Module Five: EMS System Responsibilities

Wisconsin EMS Medical Director's Course

Objectives

- Outline five factors that should be considered when planning EMS for a mass gathering
- Outline the EMS Component of the Incident Command System
- Discuss key issues in prehospital research
- Discuss potential for EMS involvement in public health

Overview of the Module

- Disaster Management
- EMS at Special Events
- EMS Research
- Public Health Issues

Disaster Management

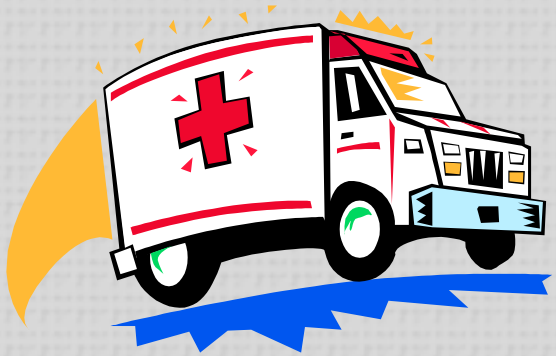
- Definitions
- Phases of Disaster Management
- System Components
- Incident Command System
- EMS Sector Operations
- Triage, Treatment, Transportation and Staging
- Communications
- Interagency Cooperation
- The Government's Role
- Special Situations

Definition of Disaster

- Any event that overwhelms the capabilities and resources of the local emergency response system
- Disaster management is synonymous with emergency management

Mass Casualty Incident

- Mass casualty incident (MCI) is an event that produces multiple casualties



Phases of Disaster Management

- Mitigation
  - Efforts to reduce the impact before disaster strikes
- Planning
  - Efforts to prepare for an emergency response to disaster
- Response
  - Efforts to manage the impact after disaster strikes
- Recovery
  - Restoring the community to pre-impact status

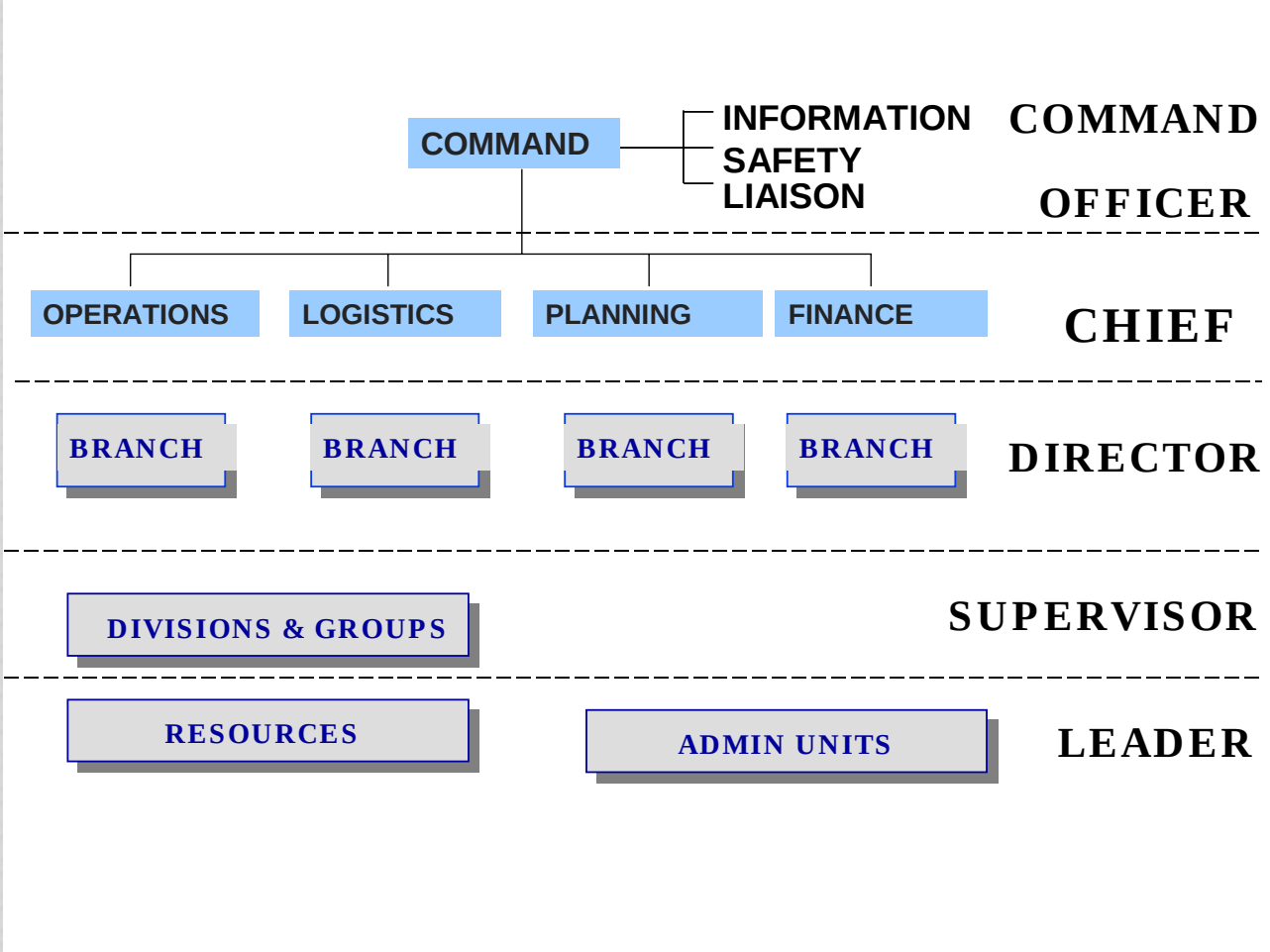
Disaster Response System

- Planning
- Mutual aid agreements
- Notification
- Multi-agency response
- Incident Command System (ICS)
- Search and Rescue
- Triage
- Communication
- Treatment
- Transportation
- Evacuation
- Debriefing/Mental Health Support
- Recovery
- Record Keeping

Incident Command System (ICS)

- Set of personnel, policies, procedures, facilities and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities
- A structured organizational system that defines the lines of authority and responsibility

ICS Terminology



ICS Concepts

- Unified Command
  - All agencies involved contribute to the command process
- Command Post
  - One location on-scene where all agency representatives involved in the unified command meet to direct operations
- Emergency Operations Center (EOC)
  - An off-scene resource center to coordinate and support disaster management activities during large or complex emergencies

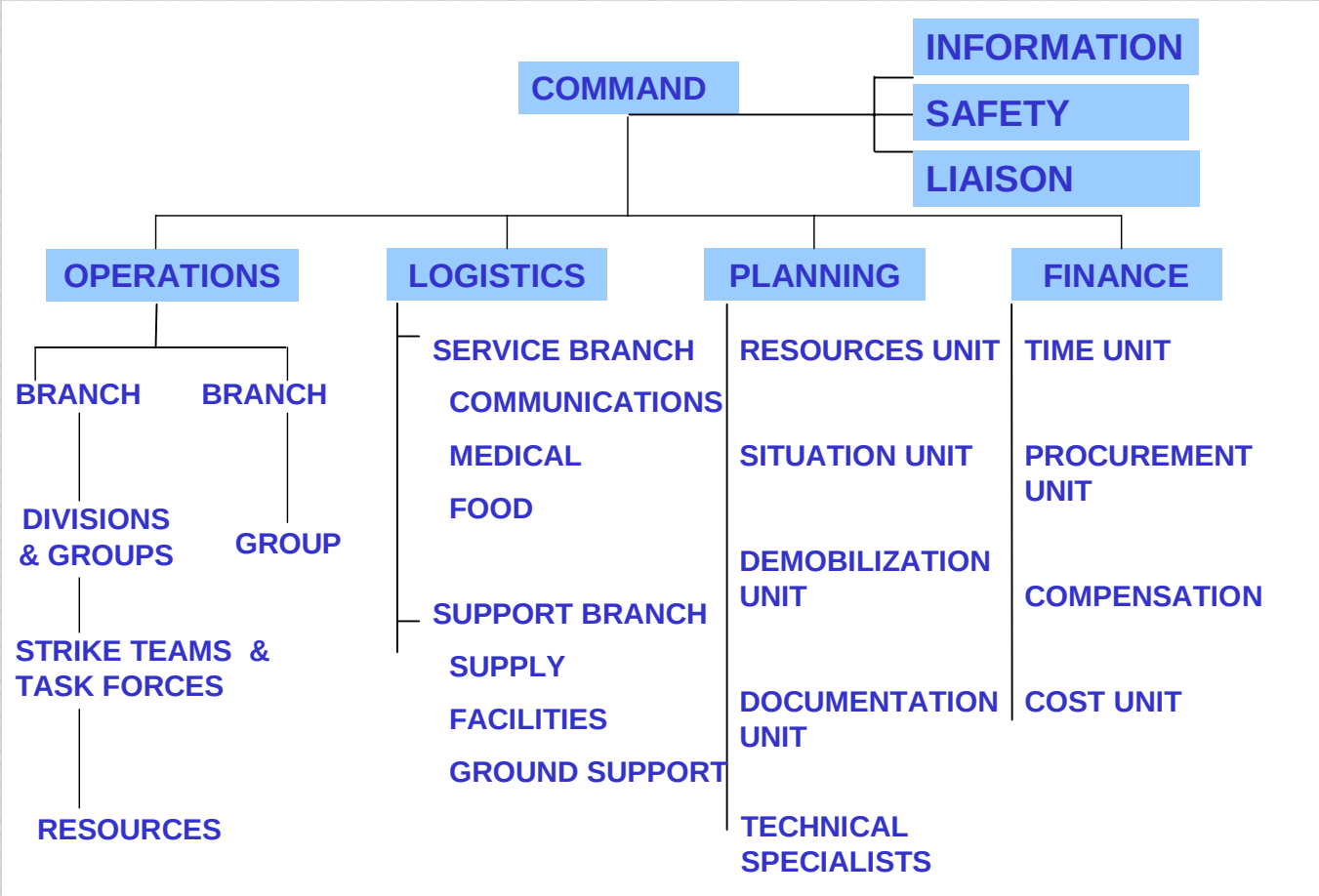
ICS Concepts – (cont.)

- Integrated Communications
  - Managing scene communications with a communications plan
- Action Plan
  - Mental or written plans to achieve strategic goals, tactical objectives and support activities
- Comprehensive Resource Management
  - Identifying and monitoring activities to promote effective resource utilization

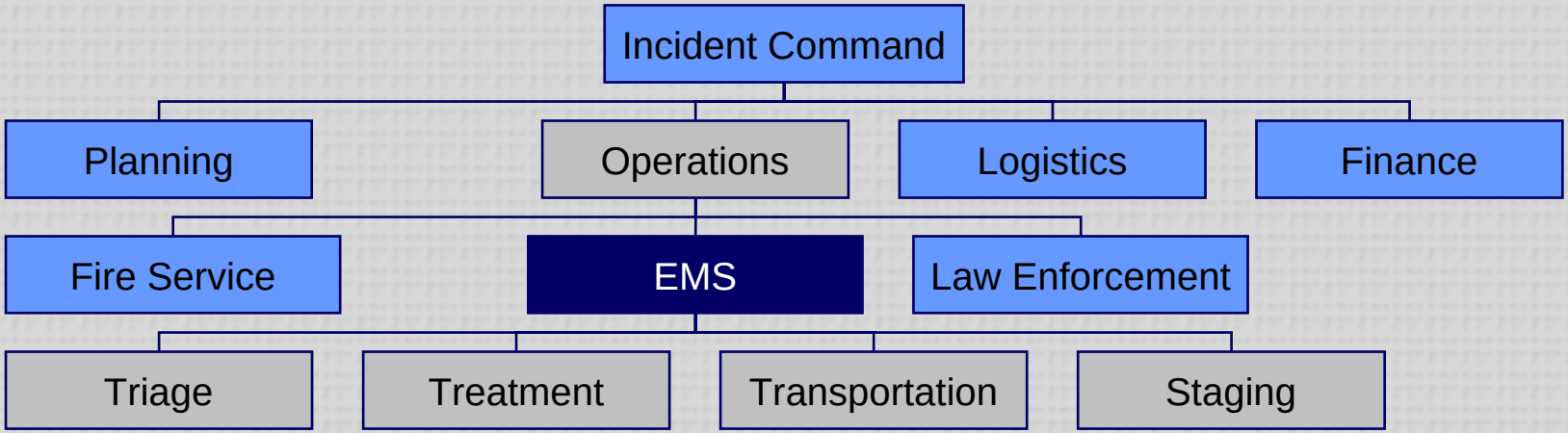
ICS Concepts – (cont.)

- Span of Control
  - Number of subordinates one manager can effectively supervise
- Modular Format
  - Five functional areas of the ICS (Command, Operations, Finance, Logistics and Planning) are added as the size and complexity of the incident require
- Staging Area
  - Place where resources assemble while waiting to execute a specific assignment

ICS Structure



EMS in the ICS



Incident Commander Role

- Incident commander is usually the fire chief of the jurisdiction where the disaster occurs
- Law enforcement may be required to assume this role in criminal events
- Large or complex events may require state or federal officials to assume incident command

EMS Physician Role in ICS

- Physician role is controversial and not specifically defined
  - Physicians tend to be too detail oriented which makes them less effective at disaster scenes
  - Well trained prehospital providers can adequately manage triage, treatment and transportation duties
  - Physicians likely to be more effective in the emergency department than on-scene
  - Physicians may play specialized roles in the care of entrapped patients

ICS and Hospital Disaster Plans

- Joint Commission on the Accreditation of Hospital Organizations (JACHO) requires hospitals to integrate ICS into hospital disaster plans
- More information available in *Hospital Emergency Incident Command System*, developed by San Mateo Health Services Agency

EMS Branch Operations

- Three work groups
  - Triage
  - Treatment
  - Transportation
- The EMS Branch Director reports to the Operations Section Chief
- Triage, treatment and transportation group supervisors report to the EMS Branch Director

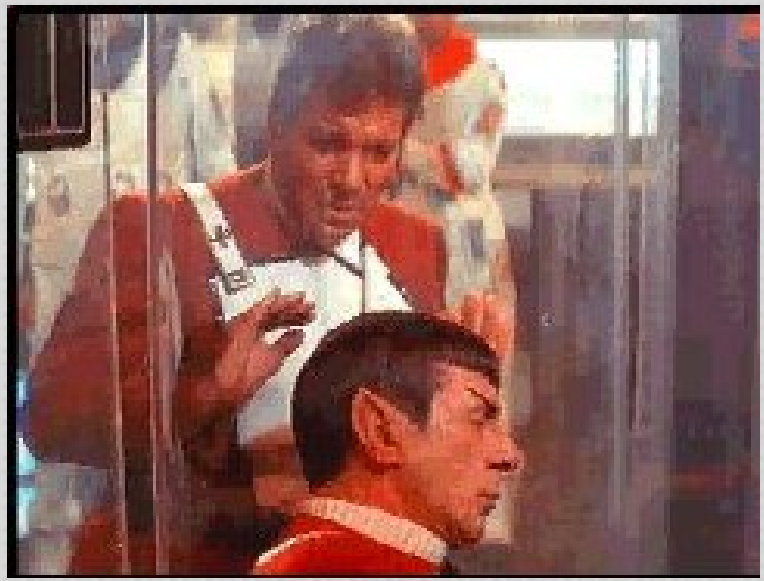
Triage Overview

- From a French word meaning “to sort”
- The goal: to provide the greatest good for the greatest number
- The major pitfalls: getting lost in the details of patient care and trying to resuscitate the dead
- Requires a method for sorting wounded into priority categories

Triage Overview (cont.)

"The needs of the many outweigh those of the few or the one."

- *Mr. Spock, before making the ultimate sacrifice in "Star Trek II: The Wrath of Kahn"*



Triage Groups

- Immediate
  - Those who will live ***because*** of what we do
- Delayed
  - Those who will live ***regardless*** of what we do
  - Can wait for treatment until immediate group is cared for
- Non-transport
  - Those who will die ***regardless*** of what we do
  - Resources should not be devoted to this group

Immediate

- Individuals with potentially salvageable injuries
- Respiratory
  - Obstructed Airway, Tension Pneumothorax, Open Pneumothorax, Respiratory Distress
- Cardiovascular
  - Major Hemorrhage, Shock, Cardiac Tamponade, Major Burns
- Neurological
  - ALOC, Spinal Cord Injury

Delayed

- Individuals with a likely recovery
- Non-ambulatory patients require ambulance transfer (e.g., major orthopedic trauma)
- Ambulatory patients may use other conveyances (e.g., minor lacerations and abrasions, minor orthopedic trauma)

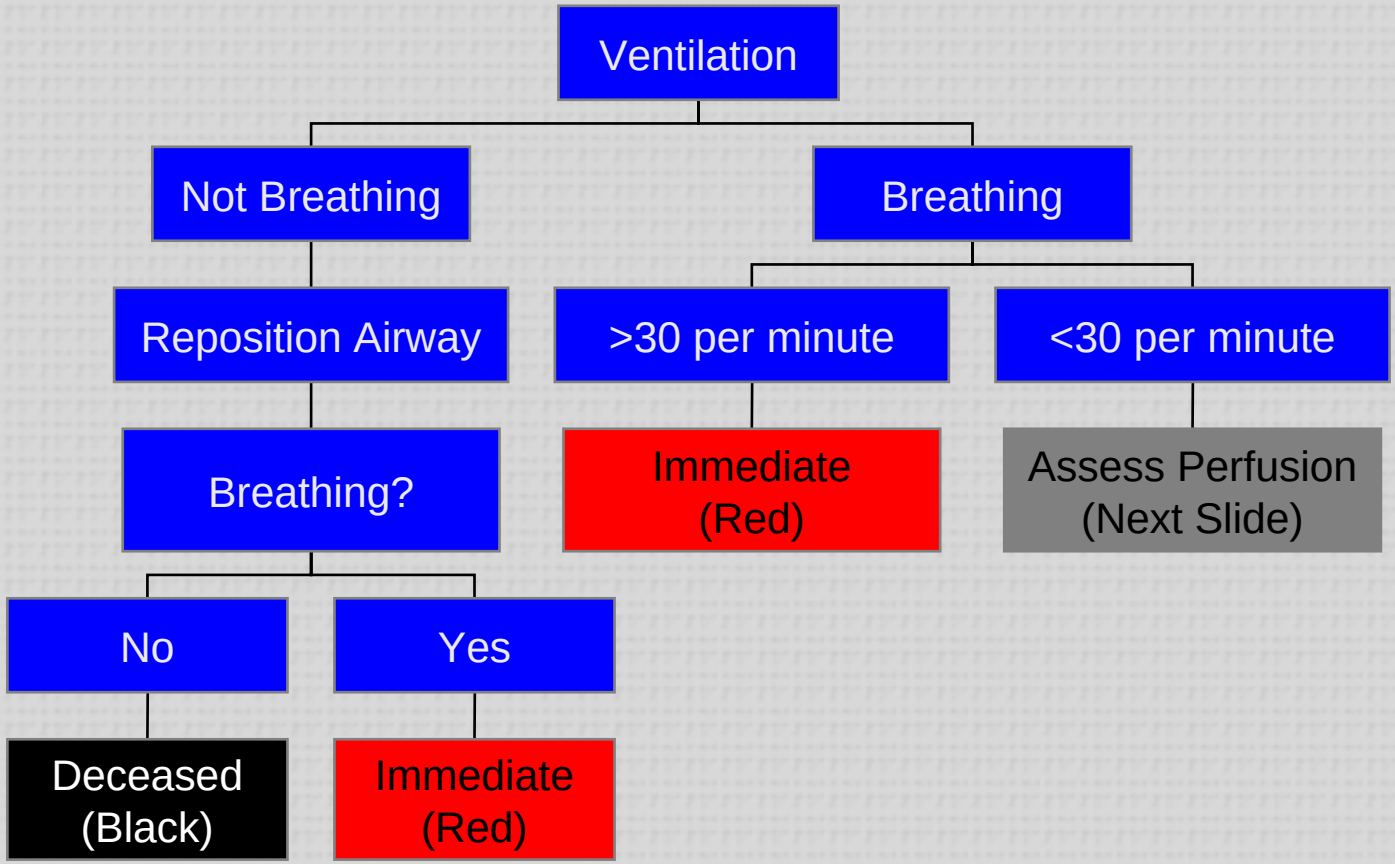
Non-Transport

- Deceased or moribound
- Examples of non-survivable injuries:
  - Decapitation
  - Transected torso
  - Cardiopulmonary arrest
  - Obviously non-salvageable injuries

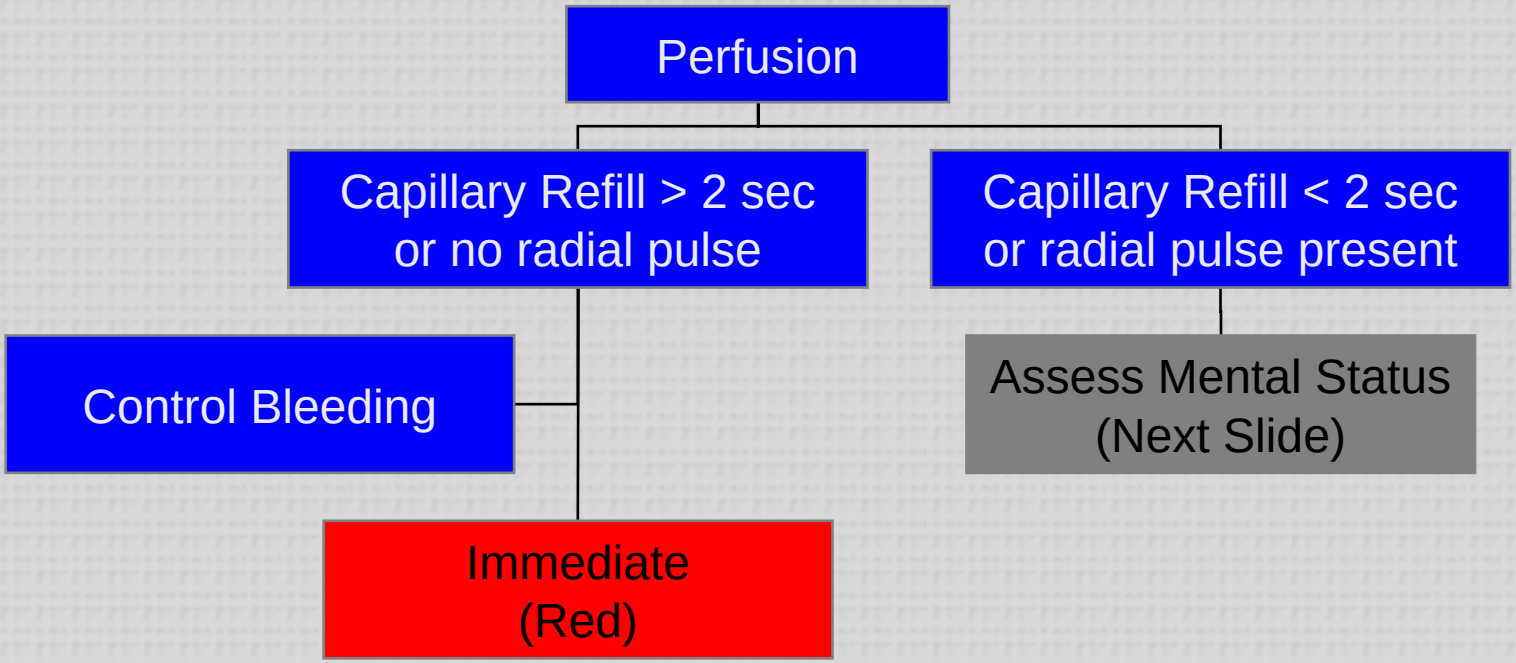
"START" Method of Triage

- START = Simple Triage and Rapid Treatment
- The START method of triage is simple and fast
  - First, assess ventilation (breathing)
  - Next, assess perfusion (circulation)
  - Then, assess mental status
- Tag the patient accordingly, then move on to the next one

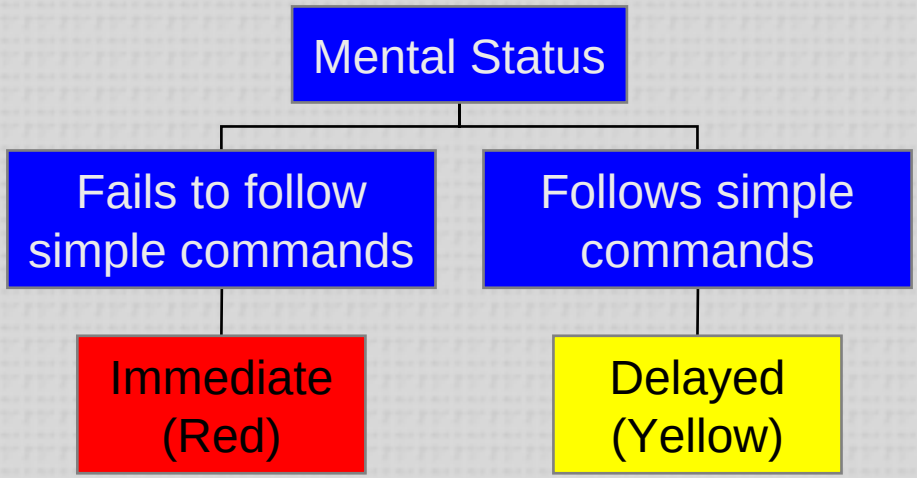
Ventilation Assessent



Capillary Refill Assessment



Mental Status Assessment



Triage Status

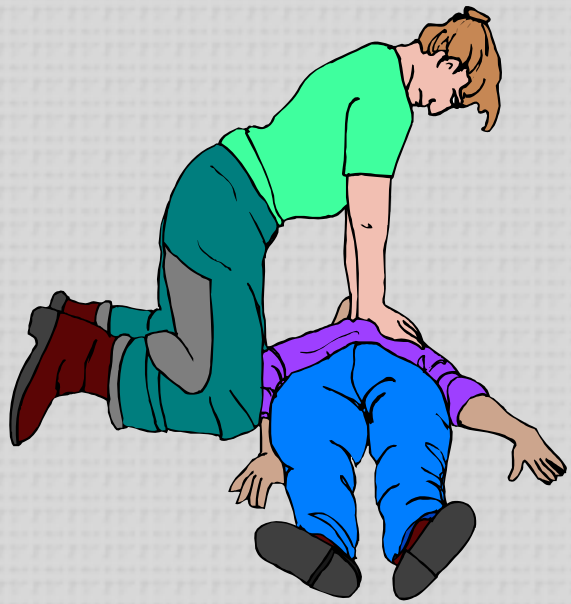
- Ambulatory patients with minor injuries are triaged to a delayed transport status and given a green tag
- If a patient's condition changes, their triage status should be upgraded or downgraded accordingly

Treatment Strategy

- Goal: Keep it simple!
  - Relieve airway obstruction
  - Provide oxygen
  - Control bleeding
  - Initiate fluid resuscitation
  - Immobilize spine and fractures
  - Treat pain

Treatment Strategy (cont.)

- Caveat: Avoid interventions that are labor intensive, time consuming or futile (e.g., CPR)
- Educate providers about the need to distribute resources appropriately



Transportation

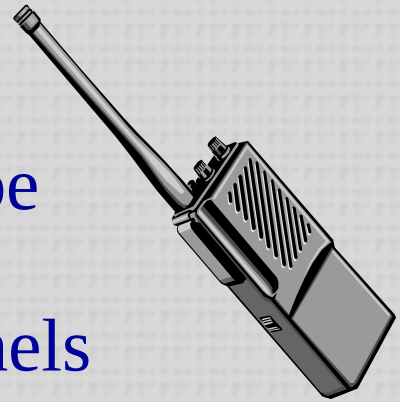
- Don’t transfer the disaster to the hospital
- Distribute casualties as evenly among available hospitals as possible
- Transport casualties to hospitals able to meet their needs
- Carefully track where each patient goes

Staging

- The purpose of staging is to gather all the transport units that will be needed
- Stage close enough to the treatment area to be effective, but far enough away to be safe and avoid traffic congestion
- Staging supervisor must brief crews on their roles and responsibilities

Communications

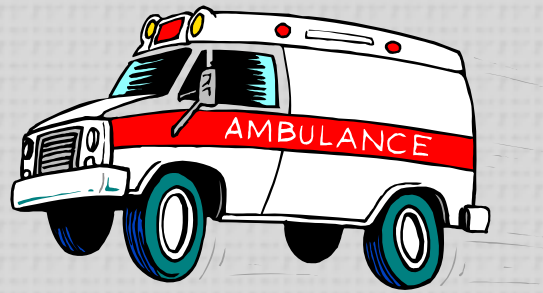
- Increased radio traffic crowds available frequencies
- Cell phones may be ineffective due to crowding of channels
- Dispatch centers may be overwhelmed with phone and radio traffic



- Pre-planning can avert some of these problems
- ICS emphasizes “plain language” instead of “10 Codes”

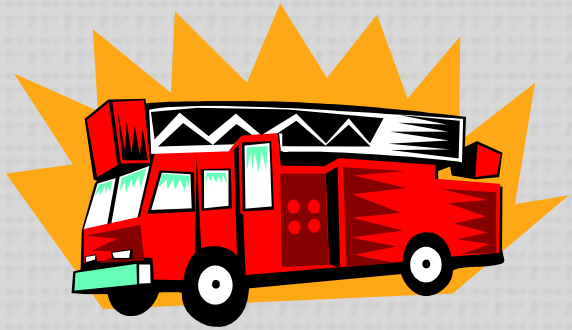
Interagency Coordination/Cooperation

- EMS agencies from different jurisdictions need to cooperate with each other
- Ambulance companies that normally compete must cooperate with each other



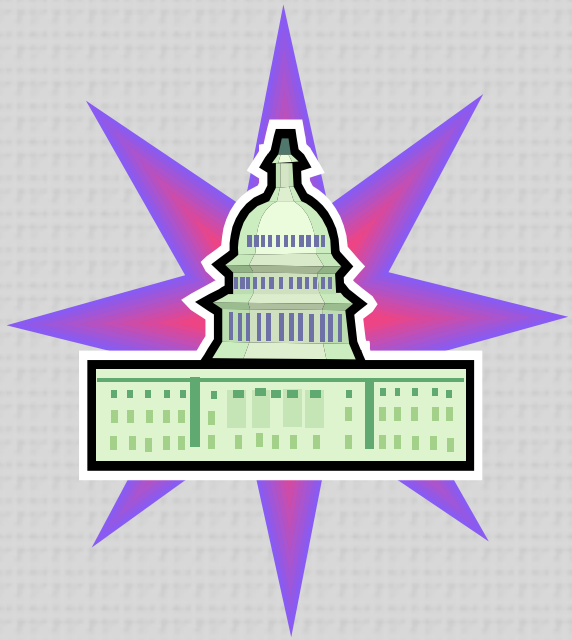
Operational Level Cooperation

- Public safety agencies that normally function under different command and control structures must function as a single team with a common purpose



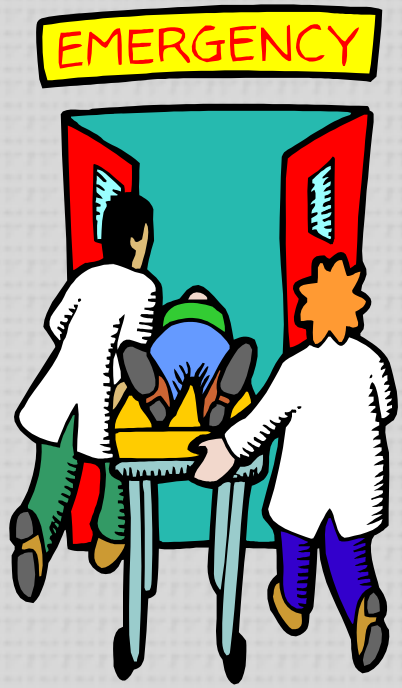
Cooperation with Authority

- Local authorities need to work together with representatives from state and federal agencies
- Private contractors may need to get involved in disaster operations



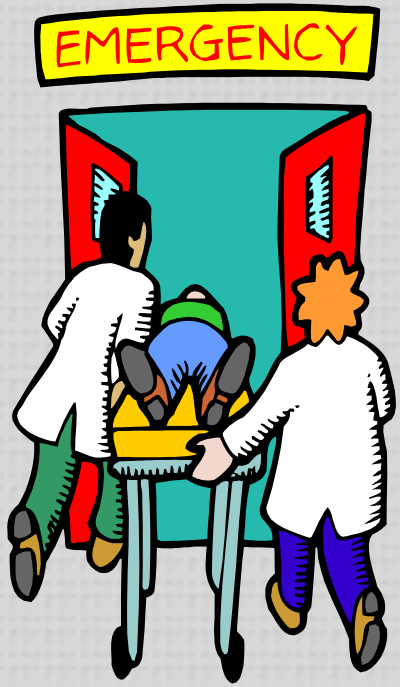
Hospital Coordination and Cooperation

- Hospitals that normally compete need to communicate and cooperate
  - Assure adequate distribution of patients and effective resource utilization



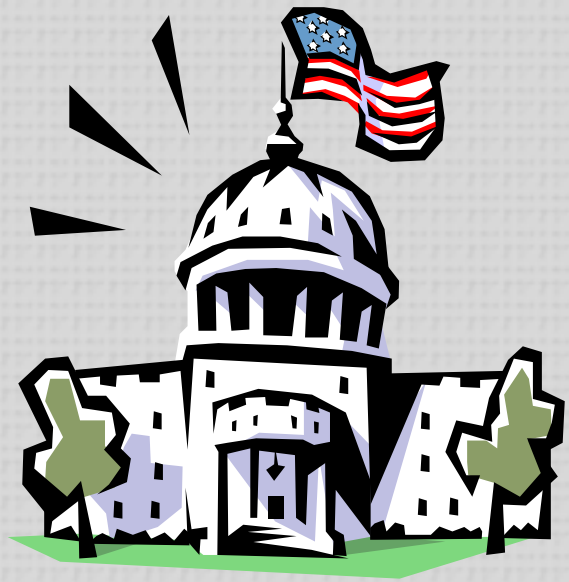
Hospital Coordination and Cooperation (cont.)

- Hospitals in a city, region or network must establish a common plan for communications and cooperation
- EMS physicians must provide the needed leadership



The Government's Role

- Federal Agencies
- State Agencies
- County and Municipal Agencies
- The National Disaster Medical System (NDMS)



Federal and State Emergency Management

- Federal Emergency Management Agency (FEMA)
  - Part of Executive Branch of federal government
  - Regional FEMA headquarters are in Chicago
- Wisconsin disaster management lead agency is Wisconsin Emergency Management (WEM)
  - Six regional offices that oversee activities of county emergency management office
  - Municipalities may also have their own emergency management office

FEMA

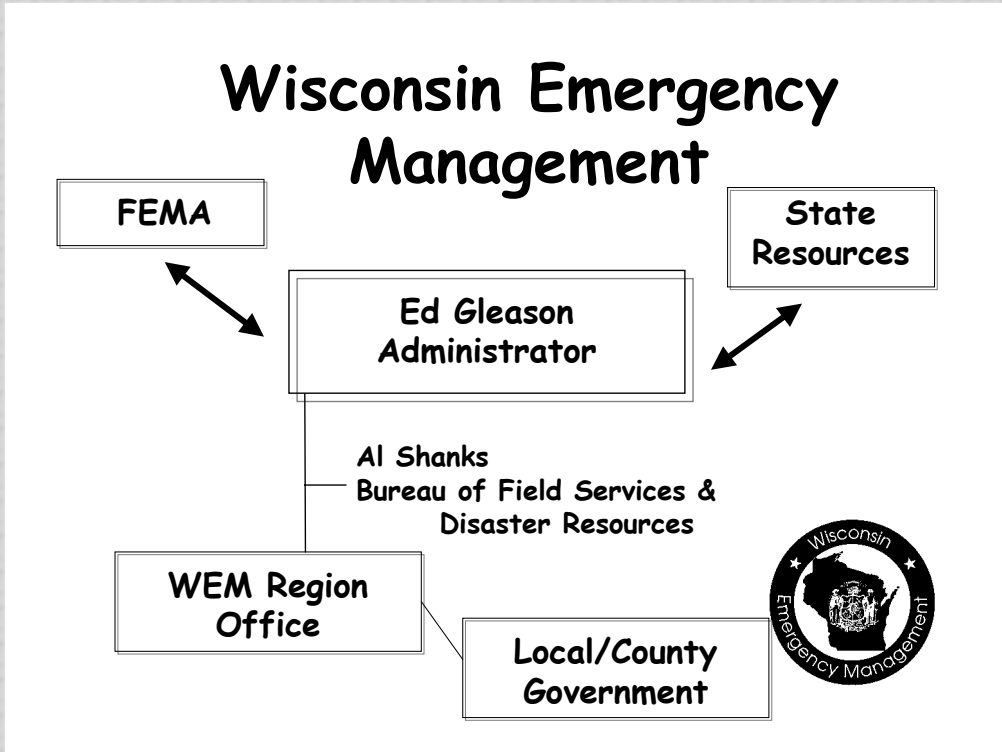
- FEMA is an independent agency of the federal Government
- The director reports to the President
- Mission includes mitigation, planning, response, recovery, prevention and preparedness

FEMA (cont.)

- May become involved in a local disaster with major property loss or when there is a declaration of a federal disaster area
- Federal involvement may be days or weeks after the event

WEM

- Agency within the Wisconsin Department of Military Affairs

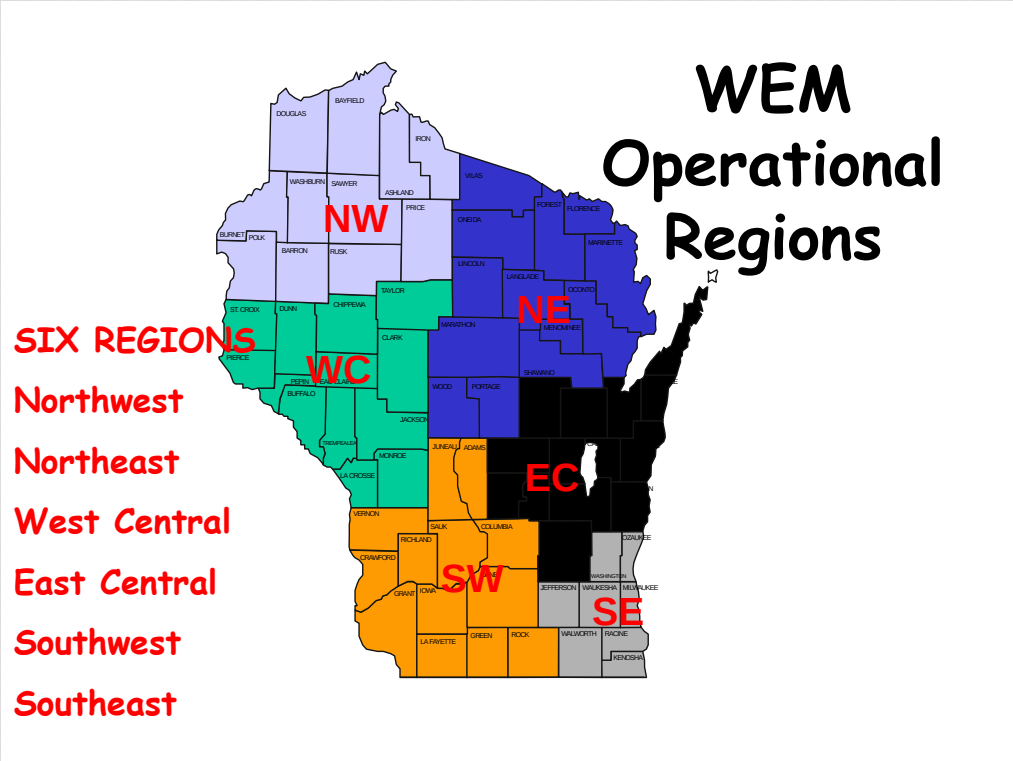


WEM (cont.)

- Functions:
  - Training, Response, Planning and Recovery resources
  - Administrative support
  - Liaison with other state agencies
  - Liaison with federal agencies
  - Coordination

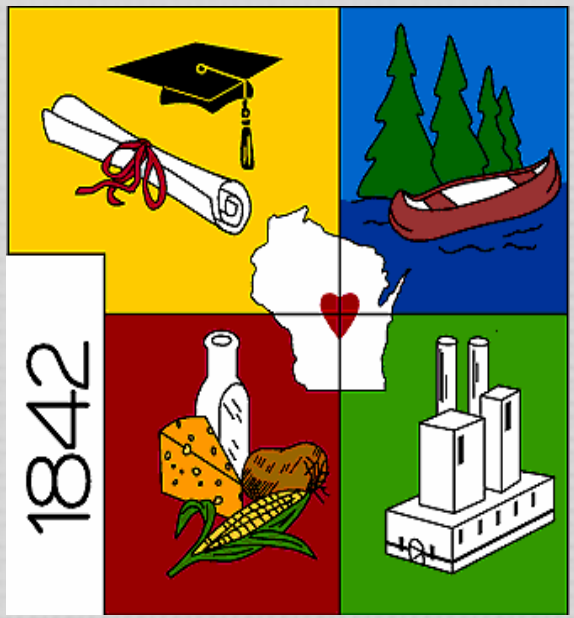
WEM (cont.)

- State assistance is provided when local officials request it
- The state can provide resources not available at the local level



County and Municipal Emergency Management

- All 72 Counties and some municipalities have organized emergency management offices
- Community disaster plans are developed in the Office of Emergency Management



Portage County

National Disaster Medical System

- Established in the 1980s by the DOD, VA, DHHS and FEMA
- Combines civilian, veterans and military hospitals to meet catastrophic disasters of either military or natural origin
- Disaster Medical Assistance Teams (DMAT) include physicians, nurses and EMTs who are organized to respond to catastrophic emergencies

Special Situations

- Hazardous Materials
- Terrorism
- Clandestine Laboratories

All of these situations pose a hazard for EMS, public safety and health care professionals, whether in the form of secondary contamination or booby traps planted to hinder or injure emergency responders!

EMS at Special Events

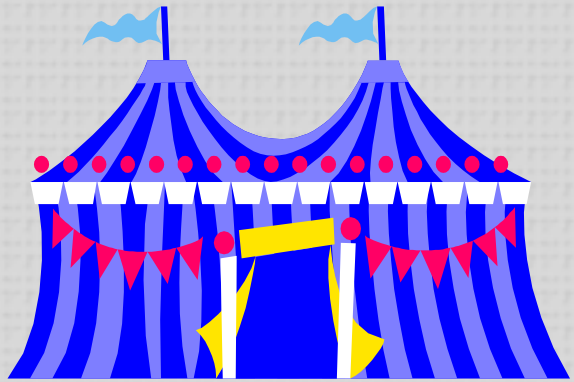
- Wisconsin requires an operational plan for special events
- Considerations of the plan:
  - Analyzing the Event
  - Staffing the Event
  - Interagency Cooperation
  - Financial Issues
  - Safety Issues
  - Preventive Health Issues
  - Record Keeping
  - Planning Guides

Analyzing the Event

- Know the facility
  - Structure
  - Location
  - Physical boundaries of the coverage area

Analyzing the Event (cont.)

- What is the nature of the event?
  - Fairs, concerts, political rallies
  - Indoors or outdoors
  - Stadium, fairground or park land
  - Risk of violence
  - Risk of injuries



Analyzing the Event (cont.)

- Crowd size and demographics
- Associated factors
  - Drugs, alcohol
- Start time
- Duration

Staffing the Event

- Personnel issues
  - Number and type of providers
  - Duty hours and peak load staffing
  - Staff briefings
  - Security issues
    - ID badges
    - uniforms
    - access to secure areas

Staffing the Event (cont.)

- Transportation
  - Number and type of vehicles
  - Pathways for safe access and egress
  - Traffic conditions
- Equipment

Staffing the Event (cont.)

- Aid Stations
  - Fixed stations
    - Number and location
    - Easily identifiable
    - Heating/cooling issues
  - Mobile crews
    - Easily identifiable
    - Portable radios
    - Transportation needs

Interagency Coordination

- Law enforcement
  - local agencies
  - US Secret Service
  - other state and federal agencies
- EMS
- Fire Service
- Event Security
- Military

Financial Issues

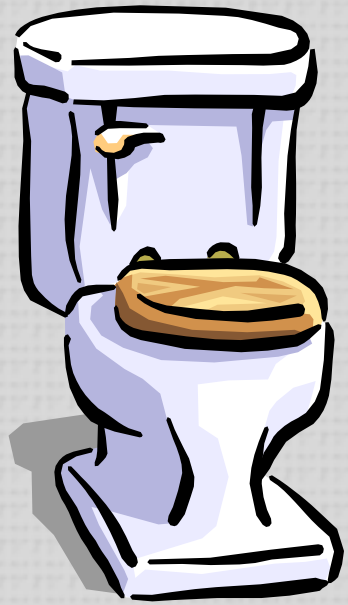
- Support for personnel, equipment and supplies
- Malpractice insurance

Safety Issues

- Scene safety
- Personal security

Public Health Strategies

- Provision of potable water
- Provision of sanitary facilities
- Public information and education



EMS at Special Events

- Medical Record Keeping
  - Patient identification
  - Transfer of records to receiving facilities and follow-up physicians
- Planning Guides for Special Events
  - *Provision of Emergency Medical Care for Crowds*
    - By the American College of Emergency Physicians (ACEP) EMS Committee

EMS Research

- EMS has evolved rapidly
  - EMS research has been slow
- EMS innovations were made prior to development of evidence to support implementation
  - Many implementations are based on studies outside of the prehospital setting
- Volume/quantity of EMS research pales in comparison to other fields of medical research

EMS Research (cont.)

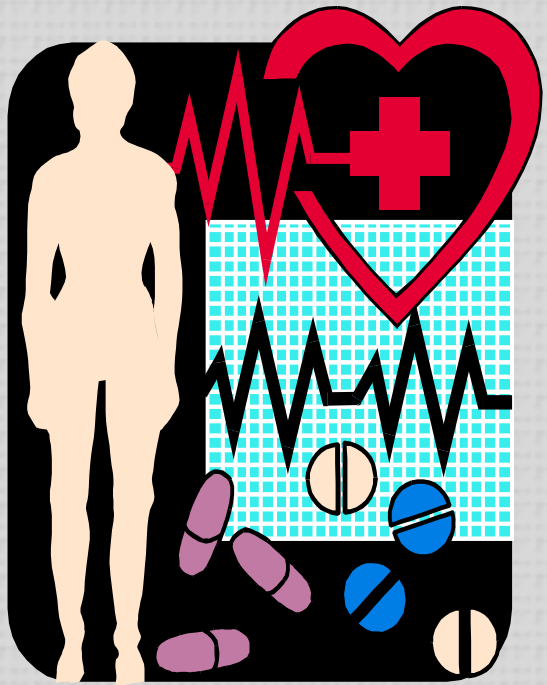
- Research is needed to secure the future of EMS
- To determine the effectiveness, efficacy and efficiency of prehospital emergency care

EMS Research (cont.)

- Lack of informed consent restricts prehospital research
- Lack of funding
- Importance of research is underappreciated in EMS
- Lack of outcomes based research
- Few academic centers committed to EMS research

Ways to Improve EMS Research

- Funding needed
- Commitment of academic physicians & institutions
- Improve quality of prehospital research
- Reduce informed consent barriers
- Refine study methods
- Systems Analysis



Public Health Issues

- Prevention and Control of Injury and Illness
- Role of EMS - Present and Future

Prevention and Control of Injury and Illness

- EMS deals with injuries and illnesses associated with significant morbidity and mortality, which are costly to society and have profoundly negative effects on the community
- EMS providers should work to reduce morbidity and mortality through community prevention efforts
- This requires increasing surveillance activities to identify problem areas
- It also requires involvement in public policy formulation and public information and education

The Role of EMS

EMS at the Present

- Transportation and treatment: sick and injured
- Isolated from other components of the health care system
- Does not make follow-up referrals to other providers
- Not integrated with public health or social services

EMS in the Future

- Expanded role in public health
- Monitoring community health for at-risk and special-needs populations
- Integration with health care providers and networks
- Promulgate public policy for healthier communities