EMS Subspecialty Certification Review Course

Public Health
2.4.3

2025

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Learning Objectives

Upon the completion of this program participants will be able to:

- Discuss speciality hospital designations
- Discuss regionalization of care
- Describe methods of hospital diversion and bypass
- Describe methods for incorporating community public resources
- Describe Public Access to Defibrillation Programs

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2.4.3.1 Specialty Hospital Designation and Transport Decisions

- Definitions:
  - Regionalization: formation of a coordinated statewide or regional system of care that combines out-of-hospital components and in-hospital components with public health components.
  - Categorization: Review against standards to classify the capabilities of the institution
  - Designation: The formal selection for patient referral and transfer. Minimum standards must be met to be designated as a specialty receiving center

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2.4.3.1 Specialty Hospital Designation and Regionalization

- Time-Critical Diagnosis: Concept that for some diseases, outcomes are improved with timely treatment a specialty receiving center.
- According to textbook, these are the three patient conditions that meet Time-Critical Diagnosis definitions:
  - STEMI
  - Stroke
  - Trauma

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Specialty Hospital Designation and Regionalization

- "Self-designation" not desirable due to inability to confirm categorization
- Non-authoritative designation may involve anti-trust action
  - Huron Valley Hospital vs City of Pontiac – States acting within valid regulatory authority are exempt from antitrust actions
- Trauma Systems Planning and Care Act of 1990 (PL 101-590) – designated trauma systems of care

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2.4.3.4 Hospital Diversion Issues

- Complete Diversion – in theory, facility is closed to all patients, but there are often exceptions for specialty-receiving center patients (e.g. cardiac arrest, unstable airway, etc.)
- Partial Diversion – closed for specific types of patients, for example:
  - No critical care patients
  - No neurosurgical patients
  - Etc.

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2.4.3.4 Hospital Diversion Issues

- The most common cause of diversion is NOT rapid influx of patients into the emergency department
- The most common cause IS lack of inpatient capability – boarding of admitted patients
- Although intuitive, there is no evidence to suggest that diversion plans significantly alter EMS unit availability/system status
- Local system issues
- Drop times/Wall times

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2.4.3.5 Interface with Public Resources

- Definitions:
  - IOM: "Public Health is what we as society do collectively to assure the conditions in which people can be healthy"
  - Surveillance: Monitoring the population for incidence of a defined diagnosis
  - Syndromic surveillance: Monitoring for a constellation of symptoms prior to a defined diagnosis, utilized to improve speed of public health response during disease outbreak

COVID response excellent example

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2.4.3.5 Interface with Public Health

- 3 essential components:
  - Assessment – determine the problem (outbreak, need for vaccination, etc.)
  - Policy Development – what are the actions/regulations required based upon the assessment
  - Assurance – evaluation of the policy after implementation with recommendations for revision, measurement of impact, etc.

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Examples of Public Health Interface

- Immunizations – EMS providers uniquely situated:
  - Know skill of IM injection
  - Understand pharmacology
  - Have experience treating allergic reaction
  - COVID great example
- Expanded Scope/Alternate Destination
  - Red River Project – no actual reductions in EMS transport were noted
  - Lots of renewed interest in Advanced/Community Practice – evidence currently lacking
  - CMS ET3

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2.4.3.3 Public Access Defibrillation

- Several trials demonstrate the efficacy of lay responder use of AEDs (reviewed on subsequent slides)
- Only trial in the text which demonstrated equivalence involved patients discharged without ICD but were at high risk for arrest. No difference in overall mortality between groups with or without in-home AED:
  - Lower mortality (6.5%) and proportion of VF/VT (35.6%)
    - Bardy et al. NEJM 2008;258(17):1793-1804

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Quick Access Defibrillation*

- Casino study (Valenzuela et al., NEJM 2000; 343(17):1206-9)
  - All VF/VT patients, 53% survived
  - Among those shocked within 3 minutes, 74% survived
- American Airlines observational study (Same NEJM, 1210-16)
  - 36 cardiac arrests treated with bystander AED
  - 40% had neurologically intact survival

*Technically not Public Access

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Public Access Defibrillation

- PAD trial (Hallstrom et al, NEJM 2004;351(7):637-46)
  - Lay response teams randomized to CPR alone or CPR plus AED
  - Survival rates were doubled in the CPR+AED group
  - A trial conducted under the 1996 "Final Rule" with exception from informed consent

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Public Access Defibrillation

- Pediatrics:
  - Increased incidence of VF/VT compared with historical assumptions
  - *Commotio cordis* indicates need for athletic event placement
  - American Heart Association and American Academy of Pediatrics state that if only adult AED is available this should be utilized, regardless of age

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Field Triage 2.4.3.2

- Field Triage
  - Best for most
  - Many different triage systems
- System wide collaboration
- Mass Casualty (overwhelms resources)
- Historical MCIs self-transport
- Sort or Relocate disaster
- Practice and Practice more

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Take-Home Points

- This topic is part of the Medical Oversight of EMS core content, compromising 30% of the exam
- Designation vs categorization of specialty receiving centers
  - 3 established conditions for specialty receiving centers are STEMI, Stroke, and Trauma
- 3 components of public health interface are assessment, policy development, and assurance
- Vaccinations are examples of public health/EMS interface
- PAD is supported by PAD trial, casino trial, and American Airlines trial.
- In-home trial with families did not demonstrate benefit

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