The Phoenix Document

An Evolution from National Standard Curriculum to the Virginia EMS Education Standards

Training Levels Included:

- Emergency Medical Responder (EMR)
- Emergency Medical Technician (EMT)
- Advanced Emergency Medical Technician (AEMT)
- Intermediate
- Paramedic

Virginia
OFFICE OF EMERGENCY MEDICAL SERVICES
Virginia Department of Health

Introduction:

This document identifies the differences in essential knowledge content between the National Standard Curricula/Virginia Standard Curricula and the 2010 Virginia EMS Education Standards (VEMSES). **EMS Instructors and Coordinators should use this document as a tool in conjunction with the specific *Instructor Guidelines* (IG) for the certification level(s) that are being instructed and the *Virginia Scope of Practice – Procedures & Formulary* to ensure that the required material/skills are appropriately covered by the instructor/coordinator.**

Instructor/Coordinators may also use this document to identify topics for continuing education programs to assure current certified Virginia Providers meet the same knowledge competencies of Virginia Providers certified after the implementation of the VEMSES.

Emergency Medical Responder (EMR)

See the Instructor Guidelines for the Emergency Medical Responder (129 pages) at: http://www.ems.gov/pdf/811077b.pdf

Knowledge and Skill Comparison

The order of content is not meant to imply the order of delivery.

a. Emergency Medical Responder: New Course Considerations

   When planning and conducting a new EMR course, the Program Director or Course Coordinator must consider the following:

   - Instructional resources
   - Instructor qualifications
   - Medical director oversight
   - Review and verify integration of the clinical behavior/judgment section of the Education Standards, particularly related to lab and clinical and field activities.
   - Include affective evaluation and professional behavior in student assessment
   - Program effectiveness evaluation

b. Emergency Medical Responder: Skills

For a current First Responder (based on 1995 First Responder National Standard Curriculum) transitioning to Emergency Medical Responder (EMR), the following skills are no longer taught:

- Insertion of a nasopharyngeal airway
- Pressure points and elevation for hemorrhage control

For a current 1995 First Responder transitioning to 2009 Emergency Medical Responder, the following skills were optional in 1995 First Responder National Standard Curriculum with State approval, they are now required:

- Use of supplemental oxygen
- Use of nasal cannula
- Use of non-rebreather face mask
- Use of the automated external defibrillator (AED)

For a current 1995 First Responder transitioning to 2009 Emergency Medical Responder, the following skills are **new**:

- Use of a bag-valve-mask
- Use of an auto-injector (self or peer)
- Obtaining manual blood pressures
- Performing eye irrigation

c. Emergency Medical Responder: Content

Preparatory

- EMS Systems - there is more content about quality improvement here than in the First Responder curriculum; contains section on required affective/behavioral characteristics
- Research – extremely limited information, but new to this level
- EMS System Communication – addition of fundamental information about transferring patient care to incoming EMTs
- Therapeutic Communications – addition of fundamental information about improving communication with the patient
- Medical/Legal/Ethics – Health Insurance Portability and Accountability Act (HIPAA) did not exist when the First Responder curriculum was authored; includes a brief discussion on living wills, surrogate decision makers, and civil and criminal court cases; in the discussion on advanced directives, the reference to International Liaison Committee on Resuscitation (ILCOR) should have been removed.

Anatomy and Physiology

- Brief discussion on the life support chain focusing on oxygenation and perfusion

Medical Terminology

- This content is new to this level

Pathophysiology

- This content is new to this level but only focuses on respiratory dysfunction and shock

Life-Span Development

- Minimal new information at this level

Public Health

- Minimal new information at this level

Pharmacology

- Medication administration – discussion focuses on the use of an auto-injector for self-preservation or for use on one's peers (chemical attack)
- Emergency Medications – chemical antidote auto-injector only

Airway Management, Respiration, and Oxygenation

- Anatomy and Physiology – more detailed than in the previous First Responder curriculum, especially in the area of respiratory physiology. The increases in this area are related to enhanced skills in scope of practice and new evidence that demonstrates the important interrelationship between ventilation and circulation.
- Respiration - more detailed than in the previous First Responder curriculum
- Artificial Ventilation - more detailed than in the previous First Responder curriculum
  - Patient Assessment
- Scene Size-Up – no new information here but a re-emphasis on the need for scene safety for everyone present
- Primary Assessment - new terminology that more closely mimics other health care professionals

- History Taking - new terminology that more closely mimics other health care professionals; some content specific to geriatrics added
- Secondary Assessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum; blood pressure assessment added to this level
- Reassessment - blood pressure reassessment added to this level

Medicine

- Medical Overview – re-use of the new assessment terminology
- Neurology – stroke discussion is new information at this level
- Abdominal and Gastrointestinal Disorders – minimal new information at this level
- Immunology - minimal new information at this level
- Infectious Diseases – two definitions added and a brief discussion about transmission routes
- Endocrine – a brief discussion about diabetes, more detailed than in the previous curriculum
- Psychiatric – includes new material, a brief discussion on the assessment for suicide risk
- Cardiovascular – deeper discussion on chest pain and heart attack
- Toxicology – new information at this level; discussion on the use of chemical antidote auto-injector
- Respiratory – deeper discussion on respiratory distress
- Genitourinary/Renal – discussion focuses on hemodialysis
- Gynecology – discussion focuses on vaginal bleeding
- Diseases of Eyes, Ears, Nose, and Throat – focuses on nosebleed

Shock and Resuscitation

- New section that combines the CPR information from the old curriculum with more detail and a discussion on the use of the AED; more detailed shock information

Trauma

- Overview – discussion on the Centers for Disease Control (CDC) Field Triage Decision Scheme: The National Trauma Triage Protocol
- Orthopedic Trauma - The terms fracture and dislocation appear here; they did not appear in the previous First Responder National Standard Curriculum
- Soft Tissue Trauma – brief discussion added about foreign bodies in the eye; assessment information added about the extent of burns.
- Head, Facial, Neck, and Spine Trauma – elaboration on special management situations

- Special Considerations in Trauma – added discussion on the elderly and the pregnant patient
- Environmental – AEDs mentioned, brief discussion on submersions added
- Multi-system Trauma – new material at this level
- Special Patient Populations
- Pregnant Patient – vaginal bleeding discussion added, the term Braxton Hicks did not appear in the previous First Responder National Standard Curriculum
- Pediatrics – pediatric assessment triangle included; discussion of shock in the pediatric patient in the previous curriculum, it was called circulatory failure
- Geriatrics – all new section for this level
- Patients with Special Challenges – elder abuse added

EMS Operations

- Principles of Safely Operating a Ground Ambulance - increased depth of discussion on the risks of emergency response and leaving the scene
- Incident Management – references the incident management system and the federal requirements for compliance
- Air Medical – new material at this level; patient transfer issues, interaction with flight personnel, scene safety, landing zone selection/prep
- Vehicle Extrication – added discussion on situational safety and the use of simple hand tools
- Hazardous Materials Awareness – references Hazardous Waste Operations and Emergency Response (HAZWOPER) standard
- Mass Casualty Incidents Due to Terrorism or Disaster – all new material at this level

Emergency Medical Technician (EMT)

See the Instructor Guidelines for Emergency Medical Technician (214 pages) at: http://www.ems.gov/pdf/811077c.pdf

Knowledge and Skill Comparison

The order of content is not meant to imply the order of delivery.

a. Emergency Medical Technician: New Course Considerations

When planning and conducting a new EMT course, the Program Director or Course Coordinator must incorporate all considerations at the EMR levels plus,

- Student rotation through the emergency department
- Ten Patient Assessments. A minimum of five patient assessments must be completed on live patients, and no more than five patient assessments on standardized programmed patients or advanced simulation mannequins
- Review and verify integration of the clinical behavior/judgment section of the Education Standards particularly related to lab and clinical and field activities.
- Include affective evaluation and professional behavior in student assessment

b. Emergency Medical Technician: Skills

For a current EMT-Basic (based on 1994 EMT-B National Standard Curriculum) transitioning to 2009 Emergency Medical Technician (EMT), the following skills are no longer taught:

- Insertion of nasogastric and orogastric tubes (Not in the 1994 EMT-B National Standard Curriculum but in the 2002 Advanced Airway supplement)
- Activated charcoal removed from formulary

For a current 1994 EMT-Basic transitioning to 2009 Emergency Medical Technician EMT, the following skills are new:

- Use of oxygen humidifiers
- Use of partial rebreather masks
- Use of simple face masks
- Use of Venturi masks
- Obtaining a pulse oximetry value
- Determining blood glucose
- Use of automated transport ventilators

- Use of mechanical CPR devices (requires additional specialty training and device approval)
- Application of mechanical patient restraint (1994 EMT-B National Standard Curriculum contains an approach now deemed inappropriate)
- Assisting a patient with his/her prescribed medications, nebulized/aerosolized (1994 EMT-B National Standard Curriculum advocated assisting a patient with hand-held aerosol inhalers, but not administer nebulized medications to a patient)
- Administration of aspirin by mouth
- Use of an auto-injector (self or peer) (introduced at the EMR level).

c. Emergency Medical Technician: Content

Preparatory – EMS Systems

- EMS Systems – more detailed discussion on patient safety issues, decreasing medical errors, and required affective/behavioral characteristics
- Research – extremely limited information on evidence based decision making
- Workforce Safety and Wellness – emphasizes the difference between body substance isolation and personal protective equipment; brief discussion on bariatric issues, neonatal isolettes and medical restraint
- Documentation - Health Insurance Portability and Accountability Act (HIPAA) did not exist when the 1994 EMT-B National Standard Curriculum was authored
- Therapeutic Communications – more detailed information about improving communication with the patient
- Medical/Legal/Ethics – Health Insurance Portability and Accountability Act (HIPAA) did not exist when the 1994 EMT-B National Standard Curriculum was authored; should include a state-specific discussion on privileged communication; includes a brief discussion on living wills, surrogate decision makers, and civil and criminal court cases; ethics

Anatomy and Physiology

- The respiratory information found in the 2000 Supplemental Airway and Ventilation Module should be added; more detailed discussion on the life support chain focusing on oxygenation, perfusion, and the cellular environment

Medical Terminology

- Minimal new content added to this level

Pathophysiology

- This content is new to this level but only focuses on respiratory and perfusion dysfunction along with shock

Life-Span Development

- New information at this level

Public Health

- New information at this level; related to EMS Agenda for the Future issues

Pharmacology

- Medication administration – added the five rights of medication administration
- Emergency Medications – aspirin added to this level

Airway Management, Respiration, and Oxygenation

- Anatomy and Physiology – much more detailed than in the previous 1994 EMT-B National Standard Curriculum
- Respiration - much more detailed than in the previous 1994 EMT-B National Standard Curriculum
- Artificial Ventilation - much more detailed than in the previous 1994 EMT-B National Standard Curriculum
- Patient Assessment
- Scene Size-Up – no new information here but a re-emphasis on the need for scene safety for everyone present
- Primary Assessment - new terminology that more closely mimics other health care professionals
- History Taking - new terminology that more closely mimics other health care professionals
- Secondary Assessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum
- Monitoring Devices – pulse oximetry added

Patient Assessment

- Scene Size-Up – no new information here but a re-emphasis on the need for scene safety for everyone present
- Primary Assessment - new terminology that more closely mimics other health care professionals

- History Taking - new terminology that more closely mimics other health care professionals
- Secondary Assessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum
- Monitoring Devices –blood glucose monitoring, non-invasive blood gas and chemistry monitoring (e.g. capnography, pulse oximetry, etc.)

Medicine

- Medical Overview – re-use of the new assessment terminology; with focus on medical patient
- Neurology – in the previous curriculum, most of the neurological conditions were bundled together into altered mental status. This new section requires a greater assessment and differentiation; stroke is a rapidly changing area. Local standards and various national organizations should serve as a resource for currently accepted assessment and treatment
- Abdominal and Gastrointestinal Disorders – minimal new content added to this level
- Immunology - the term anaphylaxis did not appear in the 1994 EMT-B National Standard Curriculum; some geriatric information added
- Infectious Diseases – this section should include updated infectious disease information, for example methicillin-resistant Staphylococcus aureus (MRSA) and Acquired Immune Deficiency Syndrome (AIDS) update; should include a discussion on cleaning and sterilizing equipment and decontaminating the ambulance
- Endocrine – increased emphasis on pathophysiology and acknowledgement of the increasing prevalence and incidence of diabetes in the community
- Psychiatric – includes new material on excited delirium; the 1994 EMT-B National Standard Curriculum has incorrect and dangerous information about the use of restraint and should no longer be presented (i.e. “hog-tied” or hobble technique)
- Cardiovascular – increased emphasis on anatomy, physiology and pathophysiology; increased emphasis on specific cardiovascular emergencies, addition of aspirin information for acute coronary syndrome
- Toxicology – poison control information included; addition of drugs of abuse
- Respiratory – more in-depth evaluation of a patient with respiratory problems.
- Hematology – brief discussion of sickle cell disease
- Genitourinary/Renal – more detailed discussion of this organ system
- Gynecology – includes brief discussion of sexually transmitted diseases and pelvic inflammatory disease
- Non-Traumatic Musculoskeletal Disorders – new information at this level

- Shock and Resuscitation
- This shock content was moved from trauma to emphasize the fact that it occurs in contexts other than trauma; the cardiac arrest information was moved from cardiology for 2009 National EMS Education Standards Gap Analysis Template for the same reason; brief discussion on devices to assist circulation, although subject to local protocol; shock should be taught in a more comprehensive context rather than simply as a consequence of bleeding

Trauma

- Overview – discussion on the Centers for Disease Control (CDC) Field Triage Decision Scheme: The National Trauma Triage Protocol; assessment focuses on trauma patient; the term fracture was placed back into the vocabulary
- Chest Trauma – more detailed discussion
- Abdominal Trauma – more detailed discussion
- Orthopedic Trauma - the term fracture was placed back into the vocabulary
- Head, Facial, Neck, and Spine Trauma – more detail about neck, eye, oral and brain injuries; emphasizes the harm of hyperventilation in most circumstances
- Nervous System Trauma - the old curriculum was separated into soft tissue and injuries to the head and spine; more detail on brain anatomy; emphasizes the harm of hyperventilation; references the Brain Trauma Foundation; increased emphasis on neurological assessment
- Special Considerations in Trauma – added discussion on the elderly, pediatrics, the pregnant patient, the cognitively impaired
- Environmental – more in depth discussion on submersion, bites, envenomations, diving injuries (subject to local protocols) and radiation exposure
- Multi-system Trauma – new material at this level; includes discussion of kinematics and blast injury

Special Patient Populations

- Pregnant Patient – more detailed discussion on complications of pregnancy; uses the terms preeclampsia, eclampsia and premature rupture of membranes (which do not require a lengthy discussion)
- Pediatrics – this section is more detailed than in the previous version
- Geriatrics – all new section for this level
- Patients with Special Challenges – elder abuse, homelessness, poverty, bariatric, more technology dependant, hospice, sensory deficit, homecare, and developmental disabilities added

EMS Operations

- Principles of Safely Operating a Ground Ambulance - increased depth of discussion on the risks of emergency response and leaving the scene
- Incident Management – references the incident management system and the federal requirements for compliance
- Multiple Casualty Incidents – references Centers for Disease Control (CDC) Field Triage Decision Scheme: The National Trauma Triage Protocol
- Air Medical – all material at this level represents the same depth and breadth as at the EMR level
- Vehicle Extrication – all material at this level represents the same depth and breadth as the EMR level
- Hazardous Materials Awareness – all material at this level represents the same depth and breadth as the EMR level
- Mass Casualty Incidents Due to Terrorism or Disaster – all material at this level represents the same depth and breadth as the EMR level.

Advanced Emergency Medical Technician (AEMT)

See the Instructor Guidelines for the Advanced EMT (151 pages) at:
http://www.ems.gov/pdf/811077d.pdf

Knowledge and Skill Comparison

The order of content is not meant to imply the order of delivery.

a. Advanced Emergency Medical Technician: New Course Considerations

   When planning and conducting a new AEMT course, the Program Director or Course Coordinator must incorporate all considerations at the EMR and EMT levels plus:

   - Clinical skills
   - Field experience as a team leader
   - Review and verify integration of the clinical behavior/judgment section of Education Standards, particularly related to lab and clinical and field activities.
   - Include affective evaluation and professional behavior in student assessment

b. Advanced Emergency Medical Technician: Skills

c. Advanced Emergency Medical Technician: Content

   Preparatory – EMS Systems

   - EMS Systems – more detailed discussion on patient safety issues, strategies to decrease medical errors
   - Research – extremely limited information on evidence based decision making
   - Workforce Safety and Wellness – emphasizes the difference between body substance isolation and personal protective equipment; brief discussion on bariatric issues, neonatal isolettes and medical restraint
   - Documentation - the Health Insurance Portability and Accountability Act (HIPAA) did not exist when either of the EMT-Intermediate curricula was authored
   - Therapeutic Communications – more detailed information about improving communication with the patient
   - Medical/Legal/Ethics – the Health Insurance Portability and Accountability Act (HIPAA) did not exist when the EMT-Intermediate curriculum was authored; should include a state-specific discussion on

privileged communication; includes a brief discussion on living wills, surrogate decision makers, and civil and criminal court cases; ethics

Anatomy and Physiology

- More detailed discussion than in the previous version

Medical Terminology

- Although not detailed, this content is new to this level

Pathophysiology

- This content is new to this level but only focuses on respiratory and perfusion dysfunction along with shock

Life-Span Development

- New information at this level

Public Health

- New information at this level; related to EMS Agenda for the Future issues

Pharmacology

- Principles of Pharmacology – new information at this level
- Medication Administration – added the five rights of medication administration; more detailed information
- Emergency Medications – specific list of medications

Airway Management, Respiration, and Oxygenation

- Anatomy and Physiology – much more detailed than in the previous EMT-Intermediate curriculum
- Artificial Ventilation - much more detailed than in the previous EMT-Intermediate curriculum
- Respiration - much more detailed minimal new content added to this level in the previous EMT-Intermediate curriculum

Patient Assessment

- Scene Size-Up – no new information here but a re-emphasis on the need for scene safety for everyone present

- Primary Assessment - new terminology that more closely mimics other health care professionals
- History Taking - new terminology that more closely mimics other health care professionals
- Secondary Assessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum
- Monitoring Devices –blood glucose monitoring, non-invasive blood gas and chemistry monitoring (e.g. capnography, pulse oximetry, etc.)

Medicine

- Medical Overview – re-use of the new assessment terminology
- Abdominal and Gastrointestinal Disorders – minimal new content added to this level
- Immunology – all new information
- Infectious Diseases – this section should include updated infectious disease information, for example methicillin-resistant Staphylococcus aureus, hepatitis, and Acquired Immune Deficiency Syndrome update; should include a discussion on cleaning and sterilizing equipment and decontaminating the ambulance
- Endocrine – increased emphasis on pathophysiology and acknowledgement of the increasing prevalence and incidence of diabetes in the community
- Psychiatric – includes new material on excited delirium
- Cardiovascular – increased emphasis on anatomy, physiology and pathophysiology; increased emphasis on specific cardiovascular emergencies
- Toxicology – all new information
- Respiratory – more in-depth evaluation of a patient with respiratory problems.
- Hematology – brief discussion in sickle cell disease
- Genitourinary/Renal – more detailed discussion of this organ system
- Gynecology – includes brief discussion of sexually transmitted diseases and pelvic inflammatory disease
- Non-Traumatic Musculoskeletal Disorders – new information at this level

Shock and Resuscitation

- This shock content was moved from trauma to emphasize the fact that it can happen in a context other than trauma; the cardiac arrest/ cardiovascular emergencies information was moved from an optional module at the Intermediate-99 level; brief discussion on devices to assist circulation, although subject to local protocol; shock should be taught in a more comprehensive context rather than simply as a consequence of bleeding

Trauma

- Overview – all material at this level represents the same depth and breadth as at the EMT level
- Bleeding – more detailed discussion
- Chest Trauma – more detailed discussion
- Abdominal Trauma – more detailed discussion
- Orthopedic Trauma - more detailed discussion
- Head, Facial, Neck, and Spine Trauma – more detail about neck eye, oral and brain injuries; emphasizes the harm of over ventilation in most situations
- Nervous System Trauma - more detail on brain anatomy; emphasizes the harm of hyperventilation; references the Brain Trauma Foundation; increased emphasis on neurological assessment
- Special Considerations in Trauma – all section new or increased emphasis
- Environmental – all material at this level represents the same depth and breadth as at the EMT level
- Multi-system Trauma – new material at this level; includes discussion of kinematics and blast injury

Special Patient Populations

- Pregnant Patient – more detailed discussion on complications of pregnancy; uses the terms preeclampsia, eclampsia and premature rupture of membranes which do not require a lengthy discussion
- Pediatrics – this section is much more detailed than in the previous version
- Geriatrics – all new section for this level
- Patients with Special Challenges – elder abuse, homelessness, poverty, bariatric, more technology dependant, hospice, sensory deficit, homecare, and developmental disabilities added

EMS Operations

- Principles of Safely Operating a Ground Ambulance - all material at this level represent the same depth and breadth as at the EMT level
- Incident Management – all material at this level represents the same depth and breadth as at the EMT level
- Multiple Casualty Incidents – all material at this level represents the same depth and breadth as at the EMT level
- Air Medical – all material at this level represents the same depth and breadth as at the EMT level
- Vehicle Extrication – all material at this level represents the same depth and breadth as at the EMT level
- Hazardous Materials Awareness – all material at this level represents the same depth and breadth as at the EMT level

- Mass Casualty Incidents Due to Terrorism or Disaster – all material at this level represents the same depth and breadth as at the EMT level

Intermediate

Knowledge and Skill Comparison

The order of content is not meant to imply the order of delivery.

a. Intermediate: New Course Considerations

When planning and conducting a new Intermediate course, the Program Director or Course Coordinator must incorporate all considerations at the EMR, EMT, and AEMT levels plus:

- Reference Virginia Office of EMS Accreditation of EMS Programs Standards and Guidelines
- Review and verify integration of the clinical behavior/judgment section of the Virginia EMS Education Standards, particularly related to lab and clinical and field activities.
- Include affective evaluation and professional behavior in student assessment.

b. Intermediate: Skills

- Refer to the Virginia Scope of Practice document

For a current 1999 EMT-Intermediate, the following skills are now taught in the 2009 EMR, 2009 EMT or 2009 AEMT and are to be considered new:

- Self or peer use of an auto-injector (introduced at the EMR level)
- Use of mechanical CPR devices (introduced at EMT level)

For a current 1999 EMT- Intermediate, the following skills may be new:

- Use of BiPAP/CPAP
- Waveform capnography
- Interpretation and monitoring of end-tidal carbon dioxide (including waveform capnography)
- Use of therapeutic positive end-expiratory pressure (PEEP)
- Multi-lead ECG interpretation
- Performing electrical synchronized cardioversion
- Performing carotid massage
- Central line monitoring
- Initiation of intraosseous (IO) infusion in all patients (previously used IOs on children only)
- Initiation and maintenance of intravenous medication drips
- Intranasal medication administration

- Nasogastric medication administration
- Oral medication administration
- Eye irrigation with the Morgan® lens
- Obtaining venous blood samples
- Blood chemistry analysis (this includes the psychomotor skills involved with collection of blood for analysis [point of care testing] and the cognitive material necessary to understand the implications of the results)
- Accessing indwelling catheters and implanted central IV ports

c. Intermediate: Content

Preparatory – EMS Systems

- EMS Systems – more detailed discussion on patient safety issues
- Research – the section is primarily focused on evidence based decisions and how to interpret research; the section on conducting research is gone.
- Workforce Safety and Wellness – the 1999 EMT-Intermediate National Standard Curriculum mentioned CISM. The new standards does not use that term instead focusing more on stress management issues.
- Documentation - Health Insurance Portability and Accountability Act (HIPAA) did not exist when the 1999 EMT-Intermediate National Standard Curriculum was authored
- Therapeutic Communications – increased depth of cultural competence issues.
- Medical/Legal/Ethics – Health Insurance Portability and Accountability Act (HIPAA) did not exist when the 1999 EMT-Intermediate National Standard Curriculum was authored; increased depth of discussion regarding advance directives; the term "end-of-life" was not previously used; there is an increased emphasis on end of life issues; increased depth and breadth on ethics

Anatomy and Physiology

- The current recommendation calls for more comprehensive coverage of A&P than provided in the previous 1999 EMT-Intermediate National Standard Curriculum. Programs should evaluate their current A&P program to see how much upgrade they need to reach a comprehensive and complex understanding, especially in the cardiovascular, respiratory, and neurological systems.

Pathophysiology

- The current recommendation calls for more comprehensive coverage of pathophysiology than provided in the previous 1999 EMT-Intermediate

National Standard Curriculum. Programs should evaluate their current pathophysiology program to see how much upgrade they need to reach a comprehensive and complex understanding, especially in the cardiovascular, respiratory, and neurological systems.

Public Health

- Consistent with the EMS Agenda for the Future, there is a greater emphasis on public health issues

Pharmacology

- Principles of Pharmacology – programs should evaluate their current pharmacology program to see how much upgrade they need to reach a comprehensive and complex understanding
- Medication Administration – programs should evaluate their current pharmacology program to see how much upgrade they need to reach a comprehensive and complex understanding
- Emergency Medications – In the 1999 EMT-Intermediate National Standard Curriculum, there was no list of medications; the list below represents medications commonly used in numerous Virginia EMS systems and is a minimum list that all Intermediates should know. This list may become dated quickly.

Airway Management, Respiration, and Oxygenation

- Confusion exists about the differences between oxygenation, ventilation, and respiration. The Education Standards were organized to attempt to highlight the differences between the concepts. There is a greater emphasis on ventilation and respirations and the importance of artificial ventilation. Research suggests that EMS can make a difference in this area.

Patient Assessment

- Scene Size-Up – no new information here but a re-emphasis on the need for scene safety for everyone present
- Primary Assessment - new terminology that more closely mimics other health care professionals
- History Taking - new terminology that more closely mimics other health care professionals
- Secondary Assessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum
- ~~o~~ Monitoring Devices – includes capnography, non-invasive blood gas and chemistry monitoring (e.g. capnography, pulse oximetry, etc.)

- Reassessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum

Medicine

- Medical Overview – re-use of the new assessment terminology; emphasis on pathophysiologic basis; updated destination decisions for some medical conditions such as stroke and acute coronary syndrome,
- Neurological Disorders - the term "demyelinating" was not used in the 1999 EMT-Intermediate National Standard Curriculum; more detailed information on stroke assessment and management
- Abdominal and Gastrointestinal Disorders – in the 1999 EMT-Intermediate National Standard Curriculum, the topic was gastroenterology; new section on mesenteric ischemia, rectal foreign body obstructions and rectal abscess
- Immunology – the term anaphylactoid is used here; that term was not used in the 1999 EMT-Intermediate National Standard Curriculum; transplant related problems ~~and collagen vascular disease added~~
- Infectious Diseases – refocused with more of an emergency medicine flavor; drug-resistant bacteria discussed
- Endocrine Disorders - added long term effects of diabetes and how the disease impacts other conditions
- Psychiatric – includes new material on excited delirium; other psychiatric conditions are re-categorized with an increase in depth and breadth
- Cardiovascular – increased emphasis on anatomy, physiology and pathophysiology; acute coronary syndrome, 12-lead interpretation; updated information on heart failure
- Toxicology - includes section on over-the-counter medication toxicology
- Respiratory – more in-depth evaluation of a patient with respiratory problems.
- Hematology – reorganized with added section on blood transfusion reactions
- Genitourinary/Renal - urinary catheter management (not insertion)
- Non-Traumatic Musculoskeletal Disorders – added section on disorders of the spine, joint abnormalities, muscles abnormalities, and overuse syndromes
- Diseases of the Eye, Ears, Nose and Throat - new section emphasizing major eye, ear, nose, and throat disease

Shock and Resuscitation

- Reorganized for emphasis, more pathophysiology

Trauma

- Overview – discussion on the Centers for Disease Control (CDC) Field Triage Decision Scheme: The National Trauma Triage Protocol and trauma scoring
- Bleeding – increased emphasis on pathophysiology
- Chest Trauma – more detailed discussion, added section on **commotio cordis**
- Abdominal Trauma – increased emphasis on pathophysiology
- Orthopedic Trauma - greater emphasis on pathophysiology
- Soft Tissue Trauma - added section on high pressure injection
- Head, Facial, Neck, and Spine Trauma – grouped these conditions separately from neurological trauma
- Nervous System Trauma - added section on **cauda equina syndrome**
- Special Considerations in Trauma – more detailed discussion concerning pregnancy, pediatric, elderly, cognitively impaired
- Environmental – increased emphasis on pathophysiology
- Multi-system Trauma – more detailed discussion; critical thinking skills emphasized, blast injuries

Special Patient Populations

- Pregnant Patient – added section on **hyperemesis gravidarum**
- Pediatrics – more detailed discussion
- Geriatrics – added section on **Herpes zoster**
- Patients with Special Challenges – added section on **bariatrics**

EMS Operations

- Principles of Safely Operating a Ground Ambulance - all material at this level represents the same depth and breadth as at the EMT level
- Incident Management – references the incident management system and the federal requirements for compliance
- Multiple Casualty Incidents – all material at this level represents the same depth and breadth as at the EMT level
- Air Medical – updated material at this level concerning risks/needs/advantages of air transport
- Vehicle Extrication – all material at this level represents the same depth and breadth as at the EMT level
- Hazardous Materials Awareness – all material at this level represents the same depth and breadth as at the EMT level
- Mass Casualty Incidents Due to Terrorism or Disaster – all material at this level represents the same depth and breadth as at the EMT level

Paramedic

See the Instructor Guidelines for the Paramedic (387 pages) at:
http://www.ems.gov/pdf/811077e.pdf

Knowledge and Skill Comparison

The order of content is not meant to imply the order of delivery.

a. Paramedic: New Course Considerations

When planning and conducting a new Paramedic course, the Program Director or Course Coordinator must incorporate all considerations at the EMR, EMT, and AEMT levels plus:

- Reference Committee on Accreditation of Educational Programs for the EMS Professions (CoAEMSP) Standards and Guidelines
- Review and verify integration of the clinical behavior/judgment section of the Education Standards, particularly related to lab and clinical and field activities.
- Include affective evaluation and professional behavior in student assessment.

b. Paramedic: Skills

For a current 1999 EMT-Intermediate (based on 1999 EMT-I National Standard Curriculum) transitioning to 2009 Paramedic, the following skills are no longer taught:

- Pressure points and elevation for hemorrhage control

For a current 1999 EMT- Intermediate bridging to Paramedic, the following skills may be new:

- Use of BiPAP/CPAP
- Monitoring and management of a chest tube
- Performing a percutaneous cricothyrotomy (not a surgical airway)
- Interpretation and monitoring of end-tidal carbon dioxide (including waveform capnography)
- Nasotracheal intubation
- Use of therapeutic positive end-expiratory pressure (PEEP)
- Multi-lead ECG interpretation
- Performing electrical synchronized cardioversion
- Performing carotid massage
- Central line monitoring

- Initiation of intraosseous (IO) infusion in all patients (previously used IOs on children only)
- Initiation and maintenance of intravenous medication drips
- Intranasal medication administration
- Nasogastric medication administration
- Oral medication administration
- Eye irrigation with the Morgan® lens
- Initiation and monitoring of thrombolytic medication
- Obtaining venous blood samples
- Blood chemistry analysis (this includes the psychomotor skills involved with collection of blood for analysis [point of care testing] and the cognitive material necessary to understand the implications of the results)
- Assist in the insertion of a chest tube
- Accessing indwelling catheters and implanted central IV ports

For a current 1999 EMT-Paramedic (based on 1999 EMT-P National Standard Curriculum) transitioning to 2009 Paramedic, the following skills are no longer taught:

- Pressure points and elevation for hemorrhage control
- Umbilical vein access
- Urinary catheterization

For a current 1999 EMT-Paramedic (based on 1999 EMT-P National Standard Curriculum) transitioning to 2009 Paramedic, the following skills may be new:

- Use of BiPAP/CPAP
- Waveform capnography
- Monitoring and management of a chest tube
- Assist in the insertion of a chest tube
- Performing a percutaneous cricothyrotomy
- Accessing indwelling catheters and implanted central IV ports
- Central line monitoring
- Initiation of intraosseous infusion in all patients (previously used IOs on children only)
- Intranasal medication administration (1999 Paramedic limited to
- intranasal decongestants)
- Eye irrigation with the Morgan® lens
- Initiation and monitoring of thrombolytic medication
- Blood chemistry analysis (includes psychomotor skills involved with
- collection of blood for analysis [point of care testing] and the cognitive material necessary to understand implications of results).

c. Paramedic: Content

Preparatory – EMS Systems

- EMS Systems – more detailed discussion on patient safety issues
- Research – the section is primarily focused on evidence based decisions and how to interpret research; the section on conducting research is gone.
- Workforce Safety and Wellness – the 1999 EMT-P National Standard Curriculum mentioned CISM. The new standards does not use that term instead focusing more on stress management issues.
- Documentation - Health Insurance Portability and Accountability Act (HIPAA) did not exist when the 1999 EMT-P National Standard Curriculum was authored
- Therapeutic Communications – increased depth of cultural competence issues.
- Medical/Legal/Ethics – Health Insurance Portability and Accountability Act (HIPAA) did not exist when the 1999 EMT-P National Standard Curriculum was authored; increased depth of discussion regarding advance directives; the term "end-of-life" was not previously used; there is an increased emphasis on end of life issues; increased depth and breadth on ethics

Anatomy and Physiology

- The current recommendation calls for more comprehensive coverage of A&P than provided in the previous 1999 EMT-P National Standard Curriculum. Programs should evaluate their current A&P program to see how much upgrade they need to reach a comprehensive and complex understanding, especially in the cardiovascular, respiratory, and neurological systems.

Pathophysiology

- The current recommendation calls for more comprehensive coverage of pathophysiology than provided in the previous 1999 EMT-P National Standard Curriculum. Programs should evaluate their current pathophysiology program to see how much upgrade they need to reach a comprehensive and complex understanding, especially in the cardiovascular, respiratory, and neurological systems.

Public Health

- Consistent with the EMS Agenda for the Future, there is a greater emphasis on public health issues

Pharmacology

- Principles of Pharmacology – programs should evaluate their current pharmacology program to see how much upgrade they need to reach a comprehensive and complex understanding
- Medication Administration – programs should evaluate their current pharmacology program to see how much upgrade they need to reach a comprehensive and complex understanding
- Emergency Medications – In the 1999 EMT-P National Standard Curriculum, there was no list of medications; the list in the IGs represents medications commonly used in numerous EMS systems and is a minimum list that all paramedics should know. States and programs are encouraged to add to the list, but should not delete. This list may become dated quickly.

Airway Management, Respiration, and Oxygenation

- Confusion exists about the differences between oxygenation, ventilation, and respiration. The Education Standards were organized to attempt to highlight the differences between the concepts. There is a greater emphasis on ventilation and respirations and the importance of artificial ventilation. Research suggests that EMS can make a difference in this area.

Patient Assessment

- Scene Size-Up – no new information here but a re-emphasis on the need for scene safety for everyone present
- Primary Assessment - new terminology that more closely mimics other health care professionals
- History Taking - new terminology that more closely mimics other health care professionals
- Secondary Assessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum
- Monitoring Devices – includes capnography, chemistry analysis, arterial blood gas interpretation
- Reassessment - new terminology that more closely mimics other health care professionals; more thorough than in the previous curriculum

Medicine

- Medical Overview – re-use of the new assessment terminology; emphasis on pathophysiologic basis; updated destination decisions for some medical conditions such as stroke and acute coronary syndrome,
- Neurological Disorders - the term "demyelinating" was not used in the 1999 EMT-P National Standard Curriculum; more detailed information on stroke assessment and management

- Abdominal and Gastrointestinal Disorders – in the 1999 EMT-P National Standard Curriculum, the topic was gastroenterology; new section on mesenteric ischemia, rectal foreign body obstructions and rectal abscess
- Immunology – the term anaphylactoid is used here; that term was not used in the 1999 EMT-P National Standard Curriculum; transplant related problems and collagen vascular disease added
- Infectious Diseases – refocused with more of an emergency medicine flavor; drug-resistant bacteria discussed
- Endocrine Disorders - added long term effects of diabetes and how the disease impacts other conditions
- Psychiatric – includes new material on excited delirium; other psychiatric conditions are re-categorized with an increase in depth and breadth
- Cardiovascular – increased emphasis on anatomy, physiology and pathophysiology; acute coronary syndrome, 12-lead interpretation; updated information on heart failure
- Toxicology - includes section on over-the-counter medication toxicology
- Respiratory – more in-depth evaluation of a patient with respiratory problems.
- Hematology – reorganized with added section on blood transfusion reactions
- Genitourinary/Renal - urinary catheter management (not insertion)
- Non-Traumatic Musculoskeletal Disorders – added section on disorders of the spine, joint abnormalities, muscles abnormalities, and overuse syndromes
- Diseases of the Eye, Ears, Nose and Throat - new section emphasizing major eye, ear, nose, and throat disease

Shock and Resuscitation

- Reorganized for emphasis, more pathophysiology

Trauma

- Overview – discussion on the Centers for Disease Control (CDC) Field Triage Decision Scheme: The National Trauma Triage Protocol and trauma scoring
- Bleeding – increased emphasis on pathophysiology
- Chest Trauma – more detailed discussion, added section on commotio cordis
- Abdominal Trauma – increased emphasis on pathophysiology
- Orthopedic Trauma - greater emphasis on pathophysiology
- Soft Tissue Trauma - added section on high pressure injection
- Head, Facial, Neck, and Spine Trauma – grouped these conditions separately from neurological trauma
- Nervous System Trauma - added section on cauda equina syndrome

- Special Considerations in Trauma – more detailed discussion concerning pregnancy, pediatric, elderly, cognitively impaired
- Environmental – increased emphasis on pathophysiology
- Multi-system Trauma – more detailed discussion; critical thinking skills emphasized, blast injuries

Special Patient Populations

- Pregnant Patient – added section on hyperemesis gravidarum
- Pediatrics – more detailed discussion
- Geriatrics – added section on Herpes zoster
- Patients with Special Challenges – added section on bariatrics

EMS Operations

- Principles of Safely Operating a Ground Ambulance - all material at this level represents the same depth and breadth as at the EMT level
- Incident Management – references the incident management system and the federal requirements for compliance
- Multiple Casualty Incidents – all material at this level represents the same depth and breadth as at the EMT level
- Air Medical – updated material at this level concerning risks/needs/advantages of air transport
- Vehicle Extrication – all material at this level represents the same depth and breadth as at the EMT level
- Hazardous Materials Awareness – all material at this level represents the same depth and breadth as at the EMT level
- Mass Casualty Incidents Due to Terrorism or Disaster – all material at this level represents the same depth and breadth as at the EMT level

Appendix A: Common Drug List

The drugs listed in this appendix MUST be covered as an educational minimum as indicated by the level of certification being instructed.

DRUG	EMR	EMT	AEMT	I	P
OXYGEN	●	●	●	●	●
ORAL GLUCOSE		●	●	●	●
EPI PEN		●	●	●	●
NITRO (Patient Assist)		●	●	●	●
INHALED BRONCHODILATORS		●	●	●	●
NITROUS OXIDE			●	●	●
ALBUTEROL			●	●	●
ATROPINE				●	●
DEXTROSE 50%			●	●	●
DIPHENHYDRAMINE				●	●
EPINEPHRINE 1:10,000				●	●
FUROSEMIDE				●	●
GLUCAGON			●	●	●
MAGNESIUM SULFATE				●	●
NALOXONE			●	●	●
NITROGLYCERIN TABS/SPRAY/PASTE			●	●	●
ADENOSINE				●	●
DIAZEPAM				●	●
EPINEPHRINE 1:1,000			●	●	●
MORPHINE				●	●
AMIODARONE				●	●
ASPIRIN		●	●	●	●
IPRATROPIUM					●
MIDAZOLAM					●
LIDOCAINE				●	●
DOPAMINE				●	●
THIAMINE				●	●
ACTIVATED CHARCOAL					●
AMYL NITRITE					●
FENTANYL					●
OXYTOCIN					●
PROMETHAZINE					●
LORAZEPAM					●
DILTIAZEM					●

Appendix B: Virginia Scope of Practice – Procedures & Formulary

The Virginia Scope of Practice demonstrates the "practice maximum" for each certification level established by the Virginia Office of EMS. Please utilize this document when instructing EMS programs.

- To link to the Procedures click on the following web link: http://www.vdh.virginia.gov/OEMS/Files_page/Training/ScopeOfPractice-Procedures.pdf

- To link to the Formulary click on the following web link: http://www.vdh.virginia.gov/OEMS/Files_page/Training/ScopeOfPractice-Formulary.pdf

Appendix C: PES Practice Analysis

- To link to the PES Practice Analysis click on the following web link: http://www.vdh.virginia.gov/OEMS/Files_page/Training/PESPracticeAnalysis.pdf