Objectives

- Compare the factors influencing medical care in the prehospital setting to other medical settings.
- Differentiate between the levels of prehospital patient acuity and provide examples for each.
- Evaluate the benefits and shortfalls of protocols, standing orders and algorithms.

Objectives

- Define and summarize the components of the critical thinking process for the EMT-I.
- Describe the effects of adrenaline on the decision-making process and develop strategies for effective thinking under pressure.

The Unique EMS Environment

- The EMT-I performs multiple roles
  - Diagnoses problems (the MD, PA, NP, etc.)
  - Perform treatments (the RN, RT, etc.)
  - Counsels patients (social worker, grief counselor)
- The EMT-I makes decisions with limited technical information in limited time frames
- The environment with which the EMT-I must perform tasks is unpredictable and uncontrolled at times

Murphy’s Law for EMS

- The more serious the patient’s condition, the more vague the patient’s complaints will become.
- The number of uncooperative and unreliable relatives/bystanders will increase exponentially with the seriousness of the patient’s condition.

More of Murphy’s Law

- As the seriousness of any given injury increases, the availability of light to examine that injury decreases.
- A life-threatening situation will be created immediately when driving away from the scene after advising the patient that they can go to the hospital via private vehicle.
Critical Thinking in EMS

Utilizing experience, reflection, reasoning and communication as guides to beliefs and actions

EMS Application:
The ability to logically evaluate patient information in formulating a field impression and the use of sound judgment in devising an appropriate management plan

Why is critical thinking needed now?
- Treatments added to the EMT-I scope of practice now increase the accountability for their use
  - Inappropriate application of a drug may lead to a worsening of the patient’s condition
  - Multiple drug choices are available for certain conditions and all possess risks and benefits that must be weighed

When should critical thinking be used in EMS?
- Calls for EMS run the spectrum from stable through critical
- Life-threatening calls
  - Protocol and algorithm formats for decision-making work well for these patients
  - Truly life-threatening emergencies comprise a very small percentage of calls

When should critical thinking be used in EMS?
- Minor medical and traumatic events
  - Rarely are these events complicated
  - Critical thinking processes are not usually needed for these calls
- Potentially life-threatening calls
  - Patients who fall between minor and life-threatening acuities
  - These patients create the greatest challenge and benefit most from critical thinking

Examples of Patient Acuity

<table>
<thead>
<tr>
<th>Life Threatening</th>
<th>Potentially Life Threatening</th>
<th>Non-Life Threatening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major multi-system trauma</td>
<td>Serious but stable multi-system trauma</td>
<td>Simple isolated trauma</td>
</tr>
<tr>
<td>End-stage disease presentations</td>
<td>Multiple disease processes with vague complaints</td>
<td>Non-complicated medical</td>
</tr>
<tr>
<td>Acute presentations of chronic conditions</td>
<td>Semi-acute presentations of chronic conditions</td>
<td></td>
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</tbody>
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What exactly does critical thinking look like?
Example of Critical Thinking: Dyspnea

- As the EMT-I enters the house, they hear audible wheezing. The patient appears to be a teenager.
- The EMT-I considers the causes for wheezing: asthma, COPD, pneumonia, anaphylaxis, etc.
- The initial assessment reveals an alert, conscious patient with a RR of 32 and seated in a tripod position.
- The patient receives high-flow O2, but the EMT-I considers the use of the BVM because the bronchoconstriction is reducing tidal volume.

A quick assessment reveals that the dyspnea came on suddenly; the patient has a history of asthma and an allergy to nuts.

- The patient’s voice is becoming hoarse. The patient dined out and doesn’t know if the meal included any nuts. The patient’s skin is flushed. BP is 90/50.

Although the history is vague, the EMT-I believes that the signs point to anaphylaxis. Epinephrine is used instead of albuterol since epi is more potent and global in its actions.

5 minutes after the epi, the patient’s BP rises to 118/80, the wheezing is no longer audible and the patient appears more relaxed.

- The EMT-I will not give another epi at this point but considers albuterol to deal more directly with the wheezing. Oxygen is continued.
- A detailed assessment reveals that the patient denies any recent fever. The flushed skin and hoarse voice have resolved. His wheezes are still present but are minimal.

The EMT-I rules out pneumonia and considers that the chronic history of asthma may have made the wheezes more difficult to control.

The “Funnel” of Critical Thinking

- Gather the information
- Evaluate the data for relevance and importance
- Apply the data to a field impression and a treatment plan
- Evaluate and reflect upon decisions and plans

Traits of our critical-thinking EMT

- Able to gather, evaluate and synthesize information (funnel)
- Develop and implement appropriate patient management plans
- Applies good judgment and exercises independent decision-making
- Thinks and works effectively under pressure

The Steps of Critical Thinking

The EMTH will not give another epi at this point but considers albuterol to deal more directly with the wheezing. Oxygen is continued.
Components of Critical Thinking

- Gather Data/Form Concepts
  - Scene and initial assessments, history and physical, vital signs
- Interprets data
  - Puts above information in perspective
  - Based upon knowledge and relative experience
  - Development of a field impression
  - Determination of the severity of the patient
  - Triage the priority for treatment for each condition

Components of Critical Thinking

- Applies principles to the situation
  - Development of a treatment plan
  - Selection of a standing order or specific treatment
- Evaluates actions and patient response
  - Reassesses pertinent areas to the field impression or treatment(s)
  - Ongoing and detailed assessments
  - Revises field impression as needed
  - Determines further treatment(s)

Components of Critical Thinking

- Reflects upon actions
  - Comparison of field impression to the physician’s diagnosis
  - Critique of the call
  - Adds the “lessons learned” to the experience base of the EMT-I

In-Class Scenario

- 15 minute activity
  - Pair up with another student
  - The instructor will provide you with a written scenario
  - Read through the scenario and answer the questions as best as you can
  - Be prepared to share your answers with the group

Summarizing The Critical Decision-Making Process: The Six “Rs”

- Read the scene
  - MOI, NOI
  - General conditions
  - Immediate surroundings
- React
  - Address life threats
  - Identify the probable cause
- Re-Evaluate
  - Focused and detailed assessments
  - Response to initial treatments
  - Discovery of less obvious problems
- Revise the management plan
- Review performance

- Read the patient
  - ID life threats
  - Observation
  - Auscultation
  - Palpation
  - History
  - Vital signs
Challenges to the Development of Critical Thinking

Potential Roadblocks to Effective Critical Thinking in the Field
- Stress and the adrenaline response
  - Cognitive processes are not important to the body during a Fight-or-Flight response
  - Use of logic and concentration decreases significantly during an adrenaline response
  - Problem-solving reverts to instinct and ingrained habits
  - The action-oriented training of an EMT may make critical thinking difficult to perform

- Previous training in EMS
  - Skills-oriented
  - Recognize and treat symptoms with limited perspective regarding the causes for the symptoms

Algorithm and protocol treatment approach
- Provides clear direction for “classic” patient presentations or situations
- Promotes a linear, “cookbook” approach to patient care
- Protocols and algorithms are difficult to follow with non-classic presentations or patients presenting with varied symptoms and signs
- Protocols do not address multiple causes for symptoms

Critical Thinking Activities in the Course
- Focus of knowledge regarding drugs and diseases
  - More emphasis of the “hows” and “whys” of drug action and their application in scenarios
  - More emphasis on specific disease pathology and relevant anatomy and physiology
  - This will provide a better application of treatments and create a better foundation for evaluating risks and benefits of treatments to specific patient presentations

Development of experience
- Clinical and field experience
  - Focus on assessment skills and exposure to a variety of patient acuity levels
  - Classroom scenarios and teaching will focus on decision-making and evaluation of decisions
  - How the EMT-I student reaches a decision will be equally important to the end-point decision itself
Attributes to Strive For

- Adequate foundation of knowledge
- Able to focus on data
- Ability to gather and organize data logically
- Able to deal with medical ambiguity
- Able to differentiate between relevant and irrelevant data
- Able to analyze the situation and compare it to other situations or concepts
- Able to logically defend decisions

Putting It All Together: Strategies for the Street

Strategies for Effective Critical Thinking

- Find a comprehensive assessment flow that works for you and then practice it!
- Practice your skills until they become automatic
  - This allows you to focus more of your attention to scene dynamics and patient assessment

Strategies for Effective Critical Thinking

- Develop a better “filter” in your assessment funnel
  - Get to know disease and trauma profiles in depth
  - Know the “hows” of drug actions
  - Get a decent knowledge of anatomy and physiology pertinent to disease and pharmacology

Strategies for Effective Critical Thinking on Scene

- Scan the situation before jumping in!
  - Get the big picture of the scene and its dynamics first
    - General impression of the patient
    - Finding clues that may assist in developing an accurate field impression

Strategies for Effective Critical Thinking on Scene

- Stop and think
  - Consider causes for the patient’s symptoms
  - Consider treatment options and their expected reactions/impacts on the patient before giving them
  - Plan for the next steps after administering a treatment
    - Reassessment, “Plan B” if initial treatments fail
Strategies for Effective Critical Thinking on Scene

- **Decide and act**
  - Administer your plan with confidence once you’ve considered your options

- **Maintain self-control**
  - Adrenaline will get the best of you if you let it!
  - Develop positive instinctual habits during your training

- **Re-Evaluate!**
  - Monitor the effects of your treatment or plan
  - Revise, abandon or continue your plan as needed

Questions?