EMS Subspecialty Certification Review Course

Social Issues of EMS Systems

Social Issues 1.4.9

2025

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1

Question 1

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D. Ask the patient or family members

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2

Learning Objectives

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

- Understand the challenges of social issues in EMS
- Discuss the issues of Isolation Syndrome
- Discuss the issues of Family Centered Care
- Discuss the issues of management of bystanders while providing patient care

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3

Isolation syndrome

- Chronic diseases are stressful on family members
- Embarrassing situations lead to isolation
- Often seen with Autistic Children
  - Emotional, Physical, Social isolation of parents
- EMS providers must be considerate of situation

4

Isolation syndrome

- Special consideration should be taken when caring for these patients
- Involvement of family members will be important to help decrease stress
- Appropriate referral to social services important

5

Family centered care

- Invasive medical treatments and devices are in the community
  - Ventricular Assist Devices
  - Mechanical Ventilation
  - Vasoactive Medication Infusions
- Protocols must consider treatments not normally considered EMS
- Family is significant source of information

6

Invasive treatments, drips, pumps, monitors are common in the community. Often the patient and family are more familiar with these devices then the providers
Protocols must address these issues

Example:
A patient with pulmonary hypertension lives at home on continuous infusion of Flolan (epoprostenol)
He requires transport to the hospital for an unrelated cellulitis of his legs.
Flolan is not on the ALS drug list for paramedics so they refuse to transport the patient if the medication is running.

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7

Family centered care

- Chronic disease management
  - Out of hospital care
    - Home health/Hospice
  - Family significant provider of care
- EMS must be considerate of family presence during care
  - Some family members may be difficult

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8

Management of bystanders while caring for patient

- Policies on integration of bystanders
  - Medical Providers
  - Non-medical bystanders
- Must have policy for Physician providers on scene
  - Who is responsible (local laws)
  - Can providers take orders from non-medical director physicians

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9

Management of bystanders while caring for patient

- Importance of privacy
  - HIPAA
- Public perception of issues
  - Customer service training
- Scene management skills

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10

Take-Home Points

- Social issues are often the most difficult to deal with
- Medical providers must consider social issues in addition to clinical care
- Family members play a key role in patient care and are a significant source of information
- EMS systems must have policies on the management of bystanders on scenes

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11

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12

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EMS Subspecialty Certification Review Course

1.1.1.4 Termination of resuscitation (TOR) in the field
1.4.2.6.3 Cardiac activity for field termination of resuscitation

2025

1

Learning Objectives

- List criteria for field termination of resuscitation in **medical cardiac arrest**
- List criteria for field termination of resuscitation in **traumatic cardiac arrest**

2

Decision to Resuscitate

- Indications to begin resuscitation:
  - Provider safety assured
  - Patient not obviously dead
  - Patient does not have 'Do Not Attempt Resuscitation' (DNAR, DNR)
- Indications for **withholding** resuscitation:
  - In accordance with patient wishes (DNR, POLST…)
  - Obvious death (lividity, rigor mortis, transection, decapitation, decomposition)
- Medical futility is defined as <1% chance of survival

3

Benefits of TOR Policies

- Avoid transport of futile patients
- Emergency transport poses a risk to EMS providers and general public
- Studies show:
  - Providers are comfortable with TOR
  - Family members are receptive without long-term harm

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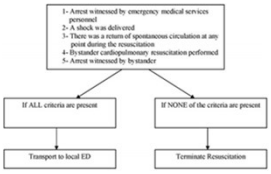
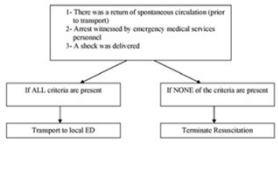
4

ALS and BLS TOR Rules

ALS



BLS



Both rules identified all survivors (specificity 100%). However, ALS rule resulted in more patient transports.

Morrison. Resuscitation. 2009.

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5

"Universal Rule" for TOR

- Validated criteria:
  - Arrest **not witnessed by EMS** personnel
  - **No shock** delivered (including AED)
  - **No return of spontaneous circulation** prior to transport*
- Excluded OHCA due to obvious non-cardiac cause (lightning strike, drowning, poisoning…)

(Morrison-Verbeek)

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6

Evolving Considerations

- Level of EtCO2 – unclear
- Role of prehospital ultrasound
  - One study showed 3% survival to hospital admission with cardiac standstill
  - May help prognostication
  - Cannot base on single scan
- Transport for eCPR

7

TOR for Pediatric Cardiac Arrest

- Pediatric arrests are usually transported to the hospital
- No validated decision rule*
- Increased survival in nonshockable rhythms compared with adults
- Lack of ROSC in field is strong predictor of mortality – resuscitation on scene improves outcomes
- Absence of return of pulses in 20-25 minutes of ACLS initiation associated with poor prognosis (hypothermia and VF excluded)
- Exceptions for transport: Obvious death and crime scenes (SIDS)

8

TOR for Adult Traumatic Arrest

- Prognosis from TFA is poor (0-5%)
  - Better prognosis if: isolated SW chest, signs of life with EMS, thoracotomy within 15 min
- No validated clinical decision rules
- Guided by observational data
- NAEMSP / ACSCOT joint Position Statement
  - Withholding resuscitation
  - Termination of resuscitation

  [Updated 2024]

9

Withholding Resuscitation - Adult Traumatic Arrest

All

- Injuries incompatible with life
- Evidence of prolonged arrest (lividity, rigor)

Blunt*

- Apneic
- Pulseless
- Without organized electrical activity

Penetrating*

- Apneic
- Pulseless
- No other signs of life (movement, electrical activity, pupillary response)

*2024 Position Statement noted lack of data to support specific criteria outside of obvious death and evidence of prolonged arrest

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10

TOR for Adult Traumatic Arrest

- NAEMSP-ACSCOT Recs:
  - Prior recs suggested minimum 15 minutes; current data do not support universal time-based cutoffs
  - DO: consider risk/benefit of transport, public and EMS clinician safety
  - DO NOT: use MOI or rhythm alone [nonshockable = poor outcomes], consider cost or organ donation
  - Requires physician oversight
- Challenges:
  - Lack of data on withholding resuscitation
  - Goal to reduce scene time and termination en route is impractical
- May be most appropriate for rural settings

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11

Which of the following meets the threshold for medical futility (<1% chance of survival) after adult OHCA resuscitation?

A. Cardiac standstill is seen on ultrasound assessment
B. No prehospital ROSC is achieved
C. Patient is apneic, pulseless, with no pupillary response
D. Universal TOR criteria are met

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Which of the following meets the threshold for medical futility (<1% chance of survival) after adult OHCA resuscitation?

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D. Universal TOR criteria are met

13

Take-Home Points

- Adult Non Traumatic OHCA
  - Validated TOR rule: Not witnessed by EMS, no shock, no ROSC
- Pediatric OHCA
  - No validated rule, typically transported
- Adult Traumatic Arrest
  - Decision to withhold resuscitation based on futility
  - Criteria differ for blunt vs penetrating
  - TOR may be considered, though duration of resuscitation unclear, mainly applicable to rural environments with long transports

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Social Issues of EMS Systems

Social Issues 1.4.9

2025

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16

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18

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19

Family centered care

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20

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21

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22

Management of bystanders while caring for patient

- Policies on integration of bystanders
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23

Management of bystanders while caring for patient

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- Public perception of issues
  - Customer service training
- Scene management skills

24

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EMS Subspecialty Certification Review Course

1.4.8 End of Life Issues
1.4.8.1 Hospice
1.4.8.2 DNR/DNI, Advanced Directives, Physician Orders for Life Sustaining Treatment (POLST)

2025

1

Learning Objectives

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

1. Describe differences between DNR/DNI, Advanced Directive, and POLST.
2. List the strengths and limitations of each.
3. Describe how these may be incorporated into local protocols.

2

Introduction

- As the population ages, more patients will be in hospice care
- Death may occur at home or in hospital
- Some patients do not want to be resuscitated
- Call to EMS to help palliate suffering or provide additional resources
- Several methods for patients to express their wishes for end-of-life care
- **EMS protocols need to incorporate all of them**

3

Do Not Resuscitate/Do Not Intubate

Medical orders to not resuscitate or intubate generally apply for those who are pulseless and apneic, but in some states or regions may apply to other situations in advanced directive

- Limitations:
  - May be unclear what to do if **not** pulseless and apneic
    - seriously ill patient who cannot talk and w/o a surrogate present
  - Documentation often not with the patient during the arrest
  - Sometimes family may appear late w/o paperwork asking to halt or initiate efforts

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4

Advanced Directives

- Written document expressing future wishes for care decisions, often aggressive versus palliative
- Crafted while patient has decision making capacity
- Only applies once the patient cannot make decisions for themselves (ie, is revocable if capacity exists)
- Generally two types:
  - Living Wills
  - Durable Power of Attorney
- Some states have medical POA


APPOINTMENT OF HEALTH CARE AGENT

I appoint the following health care agent:

Health Care Agent _____
(Name and relationship)

Address: _____

Telephone Number: Home_____Work_____

E-MAIL: _____

IF YOU DO NOT NAME A HEALTH CARE AGENT, HEALTH CARE PROVIDERS WILL ASK YOUR FAMILY OR AN ADULT WHO KNOWS YOUR PREFERENCES AND VALUES FOR HELP IN DETERMINING YOUR WISHES FOR TREATMENT.

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5

Advanced Directive

Living Will
- Expresses wishes of patient in the event of permanent coma or terminal illness
- In acute phase of illness seen by EMS, it is often unclear if the patient's illness will result in permanent coma
- Often Imprecise and does not address many potential scenarios

Durable Power of Attorney
- Gives the power of decision-making to another individual
- May be temporary or permanent
- EMS protocol may permit the surrogate to make decisions on the patient's behalf
- Surrogate must be readily available

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6

Physician Orders for Life-Sustaining Treatment (POLST)

- Communicates patient's preference in form of medical orders in transition between outpatient and inpatient settings, or drafted by patient request
- Delineates:
  - If resuscitation should be attempted
  - If and when transport to the hospital should occur
  - The desired intensity of interventions

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7

Hospice

- Focuses on End of Life issues
  - Pain, emotion, spiritual
- Typically < 6m to live not not seeking curative care
- Have an assigned caregiver that can be called 24/7

Families can still call EMS
- The hospice RN can be a resource

EMS Medical directors can modify dispatch criteria for hospice

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8

Withholding / Terminating Resuscitation

- Patient's have the right to limit resuscitation
  - DNR orders allow patients to direct care when they can not communicate
    - Allow EMS providers to respect autonomy
    - Providers must know local policies and laws
- Living wills – outline life wishes
  - May or may not have DNR section
  - Designate a healthcare proxy

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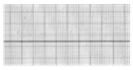
9

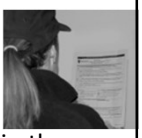
Withholding / Terminating Resuscitation



- Potential issues
  - Proxy not available
  - Paperwork not available/doesn't meet local legal standards
- When in doubt, initiate a full resuscitation
  - Resuscitation can be terminated in hospital
- DNR does not mean **no** care should be provided
  - Compassionate care should always be practiced
  - Specific palliative care can be part of protocol

10

Take-Home Points



- Living Will: Expresses wishes of patient in the event of permanent coma or terminal illness. Often imprecise.
- Power of Attorney: Designated surrogate for the patient. Ideal if they are available during EMS treatment
- POLST: Medical order delineating patient's wishes for: resuscitation, transport, aggressiveness of care

11

EMS Subspecialty Certification Review Course

Mass Gatherings: 4.3

Disaster Planning and Operations: 4.3.1
Human Resource Needs in Disaster Response 4.3.2
Care Teams 4.3.2.1
Physician Placement 4.3.2.2
Training and Drills 4.3.2.3
Design of Temporary Facilities 4.3.4
Level of Care 4.3.4.1
Ingress/Egress 4.3.4.2
Equipment Needs 4.3.5
Communications 4.3.5.1
Integration of telecom systems with existing EMS systems 4.3.5.2

2025

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1

Learning Objectives

Upon the completion of this program participants will be able to:
- Understand Mass Gathering Planning and Operations
- Recognize the risks of a developing MCI
- Describe the role of the EMS Medical Director in Mass Gathering Planning and Operations
- Understand Human Resource Needs
- Understand Care Teams
- Understand intricacies of physician placement
- Be able to list different kinds of training and drills
-

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2

Learning Objectives

- Be able to recognize need for temporary treatment facilities during a mass gathering
- Decide on level of care necessary given a scenario
- Understand the impact of ingress and egress
- Describe possible equipment needs
- Be able to verbalize the various communication challenges and needs
- Understand how to integrate mass event communication systems with existing EMS communication systems

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3

What is a Mass Gathering?

- Numbers of persons attending vary in definitions (1,000-25,000)
- FEMA uses term “special events”:
  - “…a non-routine activity within a community that brings together a large number of people” and emphasizes that the number of attendees is less important than the community’s ability to respond to the activity or a large-scale disaster
- WHO describes “mass gathering as:
  - “….any occasion …that attracts sufficient numbers of people to strain the planning and response resources of the community….”

4

Mass Gatherings

- Mass gathering patients produce demands for EMS care that have little to do with crowd size
  - Exposure to adverse weather
  - Alcohol and illicit drug use
  - Inadequate intake of water
  - Consumption of contaminated food
  - Violent spectator behavior
  - Stress of physical competition

Photo courtesy of Taylor Ratcliff, MD

5

Mass Gatherings

- “Bounded/focused” events (stadium sporting events) tend to have higher Patient Presentation Rates (PPR)
- “Unbounded/extended” events (marathons and parades) tend to have lower PPR (patients may seek care outside event medical plan)
- Duration of the event over 6 hours, freely mobile crowds and events where alcohol and drugs are being used all affect PPR

6

Rock, Revival, Sports

7

Mass Gatherings

- Higher PPR in athletic events
- Participants usually outnumber spectators
- Higher demand for medical care than events with spectators > participants
  - Weather
  - Pre-existing disease
  - Poor conditioning

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8

Characteristics of Mass Gatherings

- Mass gathering event medical personnel can be easily overwhelmed by multi-casualty illness or injury
- Densely clustered population
- Physical barriers to ingress and egress with patients
- Reliance on communications for coordination of care
- Need for jurisdictional coordination is key

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9

The Role of the EMS Medical Director in Mass Gathering Planning and Management

Goals

- Establish rapid access to ill or injured
- Provide triage, treatment, stabilization, and transport for ill and injured patients
- Provide on-site care for minor illness and injuries
- Preserve EMS function in surrounding community

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10

Medical Oversight

- Proper Medical Oversight – appoint a medical director who is licensed in the state the event will be held in, and will be ***at the event*** and has experience with mass event medicine
- Medical Director – must assume that he/she is ultimately responsible for care provided
- Event Negotiations – lay foundation of understanding with event managers regarding providing the **level of care at least commensurate with the surrounding community**
- Perform Venue Reconnaissance

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11

The Medical Director must…

- Be integrated into administrative structure and function of the event
- Delineate clear lines of responsibility with event management
- Have authority over medical care providers

**Medical organizational chart should be created and shared

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12

Med Dir Planning – Event Negotiations

- Medical Director must meet with event managers and venue owners to:
  - Establish clear understanding of mass gathering medical care
  - Obtain full support in planning and execution of care
- Details about event relevant to medical coverage
- Event managers should take medico-legal liability for medical providers – Reliance on "Good Samaritan" laws is risky.
- Medical providers should be paid to assure coverage
- Assure appropriate communications and medical equipment

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13

Med Dir Planning – Resource Needs

- Consider size of crowd, age, event type and environment
- Also consider drugs or alcohol, crowd density, venue layout, and length of event
- Human resources
- Medical equipment
- Food and water
- Ice and cooling vessels
- Sanitation facilities
- Alternate care sites
- Hospitals

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14

Human Resource Needs

- Ideal number vs. realistic number - Balance between number determined as optimal
- Based on reconnaissance, statistical estimates, records of previous similar events and the numbers that can be supported by sponsorship and community resources
- Each event is unique
- Must take into account extremes of temperature, condition of participants, length of event
- Presence of alcohol or illicit drugs, and likely types of drug

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15

Human Resource Needs - Other Resources/Care Teams

- Staff:
  - Physicians – Must hold a medical license in state of event, be CPR and ACLS certified (unless EM trained) and be experienced with care of life or limb threatening injuries and illnesses
  - Physician extenders-NPs and PAs
  - Nurses – triage, on-site observation, critical care if credentialed
  - EMT-B, AEMT and Paramedics
  - Ushers or security – often act as spotters and are invaluable
- Requires pre-event training
- Field personnel should be readily identifiable-vests, uniforms; picture ID badges allowing access to restricted areas
- Mobilization and demobilization times should be determined by medical director and event management

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16

Med Dir Planning – Stakeholders & Regulations

- **Discussions should include**
  - Politicians
  - Hospital administrators
  - EMS agencies
  - Law Enforcement
  - Dispatch center(s)
  - Event sponsors and planners
- **Knowledge of local regulations**
  - Permits required?
  - Minimum staffing requirements?
  - Medicolegal liability?

Photo courtesy of Sharon Malone, MD

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17

Med Dir Planning – Medical Plans

- Staffing requirements
- Treatment areas
- BLS and ALS transport options
- MCI planning

** Efforts should be made to keep the event EMS response and the community EMS response separate

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18

Medical Plans - Level of Care

- Ideal level vs possible level
- Possible determined by financial and personnel resources
- Basic EMT should be minimum acceptable level of care
- Negotiations will surround cost of providing safe level of care
- Require all non-physicians to follow protocols
- Avoid any “free” or informal EMS medical care

19

Medical Plans - Medical Equipment

- Scope of care and level dependent on **available resources – human, equipment, pharmaceuticals**
- May be purchased or provided by system providing the medical coverage
- Be aware of jurisdictional requirements when providing medical direction at events
  - Resources should not exceed providers’ scope
- Review BLS and ALS equipment, protocols and medication lists for your state as may vary

20

Medical Plans - Transportation Resources

- Intra-venue
  - Depends on event
  - Stretchers, golf carts, stretcher road vehicles, boats
  - Must be appropriately staffed – vehicle operations

- Extra-venue
  - Must be approved by Medical Director
  - Consider non-ambulances for non-emergent transport
  - Should be determined by protocol and after a complete patient evaluation
  - Re-stocking of ambulances should be considered in planning
  - Air medical care should be considered in planning

21

Medical Plans – On site Treatment Facilities

- May be indicated for large or long-duration events with high risk or long transport times
- Location must be easily accessible and announced to participants
- Must provide protection from weather and patient privacy
- At least one medical provider at highest level should be at facility at all times
- Supplies, pharmaceuticals, and equipment will be different from mobile responders
- Supplies and Pharmaceuticals on hand are to be used only if physician is charged with direct patient care or dispensed by others under standing orders and/or direct medical oversight
  - Must consider:
    - Expected patient volume and severity
    - Patient transport options and times to definitive care
    - Level of transport care at site
    - Integration and communication with overall EMS/healthcare system in jurisdiction
    - Level of care to be provided

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Medical Plans – Off site treatment facilities

- These are facilities that receive patients from pre-hospital system
- Med director must know capabilities and have communicated with them prior to event
- Specialized facilities for trauma, burns, pediatrics

Photos courtesy of STRAC

23

Medical Plans – Other treatment facility considerations

- Mobile teams
- Sobering centers
- Transportation to and from facilities
- Physician staffing can increase capabilities, thus further decreasing burden on hospitals
- Sites should have MCI plans in place

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Physician Placement

- Depends on type of treatment facility
- Large mobile events may require multiple physicians
- Mobile physicians are often able to get to scene quickly and make rapid treatment and transportation decisions
- May be required to be in fixed facility like first aid station in a stadium
- May be positioned on the sideline of a sporting event or race end of a marathon

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Med Dir Planning – Environmental Factors

- Warm weather
  - Water
  - Shade
  - Fans
  - Ice
  - Cooling vessels
  - Cooling centers
- Cold weather
  - Rewarming facilities

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Med Dir Planning – Venue Reconnaissance

- Prior to event, the medical director should inspect the venue – hazards, weather, exits, signage, ingress/egress routes for emergency vehicles
- Venue reconnaissance includes understanding the jurisdictional capabilities where event is being held and interfacing with their medical and operational leadership
  - Level of jurisdiction's EMS capabilities
  - Hospital locations, capabilities
  - Backup / mutual aid providers

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Med Dir Planning – Venue Reconnaissance

- Decide at what level MCI plan will be instituted
- Attend similar events to observe factors to consider:
  - Climate
  - Terrain
  - Population density
  - Mobility of crowd
  - Alcohol consumption / drug use
  - Adequacy of toilet facilities and potable water
  - Emergency ingress and egress
  - Review of medical records

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Med Dir Planning – Venue Reconnaissance

- Must assure a 5-minute response time to a cardiac arrest
- Map position of providers based on this
- Remember "spotters" or spectators are often the first to witness an ill or injured person
- Map AED locations
- Map First Aid stations/tents

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Med Dir Planning – Public Health Surveillance

Understand and ensure disease surveillance – coordinate knowledge among patient treatment areas.

- Detection of infectious outbreaks
- Use of chemical or biological agents
- Recognition of food-borne or water-borne illness

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Med Dir Planning – Documentation

- Ensure standardized PCR – paper or record
- Important medical and legal record
- Who is responsible for maintenance?
- Where will records be stored?

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Med Dir Planning – Communications

- MOST important part of provision of sound medical care at a mass gathering
- MOST vulnerable part of plan
- MUST have redundancy
- MUST have interagency interoperability
- MUST have clear language (no 10 codes)
- MUST test and retest systems

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Communications - Dispatch

- PSAPs (public service answering points): where 911 call is received
- Use CAD system (computer aided dispatch)
- Call takers receive 911 call and route to appropriate public service agency (police, fire, ems)
- Dispatchers responsible for providing pre-arrival instructions and sending resources to scene as well as collection of all relevant times

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Communications - Operations

- Channels for the event and MCI should be pre-established and widely distributed to responders
- Hand-held P25 compliant interoperable radios preferred
  - Allows for multiple agencies to share common frequencies
  - Connectivity is a channel away
  - Plan for spares
  - Extra batteries
  - Security on radio frequencies
- May communicate through MDTs (mobile data terminals)
- Truncated systems prevent walk over
- Recent use of social media?

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Medical Communications

- Medical Direction communication with field personnel is critical
- Transportation destination decisions
- Triage decisions
- Alerting facilities of incoming patients
- Providing ingress and egress information in crowded areas
- Each patient encounter requiring transportation should be taped from PSAP to end of call

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Communications

- Medical oversight center must be linked by cell phone, landline, satellite phone and/or radio to:
  - PSAP
  - EOC (emergency operations center)
    - If event large enough the EOC will stand up
    - If MCI the EOC will stand up vs mobile command post
- Public Health
- EMS
- Fire
- Area Emergency Departments
- Event dedicated public transportation

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Medical Control/Oversight Center

- Can be a fixed location (base station physician)
- May be a mobile physician (radio in jurisdictional system)
- If event management working with jurisdiction may be useful to share radios so they have access to larger system
- Event should be worked on separate channel from day to day operations
- Dedicated network for event with dedicated dispatchers and units assigned to event only

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Training and Drills

- Each participant must know his/her geographical postings and coverage area
- Location of Medical Control Center and how to access
- Know fixed facilities with ingress and egress
- Ambulance locations
- Security assets

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Training and Drills

- **Prospective QM**: must create Medical Action Plan and MCI plans and do scenario based practice of the plans with all agencies participating
- Drills and Training only as good as level of participation
- Table tops
- Video conferencing

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Mass Gatherings → MCI

- When a MCI occurs during a mass gathering, emergency services are already saturated and response is compromised
- Conventional planning and historical data for similar events may not be enough. Proper planning and tools for an escalating event must be incorporated.
- Inclusion of MCI planning leads to better preparation, and the mass gathering can also be used as MCI training opportunities.

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Considerations for Mass Gathering MCI planning

Five general areas of risk management to consider

- Overcrowding and inadequate crowd management
- Ticketed and controlled access points
- Robust fire safety , prevention, and response measures
- Medical preparedness and emergency response planning
- Emergency response

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MCI

- Must have ***internal*** plan interfacing with external resources and planning as need arises
- Involves event security, event management, jurisdictional fire, law enforcement, emergency medical services, emergency operation centers and PSAP managers
- Medical Director MUST contribute to all medical aspects of response, triage, treatment and transport plans

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MCI

- Must have strong link between internal resources and resources from public domain
- Goal is seamless transfer of incident management from event personnel to city, county, state and/or federal personnel
- The Incident Commander for the event should be the "link" between the event and requests for outside resources
- Medical Director should be involved in this communication for medical resources
- The medical director should be involved in post-event debriefing
- Medical directors can be instrumental in assuring CISM occurs

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MCI

Planning for response should include the assignment of MCI response roles to all medical staff PRIOR to event:

-**Incident Commander** (generally the highest level of training at scene (medical director of event until arrival of outside resources; may change as more resources arrive)

-**Triage officer**
-**Treatment (immediate life threa**
-**Transportation Officer**
-**Safety Officer**
-**Information Officer**
-**Liaison Officer**

Information transmitted should include number and injury type of casualties, scene accessibility, known inherent dangers and specific resource requests.

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Disaster Medical Protocols

- Should be decided/drafted pre-event
- May deviate from routine standard of care
- Some states have statutes that protect the providers in crisis care scenarios (Declared disaster, MCI)
- Behooves the EMS Medical Director to familiarize him/herself with their state laws

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Prospective QM

- All planning for medical care at mass events and during disasters is part of this form of QM
- Medical staff hiring, orientation, and training processes are all part of this
- Unscheduled “routine” duties of personnel make it hard to have everyone train at same time
- Alternatives include table-tops, video conferencing and virtual reality applications offered to personnel
- Periodic full exercises with other agencies when they host

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Concurrent QM

- Develop PCR for event (or designate item numbers specifically for event)
- Legal and medical document
- All patient encounters must be recorded including patient refusals and against medical advice refusals (using medical control)
- Review who can and can not refuse care

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Retrospective QM

- Debrief, “hot wash”, “the good, the bad and the ugly”
- Must review all aspects of event and care rendered/decisions made
- Must be done in honest way to improve performance
- Review pre-set patient encounters
- Review numbers of patient encounters relative to transports

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Take-Home Points

- This topic is part of the EMS core content
  - Special Operations: 4.3.1 which is 20% of core curriculum
- EMS Medical Director must be at the center of this prehospital medical practice and planning
- Crowd size less important than crowd characteristics
- Planning includes other disciplines
- Mass gathering medicine takes on many forms
- Must integrate with disaster planning
- Operations, Planning, Communication, Logistics (both personnel and supplies), and Quality Management through live drills and tabletops is encouraged

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Disaster Plan and Operations

Medical Director must meet with event coordinators

Consider "crowd size" less important than crowd characteristics:

-alcohol/illicit drug use

-adverse weather conditions

-inadequate potable water intake when temperature extremes

-contaminated food

-violent behavior

-physically demanding competition leading to participant illness/injury

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Disaster

- A situation in which the severity of damage or the number of patients exceeds the ability of scene responders and local management authority to provide immediate management
- Worst case scenario of all mass gatherings is a Disaster or MCI

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Disaster Plan

- Prospective arrangements that are initiated in response to a potentially overwhelming set of conditions such as the number of ill or injured victims, weather conditions, natural events, or terrorist acts.

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Mass Casualty Incident (MCI) Planning

- A systematic way to orchestrate the medical response to any event potentially involving large numbers of patients
- Events such as concerts, sporting events, parades are considered “mass gatherings”
- Others events include natural disasters, and man-made disasters
  - pandemic, hurricanes, tornadoes (natural)
  - Levee breaches, terrorism, school shootings (man-made)

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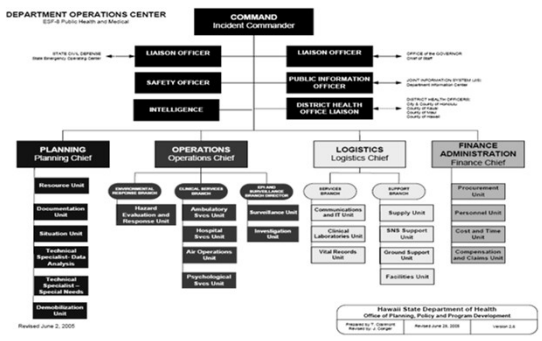

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Mass Gatherings

55

Treatment Facilities

- Ingress must account for traffic patterns, EMS vehicle height and width, offload area, shelter from the elements
- Egress must account for above plus timely offload and capacity to hold more than one unit
- Must work with law enforcement during mass gatherings to assure traffic flow and access to and from scene and treatment facilities

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Appropriate Medical Care at Mass Events

- Integrate public health, public safety and clinical emergency medicine
- Functional knowledge of public relations, telecommunications, logistics, business negotiations and disaster preparedness
- Requires need for special talents and plans
- Must understand the overarching medical system for treating acutely ill and injured in the given event jurisdiction

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Resources

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High Yield Topics

- Environmental & event characteristics (bounded/unbounded, type) impacts PPR
  - Crowd size is less important
- Goals of Mass Gathering medical care:
  - Provide commensurate standard of care
  - Spare local EMS resources
- Understanding physician deployment locations
- Mass Gathering definition less about size than ability to adequately respond

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EMS Subspecialty Certification Review Course

4.1.1 Incident Command System (ICS)
4.1.1.1 Integration of medical operations
4.1.1.2 Local, State, and Federal Assets
4.1.1.3 Regional Resource Allocation and Management
4.1.1.4 Role of Emergency Management Agencies
4.1.2 Triage
4.1.3 Patient Care in Mass Casualty Events/Scene Management
4.1.3.1 On-site Treatment
4.1.3.2 Transport Modes
4.1.3.3 Destination

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1

Learning Objectives

- Describe the Incident Command System
- Review triage principles
- Identify local, state and federal assets utilized in mass casualty incidents
- Discuss regional resource allocation and management
- Describe the role of emergency management agencies

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2

National Incident Management System (NIMS)

- Established by presidential directive 5 after 9-11
- Designed to coordinate multi-agency, multi-jurisdictional responses to large-scale emergencies
- "Guides all levels of government, nongovernmental organizations and the private sector to work together to prevent, protect against, mitigate, respond to and recover from incidents"
- Mandates use of the Incident Command System

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Incident Command System (ICS)

- Required for state and federal agencies
- Required by OSHA and NFPA during emergency response to dangerous incidents
- Allows coordinated multi-agency responses
- Key features:
  - Flexible, scalable, virtual organization
  - Uniform terminology
  - Unified goals

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Incident Commander (IC)

- Priorities
  1. Life Safety
  2. Incident Stabilization
  3. Property and Environment Conservation
- Same regardless of incident type

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Incident Commander (IC)

- All responsibility belongs to the IC unless specifically delegated
- Organizational constraints:
  - **Unity of Command**: Each member of the team reports to only one person
  - **Span of Control**: No leader is directly responsible for more than 3 to 7 personnel or functions
- **Unified Command**: senior representatives from each agency form the IC and speak as one voice

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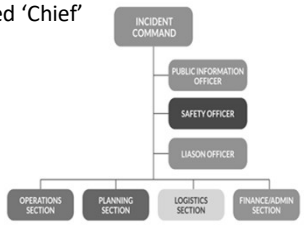
ICS Sections

- Organizational levels with the responsibility for a major functional area of the incident
- Person in Charge is called 'Chief'
- 4 Sections:
  - Operations
  - Planning
  - Logistics
  - Finance



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ICS Sections

Operations

- Responsible for tactical decisions and maintaining situational awareness
- Includes staging manager who coordinates available resources waiting on an assignment

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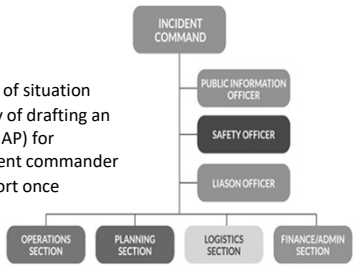
ICS Sections

Planning

- Continual monitoring of situation
- Primary responsibility of drafting an incident action plan (IAP) for approval by the incident commander
- Lead after action report once incident complete



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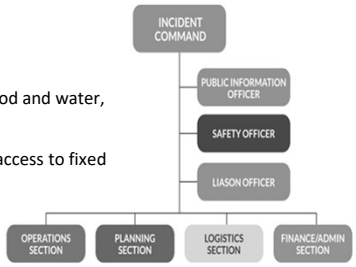
ICS Sections

Logistics

- Service branch
  - Communications, food and water, medical support
- Support branch
  - Fuel, maintenance, access to fixed facilities



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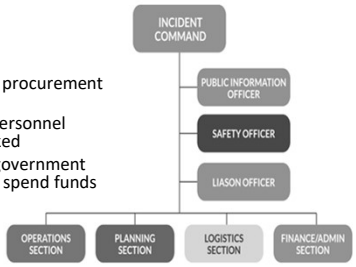
ICS Sections

Finance/Administration

- Staffed when significant procurement capabilities are needed
- Maintains records and personnel involved in periods worked
- Should be headed by a government official with authority to spend funds and sign contracts



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ICS "Command Staff"

- Inherent to command function, not included in span of control constraints
- Safety officer:
  - Responsible for scene and overall safety for responders and civilians
- Public information officer (PIO)
  - Interacts with media
- Liaison officer :
  - Provides a conduit for two-way information exchange between the IC and representatives of other responding agencies

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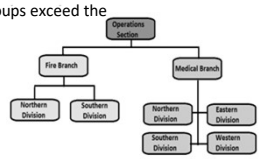
ICS Expansion

Branches

Used when the number of divisions or groups exceed the recommended span of control

Example: Fire and EMS branch

A Branch is led by a **director**



Division

Used to divide an incident geographically

Example: Fire Branch has a Northern and Southern Division

A Division is led by a **supervisor**

Group

Used to divide an incident into functional areas of operation

Example: Resources that have a special function (e.g., S&R group)

A Group is led by a **supervisor**

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Additional ICS Definitions

Units

Functional responsibility for a specific activity

Example: situation unit, supply unit

Single resources

An individual or single piece of equipment with its personnel complement

A crew or team of individuals with an identified supervisor

Example: police officer, engine company

Task force

A combination of mixed resources with a common communications capability

Led by a task force **leader**

Strike team

Set number of Similar resources

Operate under command of a strike team **leader**

Example: 4 engine companies

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ICS and the EMS Medical Director

- The EMS Medical Director role is not well defined in the ICS structure
- Dependent upon local policies, the EMS Medical Director may be assigned to the Unified Command, Medical Branch, or as advisor/subject matter expert

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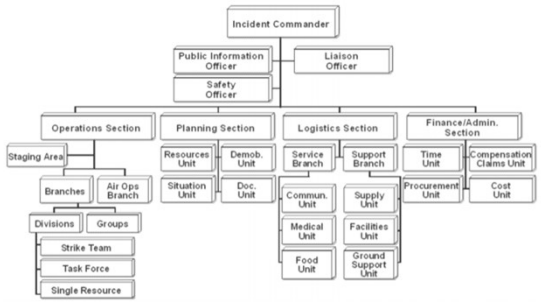
ISC Org Chart



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Primary ICS Courses

- ICS 100 Introduction to Incident Command Principles
- ICS 200 Single Resource and Initial Action Incidents
- ICS 700 National Incident Management System (NIMS)
- ICS 800 National Response Framework (NRF)

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Triage

To sort or select

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Model Uniform Core Criteria (MUCC)

- Established by the Federal Interagency Committee on EMS (FICEMS)
- US transitioning to MUCC-compliant systems
- Endorsed by NAEMSP, ACEP, ACSCOT…
- 24 Criteria, 5 triage levels
- SALT is the only fully compliant triage tool

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Primary Triage Categories

- Immediate – obvious threat to life or limb
- Delayed – need care, not likely to decompensate if delayed
- Minimal – self-limited injuries, can tolerate significant delays
- Dead – apneic despite basic maneuvers
- Expectant – little/no chance of survival despite max therapy

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Examples of Primary Triage Systems

- SALT – Sort, Assess, Life-saving interventions, Treatment/Transport
  - Developed by CDC sponsored panel
  - MUCC compliant
  - Better accuracy that others, all over-triage
- START – Simple Triage and Rapid Assessment
  - JumpSTART – Pediatric version
  - Common in US but not MUCC compliant

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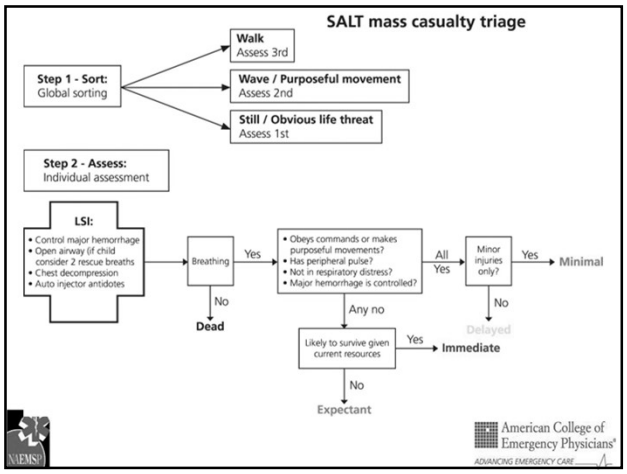
SALT mass casualty triage
Step 1 - Sort:
Global sorting
Walk
Assess 3rd
Wave / Purposeful movement
Assess 2nd
Still / Obvious life threat
Assess 1st
Step 2 - Assess:
Individual assessment
LSI:
• Control major hemorrhage
• Open airway (if child consider 2 rescue breaths
• Chest decompression
• Auto injector antidotes
Breathing
Yes
No
Dead
• Obeys commands or makes purposeful movements?
• Has peripheral pulse?
• Not in respiratory distress?
• Major hemorrhage is controlled?
All Yes
Any no
Minor injuries only?
Yes
Minimal
No
Delayed
Likely to survive given current resources
Yes
Immediate
No
Expectant
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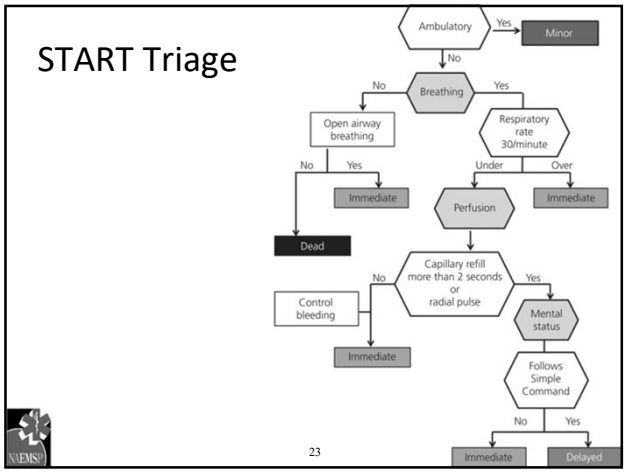
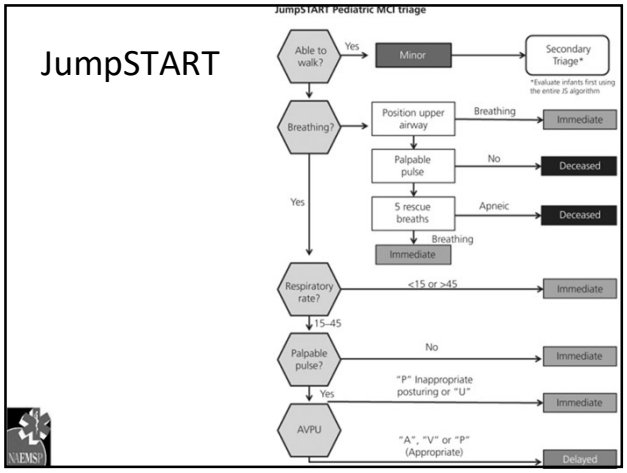

START Triage
Ambulatory
Yes
Minor
No
Breathing
No
Yes
Open airway breathing
Respiratory rate 30/minute
No
Yes
Under
Over
Immediate
Perfusion
Immediate
Dead
Capillary refill more than 2 seconds or radial pulse
No
Yes
Control bleeding
Mental status
Immediate
Follows Simple Command
No
Yes
Immediate
Delayed
23

23


JumpSTART
JumpSTART Pediatric MCI triage
Able to walk?
Yes
Minor
Secondary Triage*
*Evaluate infants first using the entire JS algorithm
Breathing?
Position upper airway
Breathing
Immediate
Palpable pulse
No
Deceased
Yes
5 rescue breaths
Apneic
Deceased
Breathing
Immediate
Respiratory rate?
<15 or >45
Immediate
15–45
Palpable pulse?
No
Immediate
"P" Inappropriate posturing or "U"
Yes
Immediate
AVPU
"A", "V" or "P" (Appropriate)
Delayed

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Triage System Limitations

- Tend to over-triage (especially START)
- Do not account for non-traumatic conditions

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Triage Tags

- Available in a variety of different designs
- Need to allow bidirectional changes in triage category
- Unproven in actual use
- Alternatives: Marking pen, geographical locations, etc to identify triage category

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Secondary and Tertiary Triage

- Secondary triage further prioritizes patients within each category
  - Less well studied
  - Secondary Assessment and Victim Endpoint (SAVE) and System of Risk Triage (SORT)
  - Weight intervention benefit against resources
  - Typically done at hospital arrival
- Tertiary triage – triage of scarce resources
  - Utilitarian goal – maximizing outcomes for the population
  - Priority to those most likely to recover
  - Discuss ethical challenges and allocation principles

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Population Triage

- Refers to management of ongoing incident due to infrastructure loss or disease
- Balancing risk of harm to person vs community
- Examples
  - Weather prevents ambulances from responding
  - COVID-19 stay at home orders to prevent spread

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Post Triage

- Triage is dynamic; reevaluate
  - Clinical status frequently changes
  - Availability of supplies and personnel can change
- Need a system for communicating with destination hospitals and patient tracking
- Initiate treatment on scene pending transport, as resources allow
- Transportation of patients should be optimized
  - Prioritize order of transport
  - Destination: Divide patients among hospitals; higher-level centers for most critical patients

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Questions

1. Medical Branch is established at the scene of a large-scale event. Who is the Medical Branch Director and who do they report too?

1. Incident Command Priorities are?

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Answers

1. The Medical Branch Director will most often be an operational representative of an EMS agency and will report to the Incident Commander (small incidents) or the Operations Section Chief (larger scale incidents).
2. Life safety issues, incident stabilization and property conservation.

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Take-Home Points

- Be familiar with ICS structure
- IC priorities: life, incident, property
- Unity of command – one boss
- Span of control – 3-7 max subordinates
- Triage is important to improve outcomes
- Many different triage systems (SALT is MUCC compliant)
- Primary, Secondary, Tertiary triage

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EMS Subspecialty Certification Review Course

4.1 Mass Casualty Management

2025

1

Mass Casualty Management

- Local, State, Federal Assets
- Regional resource allocation and management
- Role of emergency management agencies

2

Local, State, Federal Assets

Local

- All disasters are local
- Variable resources throughout the nation
- Emergency Operations Center (EOC) is focal point
- Usually activated by local government and emergency manager
- Requests additional resource via state when local resources are overwhelmed

3

State Assets

- Coordinate state assets to assist local responders/EOC
- Statewide medical teams and support may be available
  - National Guard
  - Nongovernmental Organizations (NGOs)
- Coordinates additional Emergency Support Function response
- Develops and requests emergency management Assistance Compact (EMAC)
- Requests federal support

4

Federal Assets

- Coordinated via FEMA
  - Disaster Medical Assistance Teams (DMAT)
  - Urban Search and Rescue (US&R)
  - Disaster Mortuary Support (DMORT)
  - Military resources
  - Health and Human Services (HHS)
  - Department of Homeland Security (DHS)
  - National Disaster Medical System (NDMS)

5

Regional Resource Allocation/ Management

- Be familiar with regional resources and how to access them prior to event
- Consider Crisis Standards of Care
- Alternate Destination Facilities
- Typically coordinated by regional or state entities

6

Resource Allocation Considerations

- Resources are not sufficient to immediately fulfill a request
- Resource requests of one locale may affect another locale's ability to get the resources it needs
- Resources brought into the region are not sufficient to meet all the needs within the region

7

Resource Allocation (cont)

- Resource management strategies should reflect the relationship between the demand for resources and their supply
- Allocation is a general term that refers to the assigning of resources for specific purposes. Allocation strategies vary greatly depending on whether resources are plentiful or scarce
- During minor and moderate surges, when resources are typically adequate, strategies such as discharging patients early, cancelling elective operations and outpatient clinics help redirect resources to the surge event, thus mitigating resource shortfalls.

8

Specific Examples

- Personnel
- Supplies
- Equipment
  - Ventilators
  - ICU Beds




9

Role of Emergency Management Agencies

The managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters

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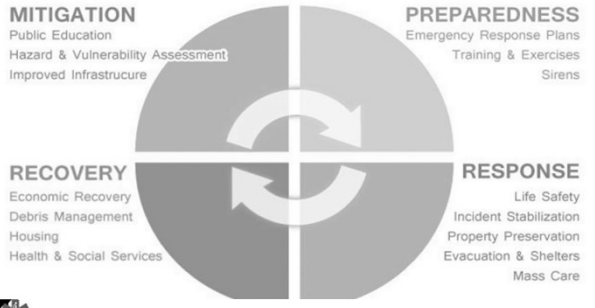
Phases of Emergency Management



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Principles of Emergency Management

- Comprehensive
- Progressive
- Risk driven
- Integrated
- Collaborative
- Coordinated
- Flexible
- Professional

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Take Home Points

- Emergency Management Assistance Compacts are critical elements in allowing State resources to support other States
- Federal response teams are coordinated via FEMA after request from local or State authorities

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EMS Subspecialty Certification Review Course

4.2.1 Toxic Exposure/Poisoning/Hazardous Materials (Hazmat) 4.2.1.1 Indications for Hazmat team/antidotes 4.2.1.2 Field ID of toxins/hazardous materials 4.2.1.3 field/ provider/patient decon 4.2.1.4 Care of contaminated patient while wearing PPE 4.2.1.5 knowledge of various levels of PPE 4.2.1.6 knowledge of poisons, antidotes, chemical properties of hazardous materials, radiation and effects of exposure 4.2.2 Immediate Danger To Life And Health (Idlh) Environments

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Learning Objectives

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

- Understand the role of the EMS provider in treatment and decontamination of hazardous materials exposure
- Describe the types of PPE commonly deployed at hazardous materials incidents
- Discuss IDLH environments and responses to common hazardous materials emergencies

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HAZMAT teams and EMS

- Hazardous materials incidents range from minor releases of household chemicals to weapons of mass destruction (WMD)
- Average EMS crews are not sufficiently equipped to protect themselves in the event of a hazmat exposure
- Specially trained hazardous materials response teams should include include expertise from all sectors of public safety

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Antidotes

- Few chemicals have specific antidotes that would be appropriate for EMS
- Most exposures are initially treated with decontamination and supportive care
  - Known risks in particular areas may warrant placing specific antidotes with EMS (e.g. industrial operations using large quantities of cyanide or hydrogen fluoride)
- Preplanning the EMS district is key to identifying needs

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Field identification of toxins/hazardous materials

- Preplanning is key
  - Community level review by fire service and local emergency planners (LEP)
  - Medical needs review by medical director may identify need for specific SOG or medical protocols
- Place Emergency Response Guidebooks on every response vehicle and train providers in their use

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Personal Protective Equipment (PPE)

- The usual work attire worn by response personnel is level D PPE, and it protects against few hazardous materials
- Structural firefighting garments (SCBA)
  - Minimally suitable for some hazmat response
- Chemical protective garments
  - Splash resistant (with filtering or supplied air respiratory protection) (aka Level B/C)
  - Vapor resistant (SCBA) (aka Level A)

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Level A

Highest level of protection

- When high concentrations of toxic agents present
- Fully encapsulated chemical-resistant suit
- Positive pressure self contained breathing apparatus (SCBA)
- Double layers of chemical-resistant gloves
- Chemical resistant boots

Level A

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Level B

Toxins still present

- When full respiratory protection required but dangers to skin is less
- Chemical resistant suit
- Positive pressure self contained breathing apparatus (SCBA)
- Resistant gloves and boots
- Less vapor protection in Level B than A

Level B

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Level C

Still here, but risk lower

- When air concentrations are expected to be much lower and there is less likelihood of skin exposure
- Non encapsulating chemical resistant suit
- Gloves
- Boots
- Full face air purification device

Level C

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Level D

When no danger of chemical exposure exists

- Standard work clothes and no respiratory protection

Level D

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Containment

- Management of the scene provides primary containment of the release
- Effluent from the decontamination sector should be contained to prevent secondary exposure of the public, water supply, etc.

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Decontamination

- Providers and patients should be decontaminated before exiting the exposure site
  - Considerations for environmental conditions and potential number of victims should be part of preplanning

- Decontamination is the process of removing or deactivating harmful contaminants from surfaces of persons or objects by dilution and physical measures
  - Removing the patient from the source may meet the need for decon (e.g. exiting a toxic atmosphere)

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Decontamination

- Primary vs. secondary contamination
  - Direct transfer from source to person
  - Transfer of agent from person to person
- Dry vs. wet decontamination
  - Foams, powders
  - Soap and water

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Resuscitation while wearing PPE

- Most medical care should be deferred until after decontamination
- Manual airway maneuvers may bridge victims until treatment can be provided
- Specially trained hazmat medical response teams may be able to provide limited care prior to decontamination (e.g. antidote administration)

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Immediate Danger to Life and Health (IDLH) Environments

- Defined by the US National Institute for Occupational Safety and Health (NIOSH) as exposure to airborne contaminants that is "*likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment*."
  - Smoke or other poisonous gases at sufficiently high concentrations.

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Chemical properties of hazardous materials, radiation and effects of exposure

- Chemicals are generally liquids at room temperature and may be disseminated as a vapor, gas, or aerosol.
  - After exposure, each type of chemical has varying effects, time of symptom onset, and specific patterns of effects.
  - Various forms of chemical agent detectors are available for monitoring initial contamination and screening contaminated patients.
- Detection of incendiary or nuclear device use will be obvious from the large explosion, fire, and infrastructure damage.
  - Patients may present with the typical primary, secondary, or tertiary blast injury patterns.

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Chemical properties of hazardous materials, radiation and effects of exposure

- Biological agents are typically not detected initially.
  - Signs and symptoms of those exposed would follow the normal incubation period, prodromal, and symptomatic stages of any infectious disease process.
- Unlike chemical and biological detection, the physical effects of radiation exposure may not be appreciated immediately following exposure, and radiation cannot be detected by human senses.
  - Handheld instruments, such as survey meters and dosimeters, are available for detecting and measuring radiation

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Toxic respiratory challenges

- Can be broadly categorized as oxygen deficient environment or toxic gas
- Toxic inhalational agents can be broadly categorized according to their primary toxic effects:
  - Respiratory irritants and corrosive chemicals
  - Organophosphates and cholinergic agents
  - Hydrocarbon solvents
  - Metabolic poisons.

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Vesicants, incapacitating agents, nerve gas, and irritant gases

- Vesicants
  - Potent alkylating agents
- Incapacitating agents
  - Riot control agents such as CS and OC
- Organophosphates and Nerve Agents
  - May be military grade or civilian pesticide
- Irritant gasses
  - Chlorine, ammonia, phosgene

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Radiation

- Alpha, beta, gamma (and xray), and neutron
- Effects can be summarized by consider 3 elements of exposure:
  - Irradiation-radiation enters and passes through the body as a field
  - Contamination-Radioactive materials collect on the outside of the body
  - Internal exposure-Radioactive materials enter the body.

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Irradiation -DEFENSE!

- Time-obey the clock
- Distance-radiation magic
- Shielding-thicker the better

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Contamination -DEFENSE!

- Simple mechanical means
  - Soap and water
  - Other surfactants
  - Chelating agents
- Prevent from gaining entrance into body

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Ingestion -DEFENSE!

- Don't ingest it
- Protect clinicians
  - At a minimum N-95, R-95, or equivalent mask

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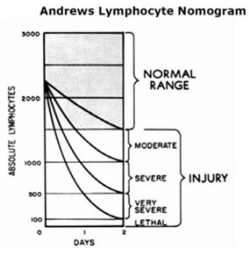
Nomograms to know



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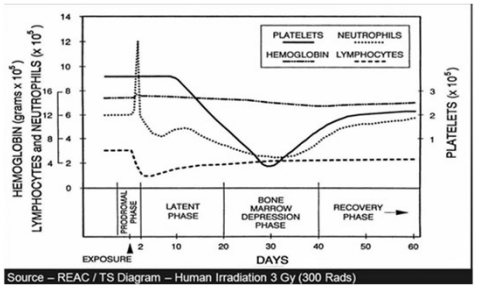
Nomograms to know



Source – REAC / TS Diagram – Human Irradiation 3 Gy (300 Rads)

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Table 105.2 S & S of radiation exposure

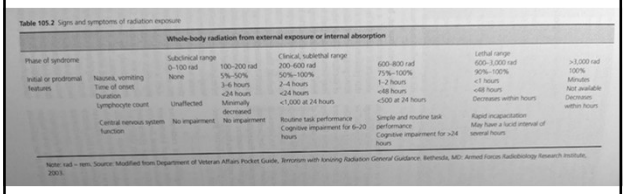

Table 105.2 Signs and symptoms of radiation exposure

	Whole-body radiation from external exposure or internal absorption						
Phase of syndrome		Subclinical range	Clinical, sublethal range			Lethal range	
		0–100 rad	100–200 rad	200–600 rad	600–800 rad	600–3,000 rad	>3,000 rad
Initial or prodromal features	Nausea, vomiting	None	5%–50%	50%–100%	75%–100%	90%–100%	100%
	Time of onset		3–6 hours	2–4 hours	1–2 hours	<1 hours	Minutes
	Duration		<24 hours	<24 hours	<48 hours	<48 hours	Not available
	Lymphocyte count	Unaffected	Minimally decreased	<1,000 at 24 hours	<500 at 24 hours	Decreases within hours	Decreases within hours
	Central nervous system function	No impairment	No impairment	Routine task performance Cognitive impairment for 6–20 hours	Simple and routine task performance Cognitive impairment for >24 hours	Rapid incapacitation May have a lucid interval of several hours	

Note: rad = rem. Source: Modified from Department of Veteran Affairs Pocket Guide, *Terrorism with Ionizing Radiation General Guidance*. Bethesda, MD: Armed Forces Radiobiology Research Institute, 2003.

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Take-Home Points

- Take home points
  - EMS providers are required to respond to hazardous materials incidents and should have a working knowledge or PPE and decontamination
  - The EMS medical director should be involved in preplanning hazardous materials responses to determine the need and extent of treatment protocols
  - Hazardous materials releases take many forms (CBRNE) each with a unique set of detection, decontamination, and treatment needs

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EMS Subspecialty Certification Review Course

4.2.2 Explosive Incidents
4.2.2.1 Improvised Explosive Devices (IEDs) and terrorist activity
4.2.2.2 Community risk assessment
4.2.2.3 Integration with search and rescue
4.2.3 Weapons of Mass Destruction and Related Injury
4.2.3.1 Secondary Devices in Scene Safety

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Learning Objectives

- Review Improvised Explosive Devices and terrorist activity
- Perform community risk assessment
- Integrate with search and rescue missions
- Discuss secondary devices and scene safety

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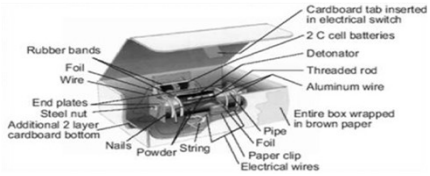
IEDs and Terrorist Activity

- An IED can take virtually any form, and its complexity is limited only by the skill and ingenuity of its builder.
- Components of a device
  - Explosive
  - Means of initiation



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Methods of Initiating IEDs

- Victim Activated
  - Targeted individual introduces a stimulus
    - Stepping on a pressure plate
- Time Activated
  - Timing mechanism will trigger the device at a predetermined time
    - Usually used for random attacks
- Command Activated
  - Controlled by the bomber

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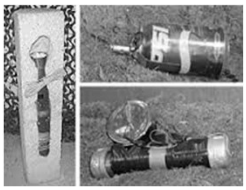
Secondary Devices

- Have been utilized to target first responders
- Increased awareness is key to identification
- Check areas of interest such as command post, routes of ingress/egress etc.
- Consider the concern for secondary devices before committing resources



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Category	Mechanism	Injury Type
Primary	A form of barotrauma, unique to explosions, which causes injuries to air-filled organs	Blast lung, TM rupture, Abdominal hemorrhage and perforation, Globe(eye) rupture, Concussion
Secondary	Trauma caused by the acceleration of shrapnel and other debris by blast	Penetrating ballistic (fragmentation), Blunt injury (deceleration), Eye penetration,
Tertiary	Casualty becomes a missile and is propelled through the air, with typical patterns of trauma	Fracture and traumatic amputation, Blunt chest/abd trauma, Impalement, Closed and open brain injury

6

Category	Mechanism	Injury Type
Quaternary	All other explosion-related injuries, illnesses, or diseases, which are not due to primary, secondary or tertiary mechanisms	Burns (flash, partial full thickness) Crush, exacerbation of underlying medical problems e.g. asthma, inhalation injury,
Quinary	The intentional addition of agents that may result in injury	Radiation, Chemical, Biological (including suicide bombers with HIV, HCV)

7

Blast Injury

- Primary = invisible element of injury
  - Indoor blast increases risk of overpressure injury
  - Think air-filled spaces at risk
- Secondary = traditional penetrating trauma
- Tertiary = fall-like related injuries
- Quaternary = Burns, crush injury, exacerbation of asthma/ COPD etc
- Quinary = Environmental contaminants, chem, bio, rad compounds in device

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Blast injuries

Auditory	Tympanic membrane rupture, ossicular disruption, cochlear damage, foreign body
Eye, orbit, face	Perforated globe, foreign body, air embolism, fractures
Respiratory	Blast lung, hemothorax, pneumothorax, pulmonary contusion and hemorrhage, arteriovenous fistulas (source of air embolism), airway epithelial damage, aspiration pneumonitis, sepsis
Digestive	Bowel perforation, hemorrhage, ruptured liver or spleen, sepsis, mesenteric ischemia from air embolism
Circulatory	Cardiac contusion, myocardial infarction from air embolism, shock, vasovagal hypotension, peripheral vascular injury, air embolism-induced injury
CNS injury	Concussion, closed and open brain injury, stroke, spinal cord injury, air embolism-induced injury
Renal injury	Renal contusion, laceration, acute renal failure due to rhabdomyolysis, hypotension, and hypovolemia
Extremity	Traumatic amputation, fractures, crush injuries, compartment syndrome, burns, cuts, lacerations, acute arterial occlusion, air embolism-induced injury

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9

Community Risk Assessment

- Identification of hazards present in the community
- Consequences of a hazard are associated with the potential to mitigate the event
- Categories of consequences
  - Human impacts
  - Economic impacts
  - Physiologic impacts
  - Functional impacts

10

Community Hazards

- Categories of Community Hazards
  - Life
  - Property
  - Critical infrastructure
- Fusion Centers
  - Receive, Analyze, Disseminate, Gather information and intelligence
  - Owned and operated by state and local entities
    - Support from Federal partners

11

Integration with Search and Rescue

- ESF 9 Urban Search and Rescue (USaR)
- National Response Framework
  - Limited local capacity/expertise for structural collapse
  - Specialized team members
  - Physician is part of the team
  - FEMA is primary coordinating agency

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Task Force capabilities:

- Conduct physical, canine and electronic searches in collapsed structure and confined space environments
- Provide emergency medical and ALS care to trapped victims
- Assess and control gas, electric, and hazmat threats
- Evaluate and stabilize damaged structures
- Operate heavy equipment
- Coordinate public information

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USaR

- Common injuries associated with collapsed structures
  - Fractures/lacerations, closed head injury, multisystem trauma, dehydration
  - Delayed access to patients may result in exacerbations of chronic medical conditions and increased complications of traumatic injuries
  - Compartment syndrome and treatment of rhabdomyolysis is often considered

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Take-Home Points

- USaR teams perform a specialized function. Be familiar with common treatment issues regarding crush injuries and prolonged extrication
- Community risk assessment is performed to determine vulnerability and to develop mitigation strategies
- IEDs are increasing in the domestic environment and have variable mechanisms of creating injury and terror

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EMS Subspecialty Certification Review Course

4.4.1 National Incident Management System (NIMS) & National Response Framework
4.4.1.1 NIMS 100,200, 700, 800
4.4.2 Catastrophic Events
4.4.2.1 State and federal criteria for disaster declaration
4.4.2.2 State emergency mutual aid compacts

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Learning Objectives

- Understand the Federal Response to Terrorism and Disaster
- How EMS fits into a National Response?
- Describe the Structure by which Local, State, Regional, and Federal Agencies Respond
- Understand the Various Specialized response teams
- Describe the Resources available to manage and respond to Large Scale emergencies

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4.4.1.1 NIMS

- Based on FIRESCOPE, the incident management system first developed as the result of lessons learned during wildland fires in the western US during the 1970s.
- Outlines common terminology, concepts, and management approaches regarding response operations.
- It is a simple design, sharing many characteristics with battle proven military command structures.
- Designed to coordinate multiagency multiple jurisdictional responses to large-scale emergencies.
- The need to accomplish a complex mission in the face of proximate threat or hazard distinguishes the ICS management method from other business or public administration practice.

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IS 700 National Incident Management System

NIMS provides a consistent nationwide template to enable all government, private sector, and nongovernmental organizations to work together during domestic incidents.

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IS 800 National Response Framework

- The purpose of the National Response Framework.
- The response doctrine established by the National Response Framework.
- The roles and responsibilities of entities as specified in the National Response Framework.
- The actions that support national response.
- The response organizations used for multiagency coordination.
- How planning relates to national preparedness.

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5

National Response Framework

Consists of five parts: the core document, three sets of annexes, and partner guides.

Core document

- **Who**: roles and responsibilities
- **What**: response actions
- **How**: response organization
- **Planning**: a critical element of effective response
- **Additional resources**: the national response framework resource center

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Annexes

- Emergency support functions
- Support annexes
- The support annexes described functional and administrative processes that are required for each event
  - Critical infrastructure and key resources
  - Financial management
  - International coordination
  - Private sector coordination
  - Public affairs
  - Tribal relations
  - Volunteer and donations management
  - Worker safety
- Incident annexes discussed policies, and the situation (planning assumptions), concept of operations, and responsibilities related to each of the events described.

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Emergency Support Functions

ESFs:

- Provide structure for coordinating federal response to an incident.
- Provide a means to group functions frequently used to provide federal support to states and federal-to-federal support.

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ESF #1: Transportation

Scope:

- Aviation/airspace management and control.
- Transportation safety.
- Restoration/recovery of transportation infrastructure.
- Movement restrictions.
- Damage and impact assessment.

- ESF coordinator/ Primary Agency: **DOT**
- Primary agency: **DOT**

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ESF #2: Communications

Scope:

- Coordination with the telecommunications and information technology industries.
- Restoration/repair of telecommunications infrastructure.
- Protection, restoration, and sustainment of national cyber technologies and information technology resources.
- Oversight of communications within the federal incident management and response structures.

- ESF coordinator: **DHS/National Communications System**
- Primary agencies: **DHS/Federal Emergency Management Agency (FEMA)**

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ESF #3: Public Works and Engineering

Scope:

- Infrastructure protection and emergency repair.
- Infrastructure restoration.
- Engineering services and construction management.
- Emergency contracting support for lifesaving and life-sustaining services.

- ESF coordinator: **DOD/U.S. Army Corps of Engineers (USACE)**
- Primary agencies: **DOD/USACE; DHS/FEMA**

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ESF #4: Firefighting

Scope:

- Coordination of federal firefighting activities.
- Support to wild land, rural, and urban firefighting operations.

- ESF coordinator: **USDA/Forest Service**
- Primary agency: **USDA/Forest Service**

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ESF #5: Emergency Management

Scope:

- Incident management and response effort coordination.
- Issuance of mission assignments.
- Resource and human capital administration.
- Incident action planning.
- Financial management.

- ESF coordinator: **DHS/FEMA**
- Primary agency: **DHS/FEMA**

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ESF #6: Mass Care, Emergency Assistance, Housing, and Human Services

Scope:

- Mass care.
- Emergency assistance.
- Disaster housing.
- Human services.

- ESF coordinator: **DHS/FEMA**
- Primary agency: **DHS/FEMA**

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ESF #7: Logistics Management and Resource Support

Scope:

- Comprehensive, national disaster logistics planning, management and sustainment capability that harnesses the resources of federal logistics partners, key public and private stakeholders, and NGOs to meet the needs of disaster victims and responders.
- Resource support (facility space, office equipment and supplies, contracting services, etc.).

- ESF coordinators: **GSA; DHS/FEMA**
- Primary agencies: **GSA; DHS/FEMA**

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ESF #8: Public Health and Medical Services

Scope:

- Public health.
- Medical.
- Mental health services.
- Mass fatality management.

- ESF coordinator: **HHS**
- Primary agency: **HHS**

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ESF #8: Public Health and Medical Services

Public Health Service

- **Tier I**
  - Public health rapid deployment force our teams with 105 members for deployment within 12 hours
    - There are three such teams
    - Rapid deployment forces (RDF) are designed to staff federal medical stations
      - » 250 bed subacute care medical facility
      - » Set up in buildings of opportunity
  - Incident response coordination teams

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ESF #8: Public Health and Medical Services

- **Tier II**
  - Applied public health teams
  - Mental health teams
- **Tier III**
  - All active-duty commissioned PHS officers not already deployed
- **Tier IV**
  - Inactive reserve corps

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ESF #9: Search and Rescue

Scope:

- Lifesaving assistance and search and rescue (SAR) operations (urban, waterborne, inland/wilderness, and aeronautical).
- ESF coordinator: **DHS/FEMA**
- Primary agencies: **DHS/FEMA/U.S. Coast Guard (USCG); DOI/National Park Service; DOD/U.S. Air Force (USAF)**

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ESF #10: Oil and Hazardous Materials Response

Scope:

- Oil and hazardous materials (chemical, biological, radiological, etc.) response and environmental short- and long-term cleanup.
- ESF coordinator: **EPA**
- Primary agencies: **EPA; DHS/USC**

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ESF #11: Agriculture and Natural Resources

Scope:

- Nutrition assistance.
- Animal and plant disease and pest response.
- Food safety and security.
- Natural and cultural resources and historic properties protection and restoration.
- Safety and well being of household pets.

ESF coordinator: **USDA**

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Additional ESFs

ESF #12: Energy

Scope:

- Energy infrastructure assessment, repair, and restoration.
- Energy industry utilities coordination.
- Energy forecast.

ESF #13: Public Safety and Security

Scope:

- Facility and resource security.
- Security planning and technical and resource assistance.
- Public safety and security support.
- Support to access, traffic, and crowd control.

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Additional ESFs

ESF #14: Long-Term Community Recovery and Mitigation

Scope:

- Social and economic community impact assessment.
- Long-term community recovery assistance to states, local governments, and the private sector.
- Analysis and review of mitigation program implementation.

ESF #15: External Affairs

Scope:

- Emergency public information and protective action guidance.
- Media and community relations.
- Congressional and international affairs.
- Tribal and insular affairs.

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ICS 100 and 200
Incident Command

- One individual is the incident commander. Unified command may include senior representatives of each stakeholder agency or government.
- Methods for orderly transfer of command are routinely used when command is passed from a company level officer to a higher officer as the incident grows in size and complexity.
- Predetermined priorities of an incident commander are:
  - Life safety
  - Incident stabilization
  - Property conservation

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ICS

- The strategies and tactics are designed to address these priorities.
- All responsibility belongs to the incident commander unless specifically delegated
- Constraints:
  - Unity of command
    - Each member of the team regardless of the assigned position reports to and is responsible to only one person
  - Span of control
    - No leader is directly responsible for more than 3 to 7 personnel or functions

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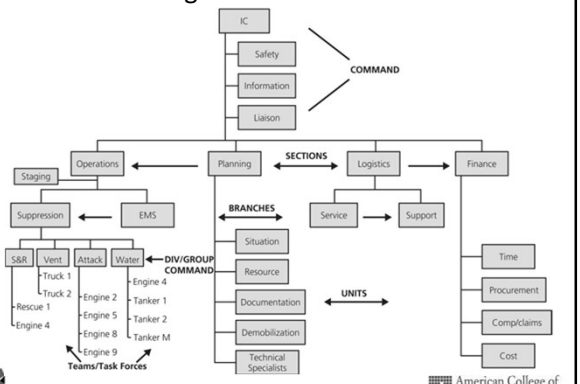
Organizational chart



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ICS

Three staff positions are not included in the IC's span of control constraints:

Safety Officer

- Responsible for seen an overall safety for responders and civilians

Public Information Officer (PIO)

- Information for dissemination to the media and public

Liaison Officer

- Provides a conduit for two-way information exchange between the IC and representatives of other responding agencies

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Definitions

Branch	Branches - when the number of groups exceeds span of control. An EMS branch may be established to supervise multiple groups with EMS-related functions (e.g., triage group, treatment group, transport group). A branch is led by a branch director.
Unit	Units are organizational elements that each have functional responsibility for a specific incident planning, operations, logistics, or finance/administration activity (e.g., situation unit, supply unit).
Single resource	Single resources are defined as an individual or piece of equipment with its personnel complement (e.g., engine company or police officer), or a crew or team of individuals with an identified supervisor.
Task force	Task force is a combination of mixed resources (e.g., four engine companies, four police officers, and a public health epidemiologist) with a common communications capability and headed by a task force leader.
Strike team	Strike team is a set number of similar resources (e.g., four ALS ambulances) with a common communications capability who operate under the command of a strike team leader.

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State Processes

First level of major event– environmental, disease, MCI, etc.

- State Emergency Management Agency (EOC)
- EMAC - Emergency Management Assistance Compact
  - State to state assistance
  - Temporary recognition of licenses
  - Activated by state governor

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4.4.2.2 State emergency mutual aid compacts

At the state to state level, the EMACS system serves to match requests for and the provision of a large number of Emergency response resources.

An affected state simply lists the equipment or services that are in short supply.

Sister states can respond with the needed resource(s), and arrangements are made to cover costs, insurance, necessary bureaucratic paperwork.

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Federal criteria for disaster declaration

- ***How does it happen:***
- ***Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5206, (Stafford Act 1988)***
  - establishes a process for requesting and obtaining a Presidential disaster declaration
  - defines the type and scope of assistance available from the Federal government
  - sets the conditions for obtaining that assistance

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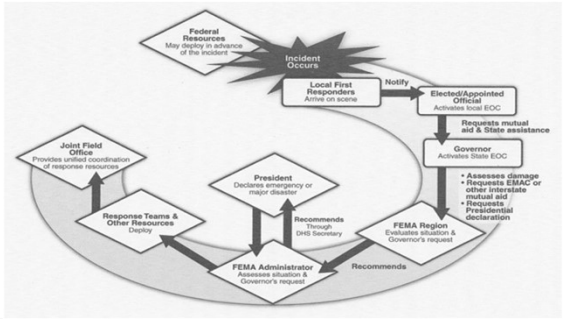
Stafford Act… Domestic Federal Response



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"All requests for a declaration by the President that a major disaster exists shall be made by the Governor of the affected State."

The Governor's request is made through the regional FEMA/EPR office. State and Federal officials conduct a preliminary damage assessment (PDA) to estimate the extent of the disaster and its impact on individuals and public facilities. FEMA/EPR disaster assistance falls into three general categories.

- **Individual Assistance** — aid to individuals and households;
- **Public Assistance —** aid to public (and certain private non-profit) entities for certain emergency services and the repair or replacement of disaster damaged public facilities;
- **Hazard Mitigation Assistance** — funding for measures designed to reduce future losses to public and private property.

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Federal Laws

- **Posse Comitatus Act**
  - Federal military can't act as police/surveillance
  - Exceptions
    - Martial law (civil disorder)
    - Civil defense operations authorized by statute
    - Acting in military role of defense of the country
    - Does not apply to national guard troops under governor's command
- **Restoration Act**
  - President can use federal forces to restore law and order to a state
    - Major public emergency
    - Civil disobedience
    - Must notify congress and repeat every 14 days

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Health and Medical Resources National Disaster Medical System (NDMS)

The NDMS, established in partnership with DOD, FEMA, DHS, and the Public Health Service Commissioned Corps Readiness Force, is comprised of 3 components:

- The volunteer National Disaster Medical Assistance Teams provide onsite medical care.
- The Global Patient Medical Requirements Center (GPMRC) coordinates transportation out of the area for victims and works in conjunction with the US Transportation Command for airlift capability.
- Definitive care of these patients is provided by ~1500 volunteer hospitals across the US.

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Specialized Teams

- DMATS
  - Volunteer system that provides onsite medical care.
  - Often located near damaged medical facilities
  - "Emergency departments in a tent" that supply a broad range of patient care and evacuation services.
- USaR: (28 Federal Urban Search and Rescue teams)
  - Capable of responding to heavily reinforced structural collapses.
  - Consist of ~85 on-site personnel
  - Completely self-sustaining operation for 14+ days
  - Include advanced medical, communication, search, and rescue capabilities.

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WMD CSTs: Weapons of Mass Destruction Civilian Support Teams
- Full time National Guard personnel, trained and equipped by the federal government.
- Often considered state resources until activated by the federal government
- Capable of initial recognition and decontamination of a variety of WMD agents.

Public Health Service
- Tier I
  - Public health rapid deployment force our teams with 105 members for deployment within 12 hours
    - There are three such teams
    - Rapid deployment forces (RDF) are designed to staff federal medical stations
  - Incident response coordination teams
  - Emergency management group support teams

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Public Health Service

- Tier II
  - Applied public health teams
  - Mental health teams
- Tier III
  - All active-duty commissioned PHS officers not already deployed
- Tier IV
  - Inactive reserve corps

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Regional Medical Response Corps

Medical Reserve Corp

- Consists of volunteers from all aspects of the community
- MRC supplies medical workers to assist in facilities where the local medical community is overwhelmed, displaced, or unable to meet demand
- MRC can staff shelters, provide medical care to evacuees, and even veterinary services

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Non-governmental agencies

Primarily charitable and/or faith-based organizations who respond to disasters. Often providing food, clothing, and sheltering, agencies such as the Red Cross, Salvation Army, and many religious entities provide a sophisticated and well-organized response capability.

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State and federal assets

- Strategic National Stockpile
- Regional ChemPacks
- Metropolitan Medical Response Systems(MMRS)/Urban Area Security Initiative (UASI) funded caches of medical equipment and medications.
- All these resources are focused on the protection of first responders, the general population, or to resupply overtaxed resources.
  - Usually overseen by contract with local healthcare agencies, they may be managed by Local Health Departments, State Emergency Management Agencies, or the Centers for Disease Control.

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EMS Subspecialty Certification Review Course

4.4.4 Special Response Considerations
4.4.4.1 Allocation of scene resources
4.4.4.2 Provider Credentialing Issues
4.4.4.3 Modified Standards of Care
4.5.2 Technical Rescue
4.5.2.1 Confined Space Care
4.5.2.2 Extrication

2025

1

Learning Objectives

1. Discuss modified standards of care and how it applies to incidents that overwhelm local resources
2. List major considerations of resource management in a disaster
3. Explain the challenges of credentialing
4. Describe the Occupational Health and Safety Administration (OSHA) definition of permit-required confined space
5. Describe the likely injuries in victims of confined space incidents and the hazards of extrication

2

Altered Standards of Care

- Resources are overwhelmed
- Legal standards of care may only be altered by an executive governmental official
  - IOM, 2009: Change in level of care is formally declared by a state government in recognition of a crisis to offer legal and regulatory protection for emergency responders FOR A DEFINED TIME PERIOD.
- Ethical standards may also be affected – local, dynamic
  - Example, reuse of multidose vials
  - Changes minute to minute based on available resources
  - Focus on "the greatest amount of good for the greatest number"

3

Altered Standards of Care

5 Key elements to 'crisis standards'

1. **Ethics**: fairness, duty to care, steward of resources, transparency, consistency
2. **Community and provider engagement/education**: community trust, values, resilience building
3. **Legal authority/environment**: standards of care, scope of practice, mutual aid, govt emergency declarations, liability
4. **Indicators/triggers**: Situation awareness, illness/injury, social disruption, resource availability, staffing availability
5. **Clinical processes and operations**: committees, resource-sparing strategies, ICS principles, consistencies across regions, coordination, attention to vulnerable populations, communications

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Allocation of Resources

- Macroallocation: Broad policies to distribute resources across a population, e.g., Trauma Center, ICU beds
- Microallocation: Process by which the needs of an individual patient are prioritized above or below those of another.
- Primary principle: "Greatest good for the greatest number"
- Triage algorithms sort based on immediate needs AND greatest likelihood of benefit
- Scarce resource allocation approaches 'rationing'
  - Random, everyone has similar chance
  - Based on quality of life or 'societal value'
- Objective tools developed by consensus before resources become scarce

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Credentialing Issues

- Most providers are credentialed by states or local jurisdictions
- Legal liability is an important EMS clinician concern in decision to participate in disaster response
  - Some states have regulatory language for protection
- Operating outside standard scope may be necessary, depending on the scope of the disaster
  - i.e., paramedics administering vaccinations in a pandemic, paramedics working in emergency departments
- Planning section handles credentialing of providers inside the ICS structure
- Best to plan ahead and address credentialing issues BEFORE the disaster hits

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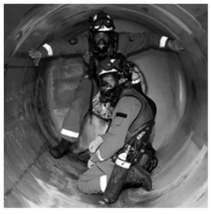
6

Prolonged management 'in the rubble'

Confined Space Medicine (CSM)

7

OSHA definition



- Permit-required confined space has one or more of the following characteristics:
  - Hazardous atmosphere
  - Material that can engulf the entrant
  - Walls or floors that taper into smaller areas that can trap or asphyxiate the entrant
  - Other safety hazards, such as unguarded machinery, exposed live wires or heat stress

8

Rescuer safety in CSM

- Before entering:
  - Train and understand procedures
  - Identify potential hazards and monitor atmosphere O_2 content, flammability, toxicity…
- While in space:
  - Use full PPE, rescue, air monitoring, lighting and ventilation equipment
  - Maintain comms at all times
  - Have an appropriately trained rescue team

*Nitrogen asphyxiation specifically mentioned

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Components of CSM

- Gather patient data early, before contact
- Monitor effects of rescue, environment
- Preposition resources
- Begin assessment as soon as possible
- Initiate stabilization (treatment 'in the rubble')
- Coordinate with rescue
- Reevaluate frequently
- Prepare for handoff

10

Specific Clinical Issues in CSM

- Dust airway impaction: Provide victim with appropriate safety equipment - helmet and face mask
  - Debris impacting the chest wall expansion can also cause respiratory problems
- Asphyxiation due to O_2 displacement
  - Oxygen utilization problematic due to weight, logistics, and fire safety considerations
- Crush syndrome management
- Environmental **hypo**/hyperthermia
- Prolonged care, extrication challenges

11

Question

All of the following factors are required by OSHA for appropriately trained rescue personnel for workplaces with permit-required confined space EXCEPT:

A. All team members trained on appropriate PPE
B. All team members trained in first aid and CPR
C. At least one team member trained in first aid and CPR
D. Practice exercises are conducted at least annually

12

Question

All of the following factors are required by OSHA for appropriately trained rescue personnel for workplaces with permit-required confined space EXCEPT:

A. All team members trained on appropriate PPE
B. All team members trained in first aid and CPR
C. At least one team member trained in first aid and CPR
D. Practice exercises are conducted at least annually

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Take-Home Points

- When resources are scarce, standards may need to change, plan in advance
- Credentialing of providers outside of the system may be needed, legal concerns
- Management in confined space has specific hazards – monitor environment, be prepared for prolonged patient management in place

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EMS Subspecialty Certification Review Course

4.5 Special Operations
4.5.1 Tactical

4.5.1.1 Initial responder approach to hostile environment
4.5.1.2 Care in A Hostile Environment
4.5.1.2.1 Bleeding Control
4.5.1.3.1 Hemostatic Agent Use
4.5.1.3 Operational Considerations for Provider and Casualty

2025

1

Learning Objectives

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

- Explain the safety, diagnostic and treatment challenges to working in a tactical environment.
- Explain the importance of being able to function as a tactical team member in order to best care for patients.
- Discuss methods to maintain covertness while assessing and treating patient.
- Describe techniques to assess Circulation, Airway, Breathing and Neurologic status and to address life threatening injuries in an austere environment.

2

Learning Objectives

- Discuss the unique aspects of care in a low/no light environment.
- Describe the priorities during care under fire.
- Discuss caring for patients with limited resources.
- Discuss remote access medical care.
- Describe the phases of combat casualty care.
- Discuss operational considerations for the provider and casualty

3

Introduction

- Prehospital care vs. TEMS care
  - Hostile conditions
  - **Controlled entry**
  - **Austere Environment**
  - **Planning**

4

4.5.1.2 Care in a Hostile Environment

- **Zones of Operation:**
  - Inner Perimeter
  - Outer Perimeter
  - Hot Zone
  - Warm Zone
  - Cold Zone
- NOTE: Zones of Operation are different from Phases of Care (discussed later)

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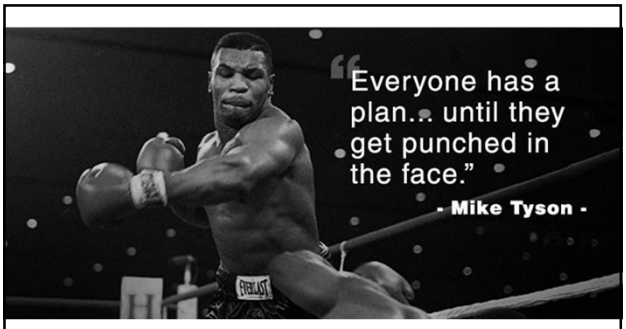

Static vs. Dynamic

6

Zones of Operation (Static)

- Inner Perimeter
  - Tactical area of operations controlled by the Tactical Team
  - Inside the Inner Perimeter is akin to “Hot Zone”
- Outer Perimeter
  - Marks the larger area of law enforcement operations and encompasses the inner perimeter.
  - Outside the Outer Perimeter is akin to “Cold Zone”

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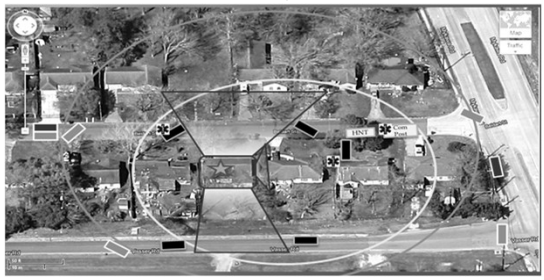
Zones of Operation



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Zones of Operation

- Hot Zone
  - The area of greatest risk of injury
  - This may be due to a known threat or hazardous conditions

9

Tactical Combat Casualty Care (TCCC)

Care under fire

Goals:

1) Treat the casualty
2) Prevent additional casualties
3) Complete mission

10

Tactical Combat Casualty Care (TCCC)

Care under fire

Tx:

1) Prevent further injury
2) Hasty tourniquet application OVER clothing
3) Retreat to safety
4) If CBRN-consider Antidotes if imminent death likely without treatment

11

Zones of Operation

- Warm Zone
  - Potential, but not immediate or direct injury threat

12

Tactical Combat Casualty Care (TCCC)

Tactical field care

1) Medical Care provided in this zone is dictated by assessing the risk/benefit ratio.
2) Spinal immobilization, intubation, IV therapy must be balanced with extrication depending on the perceived level of threat
3) Consider: needle decompression, airway interventions, breathing and circulation assessment and interventions.
4) Evacuation

13

Zones of Operation

- Cold Zone
  - Neither significant danger nor threat exists

14

Tactical Combat Casualty Care (TCCC)

TACtical EVACuation Care (TACEVAC)

- Includes management that is more definitive as the patient is evacuated away from the threat by any available means and is analogous to the cold zone.
- Patients may be assessed and treated without significant risk to either patient or EMS personnel
- More definitive management as the patient is evacuated away from the threat.

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4.5.1.2.1 Bleeding Control

- eXsanguinating hemorrhage
- Airway
- Breathing
- Circulation

16

4.5.1.3.1 Hemostatic Agent Use

- Indicated for topical application to wounds where the bleeding is not amenable to tourniquet use.
- May be used as an adjunct to tourniquet use if the tourniquet needs to be removed (beyond two hours).
  - Apply to stump with direct pressure in advance of tourniquet removal. Apply additional dressing as needed (do not remove previous hemostatic agent).

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4.5.1.3.1 Hemostatic Agent Use

- Hemostatic clotting agents still require <u>up to 3-5 minutes</u> of direct pressure
  - Fibrin
  - Chitosan
  - Zeolite
  - Smectite
  - Kaolin (Combat Gauze)

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4.5.1.3 Operational Considerations for Provider and Casualty (Airway)

- Assessment using senses other than vision
  - Touch and sound
  - Integrity of bony structures?
  - Airway Sounds?
- Treatment without light
  - NPA/OPA
  - Supraglottic Airway
  - ~~Laryngoscope~~
  - Nasotracheal or Digital Intubation
  - Surgical Airway

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4.5.1.3 Operational Considerations for Provider and Casualty (Remote assessment)

- Patient assessment from a distance.
  - Binoculars, Spotting Scope, Rifle Scope, NVG.
- Assessing potential viability in order to make strategic rescue decisions.
- Medicine Across the Barricade
  - Hostage negotiators generally do all the talking, TMP's advise
    - TMP's should keep questions/conversation to medical issues.
  - Injured tactical operator

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4.5.1.3 Operational Considerations for Provider and Casualty

- Team Safety
  - Operational Security (OPSEC)
  - Prevention (eye protection, etc)
- Considerations:
  - Ingress and Egress routes/Obstacles?
  - Casualty Collection Points/Holding Areas?
  - Ambulance Exchange Points
  - Staging areas for Ambulances
  - Site Access/Security
  - Landing Zone Selection
  - Duration of operational period and work/rest cycles

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4.5.1.6 Operational Considerations for Provider and Casualty

- Paramedics trained in tactical methods
- Officers trained as paramedics/EMT's
- Physician tactical team members

- Armed/Unarmed?

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Take Home Points

- This is part of the Special Operations Section of the Core Curriculum which accounts for 20% of the examination.
- Patients are *extracted* from the Inner Perimeter/HotZone while being provided *Care Under Fire* which is minimal (hemorrhage control, open airway).
- May or may not get slightly more definitive, *Tactical Field Care* in the Warm Zone between the Inner and Outer Perimeters depending on Operational Considerations

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Take Home Points

- *Tactical Evacuation Care* occurs outside the Outer Perimeter in the Cold Zone, and the patient is *evacuated* to an appropriate hospital.
- Must be able to operate with limited resources, limited support, in environments of sensory deprivation or sensory overload.
- Planning is paramount.
- Versatility is necessary.

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4.5.4 Wilderness EMS Systems



2025

1

Learning Objectives

- Describe the **challenges** of patient care in **Wilderness EMS (WEMS)**
- Discuss **evacuation/non-traditional transport options**
- Coordinate WEMS into a **multi-agency response**
- Recognize **personal survival/technical skills** required in wilderness/remote environments

2

Question

- The risk of performing some appropriate medical interventions in a wilderness EMS setting may outweigh the benefit at that time (i.e. starting an IV in an avalanche slide path).
  a. True
  b. False

3

WEMS Introduction

- Definition: "*an area where fixed or transient geographic challenges alter requirements for, or the availability of, medical or patient movement resources*"
- Wilderness Medicine: *medical care delivered in wilderness areas*

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Where is the Wilderness?

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Why is the Definition of Wilderness Important?

- WEMS clinicians may be authorized to follow operationally specific protocols when in a "Wilderness Environment"
- WEMS can be defined as the *systematic* and *pre-planned* delivery of wilderness medicine by formal health care clinicians

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Are "Wilderness Medicine" and "WEMS" Equivalent?

- Wilderness Medicine: the general care of patients in an austere or wilderness setting.
  - Assumes unexpected and opportunistic care
- WEMS: a team that has specifically trained for a particular type of emergency medical response to a particular set of environmental challenges, specifically configured to that locality and maintaining a formal wilderness certification.

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Epidemiology: Out of Hospital (Not Prehospital!)

- US National Park Service
  - Equal numbers medical and trauma
  - 0.9 nonfatal events per 1M visitors
  - 77% non transport
  - Deaths: 78% male, heart disease>drowning>falls

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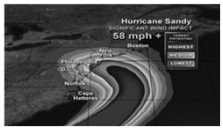
WEMS Introduction

- Remote/Austere/Resource limited environments
  - Specialized Skills, Expertise, Equipment needed
  - Could be related to a disaster in an urban setting
  - Not just based on a '2 hour transport time'



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WEMS Skill Levels/Scope of Practice

Basic Life Support (BLS)

- Wilderness First Aid (WFA)
  - 8 hours
- Wilderness First Responder (WFR) & Wilderness EMR*
  - 60-80 hours: Most Common for guides, SAR teams, etc.
  - *State cert; duty to act..
- Outdoor Emergency Care Technician (OEC-T) – NSP
  - 100 hours
- Wilderness EMT
  - EMT + 48-80 hours

Advanced Life Support (ALS)

- Wilderness AEMT(>WEMT<Paramedic)
- Wilderness PM not formally recognized
- Wilderness Mid Level Providers (PA, NP, etc.)
- Wilderness Physician

ALS providers generally obtain traditional training and then take specialized courses to augment their wilderness skills.

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Wilderness Physician Medical Oversight

- Significant challenges
  - Remote operations
  - Direct oversight may not be possible
  - Direct telephonic consultation may not be possible
- Optimal
  - Involvement in field operations at minimum w training
- If Direct Oversight: must be fully operational

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WEMS Patient Care Challenges

- Risk vs. Benefit of Time/Evacuation/Patient Care
  - **'Stay and Play'**
    - Stabilize first, then evacuate
    - Airway, Pain Control, Splinting
  - **'Scoop and Run'**
    - Evacuation takes priority over patient care.
    - Generally in technical environments (avalanche path)

- Direct and Indirect Medical Oversight should be provided by a physician with WEMS experience

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Specialized WEMS Protocols

- **Wound Care**
  - Irrigation, simple debridement, ongoing wound assessment, antibiotic administration
- **Termination of CPR after 30 minutes**
  - Longer attempts may be considered in: hypothermia, lightning, and cold water drowning cases
- **Reduction of Joint Dislocations**
  - Shoulder (indirect trauma), Patella, Digits

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Specialized WEMS Protocols (cont.)

- **Selective Spinal Immobilization (SSI)**
  - Spinal immobilization dramatically increases the difficulty of the extraction and increases rescue time
  - Increased risk to patient and rescuers (potential for spine injury may not justify this additional risk)
  - EMS providers can effectively work with SSI protocols
- **Anaphylaxis and Severe Asthma**
  - Epinephrine, Steroids, Histamine Blockers

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Evacuation/Non-Traditional Transport

- **Rehab the Patient** (i.e. feed, water, rest)
  - So the patient can walk out under their own power
- **Ground Rescue**
  - Improvised Carry Device/Splint (rope litter, backpack, etc.)
  - Wheeled Litter
  - Horse
  - All Terrain Vehicle (ATV)

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Evacuation/Non-Traditional Transport

- **Technical Rescue**
  - High Angle (cliffs) / Low Angle (side of steep roads)
  - Cave / Confined Space
  - Snow / Ice / Crevasse / Glacier / Avalanche
  - Swiftwater (river) / Stillwater (lakes)
  - Helicopter (short haul / hoist)
  - Fixed Wing (Civil Air Patrol, remote access)
- **Risk vs. Benefit of overall operation**

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Multi-agency Response

- WEMS should **function within** the **established health care system** (not outside of it)
- Wilderness Search and Rescue can be **complex** involving the **interface of several EMS agencies** (SAR, Traditional EMS, Helicopter EMS, etc.)

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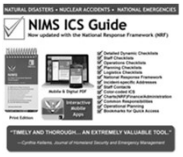
Multi-Agency Response (cont.)

- Unified Command under the **Incident Command System** (National Incident Management System)



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Multi-Agency Response (cont.)

- **Communication** is often difficult due to remote locations or loss of infrastructure
  - **Standing Orders** for WEMS providers is essential
- **Pre-planning** high likelihood rescues can optimize/coordinate the WEMS response
- **Interagency training** in a region will dramatically increase response capability

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Personal Survival/Technical Skills

- WEMS Providers must:
  - Have **medical skills set and tools adapted to the wilderness** environment
  - Be able to **operate safely and travel/engage the technical terrain**
  - Care for not only patient but also operate independently in austere environments
  - Possess **survival skills**

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Take-Home Points

- WEMS is practiced anywhere there is **patient care in a resource limited environment**
- WEMS Providers must have the **medical decision making** tailored to the **risk vs. benefit** of the environment
- WEMS Providers must be able **to operate independently** in the wilderness environment
- Wilderness EMS is part of the EMS Core Content
  - Special Operations (20% of test items)

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Question

- Wilderness/Austere environments are best defined as:
  a. Any location where the typical EMS resources are not able to easily access the patient
  b. Only when there is an over 2 hour transport time
  c. Only in remote unpopulated areas
  d. Only in 3rd world countries

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References

- Millin MG, Hawkins SC, Smith W. Chapter 19 – Wilderness EMS. In: Bass RR, Brice JH, Delbridge TR, Gunderson MR, ed. *Medical Oversight of EMS – Volume 2*. Dubuque, IA:Kendall Hunt/NAEMSP 2009:229-238.
- Hubbell FR. Chapter 36 – Wilderness EMS and Response Systems. In: Auerbach PS, ed. *Wilderness Medicine.* 6th ed. Philadelphia, PA: Elsevier/Mosby; 2012
- Bledsoe GH, Manyak MJ, Townes DA, ed. *Expedition & Wilderness Medicine.* Cambridge, NY: Cambridge University Press; 2009.

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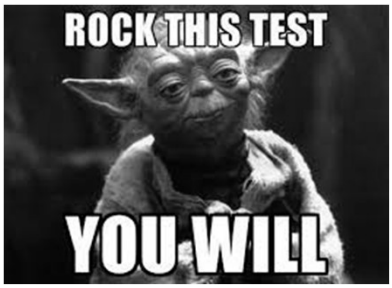

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