



ADVANCED PRACTICE PARAMEDIC - Minimum Educational and Examination

Objectives:

The Global Emergency Medical Registry (GEMR) establishes minimum standard educational objectives for the registry levels. The following are the current minimum educational objectives for an initial Advanced Practice Paramedic (APP) education program, the registry written examinations and psychomotor examinations are created from these objectives. GEMR Advanced Practice Paramedic Objectives meet or exceed current recommended objectives for Advanced Practice Paramedic education from the Canadian National Occupational Competency Profile for Paramedics at the Critical Care Paramedic Level, the International Association of Flight Paramedics Critical Care Paramedic Position Statement, the IBSC CCP objectives, the Paramedics Australia Paramedicine Role Descriptions, Montana Critical Care Paramedic Endorsement Knowledge and Psychomotor Objectives, ASTNA's Critical Care Transport Core Curriculum, California Code Regs. Tit. 22, § 100092.07 - Required Course Content Critical Care Paramedic, the Wisconsin Critical Care Transport Paramedic Curriculum, and the Montana Curriculum Objectives for the Paramedic Critical Care Endorsement.

Advanced Practice Paramedic Educational Objectives:

1. Demonstrate the ability to comprehend, apply and evaluate the clinical information relative to his/her role as an entry-level Advanced Practice Paramedic.
2. Describe the benefits of continuing education.
3. Differentiate among training and roles and responsibilities of the recognized levels of certification: Emergency Medical Responder, Emergency Medical Technician, Advanced Emergency Medical Technician, Advanced Practice Paramedic, and Advanced Practice Paramedic.
4. List the benefits of membership in professional EMS organizations.
5. Differentiate between professionalism and professional licensure, certification, registration, and credentialing.
6. Describe the Advanced Practice Paramedic role in patient care situations.
7. Describe the benefits of each component of off-line (indirect) and online (direct) medical direction at the Advanced Practice Paramedic level of care.
8. Outline the role and components of an effective continuous quality improvement (CQI) program for the Advanced Practice Paramedic level of care.
9. Explain what the International Liaison Committee on Resuscitation (ILCOR) is and describe the process of science recommendations.
10. Describe EMS activities that pose a high risk for patients.
11. Describe the history of ambulance transports.
12. Name three examples of Critical Care Transport Team composition configuration.
13. Identify and describe the preferred qualifications of a Critical Care Transport Paramedic.



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14. Name six advanced procedures performed by a Critical Care Transport Team.
15. Differentiate between routine and specialty equipment found on a Critical Care Transport unit.
16. Discuss the three modes of transport for the critically ill or injured.
17. Identify indications for critical care transport.
18. Describe the interfacility transfer process.
19. Apply the essential legal principles necessary to the practice of emergency medicine to the job of the critical care paramedic.
20. Recognize and discuss the legal risks and liabilities involved in critical care transportation.
21. Apply basic risk management principles to critical care transport.
22. Discuss the fundamental elements of litigation, hearings and peer-review proceedings.
23. Understand EMTALA and the implications for EMS. State the appropriate steps for accepting a patient transfer (*U.S. personnel*).
24. State the appropriate steps in assessing and preparing for transfer.
25. State responsibilities during transfer.
26. State the role of other health care providers who may accompany the patient.
27. State the appropriate steps to transfer care to the receiving facility.
28. Appropriately document the transfer of a patient.
29. Identify areas of potential liability issues during transport.
30. State methods to minimize risk.
31. Be familiar with current case law regarding transport (*US personnel*).
32. Describe actions the Advanced Practice Paramedic may take to reduce the chance of errors related to patient care, medication administration, and vascular access.
33. List measures to take to reduce the risk of infectious disease exposure at the Advanced Practice Paramedic level of care.
34. Outline actions to be taken following a significant exposure to a patient's blood or other body fluids.
35. Define injury.
36. Describe public health goals and activities.
37. Outline the aspects of the emergency medical services system that make it a desirable resource for involvement in public health activities.
38. List situations in which Advanced Practice Paramedic may participate in illness prevention.
39. Differentiate among primary, secondary, and tertiary health prevention activities.
40. Describe the uses of the patient care report.
41. Outline the components of an accurate, thorough patient care report.



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42. Describe the elements of a properly written emergency medical services (EMS) document.
43. Describe an effective system for documenting the narrative section of a prehospital patient care report.
44. Describe the appropriate method to make revisions or corrections to the patient care report.
45. Recognize consequences that may result from inappropriate documentation.
46. Outline the phases of communication that occur during a typical emergency medical services (EMS) event.
47. Describe the role of communications in EMS.
48. Define common EMS communications terms.
49. Describe how to communicate effectively using the primary modes of EMS communication.
50. Outline the elements of an EMS communications system.
51. Describe the characteristics of EMS communications operation modes.
52. Describe the role of dispatching as it applies to prehospital emergency medical care.
53. Outline techniques for relaying EMS communications clearly and effectively.
54. Outline procedures for EMS communications.
55. Describe the Advanced Practice Paramedic's responsibilities regarding patient confidentiality.
56. Outline the process for obtaining expressed, informed, and implied consent.
57. Describe legal complications relating to consent.
58. Describe actions to be taken in a refusal-of-care situation.
59. Describe legal considerations in situations that require the use of force.
60. Describe legal considerations related to patient transportation.
61. Outline legal implications related to resuscitation and patient death.
62. List the Advanced Practice Paramedic's responsibilities at a crime scene.
63. Distinguish between professional, legal, and moral accountability.
64. Outline strategies to use to resolve ethical conflicts.
65. Describe the role of ethical tests in resolving ethical dilemmas in health care.
66. Discuss specific prehospital ethical issues, including allocation of resources, decisions surrounding resuscitation, confidentiality, and consent.
67. Explain the importance of EMS research.
68. Define evidence-based practice.
69. Describe criteria to evaluate when reading a research paper.
70. Interpret selected examples of medical prefixes, root words, combining vowels, and suffixes.
71. Use accepted medical abbreviations appropriately.



72. Explain, discuss, identify human anatomy, neuroanatomy, and physiology applied to all body systems across the lifespan, including pregnancy and aging (includes terminology, structures, and function of all systems), including:
- Neuroanatomical development and terminology.
 - Respiratory: defense mechanisms, mechanics of respiration, pulmonary circulation, gas transport/exchange, control of ventilation, breath sounds, breathing patterns, lung volumes, oxygen saturation.
 - Cardiovascular: mechanical function of the heart, hemodynamics, coronary, cerebral and peripheral circulation, fluid dynamics, normal heart rate, blood pressure, heart sounds, blood pressure regulation, electrical activity of the heart.
 - Gastrointestinal: food breakdown and motility through the gastrointestinal (GI) tract, digestion, secretion of enzymes, hormones, and other substances to aid digestion, biochemistry of the digestive tract, absorption, nutrient uptake into the circulatory and lymph systems, elimination of waste.
 - Hepatobiliary: synthesis of bile, lipid metabolism, production of proteins, cholesterol, glycogen, vitamin and mineral storage, metabolizing drugs, blood detoxification.
 - Genitourinary: blood filtration and kidney function, elimination of waste.
 - Reproductive: sexual differentiation and puberty, fertility and sexual function. sexually transmitted infections.
 - Gynecological/obstetric: menstrual cycle, fertilization. Infertility, pregnancy and postpartum, fetal development, labor and delivery, lactation, endocrinology of pregnancy, postpartum changes.
 - Integumentary: characteristics of skin, hair, nails, glands; skin functions of protection, regulation, healing, sensations.
 - Endocrine: hormone mechanisms of action, metabolism, growth and development regulation of sleep, blood pressure, emotions, and mood.
 - Neurological: central and peripheral nervous systems, cranial nerve functions, neuro-physiological development, nervous system responses to injury, neurotransmission, muscle tone, motor function, sensory/normal processing, sensorimotor integration, nerve conduction testing.
 - Musculoskeletal: posture, balance, coordination, agility, dexterity, mobility, gait, locomotion, bone structure/physiology, muscle structure/physiology, connective tissue structure/physiology.
 - Hematologic: blood components and their functions, coagulation, fetal hematology transitions between labor and delivery.
 - Immunology: typical immune responses.



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- o. Ear-eye-nose-throat (EENT) systems: hearing, balance, and the vestibular system; nasopharynx function, air filtration, voice production, passage of air, food, liquid; vision, pupillary response
- 73. Describe, explain, and discuss Pathology/Pathophysiology, including:
 - a. Microbiology and infections: viral, bacterial, fungal.
 - b. Impact of pathologies on physiology, structure, and function.
 - c. Common pathological processes and mechanisms.
 - d. Respiratory diseases, illnesses, injuries, causes.
 - e. Cardiovascular diseases, illnesses, injuries, causes.
 - f. Gastrointestinal diseases, illnesses, injuries, causes.
 - g. Hepatobiliary diseases, illnesses, injuries, causes.
 - h. Genitourinary diseases, illnesses, injuries, causes.
 - i. Reproductive diseases, illnesses, injuries, causes.
 - j. Gynecological diseases, illnesses, injuries, causes.
 - k. Obstetric diseases, illnesses, injuries, causes.
 - l. Integumentary diseases, illnesses, injuries, causes.
 - m. Endocrine diseases, illnesses, injuries, causes.
 - n. Neurological diseases, illnesses, injuries, causes.
 - o. Musculoskeletal diseases, illnesses, injuries, causes.
 - p. Hematologic diseases, illnesses, injuries, causes.
 - q. Immunologic diseases, illnesses, injuries, causes.
 - r. Ear, eyes, nose, throat systems diseases, illnesses, injuries, causes.
 - s. Psychiatric, behavioral, mental health diseases, illnesses, injuries, causes.
 - t. Substance use and addictions diseases, illnesses, injuries, causes.
- 74. Identify general public health principles related to infectious disease.
- 75. Describe the chain of elements necessary for an infectious disease to occur.
- 76. Explain how internal and external barriers affect susceptibility to infection.
- 77. Discuss Advanced Practice Paramedic's role in preventing disease transmission.
- 78. Describe the impact of stress on the body's response to illness or injury.
- 79. List the normal vital signs and body system characteristics of the newborn, neonate, infant, toddler, preschooler, school-age child, adolescent, young adult, middle-aged adult, and older adult.
- 80. Define cognition in the form of arousal, attention, orientation, emotion, processing, registration of information.
- 81. Define retention, memory, and recall.
- 82. Explain communication, verbal/non-verbal, processing, verbalizing, language proficiency.
- 83. Explain perception, decision-making as it relates to autonomy, disclosure, consent.



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84. Demonstrate ability to perform mental status exam and describe results found.
85. Describe unique characteristics and their impact on care needs of patients who are equity-deserving, traditionally marginalized, racialized, or underserved
 - a. Identity and intersectional factors: gender, age, ethnicity, race, Indigenous identity, religion, gender and sexual identity, abilities, function
 - b. Impact on physical, emotional, and social development
 - c. Care needs specific to stages of life, relating to an individual's age, developmental stage, and life circumstances
 - d. Palliative, end of life care, medical assistance in dying Healthy behaviors, disease prevention, harm reduction, quality of life
 - e. Environmental factors impacting health
 - f. Impact of social determinants of health (e.g., employment, social inclusion, education)
86. Define therapeutic communication.
87. List the elements of effective therapeutic communication.
88. Identify internal factors that influence effective communication.
89. Identify external factors that influence effective communication.
90. Explain the elements of an effective patient interview.
91. Summarize strategies for gathering appropriate patient information.
92. Conduct complete physical assessment
 - a. Determine immediate threats to life.
 - b. Identify further assessment based on patient presentation, including level of distress, pain.
 - c. Conduct in-depth assessment of systems and patient as appropriate.
 - d. Adapt assessment techniques according to patient presentation.
 - e. Infer clinical impressions.
 - f. Describe physical examination techniques commonly used in prehospital settings.
93. Describe the examination equipment commonly used in the prehospital setting.
94. Outline the process of patient reassessment.
95. Describe differences to the physical examination when assessing children.
96. Describe differences to the physical examination when assessing older adults.
97. Demonstrate the ability to obtain patient and incident history
 - a. Demonstrate primary complaint and/or incident history from patient, family members, and/or bystanders
 - b. Obtain list of medications (prescribed, over the counter, recreational, natural/herbal), and patient adherence
 - c. Identify allergies, including medications
 - d. Obtain medical history



- e. Identify last oral intake, bowel movement, menstrual cycle
- f. Integrate the information obtained into assessment
- 98. Determine mental health status of patient, including:
 - a. Assess patient's capacity to consent to care decisions.
 - b. Consider risk and cognitive factors.
 - c. Recognize substance use, addictions, mental health and psychiatric conditions in patients.
 - d. Perform mental status examination.
- 99. Assess vital signs and interpret findings from:
 - a. Pulse (rate, rhythm, quality).
 - b. Respiration (rate, effort, depth, symmetry).
 - c. Non-invasive temperature monitoring
 - d. Blood pressure through Auscultation, Palpation, and Non-invasive blood pressure monitoring.
 - e. Skin condition (temperature, color, moisture, turgor)
 - f. Pupils (size, symmetry, reactivity)
 - g. Level of consciousness: Alert, Voice, Pain, Unresponsive (AVPU), Glasgow Coma Scale (GCS)
- 100. Integrate laboratory findings/diagnostic imaging results into patient care
 - a. Radiological data.
 - b. Computerized tomography (CT) scan.
 - c. Ultrasound exams.
 - d. Arterial blood gas (ABG).
 - e. Venous blood gas (VBG).
 - f. Blood Chemistries.
- 101. Discuss the unique needs of neonatal, pediatric, geriatric, bariatric patients, and patients with different abilities, mental health, addictions, and/or psychiatric conditions.
- 102. Describe and demonstrate continually assessing the practice environment
 - a. Conduct point of care risk assessment
 - b. Maintain situational awareness
 - c. Maintain safety Secure additional resources
- 103. Demonstrate and explain Point of care and diagnostic test results, including:
 - a. Basic understanding of technique and function, including quality assurance and limitations.
 - b. Describe the relationship between laboratory medicine and the diagnosis and treatment of patients.
 - c. Describe the common problems associated with specimen collection and ways to avoid these problems.



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- d. Common findings.
 - e. Basic interpretation (e.g., differentiation between normal and abnormal results, implications).
 - f. Point of care testing urinalysis collection.
 - g. Point of care phlebotomy collection.
 - h. Identify mean lab values and deviations for the complete blood count, the differential blood count, and platelet values.
 - i. Interpret arterial blood gas data.
 - j. Interpret chemistry studies.
 - k. Identify abnormal findings in blood work findings.
 - l. Interpret urinalysis
 - m. Describe the purpose of culture and sensitivity tests.
 - n. Diagnostic imaging (radiographs, computerized tomography).
 - o. Electrocardiogram.
 - p. Ultrasound
- 104. Identify and describe normal and abnormal findings in electrocardiograms.
 - 105. Identify and describe normal and abnormal findings in point of care ultrasound BLUE and RUSH exams.
 - 106. Explain what a drug is.
 - 107. Outline drug standards and legislation and the enforcement agencies pertinent to the Advanced Practice Paramedic profession.
 - 108. Distinguish between characteristics of routes of Advanced Practice Paramedic's responsibilities to understand drug mechanism of action, contraindications, indications, dosing, and side effects.
 - 109. Identify the steps in the calculation of drug dosages.
 - 110. List measures for ensuring the safe administration of medications.
 - 111. Describe actions Advanced Practice Paramedic's should take if a medication error occurs.
 - 112. Identify special considerations in the administration of pharmacological agents to pediatric patients.
 - 113. List indication and contraindication for the administration of crystalloid intravenous fluids IV or IO.
 - 114. List indication and contraindication for the administration of hypertonic saline.
 - 115. List indication and contraindication for the administration of mannitol.
 - 116. List indications and contraindications for the administration of Adrenaline (Epinephrine) 1:1000 IM or Adrenaline (Epinephrine) 1:10,000 IV or IO for anaphylactic shock or cardiac arrest.
 - 117. List indications and contraindications for the administration of vasoactive agents for pressure support via IV.



118. List indications and contraindications for the administration of common cardiac medications.
119. List indications and contraindications for the administration of Naloxone hydrochloride IM, IO, or IV.
120. List indications and contraindications for the administration of Hypertonic glucose IV.
121. List indications and contraindications for the administration of Atropine IV for symptomatic bradycardia or organophosphate toxicity.
122. List indications and contraindications for the administration of nebulized bronchodilator agents for known asthmatic and chronic obstructive pulmonary disease (COPD) patients suffering from suspected bronchospasm.
123. List indications and contraindications for the administration of Acetaminophen PO, PR, or IV for acute pain or fever.
124. List indications and contraindications for the administration of Nitrous Oxide INH for pain.
125. List indications and contraindications for the administration of Methoxyflurane INH through manufacturer administration device.
126. List indications and contraindications for the administration of Ketamine for disassociation, analgesia, and sedation.
127. List indications and contraindications for the administration of opioids for analgesia.
128. List indications and contraindications for the administration of propofol for sedation.
129. List indications and contraindications for the administration of benzodiazepines.
130. List indications and contraindications for the administration of beta agonist medications.
131. List indications and contraindications for the administration of paralytic medications.
132. List indications and contraindications for the administration of bronchodilators.
133. List indications and contraindications for the administration of whole blood and blood products.
134. Demonstrate the correct administration of whole blood and blood products.
135. Administer medications and substances using the following routes:
 - a. Buccal.
 - b. Endotracheal Inhalation, not including oxygen.
 - c. Intramuscular.
 - d. Intranasal.
 - e. Intraosseous.
 - f. Intravenous.
 - g. Oral.
 - h. Rectal.
 - i. Subcutaneous.
 - j. Sublingual.



- k. Topical.
136. Demonstrate the correct skill and placement of an intravenous access in the arm.
 137. Demonstrate the correct skill and placement of an intravenous access in the external jugular of the neck.
 138. Demonstrate the correct skill and placement of large catheter intravenous access in the arm with a 14-gauge IV catheter above the level of the diaphragm.
 139. Demonstrate the correct skill and placement of an intraosseous access in the humeral head.
 140. Demonstrate the correct skill and placement of an intraosseous access in the distal femur.
 141. Demonstrate the correct skill and placement of an intraosseous access in the superior tibia.
 142. Describe the safe disposal of contaminated items and sharps.
 143. Locate and identify appropriate veins for peripheral IV access, considering factors like patency, size, and location.
 144. Demonstrate proficiency in inserting ten (10) peripheral IV catheters in human subjects in a practical lab setting and successfully administer 10 ml of saline through a properly established saline lock and extension tubing through catheter, using proper technique, including site preparation, insertion angle, and stabilization; prior to IV access being performed on actual patients in a clinical setting.
 145. Demonstrate proficiency in inserting five (5) large bore peripheral IV catheters (16g or 14g) in human subjects in a practical lab setting and successfully administer 10 ml of saline through a properly established saline lock and extension tubing through catheter, using proper technique, including site preparation, insertion angle, and stabilization; prior to IV access being performed on actual patients in a clinical setting.
 146. Identify potential complications of IV therapy, including infiltration, extravasation, and infection, and implement appropriate nursing interventions.
 147. Apply and maintain strict aseptic technique during IV insertion and maintenance procedures to minimize the risk of infection.
 148. Identify and utilize various IV equipment and supplies, including catheters, extension sets, and dressing materials.
 149. Understand the principles of IV solution and medication administration, including calculations, infusion rates, and compatibility.
 150. Document IV insertion procedures, including date, time, site, catheter gauge, and any complications, according to established guidelines.
 151. Recognize the legal and ethical considerations surrounding IV therapy, including informed consent, patient rights, and liability.
 152. Explain the mechanics of ventilation and respiration.
 153. Explain the process of exchange and transport of gases in the body.



154. Describe the indications, contraindications, and techniques to deliver supplemental oxygen.
155. Maintain patency of upper airway and trachea, including:
 - a. Use manual maneuvers and positioning to maintain airway patency.
 - b. Suction oropharynx.
 - c. Suction beyond oropharynx.
 - d. Utilize oropharyngeal airway,
 - e. Utilize nasopharyngeal airway.
 - f. Utilize supraglottic airway devices.
 - g. Utilize airway devices introduced endotracheally with and without medications to facilitate intubation.
 - h. Utilize retrograde intubation.
 - i. Remove airway foreign bodies by direct techniques.
 - j. Remove airway foreign bodies by indirect techniques.
 - k. Conduct percutaneous cricothyroidotomy
 - l. Conduct surgical cricothyroidotomy
 - m. Perform tracheostomy reinsertion
156. Describe and demonstrate the ability to administer oxygen, including:
 - a. Determine purpose, indications, potential complications, and safety issues.
 - b. Select and prepare a device.
 - c. Ensure safe handling.
 - d. Perform adjustments and necessary troubleshooting.
 - e. Identify replacement needs for patient physiology present.
157. Demonstrate and describe the use of oxygen delivery systems, including:
 - a. Nasal canula.
 - b. Low concentration mask.
 - c. Increase/decrease oxygen concentration.
 - d. High concentration mask.
 - e. Apneic oxygenation technique.
 - f. Continuous positive airway pressure (CPAP).
 - g. Bilevel positive airway pressure (BIPAP).
 - h. High flow nasal cannula therapy (HFNCT).
 - i. Positive End Expiratory Pressure (PEEP).
 - j. Manometry.
 - k. Pulse oximetry.
 - l. Quantitative waveform Capnography (EtCO₂).
158. Administer ventilation:
 - a. Determine purpose, indications, potential complications, and safety issues.



- b. Select ventilation system type.
 - c. Ensure safe handling.
 - d. Perform adjustments and necessary troubleshooting.
 - e. Identify replacement needs
159. Administer manual positive pressure ventilation with a manual positive pressure device, including demonstration of:
- a. Oxygenation and ventilation using manual positive pressure devices.
 - b. Rate, rhythm, volume, and pressure compliance.
 - c. Use of positive end expiratory pressure.
 - d. One- or two-person application of manual positive pressure device.
160. Administer mechanical positive pressure ventilation devices, including:
- a. Provide mechanical ventilation.
 - b. Set up and utilize vent circuit.
 - c. Utilize Manometer.
 - d. Utilize Respirometer.
 - e. Initiate, manage, and perform intermittent mandatory ventilation, continuous mandatory ventilation, assist control, and inverse ratio.
 - f. Initiate, manage, and perform continuous positive airway pressure, positive end expiratory pressure, non-invasive positive pressure ventilation.
 - g. Manage or adjust fraction of inspired oxygen (FiO₂).
 - h. Initiate, manage, and adjust compliance and resistance.
 - i. Initiate, manage, adjust, and interpret plateau, inspiratory, expiratory, peak expiratory pressure.
 - j. Initiate, manage, adjust tidal volume and respiratory rate.
 - k. Adjust parameters based on changes in ventilatory and hemodynamic status.
 - l. Utilize capnography and pulse oximetry in the development of a ventilatory strategy.
161. Demonstrate the ability to place a supraglottic airway, attached waveform capnography, and ventilate the patient within 30 seconds.
162. Demonstrate the ability to place an endotracheal tube with use of a laryngoscope, attached waveform capnography, and ventilate the patient on first pass success in 30 seconds.
163. Demonstrate the ability to place an endotracheal tube with use of video laryngoscope, attached waveform capnography, and ventilate the patient on first pass success in 30 seconds.
164. Demonstrate the ability to place an endotracheal tube utilizing retrograde intubation.
- a. Discuss the indications and purpose for retrograde intubation.
 - b. Identify criteria for retrograde intubation.
 - c. Describe the procedure for retrograde intubation.



- d. Differentiate between normal and abnormal assessment findings.
- e. Identify transport complications for retrograde intubation.
- 165. Demonstrate the ability to perform needle cricothyrotomy and ventilate the patient within 30 seconds.
- 166. Demonstrate and explain Resuscitative Procedures and Methodologies, including:
 - a. Perform manual cardiopulmonary resuscitation (CPR).
 - b. Perform mechanical cardiopulmonary resuscitation.
 - c. Maintain peripheral intravenous (IV) access devices and infusions of crystalloid solutions with and without additives for a patient in cardio and/or pulmonary peri-arrest, arrest, or post arrest.
 - d. Conduct peripheral IV cannulation in the resuscitative environment.
 - e. Conduct intraosseous needle insertion in the resuscitative environment.
 - f. Administer crystalloid solutions rapidly to meet current guidelines for fluid resuscitation.
 - g. Utilize direct pressure infusion devices with IV solutions and infusions.
 - h. Administer volume expanders (colloid and non-crystalloid).
 - i. Administer and monitor blood and/or blood products in the resuscitative environment.
 - j. Perform automated external defibrillation.
 - k. Perform manual external defibrillation, including Vector Change Defibrillation and Double Sequence External Defibrillation techniques.
 - l. Perform cardioversion.
 - m. Perform transcutaneous pacing.
 - n. Maintain and/or adjust transvenous pacing.
 - o. Maintain intra-aortic balloon pump during transport.
 - p. Perform needle thoracostomy.
 - q. Perform simple thoracostomy.
 - r. Adapt care in the presence of a LVAD.
- 167. Discuss and identify patients who may benefit from extracorporeal membrane oxygenation (ECMO).
- 168. Describe the use of extracorporeal membrane oxygenation (ECMO).
- 169. Perform Hemorrhage control, including the use of:
 - a. Control external hemorrhage.
 - b. Initiate or manage extremity tourniquet application.
 - c. Initiate or manage junctional tourniquet application.
 - d. Initiate, utilize, manage hemostatic dressing and hemostatic wound agent placement.
 - e. Initiate, manage, utilize pelvic binding.
- 170. Demonstrate the ability to perform blood administration.
 - a. Differentiate between antigens, natural antibodies and acquired antibodies.



- b. Identify antibodies and antigens associated with specific blood types.
 - c. Define Rh factor Identify seven types of blood component therapy.
 - d. Identify indications for blood administration.
 - e. Describe the procedure for blood administration.
 - f. Identify the signs and symptoms of transfusion reactions.
 - g. Describe the management procedures for transfusion reactions.
 - h. Describe the indications for administration of whole blood and packed red blood cells.
 - i. Describe the indications for typing, screening and cross matching blood.
 - j. Describe the ABO system for matching blood.
 - k. Describe the characteristics of blood products.
 - l. Describe the procedure for administration of whole blood or packed red blood cells.
171. Demonstrate the ability to perform needle decompression of the chest within 30 seconds.
172. Provide routine patient care interventions, including:
- a. Initiate, manage, utilize urinary catheters.
 - b. Maintain ostomy drainage systems.
 - c. Initiate, manage, utilize non-catheter urinary drainage systems
 - d. Maintain, monitor, adjust, replace chest tube drainage systems.
 - e. Initiate or perform tissue and minor wound care.
 - f. Initiate, manage, utilize wound closing techniques and systems.
173. Demonstrate the ability to operate a cardiac pacemaker.
- a. Understand the basic concepts underlying cardiac pacemaker technology.
 - b. Understand the current code system used for cardiac pacing.
 - c. Understand and troubleshoot the potential rhythms that indicate forms of pacemaker malfunctions.
174. Provide care for fractures and dislocations, including:
- a. Immobilize actual and suspected fractures involving appendicular skeleton as appropriate.
 - b. Immobilize or stabilize actual and suspected fractures involving axial skeleton, as appropriate.
 - c. Reduce fractures to position of function for immobilization.
 - d. Demonstrate knowledge of casting and cast care.
 - e. Stabilize actual and suspected dislocations.
 - f. Reduce dislocations with absent distal circulation.
175. Facilitate, initiate, manage, perform patient handling and movement, including:
- a. Assess patient risk profile.
 - b. Prepare practice environment appropriate to patient presentation and characteristics.



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- c. Prepare patient for transfer (positioning, safety, stability, precautions, protection from the elements).
 - d. Accompany patient during transfer.
 - e. Transfer patient to higher level of care when warranted.
176. Given a patient scenario, identify possible alterations in oxygenation and ventilation and appropriate interventions to treat those alterations.
 177. Identify additional resources that may be needed to manage complex medical or trauma patients and multiple patient incidents.
 178. Patient management following chemical, biological, radiological, nuclear, and explosives (CBRNE) incidents
 179. Outline the assessment process for the patient who has a respiratory emergency.
 180. Describe the signs and symptoms, and specific management techniques for each of the following neurologic disorders: coma, stroke and intracranial hemorrhage, seizure disorders, headaches.
 181. Discuss key signs and symptoms, patient assessment, and patient management for diabetes and diabetic emergencies of hypoglycemia and diabetic ketoacidosis.
 182. Describe signs and symptoms and management of local allergic reactions based on an understanding of the pathophysiology associated with this condition.
 183. Identify allergens associated with anaphylaxis.
 184. Describe the signs and symptoms, and management of anaphylaxis.
 185. Define autoimmune disease.
 186. Outline prehospital assessment of a patient who is complaining of abdominal pain.
 187. Describe general prehospital management techniques for a patient who is complaining of abdominal pain.
 188. Outline the physical examination for patients with genitourinary disorders.
 189. Outline the prehospital assessment and management of the female with abdominal pain or bleeding.
 190. Outline specific assessment and management for the patient who has been sexually assaulted.
 191. Describe specific prehospital measures to preserve evidence in sexual assault cases.
 192. Outline musculoskeletal structure and function.
 193. Describe how to perform a detailed assessment of the extremities and spine.
 194. Specify questions in patient history that help identify musculoskeletal problems.
 195. Describe assessment and management of specific nontraumatic musculoskeletal disorders.
 196. Define poisoning.
 197. Describe general principles for assessment and management of the patient who has ingested poison.



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198. Describe the signs and symptoms of selected ingested poisons and management of patients who have taken them.
199. Describe how physical and chemical properties influence the effects of inhaled toxins.
200. Describe general principles of managing the patient who has inhaled poison.
201. Describe the signs, symptoms, and management of patients injected with poison by insects, reptiles, and hazardous aquatic creatures.
202. Outline the general principles of managing patients with drug overdose.
203. Describe the effects, signs and symptoms, and specific management for selected therapeutic and illegal drug overdoses.
204. Describe signs, symptoms, and management of alcohol-related emergencies.
205. Define what constitutes a behavioral emergency.
206. Identify potential causes for behavioral and psychiatric illnesses.
207. List three critical principles that should be considered in the prehospital care of any patient with a behavioral emergency.
208. Outline key elements in the prehospital patient examination during a behavioral emergency.
209. Describe effective techniques for interviewing a patient during a behavioral emergency.
210. Distinguish between key symptoms and management techniques for selected behavioral and psychiatric disorders.
211. Identify factors that must be considered when assessing suicide risk.
212. Formulate appropriate interview questions to determine suicidal intent.
213. Explain prehospital management techniques for the patient who has attempted suicide.
214. Describe assessment of the potentially violent patient.
215. Outline measures that may be used in an attempt to safely diffuse a potentially violent patient situation.
216. List situations when patient restraints can be used.
217. Discuss key principles in patient restraint.
218. Describe safety measures taken when patient violence is anticipated.
219. Define shock.
220. Outline the factors necessary to achieve adequate tissue oxygenation.
221. Describe signs and symptoms associated with the progression through the stages of shock.
222. Describe key assessment findings that distinguish the etiology of the hemorrhagic state.
223. Describe key assessment findings that distinguish the etiology of the cardiogenic state.
224. Describe key assessment findings that distinguish the etiology of the distributive and septic states.
225. Describe key assessment findings that distinguish the etiology of the non-hemorrhagic shock states.



226. Outline the management of the patient in shock based on knowledge of each type of shock.
227. Describe pharmacological intervention in different types of shock.
228. Define multisystem organ failure.
229. List the history, signs, and symptoms of the patient with sepsis.
230. Describe the management of the patient with sepsis.
231. List the history, signs, and symptoms of the patient with acute respiratory distress syndrome (ARDS).
232. Describe the management of the patient with ARDS.
233. List the history, signs, and symptoms of the patient with disseminated intravascular coagulation (DIC).
234. Describe the management of the patient with the management of the patient with DIC.
235. Identify the role of each component of a trauma system.
236. Predict injury patterns based on knowledge of the laws of physics related to forces involved in trauma.
237. Describe injury patterns that should be suspected when injury occurs related to a specific type of blunt trauma.
238. Describe the role of restraints in injury prevention and injury patterns.
239. Discuss how organ motion can contribute to injury in each body region depending on the forces applied.
240. Identify selected injury patterns associated with motorcycle and all-terrain vehicle collisions.
241. Describe injury patterns associated with pedestrian collisions.
242. Identify injury patterns associated with sports injuries, blast injuries, and vertical falls.
243. Describe factors that influence tissue damage related to penetrating injury.
244. Discuss key signs and symptoms and describe the mechanism of injury and signs and symptoms of specific soft tissue injuries.
245. Outline management principles for prehospital care of soft tissue injuries.
246. Describe, in the correct sequence, patient management techniques for control of hemorrhage.
247. Identify the characteristics of general categories of dressings and bandages.
248. Describe prehospital management of specific soft tissue injuries not requiring closure. Discuss factors that increase the potential for wound infection.
249. Describe the prehospital management of selected soft tissue injuries.
250. Describe the incidence, patterns, and sources of burn injury.
251. Describe the pathophysiology of local and systemic responses to burn injury.
252. Classify burn injury according to depth, extent, and severity based on established standards.



253. Discuss shock in burn patients.
254. Outline the physical examination of the burned patient.
255. Describe the prehospital management of the patient who has sustained a burn injury.
256. Discuss key signs, symptoms, and management of the patient with an inhalation injury.
257. Outline the general assessment and management of the patient who has a chemical injury.
258. Describe specific complications and management techniques for selected chemical injuries.
259. Describe the effects of electrical injuries as they relate to each body system based on an understanding of key principles of electricity.
260. Outline assessment and management of the patient with electrical injury.
261. Describe the distinguishing features of radiation injury and considerations in the prehospital management of these patients.
262. Describe the mechanisms of injury, assessment, and management of maxillofacial injuries.
263. Describe the mechanisms of injury, assessment, and management of ear, eye, and dental injuries.
264. Describe the mechanisms of injury, assessment, and management of anterior neck trauma.
265. Distinguish between types of traumatic brain injury based on an understanding of pathophysiology and assessment findings.
266. Predict mechanisms of injury that are likely to cause spinal injury.
267. Describe the anatomy and physiology of the spine and spinal cord.
268. Outline the general assessment of a patient with suspected spinal injury.
269. Distinguish between types of spinal injury.
270. Describe prehospital evaluation and assessment of spinal cord injury.
271. Identify prehospital management of the patient with spinal injuries.
272. Discuss the mechanism of injury associated with chest trauma.
273. Describe the mechanism of injury, signs and symptoms, and management of skeletal injuries to the chest.
274. Describe the mechanism of injury, signs and symptoms, and prehospital management of pulmonary trauma.
275. Describe the mechanism of injury, signs and symptoms, and prehospital management of injuries to the heart and great vessels.
276. Outline the mechanism of injury, signs and symptoms, and prehospital care of the patient with esophageal and tracheobronchial injury and diaphragmatic rupture.
277. Identify mechanisms of injury associated with abdominal trauma.
278. Describe mechanisms of injury, signs and symptoms, and complications associated with abdominal solid organ, hollow organ, retroperitoneal organ, and pelvic organ injuries.
279. Outline the significance of injury to intra-abdominal vascular structures.



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280. Describe the prehospital assessment priorities for the patient suspected of having an abdominal injury.
281. Outline the prehospital care of the patient with abdominal trauma.
282. Given a specific patient scenario, outline the prehospital assessment of the musculoskeletal system.
283. Discuss the risk factors, assessment findings, and management of specific hyperthermic conditions.
284. Discuss the risk factors, assessment findings, and management of specific hypothermic conditions and frostbite.
285. Discuss the risk factors, assessment findings, and management of submersion and drowning.
286. Discuss the risk factors, assessment findings, and management of diving emergencies.
287. Discuss the risk factors, assessment findings, and management of high-altitude illness.
288. Describe appropriate information to be elicited during the obstetrical patient's history. Describe specific techniques for assessment of the pregnant patient.
289. Describe the general prehospital care of the pregnant patient.
290. Discuss the special implications of trauma in pregnancy.
291. Outline principles of care for a pregnant patient in cardiac arrest or peri-arrest.
292. Describe the role of the Advanced Practice Paramedic during normal labor and delivery.
293. Compute an Apgar score.
294. Describe assessment and management of postpartum hemorrhage.
295. Identify risk factors associated with the need for neonatal resuscitation.
296. Outline the prehospital assessment and management of the neonate.
297. Identify injuries associated with birth.
298. Describe appropriate interventions to manage the emotional needs of the neonate's family.
299. Identify modifications in patient assessment techniques that assist in the examination of patients at different developmental levels.
300. Describe the signs and symptoms, and management of selected pediatric
301. respiratory emergencies.
302. Describe the signs and symptoms, and management of shock in the pediatric patient.
303. Describe the signs and symptoms, and management of selected pediatric dysrhythmias.
304. Describe the signs and symptoms, and management of pediatric seizures.
305. Describe the signs and symptoms, and management of hypoglycemia and hyperglycemia in the pediatric patient.
306. Describe the signs and symptoms, and management of infectious pediatric emergencies.
307. Identify common causes of poisoning and toxic exposure in the pediatric patient.



308. Describe special considerations for assessment and management of specific injuries in children.
309. Outline the management of sudden infant death syndrome.
310. Describe the risk factors, key signs and symptoms, and management of injuries or illness resulting from child abuse and neglect.
311. Identify prehospital considerations for the care of infants and children with special needs.
312. Discuss the aging process as it relates to major body systems.
313. Describe general principles of assessment specific to older adults.
314. Describe the assessment and management of specific illnesses that affect selected body systems in the geriatric patient.
315. Identify specific problems with sensations experienced by some geriatric patients.
316. Discuss effects of drug toxicity and alcoholism in the older adult.
317. Identify factors that contribute to environmental emergencies in the geriatric patient.
318. Describe epidemiology, assessment, and management of trauma in the geriatric patient.
319. Identify characteristics of elder abuse.
320. Identify types of elder abuse.
321. Discuss legal considerations related to all forms of abuse.
322. Describe characteristics of abused children and their abusers.
323. Outline the physical examination of the abused child.
324. Describe the characteristics of sexual assault.
325. Outline prehospital patient care considerations for the patient who has been sexually assaulted.
326. Identify considerations in prehospital management related to physical challenges such as hearing, visual, and speech impairments; obesity; and patients with paraplegia or quadriplegia.
327. Identify considerations in prehospital management of patients who have mental illness, are developmentally disabled, or are emotionally or mentally impaired.
328. Outline considerations in management of culturally diverse patients.
329. Describe special considerations in the prehospital management of terminally ill patients.
330. Identify special considerations in management of patients with communicable diseases.
331. List standards that govern ambulance performance and specifications.
332. Discuss the tracking of equipment, supplies, and maintenance on an ambulance.
333. Describe measures that can influence safe operation of an ambulance.
334. Outline the components that define a major incident.
335. Identify the components of an effective incident command system.
336. Identify the five major functions of the incident command system.
337. List command responsibilities during a major incident response.
338. Identify situations that may be classified as major incidents.



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- 339. Outline the principles of triage.
- 340. Identify resources for the management of critical incident stress.
- 341. Given a patient care situation, identify the patient who requires advanced life support and the importance of accessing advanced life support care at the Advanced Practice Paramedic level for the patient.