define the role of ethics in clinical and academic research. (NOCP 1.1.i)
23. Write a research question. (NOCP 1.2.c)
24. Conduct basic literature review. (NOCP 1.2.c)
25. Identify sources of research evidence and statistics (NOCP 1.2.c)
26. Describe the process of conducting a literature search. (NOCP 1.2.c)
27. Be able to analyze research evidence. (NOCP 1.2.c)
28. Discuss levels of evidence and its relevance. (NOCP 1.2.c)
29. Conduct a critical appraisal of a research question.
30. Explain the role of knowledge translations
31. Understand the consequences of applying primary literature directly to practice

Module 06

EMS Systems and Operations

Module 06 (EMS Systems and Operations)

The goal of EMS systems is to provide care and treatment to those in need of medical care. While the roles of the paramedic have changed over the years, it is important for the student to understand some of the basic concepts pertaining to the current EMS models that exist. With this module, the student will examine some of these models and their role within them. The student will also review the safe procedures involving the ambulance including vehicle inspection, handling and design characteristics, safe driving techniques and emergency scene safety.

Contents

Module 06 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Area 3.0 (Health and Safety)

Area 7.0 (Transportation)

Area 8.0 (Health Promotion and Public Safety)

Time Requirements:

Didactic:	Theoretical	18
	Evaluations	1.5
	Lab (Driving)	4
	In-class Total	23.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet
Drivers Handbook
Motor Vehicle Act (most updated version)
CEVO 4 Ambulance Operator Response Book
Ambulance Maneuvering Skills Administrator's Guide

Section 01 EMS Systems

1. Discuss different system designs based on registration levels, response time, and acuity of call
2. Discuss mutual assistance and tiered response, and compare the efficacy and implementation of each. (NOCP 8.2.a)
3. Understand equipment used by supporting agencies to assist in accessing and extricating a patient in a challenging situation
4. List community response agencies and describe the roles and relationship to other emergency response agencies and their providers. (NOCP 8.2.a)
5. Value & perform collaborative work with other emergency response agencies (NOCP 8.2.a)
6. Identify the various other emergency response agencies associated with EMS systems or agencies. (NOCP 8.2.a)
7. Examine associated agencies relating to Emergency Services (NOCP 8.2.a)
8. Analyze common quality assurance and enhancement process. (NOCP 1.1.f)
9. Acknowledge the relevance of quality assurance and enhancement programs to paramedic practice. (NOCP 1.1.f)
10. What is the difference between quality assurance (QA) and continuous quality improvement (CQI)
11. Understand the different standards of decontamination
12. Discuss the proper disposal of contaminated supplies such as sharps, gauze, sponges, and tourniquets. (NOCP 3.3.f, g, h)
13. List equipment and supplies required to clean and disinfect equipment. (NOCP 3.3.g)
14. Describe techniques to clean and disinfect equipment. (NOCP 3.3.g)
15. Demonstrate correct equipment cleaning and disinfect equipment. (NOCP 3.3.g)
16. List equipment and supplies required to clean/disinfect work environment. (NOCP 3.3.h)
17. Describe methods to clean and disinfect a work environment. (NOCP 3.3.h)
18. Demonstrate correct cleaning and disinfecting techniques. (NOCP 3.3.h)
19. Discuss modern transportation and equipment capable of transporting patient with highly infectious and/or virulent diseases
20. Identify various telecommunication devices. (NOCP 2.1.a)
21. Describe the operational features of various telecommunication devices. (NOCP 2.1.a)
22. Operate various telecommunication devices (NOCP 2.1.a)
23. Identify relevant legislation and regulations. (NOCP 2.1.a)
24. List the components of effective telecommunication. (NOCP 2.1.a)
25. Describe the components of a telecommunications report. (NOCP 2.1.a)
26. Organize information for an effective telecommunications report. (NOCP 2.1.a)
27. Perform an organized, accurate, and relevant telecommunications report. (NOCP 2.1.a)

Section 02 Ambulance Operations

1. Identify current local and provincial standards that influence ambulance design, equipment requirements, and staffing of ambulances.
2. Discuss the importance of completing an ambulance vehicle, equipment and supply checklist. (NOCP 7.1.a)
3. List conditions that require the removal of a vehicle from service. (NOCP 7.1.b)
4. Discuss factors used to determine ambulance stationing and staffing within a community (System Status Planning).
5. Be familiar with ambulance regulations and standards. (NOCP 7.2.b)
6. Be familiar with different types of ambulance designs.

Section 03 Coaching the Emergency Vehicle (CEVO)

1. Perform a vehicle inspection (NOCP 7.1.a)
2. List the items to check during an inspection in the following areas: (NOCP 7.1.a)
    a. Outside the ambulance
    b. In the engine area
    c. In the operator area
3. List conditions that require the removal of a vehicle from service. (NOCP 7.1.b)
4. Explain the purpose of all of the vehicle equipment: (NOCP 7.1.c)
    a. Emergency lighting
    b. Siren
5. Operate the vehicle equipment correctly. (NOCP 7.1.c)
6. Compare and contrast the benefits and risk of driving with lights and sirens
7. Discuss safety belt use, for the operator and all passengers.
8. Discuss how to reduce blind spots
9. Discuss the "cushion of safety" and how to control it.
10. Discuss concepts to stay collision free in both emergency and non-emergency driving by using scanning and communicating.
11. Discuss specific collision-producing situations such as backing, night driving and hydroplaning.
12. Discuss safety considerations should you follow when backing up an ambulance with or without a spotter.
13. Discuss potential hazards you may encounter as you approach a hospital where you frequently off-load patients.
14. Describe the principles of defensive driving in relation to the emergency vehicle. (NOCP 7.2.a)
15. Describe relevant legislative requirements regarding the operation of an emergency vehicle. (NOCP 7.2.b)
16. Distinguish between driving characteristics of an ambulance and a passenger vehicle. (NOCP 7.2.b)
17. Distinguish between emergency driving and driving under normal conditions. (NOCP 7.2.b)
18. Apply appropriate driving techniques. (NOCP 7.2.b)
    a. Complete a driving course and conduct a hands-on skills session, including:
        i. Vehicle inspection
        ii. Serpentine driving (forward and backward)
        iii. Backing to the right and left
        iv. Backing with a spotter
        v. "Curb test"
    b. Test the operator's ability to:
        i. Drive the vehicle smoothly (NOCP 7.2.c)
        ii. Judge spatial relations (distance and clearance)

iii. Maximize the use of mirrors
iv. Communicate with a partner
v. Perform a vehicle inspection (NOCP 7.1.a)

19. Discuss potential reactions from other drivers. (NOCP 7.2.c)
20. Discuss points to consider when operating in an emergency. (NOCP 7.2.c)
21. Apply the techniques of defensive driving when operating in an emergency vehicle. (NOCP 7.2.a
22. Discuss procedures to follow if you are involved in a collision.

Module 07

Introduction to Pharmacology

Module 07 (Introduction to Pharmacology)

With this module, the student will examine the use of medications to treat the sick and injured. Paramedics must have a fundamental knowledge of the medications they deliver to patients in prehospital emergency medicine. The student with gain general knowledge of pharmacological principles and the classifications of drugs. The student will also be introduced to the process of calculating appropriate doses through the use of medical math and the steps involved in administering the medications through a number of different routes.

Contents

Module 08 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Time Requirements:

Didactic:	Theoretical	27
	Evaluations	3
	Lab	12
	In-class Total	42

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Introduction to Pharmacology

1. Define the following terms: (NOCP 5.8.a)
    a. Pharmacology
    b. Drug
    c. Drug Therapy
    d. Dosage
    e. Bio-availability
    f. Therapeutic Action
    g. Drug Interaction
2. Discuss general medicinal uses for medications.
3. Identify chemical, generic, trade and official names for all medications. (NOCP 5.8.a)
4. Identify common sources of drugs and provide examples of prehospital medications from each source. (NOCP 5.8.a)
5. Describe drug preparations common to the prehospital care field and provide examples of each and explain formulations related to administration.
6. Describe the mechanisms of drug entry absorption, site of action, metabolism and elimination. (NOCP 5.8.a)
7. Explain factors that affect the absorption, distribution, biotransformation and elimination of medication.(NOCP 5.8.a)
8. Explain formulations related to administration (NOCP 5.8.a)
9. Define pharmacological terminology and abbreviations. (NOCP 5.8.a)
10. Discuss the indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration process for each medication. (NOCP 5.8.a)
11. Define the following terms as they relate to pharmacokinetics: (NOCP 5.8.a)
    a. Therapeutic Index, Onset of action, Duration of action
    b. Half Life, Dose Response Curve, Effective Dose 50
    c. Lethal Dose 50
12. Perform calculation to determine the amount of medication required for expected action.
13. Define the following terms as they relate to pharmacodynamics: (NOCP 5.8.a)
    a. Mechanism of action
    b. Drug/receptor interactions
    c. Drug/enzyme interactions
    d. Nonspecific drug interactions
    e. Reversible binding
    f. Irreversible binding
    g. Agonist
    h. Antagonist
    i. Competitive antagonists
    j. Non-competitive antagonists
    k. Affinity
    l. Efficacy
    m. Potency
    n. Summation

o. Synergism
p. Potentiation

14. Discuss the following terms as they relate to unwanted reactions to medications: (NOCP 5.8.a)
    a. Side effect
    b. Drug interaction
    c. Tolerance
    d. Cross tolerance
    e. Tachyphylaxis
    f. Idiosyncrasy
    g. Cumulative Effect
    h. Untoward Effect
    i. Allergic response
    j. Anaphylactic reaction.
15. Identify the receptor sites that may be affected by a medication.
16. Identify the components of the Compendium of Pharmaceuticals and Specialties (CPS) pertinent to prehospital practice, and explain the information found within such an appropriate medication reference. (NOCP 5.8.a)
17. Describe the schedule medications and their potential for abuse
18. Discuss the importance of properly storing, securing and maintaining medications
19. Discuss the "Cold Chain" process for medication transport
20. Describe the accepted processes of documenting medication administration (NOCP 1.3.c, 2.2.a)
21. Discuss the importance of properly documenting and reporting medication errors. (NOCP 2.2.a)

Section 02 Principles and Routes of Medication Administration

1. Define standing orders, one-time orders and as-needed orders
2. Explain the seven rights of medication administration (NOCP 5.8.b)
3. Distinguish between different routes of drug administration. (NOCP 5.8.b)
4. Describe how medication administration protocols are applied to specific patient presentations. (NOCP 5.8.b)
5. Apply policies when medication administration errors occur. (NOCP 5.8.b)
6. Explain the role of the paramedic in medication administration. (NOCP 5.8.b)
7. Demonstrate how to provide medications using a sequential step method of administration. (NOCP 5.8.b)
8. Demonstrate how to prepare a patient for medication administration. (NOCP 5.8.b)
9. Demonstrate how to measure the required quantity of medication. (NOCP 5.8.b)
10. Set up the supplies required for the specific route of medication administration. (NOCP 5.8.b)
11. Receive consent before administration of medications. (NOCP 5.8.b)
12. Discuss medical asepsis and the differences between clean and sterile techniques.
13. Describe uses of antiseptics and disinfectants.
14. Describe the use of body substance isolation (BSI) procedures when administering a medication.
15. Administer medications
    a. via the following routes:
        i. subcutaneous (NOCP 5.8.c)
        ii. intramuscular (NOCP 5.8.d)
        iii. intravenous (NOCP 5.8.e)
        iv. intraosseous (NOCP 5.8.f)
        v. endotracheal (NOCP 5.8.g)
        vi. sublingual (NOCP 5.8.h)
        vii. buccal (NOCP 5.8.i)
        viii. topical (NOCP 5.8.j)
        ix. oral (NOCP 5.8.k)
        x. rectal (NOCP 5.8.l)
        xi. inhalation (NOCP 5.8.m)
        xii. intranasal (NOCP 5.8.n)
    b. by:
        i. Applying proper calculations for correct medication requirements for the patient presentation and route.
        ii. Evaluating appropriate site for administration via the route chosen, if applicable.
        iii. Discussing and/or evaluating the benefit of medication administration via the route chosen in comparison to another route.
        iv. Demonstrating how to provide medications for the medication route using a sequential step method.

v. Demonstrating how to prepare a patient for administration of a medication for the medication route chosen.
vi. Demonstrating how to measure the required quantity of medication for the medication route chosen.
vii. Describe disposal of contaminated items and sharps.

16. Describe and discuss pediatric vascular access. (NOCP 5.5.d)

Section 03 Dose Calculations

1. Identify the basic units of measure for weight, length and volume.
2. Accurately convert one unit of measure to another for the purposes of drug calculations
3. Apply the basic formulas to solve drug problems and determine doses
4. Accurate calculate IV drip rates
5. Apply proper calculations for correct medication requirement for the patient presentation. (NOCP 5.8.f)

Section 04 Intravenous Access and Therapy

1. Identify the basic units of measure for weight, length and volume.
2. Review the specific anatomy and physiology pertinent to medication administration.
3. Describe the indications, equipment needed, technique used, precautions, and general principles for the following:
    a. Intraosseous needle placement and infusion. (NOCP 5.5.e)
    b. Obtaining a blood sample. (NOCP 4.5.d)
4. Conduct peripheral intravenous cannulation (NOCP 5.5.d)
    a. Identify the purpose of and indications for IV cannulation
    b. List the steps of IV cannulation
    c. Perform IV cannulation
    d. Discuss potential complications of IV cannulation
    e. Adapt to changes in patient presentation
5. Maintain peripheral intravenous access devices and infusions of solutions. (NOCP 5.5.c)
    a. Describe the equipment for peripheral IV infusion
    b. Identify the factors that affect the flow rate
    c. Demonstrate the ability to discontinue an infusion following sequential steps
    d. Adjust devices as required to maintain flow rates
6. Utilize direct pressure infusion devices (pumps) with IV solutions (NOCP 5.5.f)
    a. Discuss purposes of and indications for pressure infusion
    b. Discuss the principles and techniques for applying added pressure to an infusion line
    c. Perform direct pressure infusions
    d. Adjust to changes in patient presentation
7. Understand the reasons for administration of volume expanders. (NOCP 5.5.g)

Module 08

Principles of Trauma

Module 08 (Principles of Trauma)

Trauma is a physical injury caused by an external force. It accounts for a large portion of injuries examined and treated by the paramedic. The student must understand the structure and objectives of the trauma care system, promote injury prevention, and provide the seriously injured trauma patient with proper assessment, aggressive care, and rapid transport to the most appropriate facility. With this module, the student will examine the basic principles of a trauma system as well as identify the mechanisms of blunt and penetrating injuries.

Contents

Module 08 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 8.0 (Health Promotion and Public Safety)

Time Requirements:

Didactic:	Theoretical	21
	Evaluations	1.5
	In-class Total	22.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Trauma Systems and Kinematics

1. Describe the epidemiology of traumatic injuries and deaths in North America.
2. Understand survival rates for moribund patients suffering cardiac arrest at different intervals in care from penetrating and blunt trauma
3. Identify the characteristics of community, area, and regional trauma centers.
4. Identify the role of each component of a trauma system. (NOCP 8.2.a)
5. Identify the characteristics of community, area, and regional trauma centers.
6. Understand disciplines needed to treat patients suffering from major trauma
7. Understand the purpose of a trauma team
8. Identify common lethal mechanisms of injury in infants and children. (NOCP 5.7.b, 6.1.o)
9. Discuss common geriatric medical and traumatic emergencies. (NOCP 4.3.o)
10. Identify the trauma triage criteria and apply them to narrative descriptions of trauma patients.
11. Describe how trauma emergencies differ from medical emergencies in the scene size-up, assessment, prehospital emergency care, and transport.
12. Understand Newton's Law of Motion, Forces, kinetic equation and conservation of energy laws
13. Understand forces applied to occupants in MVCs
14. Anticipate injury patterns based on an applied knowledge of mechanisms of injury, including applicable laws of physics. (NOCP 6.1.o)
15. Describe the relationship between kinematics and potential spine injury. (NOCP 5.7.b)
16. Explain how the trauma indices (scores) relate to triage, transport, and destination decisions. (NOCP 6.1.o)
17. Understand how common prescription medications can be deleterious to the trauma patient
18. Explain the "Golden Hour" concept and describe how it applies to prehospital emergency medical service.
19. Explain the value of air medical service in trauma patient care and transport.

Section 02 Blunt versus Penetrating Trauma

1. Identify, and explain by example, the laws of inertia and conservation of energy.
2. Define kinetic energy and force as they relate to trauma.
3. Discuss the benefits of auto restraint and motorcycle helmet use.
4. Identify the assessment and modify, as requires, treatment plans for the following mechanisms of injury:
    a. Assault
    b. Blast Injuries
    c. Crush Injuries
    d. Falls
    e. Rapid Deceleration Injuries
5. Describe common injuries as a result of MVCs
6. Understand and explain the roles of passenger restraint systems in the prevention of injuries due to motor vehicular trauma. (NOCP 6.1.o)
7. Describe the three impacts that occur during motor vehicular trauma.
8. Identify injury patterns common to the following types of motor vehicle collisions:
    a. Rear end impact
    b. Head on impact
    c. Lateral impact
    d. Roll over impact
9. Identify injury patterns common to the following types of motor cycle / all-terrain vehicle collisions:
    a. Rider ejection
    b. Head on impact
    c. Lateral impact
    d. Roll over impact
10. Identify injury patterns common to vehicle - pedestrian collisions, and adapt these to age and gender. (NOCP 6.1.o)
11. Explain the energy exchange process between a penetrating object or projectile and the object it strikes.
12. Determine the effects that profile, yaw, tumble, expansion, and fragmentation have on projectile energy transfer.
13. Describe elements of the ballistic injury process including direct injury, cavitation, temporary cavity, permanent cavity, and zone of injury.
14. Identify the relative effects a penetrating object or projectile has when striking various body regions and tissues.
15. Be able to describe how a penetrating chest wound can affect the relationship of the lung to the thoracic wall (intrapleural pressure = intraalveolar pressure = lung collapse)
16. Anticipate the injury types and the extent of damage associated with high-velocity/high-energy projectiles, such as rifle bullets; with medium-energy, medium-velocity projectiles such as handgun and shotgun bullets, slugs, or pellets; and with low-energy, low-velocity penetrating objects, such as knives and arrows.
17. Identify important elements of the scene size-up associated with shootings or stabbings.

18. Identify and explain any special assessment and care considerations for patients with penetrating trauma.
19. Identify injury patterns common to violent trauma and adapt these to age and gender. (NOCP 6.1.o)
20. Understand definitive therapy for penetrating trauma and the association with on scene times
21. Demonstrate the ability to prioritize the treatment and transport decisions. (NOCP 6.1.o)
22. Adapt care based on patient presentation. (NOCP 6.1.o)
23. Communicate information to patient regarding care. (NOCP 6.1.o)
24. Justify approach, care, and transportation decisions. (NOCP 6.1.o)
25. Adapt to changes in patient presentation. (NOCP 5.5.b)
26. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.o)

Section 03 Axial Immobilization

1. Identify signs and symptoms of possible fractures to the axial skeleton. (NOCP 5.7.b)
2. Discuss the Canadian C-Spine Rules and how they can be used to assist in your assessment and treatment of the patient.
3. Discuss the pros and cons of using a collar
4. Perform appropriate sizing techniques for selecting a c-collar
5. Evaluate commercially manufactures splints for use based on patient presentation. (NOCP 5.7.b)
6. Modify immobilization devices to meet patient needs. (NOCP 5.7.b)
7. Perform appropriate treatment to suspected axial injury. (NOCP 5.7.b)
8. Identify infant and child trauma patients who require spinal immobilization. (NOCP 5.7.b, 6.1.o)
9. Be able to rationalize the pros and cons for axial immobilization
10. Immobilize suspected fractures of the axial skeleton (NOCP 5.7.b)
11. Describe aspects of infant and child airway management that are affected by potential cervical spine injury. (NOCP 5.7.b, 6.1.o)

Module 09

Patient Assessment

Module 09 (Patient Assessment)

With this module the student will examine the responsibilities pertaining to responses to the emergency; scene size-up and safety; patient assessment, treatment, and management; determination of the patient's disposition and transport; documentation of the call; preparation of the ambulance for the next call; and finally resuming in-service posture. During this process the student will focus on the processes to determine a plan utilizing clinical decision making based on the patients presentation while review the common areas of errors and how to prevent them.

Contents

Module 09 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Area 3.0 (Health and Safety)

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 8.0 (Health Promotion and Public Safety)

Time Requirements:

Didactic:	Theoretical	36
	Evaluations	1.5
	Lab	12
	In-class Total	49.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Therapeutic Communications

1. Evaluate patient comprehension. (NOCP 2.1.d)
2. Communicate to a patient their situation and how they will be cared for. (NOCP 2.1.d)
3. Adapt communication based on patient apparent comprehension. (NOCP 2.1.d)
4. Identify basic communication needs. (NOCP 2.1.f)
5. Describe common barriers to the communication process. (NOCP 2.1.f)
6. List the components of effective communication. (NOCP 2.1.b)
7. Discuss methods of achieving effective communication. (NOCP 2.1.f)
8. Adapt communication techniques effectively. (NOCP 2.1.f)
9. Describe non-verbal behaviours. (NOCP 2.3.a)
10. List examples of nonverbal behaviour that may impact others negatively and/or positively. (NOCP 2.3.a)
11. Identify cultural factors that may affect nonverbal communication. (NOCP 2.3.a)
12. Identify growth and development factors that may affect nonverbal communication. (NOCP 2.3.a)
13. Identify personal factors that may affect nonverbal communication. (NOCP 2.3.a)
14. Acknowledge the relationship between positive nonverbal behaviour and personal feelings. (NOCP 2.3.a)
15. List other members of the health care community. (NOCP 8.1.c)
16. Describe the roles of and the relationship of pre-hospital practitioners to other health care professionals. (NOCP 8.1.c)
17. Value and demonstrate working collaboratively with other health care professionals (NOCP 8.1.c)
18. Adapt to work cooperatively as a team member. (NOCP 1.5.a)
19. Acknowledge the impact of interpersonal relationships between team members on patient care. (NOCP 1.5.a)
20. Integrate teamwork into the provision of care. (NOCP 1.5.a)
21. Discuss characteristics of interpersonal relationships. (NOCP 1.5.a)
22. Reflect professionalism through use of appropriate language. (NOCP 1.1.b)
23. Distinguish language appropriate for patients, peers and other professionals. (NOCP 1.1.b)
24. Choose language appropriate to situation. (NOCP 1.1.b)
25. Communicate verbally using appropriate language. (NOCP 1.1.b)

Section 02 History Taking

1. List the components of a patient history. (NOCP 2.1.c)
2. Reflect professionalism through use of appropriate language. (NOCP 1.1.b)
3. Distinguish language appropriate for patients, peers, and other professionals (NOCP 2.1.e, f, g)
4. Choose language appropriate to situation. (NOCP 1.1.b)
5. Communicate verbally using appropriate language. (NOCP 1.1.b)
6. Demonstrate empathy. (NOCP 1.1.a)
7. Adapt care appropriate to the needs of the population. (NOCP 1.1.a)
8. Acknowledge cultural differences. (NOCP 1.1.a)
9. List behaviours that help establish trust. (NOCP 2.3.c)
10. List behaviours that help establish rapport. (NOCP 2.3.c)
11. Identify and discuss feedback that would indicate that trust and rapport have been established between patients, patient family members, peers, allied health care providers and management. (NOCP 1.5.b)
12. Describe feedback that indicates that trust and rapport has been established. (NOCP 2.3.c)
13. Demonstrate behaviour that promotes trust and rapport. (NOCP 2.3.c)
14. Discuss appropriate and inappropriate personal interaction. (NOCP 1.1.d)
15. Demonstrate appropriate personal interaction with patients (NOCP 1.1.d)
16. Value appropriate professional relationships with patients. (NOCP 1.1.d)
17. Recognize and understand the importance of personal privacy. (NOCP 1.1.a)
18. Choose techniques to maximize the effectiveness of communication. (NOCP 2.1.e)
19. Adapt communication techniques during stressful situations. (NOCP 2.1.e)
20. Demonstrate nonverbal behaviour that positively affects communication. (NOCP 2.3.a)
21. Define active listening. (NOCP 2.3.b)
22. Acknowledge the relationship between sincerity, genuine interest, and active listening. (NOCP 2.3.b)
23. Perform active listening in interactions with colleagues, patients, and others. (NOCP 2.3.b)
24. Communicate openly despite the impending nonverbal behaviour of others. (NOCP 2.3.b)
25. List common emotional reactions exhibited by patient's relatives, bystanders and paramedics. (NOCP 2.4.c)
26. Understand the value of empathy and compassion as it pertains to patient care. (NOCP 2.4.b)
27. Chose language appropriate to a situation (NOCP 2.1.e, f, g)
28. Communicate verbally using appropriate language (NOCP 2.1.e, f, g)
29. Integrate care appropriate to situation. (NOCP 1.1.a)
30. Integrate the skill of obtaining incident history into overall patient assessment. (NOCP 4.2.c)
31. Adapt interview techniques to the incident history findings. (NOCP 4.2.c)

32. Integrate incident history information into patient care. (NOCP 4.2.c)
33. List methods of discovering a patient's past medical history. (NOCP 4.2.d)
34. Describe common components of a complete medical history. (NOCP 4.2.d)
35. Integrate the skill of obtaining a list of medical history into overall patient assessment. (NOCP 4.2.d)
36. Adapt interview techniques to the medical history findings. (NOCP 4.2.d)
37. Integrate medical history information into patient care procedures. (NOCP 4.2.d)
38. Assess current health status with respect to past medical history. (NOCP 4.2.d)
39. Obtain information about patient's last oral intake. (NOCP 4.2.e)
40. List situations when information about a patient's last oral intake may be required. (NOCP 4.2.e)
41. List methods of discovering information regarding last oral intake. (NOCP 4.2.e)
42. Integrate the skill of obtaining information regarding last oral intake into overall patient assessment. (NOCP 4.2.e)
43. Integrate the skill of obtaining a list of medications into history gathering procedures. (NOCP 4.2.b)
44. Assess patient compliance with medications. (NOCP 4.2.b)
45. Understand the importance of obtaining antibiotics use in the last 3 months when assessing for resistance
46. Obtain a chief complaint and incident history from patient, family, bystanders or the scene. (NOCP 4.2.c)
47. Describe methods of discovering an incident history (NOCP 4.2.c)
48. Describe common components of an incident history. (NOCP 4.2.c)
49. Describe methods of discovering incident information. (NOCP 4.2.f)
50. Integrate the skill of obtaining incident information into overall scene assessment. (NOCP 4.2.f)
51. List common examples of allergens. (NOCP 4.2.a)
52. Describe how an allergen can affect individuals. (NOCP 4.2.a)
53. Evaluate how information about an allergy will affect patient care. (NOCP 4.2.a)
54. Integrate the skill of obtaining information about allergies into history. (NOCP 4.2.a)
55. Apply various methods of gaining a patient's medication profile. (NOCP 4.2.b)
56. Be familiar with the techniques of obtaining a best possible medication history
57. Describe relationship of medication, dosage and frequency to history. (NOCP 4.2.b)
58. Be familiar with medication related adverse drug reactions
59. Organize a patient history and other pertinent information for the purpose of oral communication. (NOCP 2.1.c)
60. Communicate an organized, accurate and relevant patient history (NCOP 2.1.c)
61. Perform an organized, accurate, and relevant verbal report.
62. Organize a patient history and other pertinent information for the purpose providing a verbal report. (NOCP 2.1.b)
63. Describe the components of a verbal report. (NOCP 2.1.b)
64. Perform an organized, accurate, and relevant verbal report. (NOCP 2.1.b)
65. Acknowledge the importance of appropriate documentation. (NOCP 1.3.c)

Section 03 Patient Assessment

1. Assess scene for safety (NOCP 3.3.a)
2. Define scene safety. (NOCP 3.3.a)
3. Describe factors contributing to scene safety. (NOCP 3.3.a)
4. Apply techniques for assessing scene safety. (NOCP 3.3.a)
5. Integrate techniques for the assessment of scene safety. (NOCP 3.3.a)
6. List potential occupational hazards at the scene. (NOCP 3.3.b)
7. Address potential occupational hazards (NOCP 3.3.b)
8. Describe ways to manage occupational hazards. (NOCP 3.3.b)
9. Adapt techniques to manage occupational hazards. (NOCP 3.3.b)
10. Identify appropriate dress for situation and environment. (NOCP 1.1.c)
11. Integrate knowledge of situation and environment to dress appropriately. (NOCP 1.1.c)
12. Describe personal protective equipment utilized in practice. (NOCP 3.3.f)
13. Integrate universal precautions and safe handling procedures. (NOCP 3.3.f)
14. Demonstrate proper use of personal protective equipment. (NOCP 3.3.f)
15. Evaluate the importance of a primary survey
16. Explain primary assessment. (NOCP 4.3.a)
17. Evaluate life-threatening findings from primary survey. (NOCP 4.3.a)
18. Define and describe the techniques of:
    a. Inspection
    b. Palpation
    c. Percussion
    d. Auscultation
19. Distinguish between trauma assessment and primary medical assessment (NOCP 4.3.a)
20. Describe the evaluation of mental status (NOCP 4.4.i)
21. Perform assessment of level of mentation. (NOCP 4.4.i)
22. Adapt technique of assessing level of mentation to patient age. (NOCP 4.4.i)
23. Describe and evaluate airway patency
24. Describe and evaluate circulatory status (NOCP 4.3.c)
25. Apply appropriate techniques for primary assessment. (NOCP 4.3.a)
26. Apply primary assessment to different age groups. (NOCP 4.3.a)
27. Perform primary assessment. (NOCP 4.3.a)
28. Adapt assessment techniques to primary assessment findings. (NOCP 4.3.a)
29. Analyze initial assessments to determine patients' level of distress and severity of illness/injury. (NOCP 4.3.a)
30. Identify a differential diagnosis based on the information provided and be able to identify other possible differentials. (NOCP 4.3.a)
31. List the four parameters used to assess skin condition (NOCP 4.4.g)
32. Identify the factors that affect skin temperature, colour, moisture, and turgor. (NOCP 4.4.g)

33. Distinguish between normal and abnormal findings when assessing skin color, moisture and turgor. (NOCP 4.4.g)
34. Identify how to assess skin color changes in different races. (NOCP 4.4.g)
35. Distinguish between normal and abnormal findings when assessing skin temperature. (NOCP 4.4.g)
36. Distinguish between normal and abnormal findings when assessing skin condition and skin turgor (NOCP 4.4.g)
37. Perform assessment of skin condition utilizing four parameters (NOCP 4.4.g)
38. Adapt technique of skin assessment condition to patient age and race. (NOCP 4.4.g)
39. Explain the physiology of respiration. (NOCP 4.4.b)
40. Modify respiratory assessment to patient age. (NOCP 4.4.b)
41. Evaluate respiratory rate, effort, excursion, and symmetry. (NOCP 4.4.b)
42. Distinguish between adequate and inadequate respiratory effort. (NOCP 4.4.b)
43. Explain factors that influence the respiratory rate. (NOCP 4.4.b)
44. Perform respiratory assessment. (NOCP 4.4.b)
45. Adapt techniques of obtaining respirations to patient situation. (NOCP 4.4.b)
46. Define pulse (NOCP 4.4.a)
47. Identify sites where a pulse may be found. (NOCP 4.4.a)
48. Modify pulse check to age of patient. (NOCP 4.4.a)
49. Evaluate arterial pulse, rate, rhythm, and quality. (NOCP 4.4.a)
50. Distinguish between normal and abnormal findings. (NOCP 4.4.a)
51. Identify factors that influence pulse rate. (NOCP 4.4.a)
52. Perform pulse assessment and adapt techniques to patient situation. (NOCP 4.4.a)
53. Describe the physiology of blood pressure (NOCP 4.4.d)
54. Describe the physiology of pulse points (NOCP 4.4.e)
55. Distinguish between auscultated and palpated BP and factors that influence each. (NOCP 4.4.d, 4.4.e)
56. Analyze the strengths and limitations of auscultated and palpated BP (NOCP 4.4.d, 4.4.e)
57. Perform/demonstrate an auscultated and palpated BP, adapting to situation (NOCP 4.4.d, 4.4.e)
58. Explain rationale for measuring blood pressure with non-invasive monitor. (NOCP 4.4.f)
59. Describe techniques to obtain blood pressure with non-invasive monitor. (NOCP 4.4.f)
60. Distinguish normal and abnormal findings of blood pressure determined with non-invasive monitor (NOCP 4.4.f)
61. Perform BP measurement using non-invasive monitor and trouble shoot same. (NOCP 4.4.f)
62. Understand proper sizing of blood pressure cuff and misleading readings that can occur with an improper fit
63. Be able to asses orthostatic hypotension
64. Describe the examination of the following body regions, differentiate between normal and abnormal findings, and define the significance of abnormal findings:
    a. skin, hair, and nails

b. head, scalp, and skull
c. eyes, ears, nose, mouth, and pharynx (NOCP 4.3.k)
d. neck (NOCP 4.3.k)
e. thorax (anterior and posterior) (NOCP 4.3.c, e)
f. arterial pulse including rate, rhythm, and amplitude (NOCP 4.4.a)
g. jugular venous pressure and pulsations (NOCP 4.3.c)
h. heart and blood vessels (NOCP 4.3.c)
i. abdomen (NOCP 4.3.g)
j. male and female genitalia (NOCP 4.3.h)
k. anus and rectum (NOCP 4.3.h)
l. peripheral vascular system (NOCP 4.3.i)
m. musculoskeletal system (NOCP 4.3.j)
n. nervous system (NOCP 4.3.d)
o. Cranial nerves (NOCP 4.3.d)

65. Conduct a secondary assessment and interpret findings (NOCP 4.3.b)
66. Explain secondary assessment. (NOCP 4.3.b)
67. Distinguish between trauma and medical secondary assessment. (NOCP 4.3.b)
68. Evaluate life threatening findings from secondary survey. (NOCP 4.3.b)
69. Apply appropriate techniques for secondary assessment. (NOCP 4.3.b)
70. Apply secondary assessment to different age groups. (NOCP 4.3.b)
71. Perform secondary assessment. (NOCP 4.3.b)
72. Adapt assessment techniques to secondary assessment findings. (NOCP 4.3.b)
73. Infer a provisional diagnosis. (NOCP 4.3.b)
74. Discuss indications of change in patient status that may require additional resources, altering treatment or transportation decisions. (NOCP 4.1.a)
75. Discuss how to assess pupils and interpret your findings. (NOCP 4.4.h)
76. Incorporate knowledge of autonomic nervous system when assessing pupils
77. Discuss how to assess level of mentation and interpret your findings. (NOCP 4.4.i)
78. Obtain information regarding incident through accurate and complete scene assessment. (NOCP 4.2.f)
79. Adapt scene management from information gained during continuous scene assessment. (NOCP 4.2.f)
80. Integrate incident information into patient care procedures. (NOCP 4.2.f)
81. Perform task delegation. (NOCP 1.6.c)
82. Discuss appropriate task delegation. (NOCP 1.6.c)

Section 04 Clinical Decision Making

1. Discuss, value, and integrate reasonable and prudent judgement. (NOCP 1.6.a)
2. Compare the factors influencing medical care in the out-of-hospital environment to other medical settings.
3. Define acuity while differentiating between critical life-threatening, potentially life-threatening, and non-life-threatening patient presentations.
4. Evaluate the benefits and shortfalls of protocols, standing orders, and patient care algorithms.
5. Define the components, stages, and sequences of the critical-thinking process for paramedics.
6. Define differential diagnosis
7. Apply the fundamental elements of critical thinking for paramedics.
8. Describe the effects of the "fight-or-flight" response and its positive and negative effects on a paramedic's decision making.
9. Summarize the "Six R's" of putting it all together:
    a. Read the patient
    b. Read the scene
    c. React
    d. Re-evaluate
    e. Revise the management plan
    f. Review performance.
10. Discuss and apply effective problem solving. (NOCP 1.6.b)
11. Value and integrate the process of problem solving. (NOCP 1.6.b)
12. Integrate reasonable and prudent judgment. (NOCP 1.6.a)
13. Given several preprogrammed and moulaged trauma and medical patients, demonstrate clinical decision making. (NOCP 4.3.a)
14. Discuss clinical errors and how they can occur.
15. Recognize the common causes of clinical errors to include:
    a. System errors
    b. No fault errors
    c. Cognitive errors
16. Understand the cognitive biases that can occur and how to avoid having them affect the decision making process.

Section 05 Pediatrics

1. Identify and define a child's primary emotional response to interactions with EMS practitioners.
2. Define "pediatric" patient and identify and describe the developmental milestone of pediatric patients of the following age groups and what additional assessment techniques may be used: (NOCP 4.3.n)
    a. Birth to six months
    b. Six months to twelve months
    c. Toddler (one to three years)
    d. Preschooler (three to five years)
    e. School age (six to twelve years)
    f. Adolescent (thirteen to eighteen years)
3. Identify the family's response to a pediatric crisis. (NOCP 2.1.e)
4. Identify five guidelines the EMS practitioner should utilize in dealing with the families response to a pediatric crisis. (NOCP 2.1.e)
5. Identify and describe guidelines for verbal and non-verbal communication with parents who are experiencing a pediatric emergency. (NOCP 2.1.e, 2.3.a)
6. Describe the anatomical or physiologic differences between children and adults for each of the following areas: (NOCP 4.3.n)
    a. Skin and body surface
    b. Head
    c. Airway
    d. Chest and lungs
    e. Heart and circulation
    f. Abdomen
    g. Extremities
    h. Nervous system
7. Identify the pediatric triangle for the purpose of identifying urgent or emergent patients utilizing the general appearance, work of breathing and circulation.
8. Identify and interpret the findings of the following components of a pediatric physical examination: (NOCP 4.3.n)
    a. Skin and body surface
    b. Head
    c. Airway
    d. Chest and lungs
    e. Heart and circulation
    f. Abdomen
    g. Extremities
    h. Nervous system
9. Explain variations in assessment findings for pediatric patients (NOCP 4.3.n)
10. Modify assessment approach for pediatric patients. (NOCP 4.3.n)
11. Discuss the appropriate equipment utilized to obtain pediatric vital signs.

12. Discuss anatomical features of children that predispose or protect them from certain injuries. (NOCP 6.1.o)
13. Utilize the Broselow Tape in the management of the pediatric patient.

Section 06 Geriatrics

1. Define “geriatric” patient. (NOCP 4.3.o)
2. Understand the social determinants of health
3. Discuss the demographics demonstrating the increasing size of the elderly population in Canada.
4. Assess the various living environments of elderly patients.
5. Discuss new EMS strategies that have been put in place to cope with this expanding population and their needs
6. Discuss the effects of the aging process. (NOCP 4.3.o)
7. Understand frailty measures and how they apply to EMS
8. Discuss society’s view of aging and the social, financial, and ethical issues facing the elderly.
9. Discuss common emotional and psychological reactions to aging, including causes and manifestations. (NOCP 4.3.o)
    a. Suicide
    b. Depression
    c. Alcohol and drug abuse
10. Explain variations in assessment findings for the geriatric patient. (NOCP 4.3.o)
11. Discuss the problem of mobility in the elderly, and develop strategies to prevent falls. (NOCP 4.3.o, 8.1.a, b)
12. Discuss age-related changes in sensations in the elderly, and describe the implications of these changes for communication and patient assessment. (NOCP 4.3.o)
13. Discuss factors that may complicate the assessment of the elderly patient. (NOCP 4.3.o)
14. Describe the principles that should be employed when assessing and communicating with the elderly. (NOCP 4.3.o)
15. Modify typical assessment approach as necessary for a geriatric patient. (NOCP 4.3.o)
16. Discuss common signs and symptoms associated with geriatric emergencies. (NOCP 4.3.o)
17. Discuss common complaints of elderly patients. (NOCP 4.3.o)
18. Discuss the normal and abnormal changes with age in relation to the: (NOCP 4.3.o)
    a. Pulmonary system (NOCP 6.1.c)
    b. Cardiovascular system (NOCP 6.1.a)
    c. Nervous system (NOCP 6.1.b)
    d. Endocrine system (NOCP 6.1.i)
    e. Gastrointestinal system (NOCP 6.1.e)
    f. Thermoregulatory system
    g. Integumentary system (NOCP 6.1.f)
    h. Musculoskeletal system (NOCP 6.1.g)
19. Demonstrate appropriate assessment techniques for the geriatric patient. (NOCP 4.3.o)
20. Discuss the impact of polypharmacy, dosing errors, increased drug sensitivity, and medication non-compliance on assessment and management of the elderly patient. (NOCP 5.8.a, o)
21. Integrate the approach, assessment, treatment, and transportation of the geriatric patient. (NOCP 6.2.c)

22. Communicate information regarding care to patient, relatives or primary care givers.
23. Justify approach, assessment, care, and transportation decisions. (NOCP 6.2.c)
24. Provide care to a geriatric patient experiencing illness or injury. (NOCP 6.2.c)
25. Discuss common

Section 07 Bariatrics

1. Define “bariatric” (NOCP 4.3.p)
2. Discuss the effects of obesity (NOCP 4.3.p)
3. Discuss epidemiology of bariatrics
4. Discuss the normal and abnormal changes in relation to the bariatric patient. (NOCP 4.3.p)
5. Explain variations in the approach, assessment, treatment and transportation a bariatric assessment (NOCP 4.3.p, 6.2.f)
6. Modify assessment approach (NOCP 4.3.p, 6.2.f)
7. Demonstrate appropriate assessment techniques for the bariatric patient (NOCP 4.3.p, 6.2.f)
8. Identify possible abuse or neglect of the bariatric patient (NOCP 6.2.f)
9. Justify approach, treatment and transportation decisions (NOCP 4.3.p)
10. Identify common pieces of modern equipment that assist with provider care and transport to the bariatric patient
11. Discuss difficulties in extricating the bariatric patient, along with modification to standards of care that must occur to treat a patient that is not able to be expediently transported

Section 08 Documentation

1. Identify the general principles regarding the importance of EMS documentation and ways in which documents are used.
2. Identify and properly use medical terminology, medical abbreviations, and acronyms.
3. Explain the role of documentation in agency reimbursement.
4. Identify and eliminate extraneous or nonprofessional information.
5. Describe the differences between subjective and objective elements of documentation.
6. Evaluate a finished document for errors and omissions and proper use and spelling of abbreviations and acronyms.
7. Evaluate the confidential nature of an EMS report.
8. Describe the potential consequences of illegible, incomplete, or inaccurate documentation.
9. Describe the special documentation considerations concerning patient refusal of care and/or transport.
10. Demonstrate how to properly record direct patient or bystander comments.
11. Describe the special considerations concerning mass casualty incident documentation.
12. Demonstrate proper document revision and correction.
13. Given a prehospital care report form, organize patient information for the purposes of documentation by written report using a consistent format. (NOCP 1.3.c, 2.2.a)
14. Acknowledge the importance of appropriate documentation. (NOCP 1.3.c)
15. Apply and perform principles of appropriate documentation. (NOCP 1.3.c)
16. Prepare professional correspondence and list common items of professional correspondence. (NOCP 2.2.b)
17. Describe essential elements of professional correspondence. (NOCP 2.2.b)
18. Discuss different documentation mediums used in prehospital and hospital care.
19. Organize patient information in written form on a patient care report. (NOCP 2.2.a)
20. Communicate accurate, organized and relevant documentation. (NOCP 2.2.a)

Module 10

Airway Management

Module 10 (Airway Management)

While all paramedic skills are important to master and maintain, none are more important than those associated with airway management and ventilation. With this module the student will examine the procedures to performing the skills needed to manage even the most difficult airway.

Contents

Module 10 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Time Requirements:

Didactic:	Theoretical	21
	Evaluations	1.5
	Lab	18
	In-class Total	40.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Respiratory Anatomy

1. Identify the following structures and discuss their function:
    a. Anterior and Posterior Nares
    b. Vestibule
    c. Turbinates
    d. Nasal septum
    e. Olfactory mucosa
    f. Eustachian tube
    g. Hard palate
    h. Soft palate
    i. Uvula
    j. Tongue
    k. Epiglottis
    l. Glottic opening
    m. True and False Vocal cords
    n. Pyriform fossa
    o. Hyoid bone
    p. Thyroid membrane
    q. Thyroid cartilage
    r. Arytenoid cartilage
    s. Cricoid cartilage
    t. Cricothyroid membrane
    u. Trachea
    v. Paranasal sinus
    w. Palantine tonsils
    x. Pharyngeal tonsils
    y. Pharynx and its three regions
    z. Larynx and the nine cartilages that it composes of
        i. Epiglottis
        ii. Arytenoid
        iii. Corniculate
        iv. Cuneiform
        v. Thyroid
        vi. Cricoid
    aa. Trachea
    bb. Mainstem Bronchi
    cc. Carina
    dd. Secondary bronchi
    ee. Tertiary bronchi
    ff. Bronchioles
    gg. Alveoli
    hh. Alveolar ducts

2. Understand the importance of the above structures in regards to ventilation and airway management.
3. Describe the major function of the respiratory system and list the three distinct processes that collectively make up the process of respiration
4. Name the major parts and organs of the respiratory system and state which are involved in gas exchange and conduction of air.
5. State how the epithelial lining differs from the primary bronchi to the terminal bronchioles.
6. Describe the structure of the respiratory membrane.
7. Describe the function of type I cells, type II cells, and alveolar macrophages.
8. Discuss the importance of surfactant
9. Given a diagram of the lungs identify the following:
    a. Lungs
    b. Costal surfaces
    c. Apex
    d. Base
    e. Hilum
    f. Cardiac notch
10. Describe the structure and function of the parietal and visceral pleura.
11. State the relationship between pressure and flow of gas into and out of the lungs.
12. Describe the relationship between pressure and volume of gas (Boyle's Law).
13. Compare and contrast inspiration and expiration in terms of pressure and gas flow.
14. Contrast normal (passive) exhalation with forced exhalation.
15. State the relationship between gas flow and pressure gradient (delta P).
16. Describe the following terms: (NOCP 5.4.c)
    a. Compliance
    b. Resistance
    c. Lung Volumes
        i. Tidal Volume
        ii. Inspiratory Reserve Volume
        iii. Expiratory Reserve Volume
        iv. Residual Volume
        v. Minute Volume
    d. Lung Capacities
        i. Vital Capacity
        ii. Inspiratory Capacity
        iii. Functional Residual Capacity
        iv. Total Lung Capacity
    e. Pressures
        i. Plateau pressure
        ii. Inspiratory pressure
        iii. Expiratory pressure
        iv. Peak expiratory pressure

17. State Dalton's Law of Partial Pressures and calculates partial pressures when given a barometric pressure and individual gas concentrations.
18. State Henry's Law and how it relates to oxygen therapy.
19. State a simple overview of the pulmonary gas exchange in external respiration.
20. Relate the direction of gas diffusion given the partial pressure of oxygen and carbon dioxide in the alveoli and the venous circulation.
21. Briefly describe gas exchange in internal respiration.
22. Compare PCO_2 and PO_2 in the pulmonary arteries and veins.
23. State how oxygen is carried by the blood.
24. Differentiate between oxyhemoglobin and deoxyhemoglobin.
25. List four factors that affect binding of oxygen to hemoglobin and how each factor affects the binding.
26. Discuss the oxyhemoglobin dissociation curve and how it relates to homeostasis
27. List the three forms in which carbon dioxide is transported in the blood.
28. State the location of the inspiratory and expiratory centers in the brain.
29. List seven factors that can influence the rate and depth of breathing.

Section 02 Airway Management and Ventilation

1. Discuss the indications for oxygen administration. (NOCP 5.2.a)
2. Explain the purpose and possible complications of oxygen administration. (NOCP 5.2.a)
3. Describe the different types of masks available for delivering oxygen to breathing patient. (NOCP 5.2.a)
4. Describe the different devices available to provide positive pressure ventilation to a patient. (NOCP 5.4.a)
5. Discuss the available types of oxygen delivery systems available in the prehospital and in-hospital settings (NOCP 5.2.b)
6. Discuss the Pin Index Safety System and the American Thread Standard. (NOCP 5.2.b)
7. Discuss the safety procedures for using oxygen. (NOCP 5.2.a)
8. Discuss the complications of oxygen delivery. (NOCP 5.2.a)
9. Discuss situations when oxygen is proven to not only have no effect but possibly be detrimental
10. Describe the sequential steps for setting up oxygen delivery systems. (NOCP 5.2.b)
11. Operate oxygen delivery systems. (NOCP 5.2.b)
12. Describe indications for & discuss the purpose of oxygen administration (NOCP 5.2.a)
13. Discuss oxygen administration precautions. (NOCP 5.2.a)
14. Identify oxygen cylinder types and sizes. (NOCP 5.2.a)
15. Apply the formulas that determine oxygen cylinder factors, volume (or type), and maximum filling volumes and duration. (NOCP 5.2.a)
16. Identify various types of oxygen delivery systems. (NOCP 5.2.a)
17. Explain the difference between portable and fixed oxygen delivery systems. (NOCP 5.2.a)
18. Demonstrate cleaning and disinfection of oxygen delivery systems. (NOCP 5.2.b)
19. Explain the purposes of and indications for oropharyngeal suctioning. (NOCP 5.1.b)
20. Describe suctioning equipment. (NOCP 5.1.b)
21. Explain established standards of maintenance for suctioning equipment. (NOCP 5.1.b)
22. Identify pressure limitations for suctioning various age groups. (NOCP 5.1.b)
23. Operate appropriate suctioning devices. (NOCP 5.1.b)
24. Explain potential complications of suction (NOCP 5.1.b)
25. Perform suctioning using safe technique. (NOCP 5.1.b)
26. Adapt suctioning techniques to changes in patient's condition. (NOCP 5.1.b)
27. Perform cleaning and disinfection of suctioning equipment. (NOCP 5.1.b)
28. Describe the methods of the classifying and grading of a patient's airway. (NOCP 5.1.a)
29. Be familiar with the anatomy, junctions, axis, and lines used for orienting and aligning airway
30. Be familiar with contemporary research surrounding the use of AW devices
31. Perform insertion of various types of airway devices (NOCP 5.1.f, g, h)
32. Adjust to changes in patient presentation (NOCP 5.1.f, g, h)
33. Describe the types of airway opening manoeuvres for various patients (NOCP 5.1.a)
34. Discuss the indications, contraindications, and precautions of performing airway maneuvers. (NOCP 5.1.a)
35. Apply problem solving techniques required with various types of patients (NOCP 5.1.a)

36. Demonstrate management of potential complications of airway maneuvers. (NOCP 5.1.a)
37. Identify the purposes of and indications for foreign body removal by forceps. (NOCP 5.1.j)
38. Describe the equipment used for a foreign body removal by direct techniques. (NOCP 5.1.j)
39. Have familiarity with how to adjust to changes in patient presentation in the setting of foreign body obstruction.
40. Identify the indications for airway foreign body removal. (NOCP 5.1.i)
41. Describe the methods of relieving airway obstructions. (NOCP 5.1.i)
42. Describe the differences in technique required for removing foreign body airway obstructions for various age groups. (NOCP 5.1.i)
43. Perform removal of foreign body airway obstructions under a variety of situations. (NOCP 5.1.i)
44. Adjust to changes in patient presentation. (NOCP 5.1.i)
45. Identify potential complications of removal of foreign body airway obstructions. (NOCP 5.1.i)
46. Identify potential complications of removal of foreign body airway obstructions by forceps. (NOCP 5.1.j)
47. Discuss the indications and complications of tracheal suctioning. (NOCP 5.1.c)
48. Describe the equipment required and the procedure for tracheal suctioning. (NOCP 5.1.c)
49. Explain the purpose and indications for inserting an oropharyngeal or nasopharyngeal airway. (NOCP 5.1.d, e)
50. Discuss oropharyngeal airway types and sizes. (NOCP 5.1.d)
51. Perform oropharyngeal airway sizing procedures. (NOCP 5.1.d)
52. Perform insertion of oropharyngeal airway. (NOCP 5.1.d)
53. Adjust to changes in patient presentation. (NOCP 5.1.d)
54. Perform nasopharyngeal airway sizing procedures. (NOCP 5.1.e)
55. Perform insertion of nasopharyngeal airway. (NOCP 5.1.e)
56. Explain the purposes of and indications for inserting a nasopharyngeal airway. (NOCP 5.1.e)
57. Adjust to changes in patient presentation. (NOCP 5.1.e)
58. Apply problem-solving techniques required with various types of patients.
59. Identify the purposes and indications for the use of a nasal cannula. (NOCP 5.3.a)
60. List the steps for administration of oxygen by nasal cannula. (NOCP 5.3.a)
61. Perform oxygen administration using a nasal cannula. (NOCP 5.3.a)
62. Adjust to changes in patient presentation. (NOCP 5.3.a)
63. Identify the purposes of and indications for the use of a low concentration mask. (NOCP 5.3.b)
64. List the steps for administration of oxygen by low concentration mask. (NOCP 5.3.b)
65. Perform oxygen administration using a low concentration mask. (NOCP 5.3.b)
66. Adjust to changes in patient presentation. (NOCP 5.3.b)
67. Identify the purposes of and indications for the use of a controlled concentration mask. (NOCP 5.3.c)
68. List the steps for administration of oxygen by controlled concentration mask. (NOCP 5.3.c)
69. Perform oxygen administration using a controlled concentration mask. (NOCP 5.3.c)

70. Adjust to changes in patient presentation. (NOCP 5.3.c)
71. Identify the purposes of and indications for the use of a high concentration mask. (NOCP 5.3.d)
72. List the steps for administration of oxygen by high concentration mask. (NOCP 5.3.d)
73. Perform oxygen administration using a high concentration mask. (NOCP 5.3.d)
74. Adjust to changes in patient presentation. (NOCP 5.3.d)
75. Identify the purposes of and indications for the use of a pocket mask. (NOCP 5.3.e)
76. List the steps for administration of oxygen by pocket mask. (NOCP 5.3.e)
77. Perform oxygen administration using a pocket mask. (NOCP 5.3.e)
78. Adjust to changes in patient presentation. (NOCP 5.3.e)
79. Identify the purposes of and indications for the use of a manual positive pressure device (NOCP 5.4.a)
80. List the steps for administration of oxygen by a manual positive pressure device and perform ventilation using a manual positive pressure device.(NOCP 5.4.a)
81. Distinguish between one person and two person application of a manual positive pressure device and evaluate effectiveness of ventilations. (NOCP 5.4.a)
82. Discuss rate, rhythm, volume, compliance and positive and expiratory pressure with a manual positive pressure device. (NOCP 5.4.a)
83. Adjust to changes in patient presentation (NOCP 5.4.a)
84. Explain the purposes of and indications for airway devices not requiring visualization of the vocal cords and not introduced endotracheally. (NOCP 5.1.f)
85. Describe various types of airway devices not requiring visualization of vocal cords and not introduced endotracheally. (NOCP 5.1.f)
86. Perform sizing procedures for airway devices not requiring visualization of the vocal cords and not introduced endotracheally. (NOCP 5.1.f)
87. Adjust to changes in patient presentation. (NOCP 5.1.f)
88. Identify the indications for suctioning beyond the oropharynx. (NOCP 5.1.c)
89. Identify the factors that affect accuracy of pulse oximeters. (NOCP 4.5.a)
90. Describe the physiologic properties of oxygen. (NOCP 4.5.a)
91. Describe the function of a pulse oximeter. (NOCP 4.5.a)
92. Identify oximetry waveforms. (NOCP 4.5.a)
93. Identify indications for oxygen administration relative to saturated oxygen values. (NOCP 4.5.a)
94. Perform oximetry testing and adapt technique to patient age in a simulated setting. (NOCP 4.5.a)
95. Describe the equipment and procedure for application of CPAP. (NOCP 5.4.c)
96. Discuss the indications, contraindications and complications of CPAP use. (NOCP 5.4.c)
97. Perform the administration and maintenance of CPAP. (NOCP 5.4.c)

Module 11

Respiratory

Module 11 (Respiratory)

Respiratory emergencies are among some of the most common EMS personnel encounter. Paramedics must promptly recognize respiratory problems and treat them appropriately. In this module the student will discuss the pathophysiology, assessment, and management of the most frequently encountered respiratory emergencies.

Contents

Module 11 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Appendix 4 - Pathophysiology

Time Requirements:

Didactic:	Theoretical	24
	Evaluations	1.5
	Lab	18
	In-class Total	43.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Pathophysiology and Respiratory Disorders

1. Evaluate and explain signs / symptoms, describe appropriate treatment as applicable, and explain the pathophysiology of the following respiratory illnesses and injuries: (NOCP 4.3.e)
    a. Medical Illness
        i. Acute respiratory failure
        ii. Adult Respiratory Distress Syndrome
        iii. Aspiration
        iv. Chronic Obstructive Pulmonary Disease
        v. Hyperventilation syndrome
        vi. Pleural effusion
        vii. Pneumonia
        viii. Pleurisy
        ix. Bronchitis
        x. Pulmonary Edema
        xi. Pulmonary Embolism
        xii. Reactive airways disease / Asthma
    b. Pediatric Illness
        i. Acute respiratory failure
        ii. Bronchiolitis
        iii. Croup
        iv. Cystic Fibrosis
        v. Epiglottitis
        vi. Sudden Infant Death Syndrome (NOCP 4.5 e)
2. Describe the history, assessment and management of: (NOCP 6.1.c)
    a. Asthma
    b. Status asthmaticus
    c. Bronchiolitis
    d. Croup
    e. Neck and Upper Airway Disorders
        i. Epiglottitis
        ii. Obstruction
        iii. Peritonsillar abscess
        iv. Retropharyngeal abscess
        v. Tonsillitis
        vi. Tracheostomies

Section 02 Thoracic Trauma

1. Evaluate the kinematics of a variety of blunt and penetrating mechanisms of injury.
2. Describe the signs, symptoms, pathophysiology, and treatment for injuries resulting from thoracic trauma.
3. Evaluate findings related to etiology, manifestations and describe appropriate treatment as applicable and explain the pathophysiology of the following traumatic cardio injuries & adjust changes to patient presentation:
    a. Aspirated foreign body
    b. Burns
    c. Diaphragmatic injuries
    d. Flail chest
    e. Hemothorax
    f. Penetrating/Ballistic chest injury
    g. Pneumothorax (simple or tension)
    h. Myocardial contusion
    i. Esophageal disruption
    j. Pulmonary contusion
4. Describe the anatomy of the pleural cavity as it relates to specific injury.
5. Describe the physiology of ventilation.
6. Review the changes in intrapleural pressure during ventilation during injury.

Section 03 Acid-Base Balancing

1. Identify the ideal pH range in a healthy human (NOCP 5.5.h)
2. Identify sources of H+ within our body. (NOCP 4.5.l)
3. List the three mechanisms through which we can regulate acid-base balance. Which system acts the fastest? (NOCP 4.3.e)
4. Describe the principle behind the buffer system. (NOCP 4.3.h, 5.5.h, 6.1.d)
5. Describe the following buffer systems in our body: (NOCP 4.5.l)
    a. carbonic acid - bicarbonate buffer
    b. phosphate buffer
    c. protein buffer
6. Describe how the respiratory system can alter pH. (NOCP 4.3.e, 6.1.c)
7. Describe the mechanisms that stimulate the respiratory system to increase or decrease its rate and result in a change in pH. (NOCP 4.3.e, 6.1.c)
8. Describe how the kidneys can alter pH by excreting H+ and regulating bicarbonate concentration. (NOCP 4.3.h, 6.1.d)
9. How do we maintain an acceptable urine pH? (NOCP 4.3.h, 6.1.d)
10. Describe the following physiological effects of the following imbalances in pH:
    a. respiratory acidosis (NOCP 6.1.c)
    b. respiratory alkalosis (NOCP 6.1.c)
    c. metabolic acidosis (NOCP 4.5.l)
    d. metabolic alkalosis (NOCP 4.5.l)

Section 04 Respiratory Assessment

1. Apply assessment techniques specific to the respiratory system. (NOCP 4.3.e)
2. Evaluate the significance of normal and adventitious breath sounds identified on auscultation. (NOCP 4.3.e)
3. Perform assessment techniques for respiratory illnesses and injuries. (NOCP 4.3.e)
4. Adapt assessment techniques to respiratory system findings. (NOCP 4.3.e)
5. Provide care to a patient experiencing illness or injury primarily involving the respiratory system. (NOCP 6.1.c)
6. Explain the approach to a patient presenting with illness or injury involving the respiratory system. (NOCP 6.1.c)
7. Explain how patient history relates to patient presentation. (NOCP 6.1.c)
8. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.c)
9. Infer a differential diagnosis. (NOCP 6.1.c)
10. Discuss potential complications of illnesses and injuries to the respiratory system. (NOCP 6.1.c)
11. Adapt care based on patient presentation. (NOCP 6.1.c)
12. Communicate information to patient regarding care. (NOCP 6.1.c)
13. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.c)
14. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.c)
15. Define pediatric respiratory distress, failure, and arrest.
16. Differentiate between upper airway obstruction and lower airway disease. (NOCP 4.4.b)
17. Describe the general approach to the treatment of children with respiratory distress, failure, or arrest from upper airway obstruction or lower airway disease. (NOCP 4.4.b)
18. Identify signs associated with common pediatric emergencies.
19. Describe the history, assessment and management of an airway obstruction resulting from the aspiration of a foreign body. (NOCP 5.1.a, b, c, l, j)

Section 05 Pharmacology

1. For the medications listed below (NOCP 5.8.a, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, trade, and official names
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Evaluate medical conditions and indications for a particular route of medication administration
    e. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    f. Explain mechanism of action
    g. Apply proper calculations for correct medication requirement for the patient presentation
    h. Distinguish approved drug routes for the medication in question
    i. Evaluate appropriate site and route of medication administration
    j. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - Ipratropium Bromide
    - Nitroglycerine
    - Oxygen
    - Salbutamol

Module 12

Cardiology

Module 12 (Cardiology)

Cardiovascular disease is a major cause of death and disability in Canada. Most cardiac arrests occur outside the hospital setting. Paramedics confront emergencies involving the cardiovascular system on a daily basis. This module covers cardiovascular physiology, ECG monitoring, and dysrhythmia analysis and discusses the assessment and management of the cardiovascular patient.

Contents

Module 12 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Appendix 4 - Pathophysiology

Appendix 5 - Medications

Time Requirements:

Didactic:	Theoretical	51
	Evaluations	3
	Lab	30
	In-class Total	84

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet
Heart and Stroke BLS Provider Manual

Section 01 Blood and Vascular Anatomy

1. Describe the components of blood. (NOCP 5.5.h)
2. Define “artery”. (NOCP 4.3.c, 6.1.a)
3. Define “vein”. (NOCP 4.3.c, 6.1.a)
4. Define “aorta”. (NOCP 4.3.c, 6.1.a)
5. Define “vena cava”. (NOCP 4.3.c, 6.1.a)
6. List the two exceptions to the rules of veins and arteries. (NOCP 4.3.n)
7. Describe the structure of blood vessels including : (NOCP 4.3.c, 6.1.a)
    a. Tunica intima
    b. Tunica media
    c. Tunica adventitia
8. Describe the tissues of each of following: (NOCP 4.3.c, 6.1.a)
    a. Tunica intima
    b. Tunica media
    c. Tunica adventitia
9. Define the term “vasa vasorum”. (NOCP 4.3.c, 6.1.a)
10. Describe the flow of blood as it pertains to the grand circulation (within the larger blood vessels) and as it pertains to the micro circulation and Starling’s law of the capillaries. (NOCP 4.3.c, 6.1.a)
11. Define the role of the reservoir function of veins and how this is accomplished. (NOCP 4.3.c, 6.1.a)
12. Discuss the following: (NOCP 5.5.h)
    a. Plasma
    b. Red blood cells (erythrocytes)
    c. Hemoglobin
    d. Hematocrit
    e. White blood cells (leukocytes)
    f. Platelets, clotting, and fibrinolysis
    g. Hemostasis
13. Describe the ABO Blood groups (NOCP 5.5.h)
14. Describe the Rh Factor (NOCP 5.5.h)
15. Name the main components of centrifuged anticoagulated blood and state the location and approximate percentage of volume in each. (NOCP 5.5.h)
16. Identify on diagram the following arteries: (NOCP 4.3.c, 6.1.a)
    a. Aorta
    b. Renal
    c. Femoral
    d. Popliteal
    e. Anterior tibia
    f. Posterior tibial
    g. Dorsalis pedis
    h. Brachiocephalic
    i. Left common carotid

j. Left subclavian
k. Brachial
l. Radial
m. Ulnar
n. Internal carotid
o. External carotid

Section 02 Cardiovascular Anatomy

1. Given a diagram of the heart will identify and outline the function of the following structures:
    a. Atria
    b. Interatrial septal wall
    c. Ventricles
    d. Interventricular septal wall
    e. Atrioventricular valves
    f. Tricuspid valve
    g. Bicuspid valve
    h. Semilunar valves
    i. Aortic valve
    j. Pulmonary valve
    k. Chordae tendonae
    l. Papillary muscles
    m. Coronary sinus
    n. Pulmonary trunk
    o. Pulmonary arteries
    p. Pulmonary veins
    q. Inferior vena cava
    r. Superior vena cava
    s. Auricles
    t. Aorta
    u. Base
    v. Apex
    w. Fibrous skeleton
2. Describe the size, shape and location of the heart
3. Identify the four surfaces of the heart
    a. Anterior
    b. Posterior
    c. Inferior
    d. Lateral
4. Identify the muscle layers of the heart
    a. Epicardium
    b. Myocardium
    c. Endocardium
5. Identify and describe the function of the pericardium and its layers
    a. Parietal pericardial layer
    b. Pericardial cavity
    c. Visceral pericardial layer
6. Trace the flow of blood through the pulmonary and systemic circulation
7. Identify and describe the function of the coronary vessels

a. Right coronary artery
b. Left coronary artery
c. Left anterior descending artery
d. Circumflex artery
e. Great cardiac vein
f. Middle cardiac vein
g. Small cardiac vein

8. Describe the function of intercalated discs
9. Describe the intrinsic and extrinsic stimulation of the heart
    a. Conduction system of the heart
        i. Sinoatrial node
        ii. Bachmann's bundle
        iii. Anterior, middle and posterior intermodal tract
        iv. Atrioventricular node
        v. Atrioventricular bundle
        vi. Left and right bundle branches
        vii. Purkinje fibers
    b. Action potential of a cardiac cell
    c. Nerve supply
        i. Cardiac center
        ii. Middle, superior and inferior cardiac nerves
        iii. Vagus nerve
        iv. Cardiac plexus
        v. Vasomotor Control Mechanism
        vi. Carotid and aortic baroreceptors
        vii. Carotid and aortic chemoreceptors
        viii. Medullary ischemic reflex
        ix. Cerebral cortex and hypothalamus stimulation
    d. Hormonal stimulation
10. Describe the components of a complete cardiac cycle
    a. Atrial systole
    b. Isovolumetric Ventricular Contraction
    c. Ejection
    d. Isovolumetric Ventricular Relaxation
    e. Passive Ventricular Filling
11. Define:
    a. Systole
    b. Diastole
    c. Preload
    d. Afterload
    e. End diastolic volume
    f. End systolic volume
    g. Stroke volume
    h. Cardiac Output

i. Blood pressure
j. Pulse pressure
k. Mean arterial pressure
l. Peripheral (Systemic) vascular resistance

12. Describe how Starling's Law of the Heart and its significance to cardiac function
13. Define the following terms in relation to cardiac function
    a. Chronotrope
    b. Inotrope
    c. Dromotrope

Section 03 Cardiology

1. Explain the pathophysiology, etiology and manifestations, identify the signs and symptoms, evaluate findings and describe appropriate treatment for the following cardiovascular illnesses and injuries (NOCP 4.3.c, 6.1.a)
    a. Cardiovascular disease (NOCP Appendix 4b)
        i. Atherosclerosis
        ii. Arteriosclerosis
        iii. Aortic Aneurysm
        iv. Deep vein thrombosis
        v. Hypertension
        vi. Peripheral Vascular Disease
    b. Inflammatory disorders (NOCP Appendix 4b)
        i. Endocarditis
        ii. Myocarditis
        iii. Pericarditis
    c. Acute Coronary Syndromes (NOCP Appendix 4b)
        i. Angina
            1. Stable/Unstable angina pectoris
            2. Prinzmetal's (variant) angina
            3. Angina decubitus
        ii. Myocardial ischemia/injury
        iii. Myocardial infarction
    d. Heart failure (NOCP Appendix 4b)
        i. Cardiomyopathies
        ii. Left heart failure
        iii. Right heart failure
        iv. Pericardial tamponade
    e. Cardiac conduction disorders (NOCP Appendix 4b)
        i. Benign arrhythmias
        ii. Lethal arrhythmias
            1. Ventricular Fibrillation
            2. Ventricular Tachycardia without a pulse
            3. Asystole
            4. Pulseless electrical activity
        iii. Life threatening arrhythmias
2. List other clinical conditions that may mimic signs and symptoms of coronary artery disease and angina pectoris from an assessment and diagnostics point of view
3. Discuss potential complications of illnesses and injuries to the cardiovascular system. (NOCP 6.1.a)
4. Discuss causes and relative severity of hypoperfusion in infants and children.
5. Discuss the primary etiology of cardiopulmonary arrest in infants and children. (NOCP 4.3.n, 6.1.a)

Section 04 Cardiac Electrophysiology and 12-Lead ECG

1. Describe the principles of interpretation of cardiac rhythms (NOCP 4.5.m)
    a. Identify the wave parts of an ECG including:
        i. Isometric line
        ii. P wave
        iii. PR interval
        iv. QRS complex
        v. T wave
        vi. J point
        vii. ST segment
        viii. QT interval
        ix. U wave
    b. Discuss how the above waves, intervals and complexes are related to electrical activity of the heart. (NOCP 4.5.m)
    c. Identify how durations, and amplitudes may be determined from ECG recordings. (NOCP 4.5.m)
    d. State and demonstrate three methods of obtaining heart rates from an ECG
    e. Differentiate among the primary mechanisms responsible for producing cardiac dysrhythmias. (NOCP 4.5.m)
    f. Describe a systematic approach to analyzing ECG rhythms. (NOCP 4.5.m)
        i. Normal Sinus Rhythm
        ii. Sinus arrhythmia
        iii. Sinus arrest
        iv. Sinus bradycardia
        v. Sinus tachycardia
        vi. Supraventricular tachycardia
        vii. Atrial fibrillation
            a. Understand rhythm vs rate control
        viii. Atrial flutter
        ix. 1° AV Block
        x. 2° AV Block Type I (Wenckebach)
        xi. 2° AV Block Type II
        xii. 3° AV Block (Complete heart block)
        xiii. Junctional
        xiv. Accelerated Junctional
        xv. Junctional tachycardia
        xvi. Premature atrial, junctional and ventricular complexes
        xvii. Ventricular tachycardia
        xviii. Ventricular fibrillation
        xix. Asystole
        xx. Idioventricular rhythm
        xxi. Accelerated IVR

xxii. Agonal/Ventricular escape
xxiii. Left Bundle Brach block
xxiv. Right Bundle Branch block
xxv. Wandering atrial pacemaker/Multifocal atrial tachycardia (irregularly irregular rhythm)

g. Discuss life threatening arrhythmias associated with Sudden Arrhythmia Death Syndrome
    i. Electrical
        1. Long QT Syndrome (LQTS)
        2. Wolff-Parkinson -White Syndrome (WPW)
        3. Brugada Syndrome
        4. Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)
    ii. Structural
        1. Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC)
        2. Hypertrophyic Cardiomyopathy (HCM)
        3. Dilated Cardiomyopathy (DCM)
h. Identify the ECG changes characteristically produced by electrolyte imbalances and specify their clinical implications. (NOCP 4.5.m)
i. Discuss the common conditions that could mimic ST segment elevation on a 12 lead ECG.
j. Describe the process and pitfalls of differentiating wide QRS complex tachycardias

2. Identify the major classifications of pediatric cardiac rhythms. (NOCP 6.1.a)
3. Explain the electro-physiologic principles of the heart & cardiac conduction, as well as list the possible causes of abnormal cardiac rhythms. (NOCP 4.5.m)
4. Explain the indications of ECG monitoring & perform 3-Lead ECG (NOCP 4.5.m)
5. Adapt technique of obtaining a 3-lead ECG to patient age and gender. (NOCP 4.5.m)
6. Identify potentially lethal cardiac rhythms. (NOCP 4.5.m)
7. Explain the difference between a 3-lead and a 12 lead ECG. (NOCP 4.5.n)
8. Identify indications for the use of a 12-Lead ECG. (NOCP 4.5.n)
9. Perform the technique of obtaining a 12-Lead ECG. (NOCP 4.5.n)
10. Adapt technique of obtaining a 12-Lead ECG to patients' age and gender. (NOCP 4.5.n)
11. Identify the steps involved in interpreting 12-Lead ECG and ECG's obtained with additional leads. (NOCP 4.5.n)

Section 05 Electrical Therapy

1. Explain the concept and purposes of defibrillation or unsynchronized cardioversion.
2. Explain defibrillation (NOCP 5.5.i)
3. Explain the purposes of automated external defibrillation. (NOCP 5.5.i)
4. Discuss the indications for automated external defibrillation. (NOCP 5.5.i)
5. Discuss the various types of automated external defibrillators. (NOCP 5.5.i)
6. Explain the complications to the use of automated external defibrillators. (NOCP 5.5.i)
7. Apply the established standards of automated external defibrillation equipment maintenance. (NOCP 5.5.i)
8. Operate an automated external defibrillator. (NOCP 5.5.i)
9. Integrate CPR procedures and automated external defibrillation procedures. (NOCP 5.5.i)
10. Integrate procedures to patient presentation. (NOCP 5.5.i)
11. Distinguish the difference between automated external defibrillation and manual defibrillation. (NOCP 5.5.j)
12. Describe the purposes of manual defibrillation. (NOCP 5.5.j)
13. Identify the indications for manual defibrillation and situations where manual defibrillation is indicated. (NOCP 5.5.j)
14. Identify various types of manual defibrillators. (NOCP 5.5.j)
15. Identify the range of energy levels recommended for prehospital defibrillation.
16. Identify the complications to the use of manual defibrillation. (NOCP 5.5.j)
17. Have knowledge of how to operate a manual defibrillator and demonstrate correct procedure for defibrillation.
18. Apply established standards of manual defibrillation equipment maintenance.
19. Integrate CPR procedures and manual defibrillation procedures.
20. Adapt manual defibrillation procedures to patient presentation.
21. Adjust procedure to patient presentation.

Section 06 Cardiac Assessment

1. Describe the incidence, morbidity, and mortality of cardiovascular disease
2. Discuss prevention strategies that may reduce the morbidity and mortality of cardiovascular disease
3. Identify the risk factors most predisposing to coronary artery disease. (NOCP 6.1.a)
4. Discuss the pathophysiology of cardiac disease and injury. (NOCP 6.1.a)
5. Identify and describe the components of the focused history as it relates to the patient with cardiovascular compromise. (NOCP 6.1.a)
6. Identify and describe the details of inspection, auscultation, and palpation specific to the cardiovascular system. (NOCP 6.1.a)
7. Define the pulse deficit, pulsus paradoxus, pulsus alternans and electrical alternans
8. Identify the normal characteristics of the point of maximal impulse (PMI)
9. Apply assessment techniques specific to the cardiovascular system. (NOCP 4.3.c)
10. Perform assessment techniques for cardiovascular illnesses and injuries. (NOCP 4.3.c)
11. Adapt assessment techniques to cardiovascular history findings. (NOCP 4.3.c)
12. Provide care to a patient experiencing illness or injury primarily involving the cardiovascular system. (NOCP 6.1.a)
13. Explain the approach to a patient presenting with illness or injury involving the cardiovascular system. (NOCP 6.1.a)
14. Explain how patient history relates to patient presentation. (NOCP 6.1.a)
15. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.a)
16. Infer a differential diagnosis. (NOCP 6.1.a)
17. Adapt care based on patient presentation (NOCP 6.1.a)
18. Based on field impressions, identify the need for rapid intervention for the patient in cardiovascular compromise (NOCP 6.1.a)
19. Communicate information to patient regarding care. (NOCP 6.1.a)
20. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.a)
21. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.a)

Section 07 Cardiac Pharmacology

1. For the medications listed below. (NOCP 5.8.a, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, trade, and official names
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Evaluate medical conditions and indications for a particular route of medication administration
    e. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    f. Explain mechanism of action
    g. Apply proper calculations for correct medication requirement for the patient presentation
    h. Distinguish approved drug routes for the medication in question
    i. Evaluate appropriate site and route of medication administration
    j. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - ASA
    - Nitroglycerine

Section 08 BLS Provider Course (CPR)

1. Take measures to prevent choking.
2. Recognize choking.
3. Provide care for an adult choking casualty.
4. Provide ongoing casualty care and hand over for a casualty whose airway has been cleared.
5. Apply the knowledge of cardiovascular disease.
6. Apply the knowledge of risk factors of cardiovascular disease.
7. Apply the knowledge of preventative health measures.
8. Recognize cardiac arrest.
9. Perform one-rescuer CPR on an adult casualty. (NOCP 5.5.a)
10. Take measures to prevent breathing emergencies in children.
11. Provide care for a choking child.
12. Perform one-rescuer CPR on a child. (NOCP 5.5.a)
13. Take measures to prevent breathing emergencies in infants
14. Provide care for a choking infant.
15. Perform one-rescuer CPR on an infant. (NOCP 5.5.a)
16. Perform two rescuers CPR on an adult casualty. (NOCP 5.5.a)
17. Describe the principles of defibrillation. (NOCP 5.5.i)
18. Determine when and when not to use an AED. (NOCP 5.5.i)
19. Describe the functions of an AED. (NOCP 5.5.i)
20. Describe and demonstrate how to safely use an AED. (NOCP 5.5.i)
21. Describe and demonstrate what to do in special circumstances. (NOCP 5.5.i)
22. Apply basic knowledge of the respiratory system.
23. Explain how use a pocket mask and bag-valve-mask device (with or without supplement oxygen). (NOCP 5.4.a)
24. Perform effective rescue breathing with a bag-valve-mask device (with or without supplement oxygen). (NOCP 5.4.a)
25. Perform one and two rescuer CPR on adult, child and infant casualties in unwitnessed or asphyxial arrest. (NOCP 5.5.a)
26. Perform one and two rescuer CPR on adult, child and infant casualties in witnessed arrest. (NOCP 5.5.a)
27. Perform automated external defibrillation on an adult and child casualty.

Module 13

Neurology, Endocrinology and Psychiatric

Module 13 (Neurology, Endocrinology, and Psychiatric)

Emergencies involving the nervous system include stroke, epilepsy, Parkinson's disease, and many others. This module presents an overview of the common neurological conditions the paramedic may encounter in the prehospital setting, including the pathophysiology of non-traumatic neurological emergencies, patient assessment, and patient management.

The endocrine system is closely linked to the nervous system and it controls numerous physiological processes it controls many body functions through the release of hormones. Endocrine system emergencies result from the release of either too much or too little of these hormones. This module discusses the endocrine system and some of the more common emergencies seen in the field.

Behavioral emergencies pose a special challenge to the paramedic. Caring for patients with psychiatric or behavioral emergencies depends more on communication skills than on treatment of physical illnesses or injuries. This module discusses the physical and psychological aspects of behavioral problems.

Contents

Module 13 NOCP References

Area 2.0 (Communication)

Area 3.0 (Health and Safety)

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Appendix 4 - Pathophysiology

Appendix 5 - Medications

Time Requirements:

Didactic:	Theoretical	51
	Evaluations	3
	Lab	18
	In-class Total	72

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Nervous System Anatomy

1. List the three basic functions of the nervous system.
2. Describe the organization of the nervous system to include:
    a. Central nervous system
    b. Peripheral nervous system
    c. Cranial nerves
    d. Spinal nerves
    e. Afferent division
    f. Efferent division
    g. Somatic nervous system
    h. Autonomic nervous system (Sympathetic and parasympathetic)
3. Name two principle types of cells found in the nervous system and describe their functions.
4. Name the four types of neuroglia found in the central nervous system and describe their functions.
5. Name the two types of neuroglia found in the peripheral nervous system and describe their functions.
6. Describe myelination and state its function.
7. Name three functional parts of a typical neuron.
8. Describe the structure of a typical neuron to include:
    a. Cell body
    b. Nucleus
    c. Nissl bodies
    d. Processes
    e. Dendrites
    f. Axon
    g. Axon hillock
    h. Axon collateral
    i. Synaptic end bulbs
    j. Axon terminals
    k. Neurolemma
    l. Myelin sheath
    m. Neurofibril nodes (Nodes of Ranvier)
9. State the basis for structural classification of neurons.
10. Describe the following types of neurons:
    a. Afferent
    b. Efferent
    c. Association (interneurons)
11. Describe why some parts of the brain and spinal cord appear white in color while others appear grey.
12. Define the following terms:
    a. Nerve
    b. Nerve fibre

    c. Ganglia
    d. Tract
    e. Nucleus
13. Name the two properties of the neuron cell membrane that allow neurons to communicate with one another.
14. Describe the resting membrane potential of a neuron and describe how it is maintained by diffusion of sodium and potassium ions and the sodium potassium pump.
15. Define depolarization and repolarization as they apply to membrane potentials.
16. Define an action potential and nerve impulse.
17. Describe the sequence of events from polarization to repolarization starting with the generation of an action potential, including the following:
    a. Threshold point
    b. All or none principle
    c. Refractory period
    d. Absolute refractory period
    e. Relative refractory period
    f. Saltatory conduction
    g. Propagated Conduction
18. Explain how the rate of conduction along an axon is affected by axon diameter myelin sheath.
19. Define a synapse and state the name of the neuron conducting the impulse toward and away from the synapse.
20. Describe the two types of synapses and state which is most common in adult nerve tissue.
21. Describe the following as they relate to a chemical synapse:
    a. Axon terminals
    b. Synaptic vesicles
    c. Synaptic clef
    d. Post synaptic receptors
    e. Neurotransmitter synaptic delay
22. List the two effects that a neurotransmitter can have on post synaptic neurons.
23. List the four chemical classes of neurotransmitters, give an example of each, and state their locations.
24. List the three events that terminate the neurotransmitter effect.
25. Describe the structure of the meninges to include:
    a. Dura mater
    b. Arachnoid mater
    c. Pia mater
    d. Epidural space
    e. Subdural space
    f. Subarachnoid space
26. Describe the location and appearance of the spinal cord.
27. Describe the cervical and lumbar enlargements.
28. Describe the conus medullaris and filum terminale.
29. Describe the structure of the spinal cord as seen in a cross section to include the following:

    a. Arrangement of white and grey matter as it pertains to the cerebrum and the spinal cord
    b. Central canal
30. Name the four principle parts of the brain:
    a. Brainstem
    b. Diencephalon
    c. Cerebrum
    d. Cerebellum
31. For the ventricles of the brain, state the following:
    a. Name the fluid that circulates within the ventricles.
    b. Name each ventricle.
    c. Location of each ventricle.
    d. Name the structures connecting each ventricle.
    e. Describe how the ventricles are connected to the subarachnoid space and spinal cord.
32. State where cerebral spinal fluid is found and describes the general functions of CSF.
33. Describe the formation, composition, circulation, and reabsorption of CSF.
34. Describe the function of the blood - brain barrier and explain how this is accomplished.
35. Describe the arterial blood supply to the brain.
36. Describe the unique features of the venous supply in the brain.
37. Name the vascular sinuses.
38. Name three parts of the brain stem and describe their functions.
39. List two important overall functions of the brainstem.
40. State the location of the diencephalon and name the two component parts.
41. State the general function of the thalamus.
42. Describe the location of the hypothalamus and its seven basic homeostatic roles.
43. Describe the cerebrum and its location.
44. Describe the following features of each cerebral hemisphere, including:
    a. Corpus callosum
45. State the location of the lobes of the cerebrum and describe each lobe's function:
    a. Frontal
    b. Parietal
    c. Occipital
    d. Temporal
    e. Insula
46. Describe the basal ganglia.
47. Summarize the function of the cerebrum.
48. Describe the appearance and general functions of the cerebellum.

Section 02 Endocrine System

1. Describe the functions of the endocrine system
2. Discuss how the endocrine system works in conjunction with the nervous system
3. Define a hormone
4. Identify the different ways to classify a hormone including structure, origin, effects and chemical composition
5. Define a gland and differentiate between exocrine and endocrine glands.
6. Discuss how chemical factors, endocrine factors and neural control affect the regulation of hormonal release
7. Discuss how hormones are transported throughout the body
8. Discuss the mechanisms of action of steroid and non-steroid hormones
9. Define:
    a. Up-regulation
    b. Down-regulation
    c. Direct effects
    d. Permissive effects
    e. First messenger
    f. Signal transduction
    g. Second messenger
10. Describe endocrine reflexes
11. Describe the glands of the endocrine system and the hormones they produce to include:
    a. Hypothalamus
    b. Pituitary gland
    c. Pineal Gland
    d. Thyroid gland
    e. Parathyroid gland
    f. Pancreas
    g. Adrenal glands
    h. Gonads
12. Describe hormones associated with:
    a. Placenta
    b. Thymus
    c. Gastrointestinal mucosa
    d. Heart
13. Describe normal human temperature homeostasis (balance) including:
    a. The role of the hypothalamus
    b. Defining fever
    c. Defining metabolic rate
14. Describing the relationship of body care and periphery to heat balance and core temperatures.
15. Explain the concept of the body as a heat reservoir, and relate daily food intake to the amount of heat that can be lost from the body before hypothermia sets in.
16. Describe how blood circulation is related to heat loss control, specifically:

a. Local versus central control of blood versus size.
b. Consequences of vasoconstriction and vasodilatation, including cold diuresis.

17. Explain the role of sweating in temperature balance

Section 03 Sensory Anatomy

1. Define general senses
2. Define specialized senses
3. Discuss pain and how the body perceives it
4. Define the terms:
    a. Somatic pain
    b. Visceral pain
    c. Referred pain
    d. Pain threshold
    e. Pain tolerance
5. Discuss temperature regulation
6. Describe the mechanisms of heat production including:
    a. Chemical reactions (metabolism)
    b. Skeletal muscle contraction
    c. Chemical thermogenesis
7. Describe the mechanisms of heat loss including:
    a. Radiation
    b. Convection
    c. Conduction
    d. Evaporation
    e. Vasodilation
    f. Decreased muscle tone
    g. Increased pulmonary ventilation
    h. Voluntary mechanisms
    i. Adaption to warmer climates
8. Identify the cranial nerve that is involved with the sense of smell.
9. Describe the structure and location of the gustatory receptors.
10. List the four primary taste sensations and the area on the tongue where they are found in the greatest concentration.
11. List the accessory structures of the eye.
12. Describe the lacrimal glands
13. Describe the location, appearance, and function of the following parts of the eye:
    a. Sclera
    b. Cornea
    c. Iris
    d. Retina
14. Identify the two types of photoreceptor cells and state their function.
15. Describe the structure of the lens of the eye and state its function.
16. Describe the interior of the eyeball and the location of the aqueous humor and vitreous body.
17. Define intraocular pressure.
18. Describe the process of formation of an image on the retina.
19. Identify the three major areas of the ear and state their functions.

20. Identify the parts of the external ear.
21. Describe the production and function of cerumen.
22. Describe the location, appearance and function of the following parts of the ear:
    a. Auricle
    b. External auditory meatus
    c. Tympanic membrane
    d. Malleus
    e. Incus
    f. Stapes
    g. Eustachian tube
    h. Oval window
    i. Cochlea

Section 04 Neurology

1. Discuss the causes of an altered level of consciousness. (NOCP 4.3.d)
    a. Metabolic
    b. Structural
2. Explain the pathophysiology, signs, and symptoms, and treatment considerations for:
    a. Ischemic stroke (NOCP 4.3.d)
    b. Hemorrhagic stroke (NOCP 4.3.d)
    c. Transient Ischemic Attack (NOCP 4.3.d)
    d. Tension Headache
    e. Migraine Headache
3. Evaluate findings related to the etiology, pathophysiology, and manifestations of: (NOCP 4.3.d)
    a. Ischemic stroke
    b. Hemorrhagic stroke
    c. Transient Ischemic Attack (NOCP 4.3.d)
    d. Tension Headache
    e. Migraine Headache
4. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following convulsive disorders: (NOCP 4.3.d)
    a. Febrile seizures (NOCP 4.3.n)
    b. Generalized seizures
    c. Partial (Focal) seizures (NOCP 4.3.d)
5. Evaluate findings related to the etiology, pathophysiology, and manifestations of the following convulsive disorders: (NOCP 4.3.d)
    a. Febrile seizures
    b. Generalized seizures
    c. Partial (Focal) seizures
6. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following chronic neurological disorders: (NOCP 4.3.d, 6.1.b)
    a. Cerebral Palsy
    b. Bell's Palsy
    c. Multiple Sclerosis
    d. Muscular Dystrophy
    e. Poliomyelitis
    f. Parkinson's Disease
    g. Amyotrophic Lateral Sclerosis
    h. Structural Tumors
    i. Vascular Tumors
7. Evaluate findings related to the etiology, pathophysiology, and manifestations of the following chronic neurological disorders: (NOCP 4.3.d, 6.1.b))
    a. Cerebral Palsy
    b. Bell's Palsy
    c. Multiple Sclerosis

    d. Poliomyelitis
    e. Parkinson's Disease
    f. Amyotrophic Lateral Sclerosis
    g. Structural Tumors
    h. Vascular Tumors
8. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following infectious neurological disorders: (NOCP 6.1.b)
    a. Encephalitis
    b. Guillain Barre Syndrome (NOCP 4.3.d)
    c. Meningitis
9. Evaluate findings related to the etiology, pathophysiology, and manifestations of the following infectious neurological disorders: (NOCP 6.1.b)
    a. Encephalitis
    b. Guillain Barre Syndrome
    c. Meningitis
10. Discuss potential complications of illnesses and injuries to the neurological system. (NOCP 6.1.b)

Section 05 Traumatic Head Injuries

1. Describe the types and management of skull injuries. (NOCP 6.1.o)
2. Describe the categories of head injuries and the forces involved. (NOCP 6.1.b, o)
3. Discuss the cause and effect of closed head injuries. (NOCP 4.3.b, 6.1.b)
4. Discuss the cause and effect of intracranial pressure. (NOCP 4.3.b, 6.1.b)
5. Explain the pathophysiology, signs and symptoms, and treatment considerations for: (NOCP 4.3.d, 6.1.b)
    a. Epidural hemorrhage (NOCP 4.3.d)
    b. Subdural hemorrhage (NOCP 4.3.d)
    c. Subarachnoid hemorrhage (NOCP 4.3.d)
    d. Intracerebral hemorrhage (NOCP 4.3.d)
    e. Diffuse axonal injury
    f. Spinal cord injury
6. Evaluate the findings related to the etiology, pathophysiology, and manifestations of: (NOCP 4.3.d, 6.1.b)
    a. Epidural hemorrhage (NOCP 4.3.d)
    b. Subdural hemorrhage (NOCP 4.3.d)
    c. Subarachnoid hemorrhage (NOCP 4.3.d)
    d. Intracerebral hemorrhage (NOCP 4.3.d)
    e. Diffuse axonal injury
    f. Spinal cord injury
7. Discuss potential complications of illnesses and injuries to the neurological system. (NOCP 6.1.b)
8. Describe the incidence, morbidity/mortality, risk factors, prevention strategies, pathophysiology, assessment, need for intervention and transport, and management of the elderly trauma patient with:
    a. Head injuries (NOCP 6.1.g)

Section 06 Head, Facial, and Neck Trauma

1. Provide care to patient experiencing signs and symptoms involving the eyes, ears, nose and throat. (NOCP 6.1.j)
2. Explain the pathophysiology of specific ear, eye, nose and throat conditions listed in Appendix 4B. (NOCP 4.3.k, NOCP 6.1.j)
    a. Burns/chemical exposure
    b. Corneal injuries
    c. Hyphema
    d. Penetrating injury
    e. Glaucoma
    f. Retinal Detachment
    g. Otitis Externa
    h. Otitis media
    i. Vertigo
    j. Dental abscess
    k. Trismus
    l. Epistaxis
    m. Sinusitis
    n. Dental fractures
3. Explain the approach to a patient presenting with the ears, eyes, nose and throat conditions. (NOCP 6.1.j)
4. Apply assessment techniques specific to the ears, eyes, nose and throat. (NOCP 4.3.k)
5. Adapt assessment techniques to ears, eyes, nose and throat history findings. (NOCP 4.3.k)
6. Explain how patient history relates to patient presentation. (NOCP 6.1.j)
7. Explain how age, gender and health status relate to patient presentation. (NOCP 6.1.j)
8. Evaluate findings related to the etiology, pathophysiology and manifestations of the illnesses and injuries of the ears, eyes, nose and throat listed in Appendix 4B. (NOCP 4.3.k)
9. Discuss potential complications of to the ears, eyes, nose and throat conditions. (NOCP 6.1.j)
10. Infer a differential diagnosis. (NOCP 6.1.j)
11. Adapt care based on patient presentation. (NOCP 6.1.j)
12. Integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.j)
13. Justify approach, assessment, care and transport decisions. (NOCP 6.1.j)
14. Describe the types and management of scalp injuries. (NOCP 5.5.b)
15. Identify the purposes of and indications for an eye dressing. (NOCP 5.6.c)
16. Describe types of eye dressings. (NOCP 5.6.c)
17. Demonstrate application of eye dressings. (NOCP 5.6.c)
18. Adjust to changes in patient presentation. (NOCP 5.6.c)
19. Identify the purposes of and indications for dressing a penetration wound. (NOCP 5.6.d)
20. Describe types of penetration eye wound dressings. (NOCP 5.6.d)
21. Demonstrate application of penetration wound dressing. (NOCP 5.6.d)
22. Adjust to changes in patient presentation. (NOCP 5.6.d)

23. Utilize sterile or aseptic technique as appropriate. (NOCP 5.6.f)

Section 07 Psychiatric and Behavioural Disorders

1. Distinguish between “mentally well”, and the “mentally unwell” patient. (NOCP 4.3.m)
2. Define behavior and distinguish among normal behavior, abnormal behavior, and the behavioral emergency. (NOCP 4.3.m)
3. Discuss the prevalence of behavioral and psychiatric disorders. (NOCP 4.3.m)
4. Discuss the pathophysiology of behavioral and psychiatric disorders. (NOCP 4.3.m)
5. Discuss the factors that may alter the behavioral or emotional status of an ill or injured individual. (NOCP 6.1.p)
6. Describe the medical legal considerations for management of emotionally disturbed patients.
7. Describe the other behaviors associated with behavioral and psychiatric disorders.
8. Define the following terms: (NOCP 4.3.m)
    a. Affect
    b. Anger
    c. Anxiety
    d. Confusion
    e. Depression
    f. Fear
    g. Mental status
    h. Posture
9. Describe verbal techniques useful in managing the emotionally disturbed patient. (NOCP 2.4.c)
10. List the appropriate measures to ensure the safety of the paramedic, the patient, and others.
11. Describe the circumstances when relatives, bystanders, and others should be removed from the scene.
12. Describe techniques to systematically gather information from the disturbed patient.
13. Identify techniques for physical assessment in a patient with behavioral problems. (NOCP 4.3.m)
14. Apply assessment techniques specific to psychiatric disorders. (NOCP 4.3.m)
15. Evaluate psychiatric assessment findings. (NOCP 4.3.m)
16. Demonstrate assessment techniques for psychiatric disorders. (NOCP 4.3.m)
17. Adapt assessment techniques to psychiatric history findings. (NOCP 4.3.m)
18. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following childhood psychiatric disorders: (NOCP 4.3.m)
    a. Attention deficit disorder
    b. Autistic disorder
19. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following cognitive disorder: (NOCP 4.3.m)
    a. Delirium
    b. Dementia
20. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following eating disorders: (NOCP 4.3.m)

    a. Anorexia nervosa
    b. Bulimia
21. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following affective psychiatric disorders: (NOCP 4.3.m)
    a. Bipolar disorder
    b. Depressive disorder
    c. Suicide ideation
22. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following psychotic disorders: (NOCP 4.3.m)
    a. Anxiety
        i. Acute stress disorder
        ii. Generalized anxiety disorder
        iii. Panic disorder
        iv. Post-traumatic stress disorder
        v. Situational disturbances
    b. Depression
    c. Delusional disorder
    d. Homicidal ideation
    e. Schizophrenia
23. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following psychosocial disorder: (NOCP 4.3.m)
    a. Antisocial disorder
24. Apply safety precautions when dealing with patients suffering from psychiatric illness. (NOCP 3.3.d)
25. List situations in which you are expected to transport a patient forcibly and against their will.
26. Describe restraint methods necessary in managing the emotionally disturbed patient.
27. Explain the approach to a patient presenting with psychiatric crisis. (NOCP 6.1.p)
28. Discuss conditions that may precipitate psychiatric crisis. (NOCP 6.1.p)
29. Explain how patient history, age, gender and health status relate to patient presentation. (NOCP 6.1.p)
30. Infer a differential diagnosis. (NOCP 6.1.p)
31. Adapt care based on patient presentation. (NOCP 6.1.p)
32. Integrate and justify the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.p)

Section 08 Endocrinology

1. Explain the pathophysiology and evaluate findings related to etiology, pathophysiology and manifestations of the following endocrine disorders: (NOCP 6.1.i)
    a. Diabetes mellitus
    b. Thyroid disease
    c. Diabetes Insipidus
    d. Grave's Disease
    e. Thyroid Storm
    f. Hyperthyroid
    g. Hypothyroid
    h. Myxedema
    i. Pheochromocytoma
2. Evaluate findings related to the etiology, pathophysiology, and manifestations endocrine illnesses. (NOCP 6.1.i)

Section 09 Endocrine/Neurological Assessment

1. Provide care to a patient experiencing illness or injury primarily involving the endocrine system. (NOCP 6.1.i)
2. Explain the approach to a patient presenting with illness or injury involving the endocrine system. (NOCP 6.1.i)
3. Explain how patient history relates to patient presentation. (NOCP 6.1.i)
4. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.i)
5. Infer a differential diagnosis. (NOCP 6.1.i)
6. Discuss potential complications of illnesses and injuries to the endocrine system. (NOCP 6.1.i)
7. Adapt care based on patient presentation. (NOCP 6.1.i)
8. Communicate information to patient regarding care. (NOCP 6.1.i)
9. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.i)
10. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.i)
11. Identify the indications for glucometric testing (NOCP 4.5.c)
12. Identify the factors that affect accuracy of glucometric testing. (NOCP 4.5.c)
13. Identify normal and abnormal findings when performing glucometric testing. (NOCP 4.5.c)
14. Describe the physiologic mechanism of glucose. (NOCP 4.5.c)
15. Describe the function of the glucometer. (NOCP 4.5.c)
16. Perform glucometric testing (NOCP 4.5.c)
17. Adapt glucometric testing techniques to patient age. (NOCP 4.5.c)
18. Apply assessment techniques specific to the endocrine system. (NOCP 6.1.i)
19. Perform assessment techniques for endocrine illnesses and injuries. (NOCP 6.1.i)
20. Adapt assessment techniques to endocrine history findings. (NOCP 6.1.i)
21. Discuss the general management of the head injured patient. (NOCP 6.1.b, o) A
22. Apply assessment techniques specific to the neurological system. (NOCP 4.3.b)
23. Outline and perform assessment techniques for neurological illness or injury (NOCP 4.3.d)
24. Discuss the general management of the unconscious patient.
25. Perform assessment techniques for neurological illnesses and injuries encountered within this section. (NOCP 4.3.d)
26. Discuss how to assess pupils and interpret your findings.
27. List three parameters used to assess pupils. (NOCP 4.4.h)
28. Describe how to assess sensation and motor responses and interpret your findings. (NOCP 4.3.d)
29. Identify cranial nerves which regulate eye movement and contraction. (NOCP 4.4.h)
30. Discuss conditions which affect pupil size, symmetry, and reactivity. (NOCP 4.4.h)
31. Distinguish between normal and abnormal findings when assessing pupils for size, symmetry, and reactivity. (NOCP 4.4.h)
32. Perform pupil assessment using three parameters. (NOCP 4.4.h)
33. Adapt technique of assessing pupils to patient situation. (NOCP 4.4.h)
34. Explain the factors that affect motor sensation and response.
35. Apply methods of assessing sensory and motor response.

36. Identify the factors that affect patient mental status. (NOCP 4.4.i)
37. Describe the primary etiology of altered level of consciousness in infants and children. (NOCP 4.4.i)
38. Apply methods of assessing level of consciousness. (NOCP 4.4.i)
39. Apply AVPU scale to mental status assessment. (NOCP 4.4.i)
40. Apply GCS scale to mental status assessment. (NOCP 4.4.i)
41. Perform assessment of level of consciousness. (NOCP 4.4.i)
42. Adapt technique of assessing level of consciousness to patient age. (NOCP 4.4.i)
43. Adapt assessment techniques to neurological history findings. (NOCP 4.4.h)
44. Describe respiratory patterns as they relate to evaluating level of brain dysfunction. (NOCP 6.1.b)
45. Explain the factors that affect respiratory patterns. (NOCP 6.1.b)
46. Perform assessment of respiratory pattern. (NOCP 6.1.b)
47. Outline and perform assessment techniques for neurological illness or injury (NOCP 4.3.d)
48. Adapt assessment techniques based on findings (NOCP 4.3.d)
49. Provide care to a patient experiencing illness or injury primarily involving the neurological system. (NOCP 6.1.b)
50. Explain the approach to a patient presenting with illness or injury involving the neurological system. (NOCP 6.1.b)
51. Explain how patient history relates to patient presentation. (NOCP 6.1.b)
52. Explain how age, gender and health status relate to patient presentation. (NOCP 6.1.b)
53. Infer a differential diagnosis & adapt care based on patient presentation. (NOCP 6.1.b)
54. Communicate information to patient regarding care. (NOCP 6.1.b)
55. Integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.b)
56. Justify approach, assessment, care and transportation decisions. (NOCP 6.1.b)

Section 10 Endocrine/Neurological Pharmacology

1. For the medications listed below (NOCP 5.8.a, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, trade, and official names
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Evaluate medical conditions and indications for a particular route of medication administration
    e. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    f. Explain mechanism of action
    g. Apply proper calculations for correct medication requirement for the patient presentation
    h. Distinguish approved drug routes for the medication in question
    i. Evaluate appropriate site and route of medication administration
    j. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - Glucose (Oral)
    - Dextrose 50% ($D_{50}W$)
    - Glucagon
    - Tetracaine

Section 11 Diagnostics (CT and MRI)

1. Understand the need and use of CT and MRI. (NOCP 4.5.p)
2. Describe common findings from data gathered from CT and MRI. (NOCP 4.5.p)
3. Describe common radiological data. (NOCP 4.5.o)
4. Differentiate normal from abnormal radiological results. (NOCP 4.5.o)

Module 14

Integumentary and Musculoskeletal

Module 14 (Integumentary and Musculoskeletal)

Musculoskeletal injuries usually result from direct or transmitted kinetic forces. Assessment and management of musculoskeletal injuries for the unstable patient differ from those for the stable patient. Knowledge of the structure and function of the musculoskeletal system helps guide the paramedic in the effective management of these injuries. This module deals with assessing and managing patients with musculoskeletal injuries, soft tissue trauma and discusses the pathologic effects of burns on the tissues and the body in general and the effective assessment and treatment of burns.

Contents

Module 14 NOCP References

Area 3.0 (Health and Safety)

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 8.0 (Health Promotion and Public Safety)

Appendix 4 - Pathophysiology

Appendix 5 - Medications

Time Requirements:

Didactic:	Theoretical	33
	Evaluations	3
	Lab	18
	In-class Total	54

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Skeletal System, Muscular System

1. List and describe the six major functions of bones. (NOCP 4.3.j)
2. Name the two basic types of osseous (bone) tissue. (NOCP 4.3.j)
3. List the five classes of bone based on shape, describe the shape, and give examples of each. (NOCP 4.3.j)
4. Describe the structure of a typical bone to include: (NOCP 4.3.j)
    a. Diaphysis
    b. Medullary cavity (contents)
    c. Epiphysis
    d. Metaphysis (epiphyseal line)
    e. Periosteum
    f. Nutrient canals (nutrient foramina)
    g. Endosteum
    h. Articular cartilage
5. State where hematopoietic tissue is found and explain how it differs for adults and infants. (NOCP 4.3.j, n)
6. Describe the microscopic structure of compact bone to include: (NOCP 4.3.j)
    a. Osteocytes
    b. Osteoblasts
    c. Osteoclasts
    d. Osteon (harversian system)
    e. Concentric lamellae
    f. Central (harversian) canal
    g. Perforating (Volkmann's canal)
    h. Lacunae
    i. Canaliculi
    j. Interstitial lamellae
7. State how the structure of spongy (cancellous) bone differs from that of compact bone. (NOCP 4.3.j)
8. Define osteogenesis (ossification) and state the main form it takes during the embryonic, childhood, and adult stages in life. (NOCP 4.3.j, n, o, 6.1.g)
9. Define bone remodeling and briefly explain its process.
10. Describe the hormonal control of blood calcium and bone calcium as follows:
    a. The two hormones involved
    b. Where each hormone is produced
    c. How production of these hormones is affected by blood calcium levels.
    d. How each hormone affects the amount of calcium in bones?
11. Name the two main divisions of the skeleton and state what is included in each. (NOCP 4.3.j, 5.7.a, b)
12. List the major regions of the axial skeleton. (NOCP 4.3.j, 5.7.b)
13. Name four elements that make up the thoracic cage

14. Name and state the location of the two girdles of the appendicular skeleton (NOCP 4.3.j, 5.7.a)
15. Name and state the location of the two bones of the pectoral girdle
16. Identify the following: (NOCP 4.3.j)
    a. Humerus
    b. Radius
    c. Ulna
    d. Carpals
    e. Metacarpals
    f. Phalanges
17. State what forms the bony pelvis and state where the femur articulates. (NOCP 4.3.j)
18. Identify the following: (NOCP 4.3.j)
    a. Femur
    b. Patella
    c. Tibia
    d. Tarsals
    e. Metatarsals
    f. Phalanges
19. Briefly describe the five distinguishing features of a synovial joint. (NOCP 4.3.j)
20. Define bursae and tendons. (NOCP 4.3.j)
21. Name the three types of muscle tissue and compare according to: (NOCP 4.3.j)
    a. Location
    b. Striation
    c. Control
22. List three important functions of muscle. (NOCP 4.3.j)
23. List the five important characteristics of muscle tissue that help it carry out its functions and maintain homeostasis. (NOCP 4.3.j)
24. Describe the function of fascia in muscle organization and tendon formation. (NOCP 4.3.j)
25. Explain the blood and nervous supply of skeletal muscle. (NOCP 4.3.j)
26. Describe a motor unit. (NOCP 4.3.j)
27. Describe the junction between the muscle fibre and motor neuron (neuromuscular junction). Include the following: (NOCP 4.3.j)
    a. Synapse
    b. Synaptic cleft
    c. Neurotransmitter
    d. Axon terminals
    e. Motor end plate
    f. Synaptic vesicles
    g. Presynaptic neuron
    h. Muscle
28. Describe the microscopic anatomy of skeletal muscle cells (myofibres) to include the following: (NOCP 4.3.j)
    a. General shape and size
    b. Nuclei

c. Sarcolemma
d. Sarcoplasm
e. Myofibril
f. Striations
g. Sarcomere
h. Z discs
i. Myofilaments
j. Sarcoplasmic reticulum
k. Transverse tubules

29. Describe the sliding filament theory of muscle contraction to include: (NOCP 4.3.j)
    a. Role of calcium
    b. Cross bridge attachment
    c. Acetylcholine
    d. T tubules
    e. Troponin and tropomyosin
    f. ATP
    g. Power stroke
    h. Cross bridge attachment
    i. Sarcoplasmic reticulum
30. Describe the function of myoglobin.
31. Describe the three pathways by which ATP is generated during muscle activity.
32. Define muscle fatigue and oxygen debt.
33. Describe the all or none principle of muscle contraction.
34. Define isotonic contraction, isometric contraction, and muscle tone.
35. Define origin and insertion.
36. Describe the contraction of smooth muscle.
37. Describe the regulation of smooth muscle contraction.

Section 02 Soft Tissue and Burns

1. Conduct integumentary system and soft tissue assessment and interpret findings. (NOCP 4.3.i)
2. Describe and explain the classification and pathophysiology of soft tissue diseases or injuries, including: (NOCP 6.1.f)
    a. Lacerations
    b. Abrasions
    c. Avulsions
    d. Penetrations (NOCP 5.6.d)
    e. Skin infections/cellulitis
    f. Pressure ulcers
3. Describe and apply assessment and management techniques for various types of Integumentary / soft tissue diseases and injuries. (NOCP 6.1.f)
4. Perform assessment techniques for various Integumentary / soft tissue diseases and injuries. (NOCP 6.1.f)
5. Apply assessment techniques specific to the Integumentary system. (NOCP 4.3.i)
6. Perform assessment techniques for Integumentary illnesses and injuries. (NOCP 4.3.i)
7. Adapt assessment techniques to Integumentary history findings. (NOCP 4.3.i)
8. Provide care to a patient experiencing illness or injury primarily involving the Integumentary system. (NOCP 6.1.f)
9. Explain the approach to a patient presenting with illness or injury involving the Integumentary system. (NOCP 6.1.f)
10. Explain how patient history relates to patient presentation. (NOCP 6.1.f)
11. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.f)
12. Infer a differential diagnosis. (NOCP 6.1.f)
13. Discuss potential complications of illnesses and injuries to the integumentary system. (NOCP 6.1.f)
14. Adapt care based on patient presentation. (NOCP 6.1.f)
15. Communicate information to patient regarding care. (NOCP 6.1.f)
16. Adapt the approach, assessment, treatment, and transportation to the patient presentation. (NOCP 6.1.f)
17. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.f)
18. Describe the incidence, patterns, and sources of burn injury. (NOCP 5.6.b)
19. Describe the pathophysiology of local and systemic responses to burn injury. (NOCP 5.6.b)
20. Classify burn injury according to depth and severity based on established standards. (NOCP 5.6.b)
21. Outline the physical examination of the burn patient. (NOCP 5.6.b)
22. Describe the pre-hospital management of the patient who has sustained a burn injury.
    a. Identify the purposes of and indications for dressing a burn. (NOCP 5.6.b)
    b. Describe types of burn dressings. (NOCP 5.6.b)
    c. Demonstrate application of burn dressing (NOCP 5.6.b)
    d. Adjust to changes in patient presentation. (NOCP 5.6.b)
23. Outline the general assessment and management of a patient with an inhalation injury.

24. Outline the general assessment and management of a patient who has a chemical burn injury. (NOCP 5.6.b, 8.3.a)
25. Describe specific complications and management techniques for selected chemical injuries. (NOCP 8.3.a)
26. Describe the physiological effect of electrical injury as they relate to each body system based on an understanding of key principles of electricity.
27. Outline assessment and management of a patient with an electrical injury.
28. Describe and apply assessment and management techniques for various types of heat related injuries. (NOCP 6.1.n)
29. Evaluate findings related to the etiology, pathophysiology, and manifestations of various heat related injuries. (NOCP 6.1.n)
30. Perform assessment techniques for various heat related injuries. (NOCP 6.1.n)
31. Adapt assessment techniques to heat related injury findings. (NOCP 6.1.n)
32. Identify the purposes of and indications for soft tissue dressing, bandaging and immobilization (NOCP 5.6.a)
33. Identify the purposes of and indications for hemorrhage control through the use of direct pressure and patient positioning. (NOCP 5.5.b)
34. List the steps for hemorrhage control through the use of direct pressure and patient positioning & describe aseptic techniques. (NOCP 5.5.b)
35. Perform hemorrhage control through the use of direct pressure and patient positioning using aseptic technique. (NOCP 5.5.b)
36. Discuss potential complications of hemorrhage control through the use of direct pressure and patient positioning. (NOCP 5.5.b)
37. Describe the various types of dressings and bandages. (NOCP 5.6.a)
38. Perform appropriate dressing, bandaging and immobilization procedures based on patient presentation. (NOCP 5.6.a)
39. Discuss the advantages and disadvantages of the use of the tourniquet
40. Identify the purposes of and indications for soft tissue dressing, bandaging and immobilization (NOCP 5.6.a)
41. Describe the various types of dressings and bandages. (NOCP 5.6.a)
42. Understand contamination of a wound and cleansing of wound
43. Describe aseptic technique. (NOCP 5.6.f)
44. Perform dressing, bandaging, and immobilization using aseptic technique. (NOCP 5.6.a, f)
45. Adjust to change in patient presentation. (NOCP 5.6.a)
46. Describe the incidence, morbidity/mortality, risk factors, prevention strategies, pathophysiology, assessment, need for intervention and transport, and management of the elderly trauma patient. (NOCP 6.1.g)
47. Understand tensions lines in the skin and how they can assist in suturing
48. Identify the need for sutures
49. Describe the stages of wound healing. (NOCP 5.6.f)
50. Describe common dressings and therapies associated with wound care. (NOCP 5.6.f)
51. Explain the ongoing care associated with wound management. (NOCP 5.6.f)
52. Identify signs of possible infection.
53. Be aware of the process of suturing/stapling. (NOCP 5.6.f)

54. Be aware of the process required for suture/staple removal. (NOCP 5.6.f)
55. Perform wound care. (NOCP 5.6.f)

Section 03 Musculoskeletal Injury and Illness

1. Describe the appropriate pre-hospital management of the patient with a musculoskeletal extremity injury. (NOCP 6.1.g)
    a. Amputations
    b. Compartment syndrome
    c. Contusions
    d. Dislocations
    e. Sprains
    f. Strains
    g. Subluxations
    h. Skeletal fractures
        i. Appendicular
        ii. Axial
        iii. Open/closed fractures
    i. Inflammatory disorders
        i. Arthritis
        ii. Osteomyelitis
        iii. Osteoporosis
2. Learn reduction techniques
3. Explain the approach to a patient presenting with illness or injury involving the musculoskeletal system. (NOCP 6.1.g)
4. Apply assessment techniques specific to the musculoskeletal system (NOCP 4.3.j)
5. Evaluate findings related to the etiology, pathophysiology, and manifestations of the musculoskeletal illnesses and injuries listed above. (NOCP 4.3.j)
6. Perform assessment techniques to musculoskeletal system findings. (NOCP 4.3.j)
7. Utilize the Ottawa ankle rules (to assist in transport decision making)
8. Adapt assessment techniques for musculoskeletal illnesses and injuries. (NOCP 4.3.j)
9. Understand the ice/heat rationale of treating soft tissue injuries
10. Provide care to a patient experiencing illness or injury primarily involving the musculoskeletal system. (NOCP 6.1.g)
11. Explain the approach to a patient presenting with illness or injury involving the musculoskeletal system. (NOCP 6.1.g)
12. Explain how patient history relates to patient presentation. (NOCP 6.1.g)
13. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.g)
14. Infer a differential diagnosis. (NOCP 6.1.g)
15. Discuss potential complications of illnesses and injuries to the musculoskeletal system. (NOCP 6.1.g)
16. Adapt care based on patient presentation. (NOCP 6.1.g)
17. Communicate information to patient regarding care. (NOCP 6.1.g)
18. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.g)
19. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.g)
    a. Identify orthopaedic limitations of the emergency room physician

20. Adapt assessment techniques to musculoskeletal findings. (NOCP 4.3.j)
21. Identify signs and symptoms of possible fractures to the appendicular skeleton and distinguish between open and closed fractures. (NOCP 5.7.a)
22. Explain how mechanism of injury and illness can affect injuries to appendicular skeleton. (NOCP 5.7.a)
23. Describe the incidence, morbidity/mortality, risk factors, prevention strategies, pathophysiology, assessment, need for intervention and transport, and management of the elderly trauma patient with Orthopedic injuries (NOCP 6.1.g)
24. Describe basic patient extrication principles. (NOCP 3.3.c)
25. Apply patient extrication principles. (NOCP 3.3.c)
26. Integrate basic extrication principles. (NOCP 3.3.c)
27. Describe basic non-mechanical patient extrication principles. (NOCP 3.3.c)
28. Apply basic non-mechanical patient extrication principles. (NOCP 3.3.c)
29. Integrate basic non-mechanical extrication principles. (NOCP 3.3.c)

Section 04 Spinal Trauma

1. Identify signs and symptoms of possible fractures to the axial skeleton. (NOCP 5.7.b)
2. Describe the relationship between kinematics and potential spine injury. (NOCP 5.7.b)
3. Apply assessment techniques specific to the musculoskeletal system (NOCP 4.3.j)
4. Perform assessment techniques to musculoskeletal system findings. (NOCP 4.3.j)
5. Adapt assessment techniques for musculoskeletal illnesses and injuries. (NOCP 4.3.j)
6. Discuss the implications of primary versus secondary injury to the spine. (NOCP 5.6.f)
7. Describe the major components involved in the inflammatory process and the modalities used to treat acute inflammation in relation to spinal trauma. (NOCP 5.6.f)
8. Provide care to a patient experiencing illness or injury primarily involving the musculoskeletal system. (NOCP 6.1.g)
9. Explain how patient history relates to patient presentation. (NOCP 6.1.g)
10. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.g)
11. Infer a differential diagnosis. (NOCP 6.1.g)
12. Discuss potential complications of illnesses and injuries to the musculoskeletal system. (NOCP 6.1.g)
13. Adapt care based on patient presentation. (NOCP 6.1.g)
14. Communicate information to patient regarding care. (NOCP 6.1.g)
15. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.g)
16. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.g)
17. Adapt assessment techniques to musculoskeletal findings. (NOCP 4.3.j)

Section 05 Appendicular Immobilization

1. Identify signs and symptoms of possible fractures to the appendicular skeleton and distinguish between open and closed fractures. (NOCP 5.7.a)
2. Evaluate commercially manufactures splints for use based on patient presentation and modify splints to meet patient needs. (NOCP 5.7.a)
3. Explain how mechanism of injury and illness can affect injuries to appendicular skeleton. (NOCP 5.7.a)
4. Perform appropriate treatment to suspected fractures. (NOCP 5.7.a)
5. Define closed reduction. (NOCP 5.7.c)
6. Discuss the indications for fracture and dislocation reduction. (NOCP 5.7.c)

Section 06 Diagnostics (X-Ray)

1. Discuss how bone, tissue, air, and fluid appear on an X-Ray.
2. Given sample X-Rays describe the common radiological findings. (NOCP 4.5.o)
3. Differentiate normal from abnormal radiological results. (NOCP 4.5.o)

Section 07 Pain Management

1. Identify the pathology of pain
2. Differentiate between the different types of pain:
    a. Acute and chronic pain
    b. Nociceptive
    c. Visceral
    d. Somatic pain
    e. Neuropathic pain
    f. Psychogenic
    g. Referred
3. Discuss pain transmission in the nervous system
4. Discuss the pain pathways and mediators
5. Discuss pain modification by the brain and the body's response
6. Assess pain based patient presentation and interview
7. Discuss scales that are commonly used to grade the level of pain for a patient
8. Determine when pain management and sedation are appropriate for the patient based on age, weight and injury. (NOCP 5.8.a, o)
9. For the medications listed below (NOCP 5.8.a, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, trade, and official names
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Evaluate medical conditions and indications for a particular route of medication administration
    e. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    f. Explain mechanism of action
    g. Apply proper calculations for correct medication requirement for the patient presentation
    h. Distinguish approved drug routes for the medication in question
    i. Evaluate appropriate site and route of medication administration
    j. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - Acetaminophen
    - Ibuprofen
    - Ketorolac
    - Nitrous Oxide

Module 15

Shock and Hematology

Module 15 (Shock and Hematology)

Acute and continuous loss of blood decreases the ability of the body to provide oxygen and nutrients to, and to remove waste products from, the body's cells. Without adequate perfusion or circulating oxygenated blood, the cells, the organs, and eventually the body itself, the. The transition between the normally functioning body and death is shock. It is vital that the paramedic recognizes hemorrhage and shock, and provides care to the patient in a timely manner. This module provides students with an understanding of the cardiovascular system as it relates to hemorrhage and shock, and describes how to recognize and care for the life-threatening symptoms.

Hematology is the study of the blood and the blood-forming organs. Although hematological disorders are common, they rarely are the primary cause of a medical emergency. They usually accompany other ongoing disease processes. Often, laboratory findings are needed to confirm the diagnosis. It is essential that paramedics have a good understanding of the basic pathophysiological processes of their patients' diseases, including hematological disorders. This chapter will discuss the pathology, clinical manifestations, and prognoses associated with many of the common hematological diseases and abnormalities.

Contents

Module 15 NOCP References

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Appendix 4 - Pathophysiology

Time Requirements:

Didactic:	Theoretical	21
	Evaluations	1.5
	Lab	9
	In-class Total	31.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Shock

1. Describe the epidemiology, including the morbidity/mortality and prevention strategies, for shock.
2. Define shock based on aerobic and anaerobic metabolism.
3. Describe the body's physiological response to changes in blood volume, blood pressure, and perfusion.
4. Describe the effects of decreased perfusion at the capillary level.
5. Discuss the cellular ischemic, capillary stagnation, and capillary washout phases related to hemorrhagic shock.
6. Discuss the various types and degrees of shock and hemorrhage.
7. Predict shock and hemorrhage based on mechanism of injury.
8. Identify the need for intervention and transport of the patient with hemorrhage or shock.
9. Discuss the assessment findings and management of internal and external hemorrhage and shock.
10. Differentiate between the administration rate and volume of IV fluid in patients with controlled versus uncontrolled hemorrhage.
11. Relate pulse pressure and orthostatic vital sign changes to perfusion status.
12. Define and differentiate between compensated and decompensated hemorrhagic shock.
13. Discuss the pathophysiological changes, assessment findings, and management associated with compensated and decompensated shock.
14. Identify the need for intervention and transport of patients with compensated and decompensated shock.
15. Differentiate among normotensive, hypotensive, or profoundly hypotensive patients.
16. Describe differences in administration of intravenous fluid in the normotensive, hypotensive, or profoundly hypotensive patients.
17. Discuss fluid management and shock treatment for infant and child trauma patients. (NOCP 6.1.o)

Section 02 Hematology

1. Define hematology
2. Identify the components of the physical assessment as they relate to the hematology system.
3. Explain the pathophysiology and evaluate findings related to etiology, pathophysiology and manifestations of the following hematologic disorders: (Appendix 4B)
    a. Diseases of the erythrocytes
        i. Polycythemia
        ii. Anemia
        iii. Impairment of the erythrocyte function
    b. Diseases of the leukocytes
        i. Leukopenia
        ii. Neutropenia
        iii. Leukocytosis
    c. Diseases of the platelets
        i. Thrombocytosis
        ii. Thrombocytopenia
    d. Blood clotting disorders
        i. Hemophilia
        ii. Disseminated Intravascular Coagulopathy
    e. Hemolytic disease (erythroblastosis fetalis)
4. Given several preprogrammed patients with hematological problems, provide the appropriate assessment, management, and transport.
5. Discuss blood types and list potential complications from transfusions. (NOCP 5.5.h)
    a. Hemolytic reactions
    b. Febrile nonhemolytic reactions
    c. Allergic reactions
    d. Circulatory overload
6. List products derived from blood and list precautions for handling blood. (NOCP 5.5.h)

Section 03 Oncological Emergencies

1. Describe the nature of abnormal tissue growth disorders and the effect tumors may have on the body.
2. Describe the following terms
    a. Benign tumour
    b. Malignant tumour
    c. Metastasis
    d. Staging
3. Explain the pathophysiology and evaluate findings related to etiology, pathophysiology and manifestations of the:
    a. Classification
        i. Tissue
            1. Carcinoma
            2. Sarcoma
            3. Leukemia
            4. Lymphoma (Hodgkin's and Non-Hodgkin's)
            5. Multiple cell myeloma
    b. Location
    a. Treatments
4. Discuss cancer as it relates to melanoma
    a. Name three common forms and describe their characteristics
    b. Discuss the ABCDE rule for assessing melanoma
5. Discuss oncological emergencies and how they relate to prehospital care.
    a. Acute Bleeding
    b. Brain metastases, Increased ICP & Seizures
    c. Febrile neutropenia
    d. Hyperviscosity Syndrome
    e. Malignancy associated hypercalcemia
    f. Malignant airway Obstruction
    g. Malignant epidural spinal cord compression
    h. Superior vena cava obstruction
    i. Syndrome of inappropriate ADH Secretion
    j. Tumor lysis syndrome

Module 16

Immunology and Infectious Disease

Module 16 (Immunology and Infectious Diseases)

In the study of all aspects of emergency medical care, students must learn what is normal before they can detect abnormalities. They must also understand basic human physiology (how the body functions under normal conditions) to aid them in the assessment of patients. This knowledge will enable them to distinguish changes in the body's functions in the presence of pathophysiology (disease or injury). When the ongoing activity that supports life is disturbed, the body seeks to compensate for it. If the body is unable to compensate, a variety of medical problems and emergencies can ensue. An allergic reaction is an exaggerated response by the immune system to a foreign substance. Allergic reactions can range from mild skin rashes to severe, life-threatening reactions that involve virtually every body system. The most severe type, anaphylaxis is an acute, generalized, and violent antigen-antibody reaction that may be fatal even with prompt recognition and treatment. It is a true life-threatening emergency requiring appropriate prehospital field intervention. This module will focus on the probable causes of common assessment findings based on diseases affecting the immune system as well as the pathophysiology of allergic reactions and anaphylaxis as well as the assessment and management of anaphylaxis.

Contents

Module 16 NOCP References

Area 3.0 (Health and Safety)

Area 4.0 (Assessment and Diagnostics)

No table of authorities entries found.

Area 6.0 (Integration)

Area 8.0 (Health Promotion and Public Safety)

Appendix 4 - Pathophysiology

Appendix 5 - Medications

Time Requirements:

Didactic:	Theoretical	30
	Evaluations	1.5
	Lab	9
	In-class Total	40.5

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Immunology

1. List the two areas of body defense and state which leukocytes are responsible for each.
2. Describe leukopenia, leukocytosis, and leukemia.
3. Describe the structure of leukocytes to include: (NOCP 5.5.h) presence of nucleus and the ability to move and leave blood vessels and five types normally found in the blood.
4. State the normal range for adult leukocyte production. (NOCP 5.5.h)
5. Name the two sites of leukocyte production. (NOCP 5.5.h)
6. State the range of life span for leukocytes. (NOCP 5.5.h)
7. List leukocyte disorders.
8. Discuss the body's defense systems to include:
    a. Physical and Mechanical barriers (NOCP 4.3.i, 6.1.f)
    b. Biochemical barriers (NOCP 6.1.h)
    c. Inflammatory response and the cellular mediators (NOCP 6.1.h)
9. Discuss the general characteristics of Adaptive Immunity including (NOCP 6.1.h)
    a. Cell-mediated Immunity
    b. Humoral Immunity
10. Name the cells that produce antibodies. (NOCP 6.1.h)
11. Describe the specificity of antibodies. (NOCP 6.1.h)
12. Describe what happens when an antigen and antibody bind. (NOCP 6.1.h)
13. Describe the basic structure of an antibody molecule: (NOCP 6.1.h)
    a. Chemical composition
    b. Variable region
    c. Heavy chains
    d. Antigen binding site
    e. Light chains
    f. Constant regions.
14. Name the five types of antibodies and state which one is: (NOCP 6.1.h)
    a. Produced first
    b. Long lasting
    c. Found in the blood
    d. Can cross the placenta
    e. Found on mucosal surfaces
    f. Least understood
    g. Responsible for some allergic reaction
15. Evaluate findings related to the etiology, pathophysiology, and manifestations of the immune system. (NOCP 6.1.h)
16. Apply assessment techniques specific to the immune system. (NOCP 6.1.h)
17. Describe and perform assessment techniques for various immune system disorders. (NOCP 6.1.h)
18. Adapt assessment techniques to immune system history findings. (NOCP 6.1.h)
19. Provide care to a patient experiencing illness or injury primarily involving the immune system. (NOCP 6.1.h)

20. Explain the approach to a patient presenting with illness or injury involving the immune system. (NOCP 6.1.h)

Section 02 Infectious Disease

1. Define a microorganism. (NOCP 6.1.h, 8.3.a)
2. List and describe infectious agents (NOCP 6.1.h, 8.3.a)
    a. Bacteria
    b. Viruses
    c. Fungi
    d. Protozoans
    e. Helminths (worms)
3. List the four groups of microorganisms with a brief description and example of each. (NOCP 6.1.h, 8.3.a)
4. Name and describe the three shapes of bacteria.
5. Explain what is meant by the terms gram positive and gram negative and why a gram reaction is important.
6. Define a bacterial toxin and state how exotoxins differ from endotoxins with respect to their release from the host and their effect on the host.
7. Define the terms spore (endospore) and vegetative cell.
8. Describe the process of sporulation and germination.
9. Explain the significance of spores in sterilization and disinfection.
10. Name and describe the process by which bacteria reproduce.
11. Define generation time and state the range for rapidly growing bacteria.
12. Define the term colony.
13. Name and describe the four growth phases and explain how the growth phases relate to infection.
14. State how viruses differ from bacteria in regard to replication and genetic material.
15. Describe the structure of a naked virus and a lipid virus and compare the general resistance to disinfectants.
16. Outline the stages of replication of a DNA virus.
17. List some effects of viruses on host cells.
18. Define normal flora and list areas of the body having normal flora.
19. Explain how the composition of normal flora varies in different body sites.
20. Describe how certain factors encountered in health care facilities can alter the composition of normal flora.
21. Define the terms and use examples to illustrate: (NOCP 3.3.f, 8.3.a)
    a. Contamination
    b. Colonization
    c. infection and disease
22. Define: (NOCP 3.3.f, 8.3.a)
    a. Pathogen
    b. Virulence
    c. Etiology
23. List the three categories of bacterial reservoirs and state which one is the principal reservoir of human infections.
24. Define a carrier and differentiate between a convalescent and chronic carrier.

25. Explain how microorganisms are transmitted by direct contact, indirect contact, and droplets using examples to illustrate each. (NOCP 3.3.f)
26. Define vehicle transmission and give examples. (NOCP 3.3.f)
27. Define vector transmission and give examples of diseases transmitted in this manner. (NOCP 3.3.f, 8.3.a)
28. List the four portals of entry for infectious organisms. (NOCP 3.3.f)
29. Define fever (pyrexia) and explain how body activities are related to rise and fall of body temperature.
30. Explain why lymph nodes swell in response to infection. (NOCP 6.1.h)
31. Name and describe the location of three lymph nodes that are easily felt. (NOCP 6.1.h)
32. State the four cardinal symptoms of inflammation. (NOCP 6.1.h)
33. Outline the sequence of events in inflammation and explain how each contributes to hosts defenses. (NOCP 6.1.h)
34. Define purulent exudate and leukocytosis.
35. Define nosocomial infection and state the approximate rate in hospital infections. (NOCP 3.3.f)
36. List three factors contributing to nosocomial infections and explain the significance of each. (NOCP 3.3.f)
37. List the top three types of nosocomial infections in order of occurrence. (NOCP 3.3.f)
38. Define a staph carrier and explain how this contributes to nosocomial infections.
39. Name two antibiotic resistant bacteria that are of particular concern in health care facilities today and explain why there is a concern. (NOCP 3.3.f, 6.1.h)
40. Define Epidemiology.
41. Discuss public health principles relevant to infectious/communicable diseases. (NOCP 3.3.f, 8.1.d)
42. Identify public health agencies involved in the prevention and management of disease outbreaks. (NOCP 8.1.a, d)
43. List and describe the steps of an infectious process. (NOCP 3.3.f, 6.1.h)
44. Discuss the risks associated with infection. (NOCP 3.3.f)
45. List and describe the stages of infectious diseases. (NOCP 3.3.f)
46. In specific diseases, identify and discuss the issues of personal isolation. (NOCP 3.3.f)
47. Define “infection control precautions”. (NOCP 3.3.f)
48. Apply infection control precautions. (NOCP 3.3.f)
49. Describe and discuss the rationale for the various types of personal protection equipment. (NOCP 3.3.f, 8.3.b)
50. Discuss what constitutes a significant exposure to an infectious agent. (NOCP 8.3.f)
51. Describe the assessment of a patient suspected of, or identified as having, an infectious/communicable disease. (NOCP 8.3.f)
52. Discuss disinfection of patient care equipment and areas where patient care occurred. (NOCP 3.3.f, g, h)
53. Discuss the causative agent, body systems affected and potential secondary complications, routes of transmission, susceptibility and resistance, signs and symptoms, patient management and protective measures, and immunization for each of the following: (NOCP 3.3.f, 8.3.a, b, c, d, e, f, Appendix 4b)

a. AIDS/HIV
b. Bacterial meningitis
c. Chickenpox
d. Chlamydia
e. Ebola/Hemorrhagic Fever
f. Gonorrhea
g. Hantavirus
h. Hepatitis
i. Herpes simplex 1 and 2
j. Influenza
k. Lice
l. Malaria
m. Measles
n. Meningococcal meningitis
o. Mononucleosis
p. MRSA/VRE
q. Mumps
r. Pertussis
s. Pneumonia
t. Rabies
u. Rubella
v. SARS
w. Scabies
x. Syphilis
y. Tetanus
z. Toxic Shock Syndrome
aa. Tuberculosis
bb. Varicella
cc. West Nile virus

54. Identify common pediatric viral diseases. (NOCP 4.3.n)
55. Discuss the characteristics of and organisms associated with febrile and afebrile diseases including bronchiolitis, bronchitis, laryngitis, croup, epiglottitis, and the common cold. (NOCP 4.3.e)
56. Articulate the pathophysiological principles of an infectious process given a case study of a patient with an infectious/communicable disease.
57. Practice infection control techniques. (NOCP 3.3.f)
58. Describe common routes for transmission of disease and infection. (NOCP 3.3.f)
59. Evaluate findings related to the etiology, pathophysiology, and manifestations of the immune system. (NOCP 6.1.h)
60. Describe and perform assessment techniques for various immune system disorders. (NOCP 6.1.h)
61. Adapt assessment techniques to immune system history findings. (NOCP 6.1.h)
62. Provide care to a patient experiencing illness or injury primarily involving the immune system. (NOCP 6.1.h)

63. Explain the approach to a patient presenting with illness or injury involving the immune system. (NOCP 6.1.h)
64. Explain how patient history relates to patient presentation. (NOCP 6.1.h)
65. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.h)
66. Infer a differential diagnosis. (NOCP 6.1.h)
67. Discuss potential complications of illnesses and injuries to the immune system. (NOCP 6.1.h)
68. Adapt care based on patient presentation. (NOCP 6.1.h)
69. Communicate information to patient regarding care. (NOCP 6.1.h)
70. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.h)
71. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.h)

Section 03 Allergies and Anaphylaxis

1. Define and understand a treatment approach for Type I, II, III, IV hypersensitivities
2. Differentiate between an allergy and anaphylaxis
3. Discuss the incidence, morbidity and mortality of anaphylaxis
4. Discuss common antigens that can create an allergic or anaphylactic reaction (NOCP 4.2.a)
5. Identify the common routes an antigen can enter the body
6. Discuss the physiological response to an antigen in an allergic state
7. Discuss the physiological response to an antigen in an anaphylactic state
8. Review human antibody formation. (NOCP 5.5.h)
9. Identify and differentiate between the signs and symptoms of an allergic reaction and anaphylaxis. (NOCP 4.2.a)
10. Discuss and demonstrate the various treatments and pharmacological interventions used in the management of allergic reactions and anaphylaxis.
11. Describe the ABO Blood groups (NOCP 5.5.h)
12. Describe the Rh Factor (NOCP 5.5.h)
13. Discuss blood types and list potential complications from transfusions. (NOCP 5.5.h)

Section 04 Immune Pharmacology

1. For the medications listed below (NOCP 5.8.a, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, trade, and official names
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Evaluate medical conditions and indications for a particular route of medication administration
    e. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    f. Explain mechanism of action
    g. Apply proper calculations for correct medication requirement for the patient presentation
    h. Distinguish approved drug routes for the medication in question
    i. Evaluate appropriate site and route of medication administration
    j. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - Diphenhydramine
    - Epinephrine
    - Salbutamol

Module 17

Gastrointestinal and Genitourinary

Module 17 (Gastrointestinal and Genitourinary)

Gastrointestinal emergencies are a frequent prehospital complaint. An understanding of life-threatening abdominal problems and how to deal with them is essential. This module will discusses a wide variety of problems that arise within the gastrointestinal system.

The urinary system performs a number of vital functions, including maintaining blood volume and the proper balance of water, electrolytes, and pH. It also ensures that key substances such as glucose remain in the bloodstream. In addition, it removes a variety of toxic wastes from the blood, plays a major role in arterial blood-pressure regulation, and controls the development of red blood cells. This module will present a number of the common disorders of the urinary system.

Contents

Module 17 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Appendix 4 - Pathophysiology

Time Requirements:

Didactic:	Theoretical	21
	Evaluations	3
	Lab	18
	In-class Total	42

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Digestive System, Metabolism, and Nutrition

1. List the five basic activities of the digestive system.
2. Explain the differences between mechanical and chemical digestion.
3. List the two main groups of organs in the digestive system and the organs of each group.
4. List the four layers (tunica) of the GI tract in order from the inside out.
5. Name the tissue found in the submucosa and state the function of this layer.
6. Describe the arrangement of smooth muscle in the muscularis layer and describe its function.
7. State how the structure of the serosa differs above and below the diaphragm.
8. Name and state the location of the three main salivary glands.
9. State the composition and function of saliva.
10. Describe the digestive process that takes place in the oral cavity.
11. State the function of the esophagus, how food is moved down the esophagus, and how food is prevented from entering the trachea.
12. State the location of the visceral peritoneum, parietal peritoneum, and peritoneal cavity in relation to the organs of the GI tract.
13. State the function of each of the following:
    a. Mesentery
    b. Mesocolon
    c. lesser omentum
    d. greater omentum
    e. falciform ligament
14. State the difference between retroperitoneal and intraperitoneal organs.
15. State the location of the stomach.
16. Describe the gross anatomy of the stomach to include:
    a. four main regions
    b. lesser and greater curvature.
    c. pyloric sphincter
    d. rugae
17. Describe the mucosa of the stomach to include:
    a. cell type in epithelium
    b. gastric pits
    c. gastric glands
    d. names, location, and secretion of the four types of gland cells.
18. Describe the arrangement and function of smooth muscle in the muscularis layer.
19. Describe mechanical that occurs in the stomach.
20. Describe the role of hydrochloric acid, pepsinogen, and mucous in the stomach.
21. Name the three phases of regulation of gastric secretion and briefly describe each.
22. State the function of the hormone gastrin.
23. State the relative times of passage for fluids, carbohydrates, proteins, and fats through the stomach.

24. State the function of intrinsic factor and name the disease that results when this factor is not produced.
25. State the location of the small intestine in relation to the rest of the GI tract.
26. Name and state the location of the three regions of the small intestine.
27. Describe the appearance and function of the plicae circulares and villi.
28. Describe the microscopic structure of a villus to include:
    a. vessels in the core
    b. type of epithelial tissue
29. Describe the structure and function of the absorptive and goblet cells.
30. Describe the location and appearance of the pancreas.
31. Name the two types of glandular tissue in the pancreas and the secretions of each.
32. State how pancreatic juice is delivered to the small intestine.
33. Name the three main types of enzymes in pancreatic juice and state the function of each
34. Describe the location of the liver.
35. Describe the gross appearance of the liver
36. Describe the blood supply to the liver to include:
    a. names of the vessels entering and leaving
    b. source of blood entering the liver
37. Define liver lobule and hepatocyte.
38. Describe the structure of a liver lobule to include:
    a. location and structures of portal triad
    b. location of a central vein
    c. location and function of sinusoids
    d. location and function of bile canaliculi
    e. location and function of hepatic microphages (Kupffer cells)
39. Describe the flow of blood and bile through a liver lobule.
40. Name the cells producing bile and state how bile is carried to the small intestine.
41. State the role of bile salts in digestion and how bile is recycled.
42. State how bilirubin is formed and its fate in the GI tract.
43. List the nine functions of the liver and state which one is most essential for survival.
44. State the location of the gallbladder.
45. State the function of the gallbladder.
46. Describe the pathway of bile from the liver to the gallbladder to the duodenum.
47. Describe the segmentation and peristalsis and state what is accomplished by each.
48. Describe the location of the large intestine in relation to the rest of the GI tract.
49. Name and state the location of each of the following:
    a. ileocecal sphincter
    b. cecum
    c. ascending colon
    d. transverse colon
    e. descending colon
    f. sigmoid colon
    g. rectum
    h. anal canal

    i. anus
    j. appendix
50. Outline the digestive process of the large intestine.
51. Explain how intestinal contents move through the large intestines.
52. Describe the chemical digestion of carbohydrates to include:
    a. form in which absorption takes place
    b. role of salivary amylase, pancreatic amylase and brush border enzymes
    c. part of the GI tract where digestion takes place
53. Describe the chemical digestion of proteins to include:
    a. forms that may be absorbed
    b. role of gastric acid and pepsin
    c. role of pancreatic juice and brush border enzymes
    d. anatomical sites of digestion
54. Describe the chemical digestion of lipids to include:
    a. forms that may be absorbed
    b. role of bile and pancreatic lipase
    c. anatomic site of digestion
55. Describe chemical digestion of nucleic acids to include:
    a. forms that are absorbed
    b. role of pancreatic nucleases and brush border enzymes
    c. anatomical sites of digestion
56. State the anatomic site of carbohydrate and protein absorption.
57. Describe the route of monosaccharides and amino acids from the lumen of the intestine to the general circulation.
58. Name the two vitamins produced and absorbed in the large intestine.
59. Describe the absorption of vitamin B12.
60. State the anatomic site where most of the water is absorbed from the GI tract and second site where absorption takes place.

Section 02 Genitourinary Anatomy

1. Given a diagram of the urinary system, identify the following:
    a. Adrenal glands
    b. Aorta
    c. Kidneys
    d. Renal artery
    e. Ureters
    f. Renal vein
    g. Urinary bladder
    h. Inferior vena cava
    i. Urethra
2. Briefly describe the functions of the above listed components of the urinary system.
3. Given a diagram of a sagittal section of the kidney, identify and briefly describe the following structures:
    a. Renal cortex
    b. Renal medulla (pyramids)
    c. Renal papilla
    d. Lobe
    e. Renal pelvis
    f. Calcices (major and minor)
4. Label a diagram and describe the structures of a nephron to include:
    a. Afferent arteriole
    b. Proximal converted tubule
    c. Efferent arteriole
    d. Loop of Henle
    e. Glomerulus
    f. Distal converted tubule
    g. Bowman's capsule
    h. Collecting duct
    i. Renal corpuscle
5. Trace the flow of blood through the kidney from renal artery to renal vein.
6. Describe the two types of nephrons.
7. List three major functions of the kidney.
8. Define glomerular filtration.
9. Describe the function of the glomerular membrane and describe why the glomerulus is a more efficient filter than other capillary beds.
10. Define and give the normal value in mL / min for the glomerular filtration rate.
11. Define and give the composition of the glomerular filtrate or ultrafiltrate.
12. List three factors that affect glomerular filtration and explain how each procedures its effect.
13. Define net filtration pressure and state the normal value.
14. Define tubular reabsorption and state two ways in which it occurs.

15. Describe two types of passive reabsorption - osmosis and diffusion.
16. Describe the mechanism of active transport.
17. State in which part of the nephron most reabsorption occurs and how the tubular cells here are well adapted to carry out this function.
18. State where in the nephron and by what mechanism each of the following substances is reabsorbed:
    a. Water
    b. Glucose
    c. Amino acids
    d. Urea
    e. Na+ and positive ions in general
    f. Cl- and negative ions in general
19. Give the effect of ADH on reabsorption of water.
20. State where ADH is produced and on what part of the tubule it acts.
21. Describe the mechanism that stimulates ADH secretion.
22. Name the hormone that increases sodium reabsorption and the gland that produces it.
23. Outline the series of events that causes the hormone to be produced. Name three other substances that are reabsorbed along with Na^+.
24. Define renal threshold and threshold substance.
25. Give the renal threshold value for glucose.
26. Give three examples of substances that are not threshold substances.
27. List four substances that are secreted by the tubular cells, and explain how the secretion of ammonia differs from secretion of other substances.
28. Explain how the kidneys regulate the osmotic pressure (concentration) and volume of the ECF.
29. Explain how the kidneys regulate the electrolyte balance of ECF by giving the relationship between Na+ reabsorption and:
    a. H_2O absorption
    b. K^+ secretion
    c. H^+ secretion
    d. Cl^- reabsorption
30. Outline the sequence of events by which the kidney plays a role in the maintenance of a constant pH of extracellular body fluids in a normal individual, referring to:
    a. regeneration of plasma
    b. Na^+ - H^+ secretion
    c. three buffering systems in the filtrate
31. Explain how the kidney is able to help return the pH of the ECF to normal in acidosis and alkalosis.

Section 03 Gastroenterology

1. Describe the major disorders that may present with acute abdominal pain or discomfort. (NOCP 4.3.g)
2. Explain the pathophysiology and evaluate findings related to the etiology, pathophysiology and manifestations of the following gastrointestinal illnesses or injuries: (NOCP 4.3.g)
    a. Pancreatitis
    b. Esophagus / Stomach
        i. Esophageal varices
        ii. Esophagitis
        iii. Gastritis
        iv. Gastroesophageal reflux
        v. Obstruction
        vi. Peptic ulcer disease
        vii. Upper gastrointestinal bleed
    c. Liver / Gall Bladder
        i. Cholecystitis / Biliary colic
        ii. Cirrhosis
        iii. Hepatitis
    d. Pancreas
        i. Pancreatitis
    e. Small / Large Bowel
        i. Appendicitis
        ii. Diverticulitis
        iii. Gastroenteritis
        iv. Inflammatory bowel disease
        v. Lower gastrointestinal bleed
        vi. Obstruction

Section 04 Urology and Nephrology

1. Describe the major disorders that may present with acute abdominal pain or discomfort. (NOCP 4.3.g)
    a. Colic / calculi
    b. Infection
    c. Obstruction
    d. Renal failure
    e. Traumatic injuries
    f. Bleeding / discharge
    g. Infection
    h. Testicular torsion
2. Describe the pathophysiology and signs and symptoms of renal calculi, incontinence, urinary retention, renal and urinary bladder trauma, pyelonephritis, and renal failure. (NOCP 4.3.n)
3. Explain the relationship between urine output and patient condition. (NOCP 5.5.o)
4. Describe the pathophysiological differences between chronic and acute renal failure
5. Understand the sequalae caused by renal failure
6. Be able to interpret creatinine clearance as it pertains to renal failure
7. You could also incorporate acid-base balancing here as well
8. Explain the pathophysiology, evaluate findings related to the etiology, pathophysiology and manifestations, and treatment of the following genitourinary illnesses or injuries: (NOCP 4.3.h, 6.1.d)
    a. Testicular torsion
    b. Renal / Bladder
        i. Colic / Calculi
        ii. Infection
            1. Urinary Tract Infection
            2. Urosepsis
            3. Pyelonephritis
            4. Glomerulonephritis
        iii. Obstruction (Benign prostatic obstruction)
        iv. Renal failure
    c. Traumatic injuries
9. Explain the approach to a patient presenting with genitourinary conditions. (NOCP 6.1.d)
10. Explain how patient history, age, gender and health status relate to patient presentation. (NOCP 6.1.d)
11. Infer differential diagnosis and discuss potential complications of genitourinary system conditions. (NOCP 6.1.d)
12. Adapt care base on patient presentation and integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.d)

Section 05 Gynecology

1. Describe the physiological processes of menstruation and ovulation
2. Explain the pathophysiology and evaluate findings related to the etiology, pathophysiology and manifestations of the following genitourinary illnesses or injuries: (NOCP 3.h)
    a. Reproductive disorders (NOCP 4.3.h)
        i. Bleeding / Discharge
        ii. Infection
        iii. Ovarian cyst
3. Describe the pathophysiology of the following non traumatic causes of abdominal pain in the female patient:
    a. UTI
    b. Pelvic inflammatory disease
    c. Ruptured ovarian cyst
    d. Cystitis
    e. Dysmenorrhea
    f. Mittelschmerz
    g. Endometriosis
    h. Ectopic pregnancy
    i. Vaginal bleeding
4. Explain the pathophysiology and manifestations of the following genitourinary illnesses or injuries: (NOCP 4.3.h) (NOCP 6.1.d)
    a. Reproductive disorders (NOCP 4.3.h)
        i. Bleeding / Discharge
        ii. Infection
        iii. Ovarian cyst
5. Describe the pathophysiology of traumatic causes of abdominal pain in females.
6. Outline the pre-hospital assessment and management of the female with abdominal pain.
7. Outline specific assessment and management for the patient who has been sexually assaulted.
8. Describe specific pre-hospital measures to preserve evidence in sexual assault cases.
9. Explain the approach to a patient presenting with reproductive conditions. (NOCP 6.1.d)
10. Explain how patient history, age, gender and health status relate to patient presentation. (NOCP 6.1.d)
11. Infer differential diagnosis and discuss potential complications of reproductive system conditions. (NOCP 6.1.d)
12. Adapt care base on patient presentation and integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.d)

Section 06 Abdominal Trauma

1. Explain the pathophysiology, evaluate findings related to the etiology, pathophysiology and manifestations, and treatment of the following genitourinary illnesses or injuries: (NOCP 6.1.e)
    a. Penetrating/Blunt
    b. Esophageal disruption
    c. Evisceration
2. Provide care to a patient experiencing illness or injury primarily involving the gastrointestinal system. (NOCP 6.1.e)
    a. Apply and demonstrate assessment techniques specific to the gastrointestinal system (NOCP 4.3.g)
    b. Adapt assessment techniques based on findings. (NOCP 4.3.g)
3. Explain the approach to a patient presenting with illness or injury involving the gastrointestinal system. (NOCP 6.1.e)
4. Explain how patient history relates to patient presentation. (NOCP 6.1.e)
5. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.e)
6. Infer a differential diagnosis. (NOCP 6.1.e)
7. Discuss potential complications of illnesses and injuries to the gastrointestinal system. (NOCP 6.1.e)
8. Adapt care based on patient presentation. (NOCP 6.1.e)
9. Communicate information to patient regarding care. (NOCP 6.1.e)
10. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.e)
11. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.e)
12. Identify mechanisms of injury associated with abdominal trauma

Section 07 GI/GU Assessment

1. Provide care to a patient experiencing illness or injury primarily involving the gastrointestinal system. (NOCP 6.1.e)
    a. Apply and demonstrate assessment techniques specific to the gastrointestinal system (NOCP 4.3.g)
    b. Adapt assessment techniques based on findings. (NOCP 4.3.g)
2. Explain the approach to a patient presenting with illness or injury involving the gastrointestinal system. (NOCP 6.1.e)
3. Explain how patient history relates to patient presentation. (NOCP 6.1.e)
4. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.e)
5. Infer a differential diagnosis. (NOCP 6.1.e)
6. Discuss potential complications of illnesses and injuries to the gastrointestinal system. (NOCP 6.1.e)
7. Adapt care based on patient presentation. (NOCP 6.1.e)
8. Communicate information to patient regarding care. (NOCP 6.1.e)
9. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.e)
10. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.e)
11. Adapt assessment techniques based on findings. (NOCP 4.3.g)
1. Explain how patient history relates to patient presentation. (NOCP 6.1.e)
2. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.e)
3. Infer a differential diagnosis. (NOCP 6.1.e)
4. Adapt care based on patient presentation. (NOCP 6.1.e)
5. Communicate information to patient regarding care. (NOCP 6.1.e)
6. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.e)
7. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.e)
8. Apply assessment techniques specific to genitourinary/reproductive system (NOCP 4.3.h)
9. Demonstrate assessment techniques for genitourinary/reproductive illnesses and injuries (NOCP 4.3.h)
10. Adapt assessment techniques to genitourinary/reproductive history findings. (NOCP 4.3.h)
11. Explain how the trauma indices (scores) relate to triage, transport, and destination decisions. (NOCP 6.1.o)
12. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.e)
13. Demonstrate the ability to prioritize the treatment and transport decisions. (NOCP 6.1.e)
14. Adapt care based on patient presentation. (NOCP 6.1.e)
15. Communicate information to patient regarding care.
16. Justify approach, care, and transportation decisions. (NOCP 6.1.e)
17. Explain the approach to a patient presenting with genitourinary/reproductive conditions. (NOCP 6.1.d)
18. Explain how patient history, age, gender and health status relate to patient presentation. (NOCP 6.1.d)

19. Infer differential diagnosis and discuss potential complications of genitourinary/reproductive system conditions. (NOCP 6.1.d)
20. Adapt care base on patient presentation and integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.d)

Section 08 Pharmacology

1. For the medications listed below (NOCP 5.8.a, o, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, trade, and official names
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Evaluate medical conditions and indications for a particular route of medication administration
    e. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    f. Explain mechanism of action
    g. Apply proper calculations for correct medication requirement for the patient presentation
    h. Distinguish approved drug routes for the medication in question
    i. Evaluate appropriate site and route of medication administration
    j. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - Dimenhydrinate
    - Metoclopramide
    - Ondansetron

Module 18

Obstetrics and Neonatal Care

Module 18 (Obstetrics and Neonatal)

Pregnancy and childbirth are natural processes, but sometimes complications do occur. While complications of pregnancy are uncommon, paramedics must be able to recognize these complications, which may be life-threatening to the mother or baby, and manage them effectively. This module deals with the pregnancy and childbirth process and its related complications.

Most deliveries in the out-of-hospital setting occur without complications. However, emergency deliveries can present a number of challenges to the paramedic. The risk of death or serious neurological injury is much greater when a child is born after a spontaneous, out-of-hospital delivery compared to a controlled, in-hospital delivery. Care given in the first few minutes after birth may have a significant impact on future quality of life. This module discusses the assessment and management of the normal newborn; resuscitation of distressed neonates; and management of common problems encountered in infants during the first month of their lives.

Contents

Module 18 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 6.0 (Integration)

Appendix 4 - Pathophysiology

Time Requirements:

Didactic:	Theoretical	21
	Evaluations	3
	Lab	24
	In-class Total	48

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Reproductive Anatomy

1. Discuss the development of the reproductive systems including sexual differentiation during embryonic development and the changes that occur in puberty
2. Discuss the hormonal relationship to the development of the reproductive anatomy
3. Identify the organs and accessory organs of the female reproductive system and discuss their function:
    a. Vulva
    b. Mons pubis
    c. Prepuce
    d. Labia majora
    e. Labia minora
    f. Clitoris
    g. Vestibule
    h. Introitus (Vaginal orifice)
    i. Hymen
    j. Urinary meatus
    k. Perineum
    l. Paraurethral glands
    m. Greater vestibular glands
    n. Vagina
    o. Ovaries
    p. Fallopian Tubes
    q. Fimbriae
    r. Uterus
4. Discuss the female sex hormones and identify their mechanism of action
5. Discuss the menstrual cycle and its components
6. Identify the components of the breast and identify their function
    a. Nipple
    b. Areola
    c. Alveolus
    d. Ductule
    e. Duct
7. Discuss how prolactin and oxytocin aid in the development and ejection of milk
8. Identify the organs and accessory organs of the male reproductive system and discuss their function:
    a. Testes
    b. Epididymis
    c. Vas Deferens
    d. Urethra
    e. Scrotum
    f. Penis
    g. Seminiferous tubules
    h. Rete testis

i. Glans penis
j. Prostate gland
k. Utricle
l. Ejaculatory orifice and duct
m. Cowper gland

9. Discuss spermatogenesis
10. Discuss the male sex hormones and identify their mechanism of action

Section 02 Gynecology

1. Describe the physiological processes of menstruation and ovulation
2. Explain the pathophysiology and evaluate findings related to the etiology, pathophysiology and manifestations of the following genitourinary illnesses or injuries: (NOCP 4.3.h) (NOCP 6.1.d)
    a. Reproductive disorders (NOCP 4.3.h)
        i. Bleeding / Discharge
        ii. Infection
        iii. Ovarian cyst
3. Describe the pathophysiology of the following non traumatic causes of abdominal pain in the female patient:
    a. UTI
    b. Pelvic inflammatory disease
    c. Ruptured ovarian cyst
    d. Cystitis
    e. Dysmenorrhea
    f. Mittelschmerz
    g. Endometriosis
    h. Ectopic pregnancy
    i. Vaginal bleeding
4. Describe the pathophysiology of traumatic causes of abdominal pain in females.
5. Outline the pre-hospital assessment and management of the female with abdominal pain.
6. Outline specific assessment and management for the patient who has been sexually assaulted.
7. Describe specific pre-hospital measures to preserve evidence in sexual assault cases.
8. Explain the approach to a patient presenting with reproductive conditions. (NOCP 6.1.d)
9. Explain how patient history, age, gender and health status relate to patient presentation. (NOCP 6.1.d)
10. Infer differential diagnosis and discuss potential complications of reproductive system conditions. (NOCP 6.1.d)
11. Adapt care base on patient presentation and integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.d)

Section 03 Obstetrics

1. Describe the physiological processes of menstruation and ovulation
2. Describe the pathophysiology of the following non traumatic causes of abdominal pain in the female patient:
    a. Ectopic pregnancy
    b. Vaginal bleeding
3. Describe the pathophysiology of traumatic causes of abdominal pain in females.
4. Outline the pre-hospital assessment and management of the female with abdominal pain.
5. Outline specific assessment and management for the patient who has been sexually assaulted.
6. Describe specific pre-hospital measures to preserve evidence in sexual assault cases.
7. Calculate EDC (Estimated Date of Confinement).
8. Perform a pertinent history on a pregnant woman including: (NOCP 4.3.f)
    a. Para
    b. Gravida
    c. Previous complications
    d. Expected complications
    e. Expected delivery date
9. Perform physical examination on a pregnant patient. (NOCP 4.3.f)
10. Define types of abortions.
11. Relate pre-hospital management of abortions.
12. Explain and evaluate findings related to the etiology, predisposing factors, pathophysiology, manifestations and management of the following illnesses: (NOCP 4.3.f)
    a. Abruptio placenta
    b. Eclampsia
    c. Ectopic pregnancy
    d. First trimester bleeding
    e. Placenta previa
    f. Pre-eclampsia
    g. Third trimester bleeding
    h. Trauma
    i. Uterine rupture
    j. Abnormal presentations
    k. Amniotic embolus
    l. Postpartum hemorrhage
    m. Prolapsed cord
    n. Uterine inversion
13. Explain the approach to an obstetrical patient. (NOCP 6.1.q)
    a. Apply and demonstrate assessment techniques for obstetrical related illness or injury (NOCP 4.3.f)
    b. Adapt assessment techniques based on findings (NOCP 4.3.f)
14. Describe disease processes that interfere with labour and delivery (NOCP 6.1.q)
15. Describe complications of labour and delivery. (NOCP 6.1.q)

16. Explain how patient history relates to patient presentation. (NOCP 6.1.q)
17. Explain how age and health status relate to patient presentation. (NOCP 6.1.q)
18. Describe and discuss how to determine if the patient in labour should be transported or if preparation should be made to deliver the baby on scene. (NOCP 4.3.f)
19. Assess contractions for frequency, duration, and intensity.
20. State normal ranges of and monitor fetal heart rate.
21. Discuss indications that suggest the need to prepare for imminent delivery. (NOCP 6.1.q)
22. Adapt care to manage and imminent delivery.
23. Adapt care based on fetal and maternal presentation. (NOCP 6.1.q)
24. Describe how to assess the progression of labour in preparation for prehospital delivery.
25. Describe how to prepare for immediate delivery, including the supplies and equipment.
26. Describe the procedures and techniques used in a normal cephalic delivery.
27. Describe how to control the head of the baby during delivery.
28. Describe the method of assisting the mother's breathing pattern during labour.
29. Describe how to suction the newborn.
30. Relate how to administer oxygen to the newborn.
31. Following delivery, describe how to clamp / tie and cut the cord.
32. Describe how to manage the cord if it begins to bleed from either end after it has been clamped / tied and cut.
33. Describe the delivery of the placenta including the signs that indicate delivery is imminent.
34. State the volume which is considered normal blood loss during the delivery process.
35. Describe the management of the mother following delivery, including management of the uterus.
36. Relate causes of post-partum hemorrhage and methods of controlling body temperature and the use of oxygen.
37. Describe the management of a well newborn following delivery, including method of managing the airway, controlling body temperature, and the use of oxygen.
38. Take an APGAR score on a newborn at one minute and five minutes, and relate findings to a baby's condition.
39. Describe the procedures and techniques used for the delivery of breech presentations including potential difficulties, procedure to follow when baby's head is pressed against the vaginal wall, and when the head of the baby does not deliver within three minutes of the trunk.
40. Describe the procedures and techniques used for the delivery of prolapsed cord presentations including common causes, potential problems, and things to avoid when confronted with a prolapsed cord.
41. Relate signs of maternal and or fetal distress.
42. Describe the management of intrauterine fetal complications such as cord around neck, intact amniotic sac with head presentation, and premature rupture of amniotic membrane.
43. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.q)
44. Demonstrate the ability to manage an imminent delivery. (NOCP 6.1.q)

45. Justify the approach, assessment, care, and transportation decisions (NOCP 6.1.q).
46. Perform appropriate assessment techniques for the neonatal patients
47. Adjust assessment techniques and care based on findings

Section 04 Ultrasound

1. Describe common radiological data. (NOCP 4.5.o)
2. Differentiate normal from abnormal radiological results. (NOCP 4.5.o)

Section 05 Neonatology

1. Define “neonatal patient”, describe and discuss newborn resuscitation. (NOCP 4.3.l)
2. Review neonatal basic life support. (NOCP 4.3.l)
3. Identify important antepartum factors that can affect childbirth.
4. Identify important intrapartum factors that can determine high-risk newborn patients
5. Identify the factors that lead to premature birth and low-birth-weight newborns.
6. Distinguish between primary and secondary apnea.
7. Discuss pulmonary perfusion and asphyxia.
8. Describe and discuss the recognition of respiratory failure and shock in the newborn.
9. Describe and discuss basic and advanced neonatal airway management.
10. Describe the indications, equipment needed, application and evaluation of the following management:
    a. Blow-by oxygen
    b. Ventilatory assistance
    c. Chest compressions
11. Discuss the indications for ALS support in terms of:
    a. Endotracheal intubation
    b. Orogastric tube
    c. Vascular access
12. Describe and discuss fluid therapy and medications utilized in neonatal resuscitation.
13. Describe and discuss cardiac rhythm disturbances encountered during neonatal resuscitation.
14. Demonstrate assessment and management skills of various neonatal emergencies including cardiopulmonary arrest, respiratory failure, and shock.
15. Describe the initial steps in resuscitation of the neonatal patient.
16. Identify the primary signs utilized for evaluating a newborn during resuscitation.
17. Identify the appropriate use of the APGAR scale. (NOCP 4.3.l)
18. Calculate the APGAR score given various newborn situations. (NOCP 4.3.l)
19. Demonstrate the ability to perform a simulated neonatal resuscitation.
20. Discuss the effects of maternal narcotic use on the newborn.
21. Determine the appropriate treatment for the newborn with narcotic depression.
22. Utilize the Braslow tape in the management of the neonatal patient. (NOCP 4.3.l)
23. Apply assessment techniques specific to the neonatal patient. (NOCP 4.3.l)
24. Demonstrate appropriate assessment techniques for neonatal patients. (NOCP 4.3.l)
25. Adjust assessment techniques as required. (NOCP 4.3.l)
26. Describe disease processes that interfere with neonatal life functions. (NOCP 6.2.a)
27. Describe relationship between gestational age, presentation, and care. (NOCP 6.2.a)
28. Infer a differential diagnosis. (NOCP 6.2.a)
29. Adapt care based on patient presentation. (NOCP 6.2.a)
30. Describe potential complications that can occur when dealing with neonatal patients. (NOCP 6.2.a)
31. Integrate the approach, assessment, transportation of a patient. (NOCP 6.2.a)
32. Communicate information to patient’s parent(s) regarding care. (NOCP 6.2.a)

33. Justify approach, assessment, care, and transport decisions. (NOCP 6.2.a)
34. Describe the epidemiology, pathophysiology, assessment findings and management of the following: (NOCP 4.3.l)
    a. Meconium aspiration
    b. Apnea
    c. Diaphragmatic hernia
    d. Bradycardia
    e. Prematurity
    f. Respiratory distress/cyanosis
    g. Seizures
    h. Fever
    i. Hypothermia
    j. Vomiting
    k. Diarrhea
    l. Common birth injuries
    m. Cardiac arrest
    n. Post-arrest management

Module 19

Environmental

Module 19 (Environmental)

The environment is defined as all of the surrounding external factors that affect the patient. Paramedics may encounter medical and traumatic emergencies related to environmental conditions. Temperature, weather, terrain, and atmospheric pressure can create stresses for which the unprotected body is unable to compensate. A good understanding of the causes and underlying pathophysiologies of the body help the paramedic recognize these emergencies and promptly manage them. This module will focus on problems related to temperature extremes, drowning and near-drowning, diving emergencies, and high altitude illness. The module will also discuss the factors that can affect the patient during air medical transport and how to prepare the patient for transport.

Contents

Module 19 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 7.0 (Transportation)

Time Requirements:

Didactic:	Theoretical	15
	Evaluations	3
	Lab	12
	In-class Total	30

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Internet

Section 01 Environmental Emergencies

1. Define thermoregulation.
2. Explain the difference between core body temperature and surface temperature.
3. Define normal body temperature in an infant, child, adult and elderly person.
4. Discuss the methods of heat production, including five physiological mechanisms (sympathetic system) and four behavioural mechanisms.
5. Discuss the role of the hypothalamus in regards to control of body temperature.
6. Discuss factors that influence body temperature including but not limited to:
    a. Age
    b. Disease states
    c. Hormones
    d. Stress
    e. Environment
    f. Nervous system integrity
    g. Integumentary system integrity
    h. Circulatory system impairment
    i. Genetics
    j. Fitness
    k. Nutrition
    l. Exercise
7. Differentiate between core and peripheral temperature monitoring.
8. Explain how age, gender, and health status relate to hypothermia. (NOCP 6.1.n)
9. Infer a differential diagnosis of the different types of hypothermia. (NOCP 6.1.n)
10. Adapt care based on patient presentation of hypothermia. (NOCP 6.1.n)
11. Communicate information on patient regarding patient care.
12. Integrate the approach, assessment, care and transportation of a patient experiencing hypothermia. (NOCP 6.1.n)
13. Justify approach, assessment, treatment and transportation of a patient experiencing hypothermia. (NOCP 6.1.n)
14. Describe the role of BCLS in the severely hypothermic patient including:
    a. assisted ventilations
    b. oxygen administration
    c. assessment of pulse in extremely hypothermic patient
    d. appropriateness of chest compressions
    e. rate of chest compressions in hypothermic patient
15. Describe the possible adaptions of treatment in the severely hypothermic patient including:
    a. Airway management
    b. preventative measures to avoid development of Ventricular Fibrillation
    c. management of VF in hypothermic patient
    d. role of cardiac drugs in severely hypothermic patient
16. Discuss the role of cardiopulmonary bypass extracorporeal blood re-warming in decisions about where to transport the nearly dead patient.

17. Explain the importance of the concepts of passive external rewarming, active external rewarming and active internal rewarming “adding heat” and “active insulation”. And what situations and pts respond better than another
18. Explain how the dictum “don’t re-warm hypothermic patients in the field” may lead to poor patient care.
19. Explain why rapid re-warming is impossible in the environment and why rescuers should add as much heat as possible to severely hypothermic patients still in the environment.
20. Discuss rapid versus slow re-warming of patients unable to be transported (i.e. snowbound, vehicle failure, disaster)
21. Understand the principles of after drop (cold shock)
22. Discuss the pros and cons of delaying patient evacuation for the purposes of re-warming or fluid replacement.
23. List the criteria for diagnosing hypothermia without a thermometer.
24. Explain the approach to a patient presenting with hypothermia. (NOCP 4.3.n)
25. Discuss the disease process associated with hypothermia.
26. Define mild, moderate, and severe (profound) hypothermia and its management.
27. List the predisposing factors for hypothermia.
28. Explain the pathophysiology of the body’s response to hypothermia.
29. Identify sites where temperature may be assessed by non-invasive methods. (NOCP 4.4.c)
30. Modify temperature check to age of patient. (NOCP 4.4.c)
31. Distinguish between normal and abnormal findings. (NOCP 4.4.c)
32. Discuss factors that influence body temperature. (NOCP 4.4.c)
33. Perform temperature assessment. (NOCP 4.4.c)
34. Adapt techniques of obtaining temperature to patient situation. (NOCP 4.4.c)
35. Differentiate between core and peripheral temperature monitoring. (NOCP 4.5.g)
36. Understand the different temperature parameters of each site of temperature monitoring
37. Explain various means of measuring core body temperature.
38. Perform measurement of core temperature using the invasive method.
39. Explain indications for measuring core body temperature.
40. Describe methods for local cold injury assessment. (NOCP 5.6.e)
41. Identify the purposes of and indications for caring for local cold injury. (NOCP 5.6.e)
42. Identify the types of tissue damage that may result from local cold injury. (NOCP 5.6.e)
43. Demonstrate the provision of care for local cold injury. (NOCP 5.6.e)
44. Adjust to changes in patient presentation. (NOCP 5.6.e)
45. Identify and provide emergency care for diving related injuries and conditions.
46. Discuss the mechanical effects of pressure and the basic properties of gases related to diving emergencies.
47. Describe the signs, symptoms, and treatment of diving related emergencies.
48. Assess and manage patients who have high altitude illness.
49. Discuss the physiological and pathologic changes on the body that is associated with high altitude.
50. Explain the approach to a patient presenting with drowning and near drowning.
51. Discuss disease processes that are created by drowning and near drowning.

52. Explain how patient history relates to patient presentation of a drowning or near drowning patient.
53. Explain how age, gender and health status relate to patient presentation of a drowning or near drowning patient.
54. Infer a differential diagnosis of a drowning or near drowning patient.
55. Adapt care based on presentation of a drowning or near drowning patient.
56. Communicate information to patient regarding care.
57. Integrate the approach, assessment, treatment, and transportation of a patient experiencing drowning or near drowning.
58. Justify the approach, assessment, care, and transportation decisions relating to the drowning or near drowning patient.
59. Conduct assessment, explain the pathophysiology, and evaluate finding related to the etiology, pathophysiology, and manifestations of the following multi system illnesses and injuries in the listed problems, and interpret the finding of the following systemic conditions: (
    a. Hypothermia
    b. Local cold injuries
    c. Heat cramps
    d. Heat exhaustion
    e. Heat stroke
    f. Descent / Ascent barotraumas
    g. Air emboli
    h. Decompression sickness
    i. Acute Mountain Sickness
    j. High altitude pulmonary edema
    k. High altitude cerebral edema
    l. Drowning and near drowning
60. Provide care to a patient experiencing illness or injury primarily involving extremes of temperature or environment (
61. Explain the approach to a patient presenting with signs and symptoms due to exposure to adverse environments. (NOCP 6.1.n)
62. Discuss conditions resulting from exposure to adverse environments. (NOCP 6.1.n)
63. Explain how patient history relates to patient presentation. (NOCP 6.1.n)
64. Explain how age, gender and health status relate to patient presentation. (NOCP 6.1.n)
65. Infer a differential diagnosis. (NOCP 6.1.n)
66. Adapt care based on patient presentation. (NOCP 6.1.n)
67. Communicate information to patient regarding care.
68. Integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.n)
69. Justify approach, assessment, care and transportation decisions. (NOCP 6.1.n)

Section 02 Flight Physiology and Preparation

1. Discuss the role of flight transportation
2. Discuss the advantages and disadvantages of using flight transportation
3. Discuss the types of aircraft used for flight transport of the sick and injured to include:
    a. Rotary wing aircraft
    b. Fixed wing aircraft
4. Discuss the physics of flight as it pertains to air transport:
    a. Forces affecting flight
        i. Lift
        ii. Gravity
        iii. Thrust
        iv. Drag
    b. Three axis of flight
        i. Yaw
        ii. Roll
        iii. Pitch
5. Discuss the atmospheric principles and gas laws related to patient care during flight transportation
6. List the environmental factors and stresses experienced in flight. (NOCP 7.4.b)
7. Describe how environmental factors and stresses may affect the patient, crew and the equipment. (NOCP 7.4.b)
8. Discuss how this can impact patient care. (NOCP 7.4.b)
9. Identify the unique patient care principles for air medical transport.
    a. Discuss hypoxia in flight. (NOCP 7.4.a)
10. Discuss how treatments or techniques may be modified prior to or during flight. (ie intubation, chest tubes) (NOCP 7.4.b)
11. Describe the preparation of patient for air medical transport: (NOCP 7.4.a)
    a. From a scene
    b. For inter-facility transport
12. Discuss landing zone preparation:
    a. List the required elements of a safe landing zone (NOCP 7.3.a)
    b. Describe procedure to create a safe landing zone. (NOCP 7.3.a)
13. Discuss techniques for safely approaching a:
    a. Rotary wing aircraft (NOCP 7.3.b)
    b. Fixed wing aircraft. (NOCP 7.3.c)

Module 20

Dangerous Situations

Module 20 (Dangerous Situations)

This module examines a number of situations that are of high risk for the people involved and the paramedic. These include toxicological and hazardous material emergencies, mass casualty incidents, and crime scenes. This module will also discuss information pertaining to abuse and assault of the patient.

Toxicological emergencies have become more prevalent in recent years. These emergencies can be challenging to the paramedic because there are so many substances that can cause accidental or intentional overdoses. This will expand on that base to discuss incidents in which hazardous materials are spilled or released as a result of an accident, equipment failure, human error, or intentional actions. Students will learn about the role of the paramedic in such hazardous materials incidents and about medical care for patients contaminated with a hazardous material.

Situations such as multiple-vehicle accidents, natural disasters, or terrorism can be much more complicated and involve many more patients. Efficient response to multiple-patient incidents depends on the skills and discipline. Because EMS providers almost always interact in the larger situations with police, firefighters, or even disaster officials the module will introduce students to the logistics of working with other types of emergency personnel.

In addition, basic guidelines for collaboration with law enforcement when EMS providers need to provide medical care at a crime scene. The discussion will help to understand the principles of evidence preservation and documentation.

Abuse (which can be physical, psychological, or both) and assault (physical violence toward another person) are overwhelmingly serious and common problems. These are complex situations for paramedics to handle because the provider must address physical and psychological issues of medical care and provide appropriate management from the perspective of law enforcement. It can be very difficult to support a distraught patient, perform an adequate assessment and medical intervention, and obtain evidence for possible legal action. In some cases, providers must also remain aware that the patient's safety, and perhaps their own, is not secure.

Contents

Module 20 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 8.0 (Health Promotion and Public Safety)

Appendix 4 - Pathophysiology

Appendix 5 - Medications

Time Requirements:

Didactic:	Theoretical	21
	Self-Directed	10
	Evaluations	3
	Lab	18
	In-class Total	52

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
ICS-100 Online Reference Material
Electricity: The Invisible Killer Online Reference Material
Internet

Section 01 Toxicological and Substance Abuses

1. Define poisoning and describe the general assessment for potential poisoning situations
2. Understand the concept of polypharmacy
3. Potential Scenarios for the occurrence of poisoning
4. Identify the toxidromes and examples of each
5. Identify signs, symptoms, and management for typical poisoning and overdose emergencies.
6. Identify the signs, symptoms, and management for typical inhaled toxin emergencies.
7. Identify the signs, symptoms, and management for typical surface-absorbed toxin emergencies.
8. Explain the pathophysiology and general management of the following toxicological illnesses: (Appendix 4B) (NOCP 6.1.k)
    a. Acids and alkalis
    b. Alcohols
    c. Prescription Medications
        i. Benzodiazepine overdose
        ii. Beta blocker overdose
        iii. Calcium channel blocker overdose
        iv. Cyclic antidepressant overdose
    d. Non-prescription medication
        i. Salicylate overdose
        ii. Acetaminophen overdose
    e. Recreational medications
        i. Narcotic overdose
    f. Asphyxiants
    g. Cyanide
    h. Cholinergic
    i. Anti-cholinergic
        i. Organophosphates
    j. Sympathomimetic
    k. Food poisoning
    l. Hydrocarbons
9. Explain the pathophysiology, signs and symptoms, and treatment considerations for the following alcohol related neurological disorders: (Appendix 4B)
    a. Chronic alcoholism
    b. Delirium Tremens
    c. Korsakov's Psychosis
    d. Wernicke's encephalopathy
10. Evaluate findings related to the etiology, pathophysiology, and manifestations of the following alcohol related neurological disorders: (Appendix 4B)
    a. Chronic alcoholism
    b. Delirium Tremens
    c. Korsakov's Psychosis

    d. Wernicke's encephalopathy
11. Provide care to patient experiencing illness or injury due to poisoning or overdose. (NOCP 6.1.k)
12. Explain the approach to a patient presenting with medical or physical disorders created from a poisoning or overdose event. (NOCP 6.1.k)
13. Explain the pathophysiology and presentations of the specific poisons and overdoes listed in Appendix 4b. (NOCP 6.1.k)
14. Explain how patient history relates to patient presentation. (NOCP 6.1.k)
15. Explain how age, gender and health status relate to patient presentation. (NOCP 6.1.k)
16. Infer a differential diagnosis. (NOCP 6.1.k)
17. Adapt care based on patient presentation. (NOCP 6.1.k)
18. Understand and differentiate:
    a. Addictions
    b. Tolerance
    c. Dependence
    d. Withdrawal
19. Understand the relationship between mental health and substance abuse
20. Discuss social issues surrounding addictions, i.e. needle exchange
21. Communicate information to patient regarding care. (NOCP 6.1.k)
22. Integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.k)
23. Justify approach, assessment, care and transportation decisions. (NOCP 6.1.k)

Section 02 CBRNE, Hazardous Materials Incidents

1. Identify the five categories of weapons of mass destruction: (NOCP 8.3.a)
    a. Biological
    b. Nuclear
    c. Incendiary
    d. Chemical
    e. Explosive
2. List common CBRNE agents and discuss common signs and symptoms that may be present in an exposure: (NOCP 8.3.a)
    a. Nerve agents
        i. Sarin gas
    b. Blood agents
        i. Cyanide
    c. Blister agents
        i. Mustard gas
    d. Choking agents
        i. Phosgene gas
    e. Crowd control agents
        i. Mace
        ii. Pepper spray
    f. Biological agents
        i. Anthrax
        ii. Botulism
        iii. Plague
        iv. Ricin
        v. Tularemia
        vi. Smallpox
    g. Radiation exposure (NOCP 4.3.n)
3. Identify potential dissemination devices. (NOCP 8.3.a)
4. Describe how to safely perform CBRNE scene size-up. (NOCP 8.3.c)
5. Describe agent/hazard avoidance techniques. (NOCP 8.3.c)
6. Describe how to define and establish an inner and outer perimeter of a CBRNE event (NOCP 8.3.c)
7. Discuss the importance of PPE and list the levels of protection PPE (NOCP 8.3.b)
8. Discuss the limitations of PPE (NOCP 8.3.b)
9. Discuss the use of additional resources in a CBRNE event (NOCP 8.3.f)
10. Control contaminated casualties (NOCP 8.3.d)
11. List chemical counter measures (NOCP 8.3.f)
12. Conduct emergency decontamination procedures at CBRNE event (NOCP 8.3.e)
13. Assist with the decontamination process (NOCP 8.3.e)
14. Understand which agents have antidotes and which are managed symptomatically
15. Understand antidotes available in EMS

16. Identify precautions required when transporting patients involved in a CBRNE event (NOCP 8.3.f)
17. Discuss directed first-aid and explain when its use is appropriate (NOCP 8.3.f)
18. Describe the principles of triage specific to a CBRNE incident (NOCP 8.3.d)
19. Identify possible support requirements of receiving hospitals (NOCP 8.3.f)
20. Recognize the psychological impact of CBRNE incidents on the community resources and first responders (NOCP 8.3.f)

Section 03 Rescue Awareness

1. Define the role of the Paramedic involved in specialized rescue operations.
2. Identify the proper personal protective equipment used in rescue operations.
3. Discus the various stages of rescue operations and the role of the paramedic in them.
4. Review various types of general rescue operations

Section 04 Mass Casualty Incidents (MCI)

1. Discuss triage. (NOCP 4.1.a)
2. Identify circumstances under which triage is required. (NOCP 4.1.a)
3. Evaluate a triage system. (NOCP 4.1.a)
4. Apply the equipment and materials used to sort victims. (NOCP 4.1.a)
5. Perform scene assessments based on a triage system. (NOCP 4.1.a)
6. Communicate with other responders. (NOCP 4.1.a)
7. Adapt triage decision making processes. (NOCP 4.1.a)
8. Distinguish between the EMS practitioners roles when managing a multiple patient event (MPE) and describe each roles principle responsibilities. (NOCP 4.1.b)
9. Identify a variety of incident management systems (IMS) (NOCP 8.2.b)
10. Apply an IMS structure to an incident (NOCP 8.2.b)
11. Present a case study on a MPE
12. Apply management principles to a multiple casualty incident. (NOCP 4.1.c)
13. Modify procedures to meet the needs of a specific incident. (NOCP 4.1.c)
14. Describe the principle responsibilities to a mass casualty incident. (NOCP 4.1.b)
15. Describe the principles of an IMS and explain the various participant roles in an IMS (NOCP 8.2.b)
16. Identify agencies that can assist in an MCI and be comfortable acquiring their services such as the JRCC and EMO.

Section 05 Crime Scene Awareness

1. Collaborate with law enforcement agencies in the management of crime scenes. (NOCP 1.7.a)
2. Identify a crime scene and how to preserve it
3. Discuss criminal law as it applies to paramedic practice. (NOCP 1.7.a)
4. Describe common characteristics of real or potential crime scenes. (NOCP 1.7.a)
5. Describe the role of the paramedic in the management of real or potential crime scenes. (NOCP 1.7.a)
6. Manage patients in real or potential crime scenes. (NOCP 1.7.a)
7. Adapt scene management to the specific needs of a crime scene. (NOCP 1.7.a)
8. Identify the potential role of a paramedic in a specialized law enforcement team. (NOCP 1.7.a)
9. Describe the benefits of accurate note taking in real or potential crime scenes. (NOCP 1.7.a)
10. Maintain notes appropriate to real or potential crime scenes. (NOCP 1.7.a)
11. Discuss the requirements of legal testimony. (NOCP 1.7.a)

Section 06 Abuse and Assault

1. Outline specific assessment and management for the patient who has been sexually assaulted.
2. Discuss possible abuse or neglect of the geriatric patient. (NOCP 6.2.c)
3. Describe specific pre-hospital measures to preserve evidence in sexual assault cases
4. Define child abuse, child neglect, and sudden infant death syndrome (SIDS). (NOCP 6.2.b)
5. Discuss the parent/caregiver responses to the death of an infant or child. (NOCP 2.4.c)
6. Comply with ethical and legal reporting requirements for situations of abuse. (NOCP 1.7.b)
7. Describe the ethical and legal requirements for reporting real or suspected situations of abuse from ethical and legal perspectives. (NOCP 1.7.b)
8. Comply with reporting requirements. (NOCP 1.7.b)
9. Adapt care and scene management to fulfill reporting requirements. (NOCP 1.7.b)

Section 07 Pharmacology

1. For the medications listed below (NOCP 5.8.a, o, Appendix 5):
    a. Identify drug classification
    b. Identify chemical, generic, or trade
    c. Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration processes
    d. Discuss the indications, dosage, route of administration, and special considerations for medication administration in infants and children. (NOCP 5.8.a, o)
    e. Compare the pharmacokinetics of an elderly patient to that of a young patient, including drug distribution, metabolism, and excretion. (NOCP 5.8.a, o)
    f. Evaluate medical conditions and indications for a particular route of medication administration
    g. Explain factors that may affect absorption, distribution, metabolism, and elimination of a medication
    h. Explain mechanism of action
    i. Apply proper calculations for correct medication requirement for the patient presentation
    j. Distinguish approved drug routes for the medication in question
    k. Evaluate appropriate site and route of medication administration
    l. Evaluate the benefits and risks of medication administration via various possible routes

    Required Medication Profiles:
    - Naloxone

Section 08 Incident Command System - 100

1. Provide participants with an overview of the Incident Command System. (NOCP 4.1.b)
2. Review the history, features and principles, and organizational structure of the Incident Command System.
3. Review the purpose of ICS
    a. Requirements and purpose to use ICS and common incident tasks.
4. Understand the Incident Commander and Command Staff Functions
    a. Roles and functions of the Incident Commander and Command Staff.
5. Understand the general staff functions
    a. Roles and functions of the Operations, Planning, Logistics and Finance/Administration sections.
6. Understand the facilities
    a. Basic ICS facilities, their use and location, and facility map symbols.
7. Review the common responsibilities
    a. Common mobilization responsibilities and common responsibilities at an incident, individual accountability responsibilities, and common demobilization responsibilities.

Section 09 Electricity: The Invisible Killer

Electricity is often referred to as a "silent killer" because it cannot be tasted, seen, heard, or smelled. It is essentially invisible. Electricity has long been recognized as a serious workplace hazard, exposing employees to electrical shock, which can result in electrocution, serious burns, or falls that result in other injuries or even death.

Every year in Canada, many unnecessary and preventable contacts are made with energized power lines. In addition to these contacts, electrical substations are routinely broken into. A contact or break-in may require a response from police, fire or EMS workers. Each contact or electrical substation break-in has the potential to place emergency first responders at risk of serious injury or even death. This video consists of six typical scenarios that may involve response from police, fire and EMS and enumerates eight key learnings for emergency first responders:

- Perform a scene survey
- Assess the hazards
- Do not become a casualty
- Take control
- Treat the power lines as energized
- Stay a minimum of 10 metres away
- Keep others away
- Contact the electric utility

Module 21

Special Population Groups

Module 21 (Special Population Groups)

Paramedics will encounter patients who live with a challenge, who may present with special needs. The challenges that these patients face may be obvious to the EMS provider (such as complete blindness, cerebral palsy, or paraplegia). In other cases, they may be so subtle that they are not identified readily in initial conversation with the patient (such as slight developmentally delay or some degree of traumatic brain injury, some degree of hearing impairment, some forms of mental illness). In still other cases, the challenges are not medical at all, the patient might speak a different language than the provider's, live in a community culture with very different expectations for health care, or be a foreign citizen in Canada. In all these and in many other cases, it is important for the provider to realize that individuals with challenges exist and may require some level of accommodation for proper patient care to be given.

The module will also review the skills and medications utilized by the advanced care provider. Primary and advanced care teams are common in EMS and it is beneficial for the primary care provider to understand the roles and scope of practice of the advanced care provider. This will allow them to assist when needed as well as understand the capabilities of the provider when calling for assistance.

Students also need to realize that during their careers as paramedics they will be exposed to many kinds of physical and emotional stress. This module will also discuss the situations where the patient may be dealing with palliative care, end of life issues, or dealing with death and dying. This can be an emotional stressor on the paramedic so they will become familiar with the use of equipment and strategies that will help them remain physically and emotionally safe and healthy.

Contents

Module 21 NOCP References

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 8.0 (Health Promotion and Public Safety)

Appendix 6 - Labratory Data

Time Requirements:

Didactic:	Theoretical	27
	Self-Directed	6
	Evaluations	3
	Lab	24
	In-class Total	60

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
The Canadian Triage and Acuity Scale PowerPoint presentation
Internet

Section 01 Patients with Special Health Care Needs

1. Define “physically impaired patient”. (NOCP 6.2.d)
2. Modify assessment approach. (NOCP 6.2.d)
3. Identify common medical and trauma emergencies associated with physically impaired patients. (NOCP 6.2.d)
4. Define “mentally impaired patient”. (NOCP 6.2.e)
5. Modify assessment approach. (NOCP 6.2.e)
6. Describe the various etiologies and types, recognize patients with, and anticipate accommodations that may be needed in order to properly manage each of the following conditions: (NOCP 6.2.d)
    a. Visual impairments and Speech impairments
    b. Obesity and Paraplegia/quadriplegia
    c. Mental illness, Developmentally disabled and Down syndrome
    d. Emotional impairment/mental challenges
7. Describe, identify possible presenting signs, and anticipate accommodations for the following diseases/illnesses: (NOCP 6.2.d)
    a. Arthritis
    b. Cancer
    c. Cerebral palsy
    d. Cystic fibrosis
    e. Multiple sclerosis
    f. Muscular dystrophy
    g. Myasthenia gravis
    h. Poliomyelitis
    i. Spina bifida
    j. Head injury
8. Define, recognize, and anticipate accommodations needed to properly manage patients who:
    a. are culturally diverse
    b. are terminally ill (NOCP 6.1.m)
    c. have a communicable disease
9. Identify possible abuse or neglect of the physically challenged patient. (NOCP 6.2.d)
10. Discuss common medical emergencies associated with mentally impaired patients. (NOCP 6.2.e)
11. Discuss common trauma emergencies associated with mentally impaired patients. (NOCP 6.2.e)
12. Identify possible abuse or neglect of the mentally impaired patient (NOCP 6.2.e)
13. Identify community support programs. (NOCP 8.1.d)
14. Discuss situations which may require the expertise of community support agencies. (NOCP 8.1.d)
15. Acknowledge the need for additional intervention in appropriate patient populations. (NOCP 8.1.d)
16. Communicate options to patient. (NOCP 8.1.d)

17. Demonstrate appropriate assessment techniques for the physically impaired patient. (NOCP 6.2.d)
18. Integrate the approach, assessment, treatment, and transportation of the physically impaired patient. (NOCP 6.2.d)
19. Communicate information regarding patient care to patient, relatives, or primary care giver.
20. Justify approach, assessment, care, and transportation decisions. (NOCP 6.2.d)
21. Perform appropriate assessment techniques for the mentally impaired patient. (NOCP 6.2.e)
22. Integrate the approach, assessment, treatment, and transportation of the mentally impaired patient. (NOCP 6.2.e)
23. Demonstrate appropriate assessment techniques for the mentally impaired patient. (NOCP 6.2.e)
24. Justify approach, assessment, care, and transportation decisions. (NOCP 6.2.e)
25. Adapt ongoing assessments based on patient presentation. (NOCP 6.3.a)
26. Evaluate results of ongoing assessments. (NOCP 6.3.a)
27. Integrate assessment and patient care procedures. (NOCP 6.3.a)
28. Justify ongoing assessment decisions. (NOCP 6.3.a)
29. Adapt management priorities. (NOCP 6.3.b)
30. Communicate changes to patient to patient, family, or primary care giver. (NOCP 6.2.e, 6.3.b)
31. Justify approach, assessment, and transportation decisions. (NOCP 6.2.e, 6.3.b)
32. Describe the indications, contraindications and potential complications of using sterile techniques with dressing care. (NOCP 5.6.f)
33. Describe the equipment required to perform sterile techniques with dressing care. (NOCP 5.6.f)
34. Demonstrate using sterile techniques with dressing care. (NOCP 5.6.f)
35. Compare and contrast the primary objectives of the paramedic and the home care provider. (NOCP 8.1.c)
36. Identify the importance of home health care medicine as it relates to emergency medical services. (NOCP 8.1.c)
37. Discuss aspects of home care that enhance the quality of patient care and aspects that have the potential to become detrimental. (NOCP 8.1.c)
38. List pathologies and complications in home care patients that commonly result in ALS intervention. (NOCP 4.3.o, 8.1.c)

Section 02 End of Life Care

1. Provide care to a patient experiencing illness or injury primarily involving a terminal illness. (NOCP 6.1.m)
2. Explain the approach to a patient presenting with a terminal illness. (NOCP 6.1.m)
3. Identify disease processes that contribute to terminal illness. (NOCP 6.1.m)
4. Explain how patient history relates to patient presentation. (NOCP 6.1.m)
5. Explain how age, gender and health status relate to patient presentation. (NOCP 6.1.m)
6. Adapt care based on patient presentation. (NOCP 6.1.m)
7. Infer a differential diagnosis. (NOCP 6.1.m)
8. Integrate the approach, assessment, treatment and transportation of a patient. (NOCP 6.1.m)
9. Justify approach, assessment, care and transportation decisions. (NOCP 6.1.m)
10. Discuss the relationship between local home care treatment protocols/SOPs and local EMS protocols/SOPs.
11. Discuss differences in the ability of individuals to accept and cope with their own impending death.
12. List the stages of the grief process and relate them to an individual in hospice care.
13. Discuss the rights of the terminally ill patient.
14. Summarize the types of home health care available in your area and the services provided.
15. Provide care to a patient experiencing non-urgent medical problem. (NOCP 6.1.l)
16. Explain the approach to a patient presenting with a non- urgent medical problem. (NOCP 6.1.l)
17. Distinguish between an urgent and non-urgent medical problem. (NOCP 6.1.l)
18. Compare the cost, mortality, and quality of care for a given patient in the hospital versus the home care setting. (NOCP 8.1.c)
19. Discuss the significance of palliative care programs as related to a patient in a home health care or hospice setting. (NOCP 8.1.c)
20. Compare and contrast the primary objectives of acute care, home care, and hospice care. (NOCP 8.1.c)
21. Define hospice care, comfort care, and DNR/DNAR as they relate to local practice, law, and policy. (NOCP 6.1.m)
22. Identify community support programs. (NOCP 8.1.d)
23. Discuss situations which may require the expertise of community support agencies. (NOCP 8.1.d)
24. Discuss the legislative requirements. (NOCP 8.1.d)
25. Explain how patient history relates to patient presentation. (NOCP 6.1.l)
26. Explain how age, gender, and health status relate to patient presentation. (NOCP 6.1.l)
27. Infer a differential diagnosis. (NOCP 6.1.l)
28. Infer potential complications of non-urgent medical problems. (NOCP 6.1.l)
29. Adapt care based on patient presentation. (NOCP 6.1.l)
30. Communicate information to patient regarding care.

31. Integrate the approach, assessment, treatment, and transportation of a patient. (NOCP 6.1.l)
32. Justify the approach, assessment, care, and transportation decisions. (NOCP 6.1.l)
33. Communicate changes to patient to patient, family, or primary care giver. (NOCP 6.2.e, 6.3.b)

Section 03 Assisting the ALS Provider

1. Discuss and understand the role of advanced or critical care paramedics within the health care system
2. Discuss indications for ALS interventions and when they should be contacted
3. Be aware of the procedures that ALS providers can provide
    a. Airway:
        i. Discuss advanced airway procedures utilized by the advanced care paramedic to include the indications, contraindications, equipment required and the procedure:
            1. Orotracheal Intubation (NOCP 5.1.h)
            2. Bougie assisted intubation (NOCP 5.1.g)
            3. Digital intubation (NOCP 5.1.g)
            4. Percutaneous cricrothyroidotomy (NOCP 5.1.k)
            5. Melker airway (NOCP 5.1.l)
            6. Surgical airway (NOCP 5.1.l)
            7. Bougie assisted surgical airway (NOCP 5.1.l)
        ii. Discuss mechanical ventilation as utilized by the ALS provider
            1. Define mechanical ventilation. (NOCP 5.4.b)
            2. Identify the various types of mechanical ventilation equipment. (NOCP 5.4.b)
            3. List indications for mechanical ventilation. (NOCP 5.4.b)
            4. Discuss potential complications and safety issues when using mechanical ventilation. (NOCP 5.4.c)
            5. Describe vent circuit, end-tidal carbon dioxide, manometer, and respirometer. (NOCP 5.4.c)
            6. Discuss the difference between intermittent mandatory ventilation (IMV), continuous mandatory ventilation (CMV), and assist control (AC), inverse ratio (IR) as it pertains to mechanical ventilation. (NOCP 5.4.c)
            7. Discuss continuous positive airway pressure (CPAP), positive end expiratory pressure (PEEP), non-invasive positive pressure ventilation (NiPPV). NOCP 5.4.c)
            8. Discuss the use of a blender to deliver saturated oxygen. (NOCP 5.4.c)
            9. Describe use of mechanical ventilator based on patient presentation. (NOCP 5.4.d)
            10. Describe the adjustment of parameters to changes in ventilatory and hemodynamic status. (NOCP 5.4.d)
            11. Discuss the use of capnography and pulse oximetry. (NOCP 5.4.d)
            12. Discuss the use of mechanical ventilator based on patient presentation. (NOCP 5.4.d)
            13. Differentiate between various end-tidal carbon dioxide monitoring. (NOCP 4.5.b)

14. Differentiate between various end tidal carbon dioxide monitoring methods. (sidestream, microstream and mainstream end-tidal carbon dioxide) (NOCP 4.5.b)
15. Explain factors which may limit the reliability of end tidal carbon dioxide values. (NOCP 4.5.b)
16. Explain the relationship of end tidal carbon dioxide to arterial blood gas measurement of partial pressure of arterial carbon dioxide. (NOCP 4.5.b)

iii. Suctioning:

1. Identify the equipment required and the procedure suctioning beyond the oropharynx. (NOCP 5.1.c)
2. Have knowledge of how to tracheal suctioning in a simulated setting.

b. Circulatory Access:

i. Discuss advanced procedures utilized by the advanced care paramedic to access the circulatory system:

1. Intraosseous
    a. Discuss the purposes and indications for intraosseous needle insertion and infusion
    b. Identify the complications of intraosseous needle insertion and
    c. Identify the equipment necessary to perform intraosseous infusion in the prehospital setting.
    d. List the steps of intraosseous needle insertion.
    e. Simulate adapting care to changes in patient presentation.
    f. List medical conditions and patient indications for intraosseous medication administration.
    g. Apply proper calculations for correct medication requirement for the patient presentation. (NOCP 5.8.a, o)
    h. Distinguish those approved drugs that are given via the intraosseous route.

c. Cardiac:

1. Discuss advanced cardiac procedures utilized by the advanced care paramedic to include the indications, contraindications, equipment required and the procedure:
    a. Manual defibrillation (NOCP 5.5.j)
    b. Synchronized cardioversion (NOCP 5.5.k)
    c. Transcutaneous Pacing (NOCP 5.5.l)
    d. Thrombolytic administration

d. Chest trauma:

i. Needle thoracostomy

1. Identify equipment required for needle thoracostomy. (NOCP 5.5.s)
2. Describe indications for needle thoracostomy. (NOCP 5.5.s)

3. Observe in a simulated setting the procedure of a needle thoracostomy.
4. Observe the insertion of needle decompression catheter with Heimlich Valve

ii. Chest tubes

1. Describe the purpose and indications for the use of chest tubes. (NOCP 5.5.r)
2. Identify the components of a closed chest tube system. (NOCP 5.5.r)

e. Medications:

i. Be aware of available medications that can be provided by ALS providers including when they would be warranted and desired effects

Section 04 Diagnostics (Laboratory Data)

1. Identify indications and rational for performing a macroscopic urinalysis. (NOCP 4.5.q)
2. Identify common assessments associated with urinalysis by qualitative methods. (NOCP 4.5.q)
    a. Identify indications and rationale for performing urinalysis. (NOCP 4.5.q)
    b. Identify common assessments associated with urinalysis by qualitative method. (NOCP 4.5.q)
3. Be familiar with the common laboratory tests. (NOCP 4.5.l)
    a. Arterial blood gas analysis
    b. Cardiac markers
    c. Complete blood count
    d. Lactate
    e. Routine chemistry
4. Differentiate normal from abnormal values. (NOCP 4.5.l)
5. Discuss how these values may adjust patient care

Section 05 Medical Devices

6. Be familiar with the following pieces of equipment, know how to utilize those within scope, and know what paramedic registration level or care provider would be able to assist with a device not in your scope: (NOCP 6.1.m)
    a. Primary Care Paramedic
        i. Glucometers
        ii. Nebulized, metred dose inhalers and dry powder inhalers
        iii. Oxygen concentrators, oxygen tanks, and liquid oxygen systems
        iv. Oxygen masks and nebulizers
        v. Ventricular assist devices
        vi. Discuss Ostomy care:
            1. Discuss and identify equipment for ostomy drainage. (NOCP 5.5.p)
            2. Discuss and describe the components of an ostomy drainage bag. (NOCP 5.5.p)
            3. Discuss and identify the purpose of an ostomy drainage system. (NOCP 5.5.p)
            4. Discuss and identify the common ostomy sites and relate to patient condition and potential complications. (NOCP 5.5.p)
        vii. Discuss Oral and nasal gastric tubes:
            1. Discuss and describe indications for oral and nasal gastric tube insertion. (NOCP 5.5.t)
            2. Discuss and identify the equipment required for oral and nasal gastric tube insertion (NOCP 5.5.t)
            3. Be familiar with oral & nasogastric tube insertion.
            4. Adapt techniques to various patient age groups and types. (NOCP 5.5.t)
        viii. Discuss urinary catheterization:
            1. Discuss the indications for urinary catheterization. (NOCP 5.5.u)
            2. Discuss and identify the equipment required to perform urinary catheterization. (NOCP 5.5.u)
            3. Discuss and identify the differences in the catheterization of male and female patients. (NOCP 5.5.u)
        ix. Provide routine care for a patient with a urinary catheter:
            1. Identify the purpose of a urinary catheterization and equipment required (NOCP 5.5.o)
            2. Explain how the size of the catheter can affect the patient. (NOCP 5.5.o)
            3. Explain potential complications to catheter care and adapt care procedure (NOCP 5.5.o)
            4. Demonstrate the appropriate technique when caring for equipment and patient, as well as demonstrate how to drain and measure urine output. (NOCP 5.5.o)
        x. Discuss non-catheter urinary drainage:

1. Discuss and identify the equipment for non-catheter urinary drainage. (NOCP 5.5.q)
2. Discuss and identify the purpose of non-catheter urinary drainage. (NOCP 5.5.q)
3. Relate urine output to patient condition. (NOCP 5.5.q)
4. Discuss the procedures for the routine care of a patient with a non-catheter urinary drainage system. (NOCP 5.5.q)
5. Adapt techniques to various age groups and special situations. (NOCP 5.5.o)

b. Advanced/Critical Care Paramedic
    i. IV infusions and in-dwelling IV sites
    ii. Vascular access through PICC lines or centrally implanted port (NOCP 4.5.j)
c. Other devices
    i. Medication delivery systems
    ii. Home dialysis
    iii. Tracheotomies and home ventilators
    iv. Surgical drains
    v. Apnea monitors, cardiac monitors, and pulse oximeters
    vi. Wheelchairs, canes, and walkers
    vii. Extracorporeal membranous oxygenation

Section 06 Canadian Triage and Acuity Scale (Adult/Pediatric) Program

1. Describe the historical basis of triage.
2. Define the purpose and value of triage.
3. Review the unique nature of emergency patients.
4. Describe the professional role and personal characteristics of the triage nurse.
5. Demonstrate an understanding of the nursing skills applied in triage including public relations, interviewing, documentation, critical thinking and communications.
6. Describe the full triage process from patient arrival to transfer to a treatment area.
7. Rapidly identify patients with a high acuity level.
8. Care for patients in the waiting room.
9. Define the meaning of the five CTAS levels.
10. Apply the CEDIS list of presenting complaints.
11. Accurately apply first and second order modifiers to presenting complaints.
12. Describe appropriate reassessment times.
13. Review case scenarios and discuss CTAS decision.
14. Describe the challenges of CTAS implementation in rural hospitals.
15. Understand the differences between pediatric and adult triage.
16. Apply the Critical Look: Pediatric Assessment Triangle.
17. Interpret vital signs in pediatric patients.
18. Identify presenting complaint and utilize the CIAMPEDS.
19. Apply pediatric specific modifiers.
20. Analyze case scenarios.
21. Understand how CEDIS applies to the pediatric presenting complaints.

Module 22

Medical Terminology

Module 22 (Medical Terminology)

This module is a self-directed module that will introduce the student to the vocabulary used by medical professionals. The student will follow a body systems approach to learning medical language pertinent to that system. Word parts are used to build, analyze, define, and spell medical terms. Structural, directional, disease and disorder, surgical, and diagnostic terms; pronunciations; and abbreviations are also included.

Contents

Module 22 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Time Requirements:

Didactic:	Theoretical	3
	Self-Directed	20
	Evaluations	6
	In-class Total	29

Reference Materials: Module Slide Sets
Learning Management System Resources
Medical Terminology
Internet

Section 01 Introduction to Medical Terminology

1. Employ self-directed learning
    a. Choose among appropriate learning strategies for self-study of the text book, memorization of terms, and test preparation
    b. Assess own progress and adjust study techniques when required
2. Acquire medical terminology by analyzing and building medical words
    a. Describe the origin of medical terms.
    b. Define the four word parts and the combining vowel.
    c. Build, analyze, and define medical terms using word parts.
    d. Describe organizational components of the body, directional terms, anatomic planes, regions, and quadrants.
    e. Identify the major body system structures and their related word parts.
    f. Define medical terms related to diseases and disorders.
    g. Define diagnostic terms for each body system.
    h. Identify plural endings for medical terms.
    i. Define surgical terms related to each body system.
    j. Define medical terms commonly used in obstetrics and neonatology.
    k. Define medical terms used in oncology.
    l. Recognize common abbreviations used in each body system and specialty area.
    m. Pronounce medical terms. (NOCP 1.1.b, NOCP 2.1.g)
    n. Spell medical terms. (NOCP 1.3.c)

Integration

Module 23

Module 23 (Integration)

This module will utilize the processes of assessment and treatment of diseases and injuries while focusing on the students' ability to critically think and develop a differential diagnosis and a treatment plan based on the patients presentation.

Contents

Module 23 NOCP References

Area 6.0 (Integration)

Time Requirements:

Didactic:	Theoretical	21
	Evaluations	
	Final Exam	3
	Clinical Exam	3
	Lab	90
	In-class Total	117

Reference Materials: Module Slide Sets
Learning Management System Resources
Paramedic Textbook
Anatomy Textbook
Internet

Section 01 Integration

1. Utilize differential diagnosis skills, decision-making skills and psychomotor skills in providing care to patients in unique patient groups:
    a. Cardiovascular system (NOCP 6.1.a)
    b. Neurological (NOCP 6.1.b)
    c. Respiratory (NOCP 6.1.c)
    d. Genitourinary (NOCP 6.1.d)
    e. Gastrointestinal (NOCP 6.1.e)
    f. Integumentary (NOCP 6.1.f)
    g. Musculoskeletal (NOCP 6.1.g)
    h. Immunologic (NOCP 6.1.h)
    i. Endocrine (NOCP 6.1.i)
    j. Toxicologic (NOCP 6.1.k)
    k. Environmental (NOCP 6.1.n)
    l. Trauma (NOCP 6.1.o)
2. Explain how patient history relates to the patient presentation
3. Explain how age, gender and health status relate to the patient presentation
4. Infer a differential diagnosis
5. Discuss potential complications
6. Adapt care based on patient presentation
7. Integrate the approach, assessment, treatment and transport of the patient
8. Justify the approach, assessment, care and transport decisions for the patient
9. Conduct ongoing assessments and provide care
    a. Conduct ongoing assessments based on patient presentation and interpret findings (NOCP 6.3.a)
    b. Redirect priorities based on assessment findings (NOCP 6.3.b)

Clinical and Ambulance Practicum

Module 24

Module 24 (Clinical and Ambulance Practicum)

This module outlines all of the clinical practicum, as well as the ambulance practicum, competencies a student must attain during the program. The clinical and ambulance practicum experience encompasses a variety of locations in the health care field. The health care locations both hospital and ambulance based offer an opportunity for the student to participate in patient evaluation and care in an emergent and non-emergent setting. Students participating in the PCP program are required to complete the clinical and practicum hours on assigned clinical days and/or weekends as scheduled by Medavie HealthEd.

It is important to note it is mandatory for a student to attain all “C” and “P” competencies identified in the National Occupational Competency Profile for Paramedicine as developed by the Paramedic Association of Canada. These competencies are identified in this module all “C” competencies are listed under clinical practicum, while all “P” competencies are listed under ambulance practicum.

Contents

Module 23 NOCP References

Area 1.0 (Professional Responsibilities)

Area 2.0 (Communication)

Area 3.0 (Health and Safety)

Area 4.0 (Assessment and Diagnostics)

Area 5.0 (Therapeutics)

Area 6.0 (Integration)

Area 7.0 (Transportation)

Area 8.0 (Health Promotion and Public Safety)

Time Requirements:

Didactic:	Clinical Experience (ER)	112
	Ambulance Practicum	450
	In-class Total	562

Reference Materials: Module Slide Sets
Paramedic Textbook
Anatomy Textbook
Great Big Solutions CompTracker Software
Internet

Section 01 Clinical Practicum

1. Conduct pediatric assessment and interpret findings (NOCP 4.3.n)
2. Conduct non-invasive temperature monitoring (NOCP 4.4.c)
3. Measure blood pressure with non-invasive blood pressure monitor (NOCP 4.4.f)
4. Conduct oximetry testing and interpret findings (NOCP 4.5.a)
5. Use manual maneuvers and positioning to maintain airway patency (NOCP 5.1.a)
6. Administer oxygen using nasal cannula (NOCP 5.3.a)
7. Administer oxygen using high concentration mask (NOCP 5.3.d)
8. Provide oxygenation and ventilation using manual positive pressure devices (NOCP 5.4.a)
9. Maintain peripheral intravenous (IV) access devices and infusions of crystalloid solutions without additives. (NOCP 5.5.c)
10. Conduct peripheral intravenous cannulation. (NOCP 5.5.d)
11. Follow safe process for responsible medication administration. (NOCP 5.8.b)
12. Administer medication via inhalation route (NOCP 5.8.m)
13. Provide care for pediatric patient (NOCP 6.2.b)
14. Provide care for geriatric patient (NOCP 6.2.c)

Section 02 Ambulance Practicum

1. Maintain patient dignity (NOCP 1.1.a)
2. Reflect professionalism through use of appropriate language (NOCP 1.1.b)
3. Dress appropriately and maintain personal hygiene (NOCP 1.1.c)
4. Maintain appropriate personal interactions with patients (NOCP 1.1.d)
5. Maintain patient confidentiality (NOCP 1.1.e)
6. Behave ethically (NOCP 1.1.i)
7. Function as patient advocate (NOCP 1.1.j)
8. Comply with scope of practice (NOCP 1.3.a)
9. Include all pertinent and required information on reports and medical records (NOCP 1.3.c)
10. Function within relevant legislation, policies and procedures (NOCP 1.4.a)
11. Work collaboratively with a partner (NOCP 1.5.a)
12. Accept and deliver constructive feedback (NOCP 1.5.b)
13. Employ reasonable and prudent judgment (NOCP 1.6.a)
14. Practice effective problem solving (NOCP 1.6.b)
15. Delegate tasks appropriately (NOCP 1.6.c)
16. Deliver an organized, accurate and relevant verbal report (NOCP 2.1.b)
17. Deliver an organized, accurate and relevant patient history (NOCP 2.1.c)
18. Provide information to patient about their situation and how they will be cared for (NOCP 2.1.d)
19. Interact effectively with the patient, relatives and bystanders who are in stressful situations (NOCP 2.1.e)
20. Speak in a language appropriate to the listener (NOCP 2.1.f)
21. Use appropriate terminology (NOCP 2.1.g)
22. Record organized, accurate and relevant patient information (NOCP 2.2.a)
23. Practice active listening techniques (NOCP 2.3.b)
24. Establish trust and rapport with patients and colleagues (NOCP 2.3.c)
25. Recognize and react appropriately to nonverbal behaviors (NOCP 2.3.d)
26. Treat others with respect (NOCP 2.4.a)
27. Employ empathy and compassion while providing care (NOCP 2.4.b)
28. Recognize and react appropriately to persons exhibiting emotional reactions (NOCP 2.4.c)
29. Act in a confident manner (NOCP 2.4.d)
30. Act assertively as required (NOCP 2.4.e)
31. Employ diplomacy, tact and discretion (NOCP 2.4.f)
32. Exhibit physical strength and fitness consistent with the requirements of professional practice (NOCP 3.1.e)
33. Practice safe biomechanics (NOCP 3.2.a)
34. Transfer patients from various positions using applicable equipment and/or techniques (NOCP 3.2.b)
35. Secure patients to applicable equipment (NOCP 3.2.d)
36. Assess scene for safety (NOCP 3.3.a)

37. Address potential occupational hazards (NOCP 3.3.b)
38. Practice infection control techniques (NOCP 3.3.f)
39. Clean and disinfect equipment (NOCP 3.3.g)
40. Clean and disinfect work environment (NOCP 3.3.h)
41. Obtain list of patient's allergies (NOCP 4.2.a)
42. Obtain patient's medication profile (NOCP 4.2.b)
43. Obtain chief complaint and/or incident history from patient, family members and/or bystanders (NOCP 4.2.c)
44. Obtain information regarding patient's past medical history (NOCP 4.2.d)
45. Obtain information about patient's last oral intake (NOCP 4.2.e)
46. Obtain information regarding incident through accurate and complete scene assessment (NOCP 4.2.f)
47. Conduct primary patient assessment and interpret findings (NOCP 4.3.a)
48. Conduct secondary patient assessment and interpret findings (NOCP 4.3.b)
49. Conduct cardiovascular system assessment and interpret findings (NOCP 4.3.c)
50. Conduct neurological system assessment and interpret findings (NOCP 4.3.d)
51. Conduct respiratory system assessment and interpret findings (NOCP 4.3.e)
52. Conduct musculoskeletal assessment and interpret findings (NOCP 4.3.j)
53. Conduct geriatric assessment and interpret findings (NOCP 4.3.o)
54. Assess pulse (NOCP 4.4.a)
55. Assess respirations (NOCP 4.4.b)
56. Assess blood pressure by auscultation (NOCP 4.4.d)
57. Assess skin condition (NOCP 4.4.g)
58. Assess pupils (NOCP 4.4.h)
59. Assess level of consciousness (NOCP 4.4.i)
60. Conduct glucometric testing and interpret findings (NOCP 4.5.c)
61. Conduct 3-lead electrocardiogram (ECG) and interpret findings (NOCP 4.5.m)
62. Utilize portable oxygen delivery systems (NOCP 5.2.b)
63. Treat soft tissue injuries (NOCP 5.6.a)
64. Immobilize suspected fractures of the axial skeleton (NOCP 5.7.b)
65. Provide care to patient experiencing illness or injury primarily involving cardiovascular system (NOCP 6.1.a)
66. Provide care to patient experiencing illness or injury primarily involving neurological system (NOCP 6.1.b)
67. Provide care to patient experiencing illness or injury primarily involving respiratory system (NOCP 6.1.c)
68. Provide care to patient experiencing illness or injury primarily involving gastrointestinal system (NOCP 6.1.e)
69. Provide care to patient experiencing illness or injury primarily involving integumentary system (NOCP 6.1.f)
70. Provide care to patient experiencing illness or injury primarily involving musculoskeletal system (NOCP 6.1.g)
71. Provide care to patient experiencing toxicologic syndromes (NOCP 6.1.k)
72. Provide care to trauma patient (NOCP 6.1.o)

73. Provide care to psychiatric patient (NOCP 6.1.p)
74. Conduct ongoing assessments based on patient presentation and interpret findings (NOCP 6.3.a)
75. Re-direct priorities based on assessment findings (NOCP 6.3.b)
76. Conduct vehicle maintenance and safety check (NOCP 7.1.a)
77. Work collaboratively with other members of the health care community (NOCP 8.1.c)
78. Work collaboratively with other emergency response agencies (NOCP 8.2.a)

NOCP References

Based on the National Occupational Competency Profile

National Occupational Competency Profile (NOCP) References

The National Occupational Competency Profile (NOCP) as described by the Paramedic Association of Canada defines eight areas of competence for the paramedic. This profile identifies certain knowledge, skills, and abilities synonymous with a given level of paramedicine, in this case the Primary Care Paramedic. While the NOCP document is the base level competency, each province retains the ultimate authority in legislating the actual administration and delivery of the paramedic scope of practice and regulatory frameworks. This appendix outlines the references of the Primary Care Paramedic Program to the NOCP document.

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Area 6.0 (Integration)

Area 7.0 (Transportation)

Area 8.0 (Health Promotion and Public Safety)

Appendix 4 (Pathophysiology)

Appendix 5 (Medications)

Appendix 6 (Laboratory Data)