

Chapter 40, Incident Management

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1. Introduction to Incident Management Systems

System	Purpose	Framework Components
National Incident Management System (NIMS)	To promote efficient coordination of emergency incidents at regional, state, and national levels. It provides a framework for effective work among federal, state, and local governments, private sector, and non-governmental organizations.	Communication and information management, resource management, and command management. Standard structure includes ICS, multi-agency coordination systems, and public information systems.
Incident Command System (ICS)	To ensure responder and public safety, achieve incident management goals, ensure efficient use of resources and communication. Goal is to make	A component of NIMS. Sometimes referred to as the Incident Management System.

	best use of resources to manage the environment and treat patients. Designed to control duplication of effort and freelancing.	
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- **Mass Casualty Incidents (MCIs)** refer to any call involving three or more patients.
- An MCI can also be any situation placing great demand on equipment or personnel, requiring a multi-aid response.
- A multi-aid response is an agreement between neighboring EMS systems for assistance when local resources are insufficient.
- These events can be overwhelming due to many patients and limited resources.
- **Disasters** are widespread events disrupting community functions and resources.
- Disasters threaten lives and property.
- Many disasters may not involve personal injuries.
- Unlike MCIs, which generally last only a few hours, disasters can require responders for days, weeks, or months.
- Use of ICS helps do the greatest good for the greatest number of people.
- As an EMT, you typically work within the EMS medical branch under ICS.
- NIMS provides standardization in terminology, resource classification, personnel training, and certification.
- interoperability, the ability of different agencies and jurisdictions to communicate, is a key feature of NIMS.
- Communication is considered the building block of good patient care.
- Using common terminology and clear text communication helps multiple agencies work effectively.

2. Roles and Responsibilities within the Incident Command System

Staff Type	Roles	Key Responsibilities
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General Staff	Command, Finance, Logistics, Operations, Planning	Manages overall incident operations, tactical operations, financial aspects, resources, and problem-solving.
Command Staff	Public Information Officer (PIO), Safety Officer, Liaison Officer	Provides public and media information, monitors scene safety, and relays information among staff and agencies.

- The **Incident Commander (IC)** is in charge of the overall incident.
- Large incidents with multiple agencies may require a **unified command**.
- A **single command system** has one person in charge, even with multiple agencies responding.
- EMTs must know who the IC is, how to communicate, and where the command post is.
- In very large incidents, EMTs report to a supervisor under the IC.
- An IC can transfer command to someone with more experience.
- When an incident ends, command should be terminated, and agencies demobilized.
- **Finance** documents all expenditures for reimbursement.
- Finance functions include time, procurement, compensation/claims, and cost units.
- **Logistics** is responsible for communications, facilities, food, water, fuel, lighting, and medical supplies.
- The **Operations section** manages tactical operations at large incidents.
- The Operations section chief supervises personnel working at the scene, assigned to branches, divisions, and groups.
- **Planning** solves problems as they arise.
- Planning obtains data, analyzes plans, and works with other sections.
- Planning develops the **incident action plan**, a central tool for disaster response planning.
- The incident action plan provides clear information on objectives, tactics, and assignments.
- The **Safety Officer** monitors the scene for hazards to responders and patients.
- The safety officer can stop operations if a rescuer is in danger.
- The safety officer should remove hazards before they cause injury.

- The **public information officer (pio)** provides information to the public and media.
- The PIO must keep the media safe and out of the incident.
- PIOs may cooperate in a joint information center.
- The **liaison officer** relays information and concerns among command and general staff and other agencies.

3. Operational Aspects of Incident Management

- **Communications** has often been a weak point in major incidents.
- Integrated communications are recommended so all agencies can communicate quickly.
- Using common terminology and clear text is important.
- Communication allows for accountability and instant communication.
- Using face-to-face communication limits radio traffic.
- Avoid using 10 codes or signals on the radio.
- Communication problems should be worked out beforehand with designated channels.
- Communication equipment must be reliable, durable, field-tested, with backups.
- **Resource Management** involves requesting additional resources when needed.
- Upon arrival, responders should **check in** with the incident commander or supervisor.
- Checking in allows for job tasking, personnel tracking, and accurate cost calculation.
- An initial briefing provides information, job function, and responsibilities.
- **Record Keeping** is important for tracking time and equipment costs for reimbursement.
- **Accountability** means keeping your supervisor informed of your location, actions, and completed tasks.
- This includes advising your supervisor of uncompleted tasks and needed tools.
- **demobilization** occurs once the incident is stabilized and hazards are mitigated.

- The IC determines which resources are no longer needed and when to begin demobilization.
- demobilization allows resources to return promptly to their parent organizations.

4. EMS Response within the Incident Command System

Medical Branch Component	Role	Key Responsibilities
Medical Branch Director	Supervises primary roles of triage, treatment, and transport.	Ensures responding EMS units work with ICS.
Triage Supervisor	In charge of counting and prioritizing patients.	Ensures initial assessment for every patient. Must not begin treatment until all patients are triaged.
Treatment Supervisor	Locates and sets up treatment area with patient tiers.	Ensures secondary triage and adequate patient care. Assists with moving patients to transportation area.
Transportation Supervisor	Coordinates transportation and distribution of patients.	Helps prevent hospital overwhelm. Documents transport vehicles, patients, and destinations.
Staging Officer	Assigned when multi-vehicle/agency response is needed.	Emergency vehicles need permission to enter the scene. Staging area should be away from the scene.
Physicians on Scene	Make difficult triage decisions, provide secondary triage, provide medical direction.	Can provide care in the treatment sector.

Rehabilitation Supervisor	Establishes an area for responder protection and needs.	Monitors responders for stress.
Extrication and Special Rescue	Determines needed equipment and resources.	Coordinates rescue operations.
Morgue Supervisor	Coordinates removal of bodies and body parts.	Works with medical examiners, coroners, DMAT, and law enforcement. Morgue area should be out of view and secured.

- **Preparedness** involves decisions and planning before an incident.
- Preparedness includes planning for likely natural disasters in the area.
- EMS agencies should have a written disaster plan with regular training.
- A copy of the disaster plan should be in each EMS vehicle.
- Local EMS organizations should develop an assistance program for responder families.
- **Scene size-up** begins with dispatch and continues upon arrival.
- Initial assessments and preliminary decisions are made during size-up.
- Size-up is guided by three questions: What do I have? What do I need? What do I need to do?.
- **Establishing Command** is done by the most senior official.
- Notification to other responders and requesting resources should occur.
- A command system ensures resources are effectively coordinated.
- Command must be established early, preferably by the first arriving, most experienced official.
- The **Medical Branch** of ICS supervises triage, treatment, and transport.
- Each medical division or group receives a clear assignment before working.
- Responsible personnel remain at their vehicle in the staging area until assigned.

5. Triage Procedures in Mass Casualty Incidents

Triage Category	Color	Characteristics
Immediate	Red	Highest priority; life-threatening injuries requiring immediate attention.
Delayed	Yellow	Significant injuries but can tolerate a delay in treatment.
Minor or Minimal	Green	Walking wounded; minor injuries.
Expectant	Black	Likely to die; injuries are severe beyond current capabilities.

- **triage** means to sort patients based on injury severity.
- The goal of triage is to do the greatest good for the greatest number.
- triage assessment is brief, and patient categories are basic.
- **Primary triage** is the initial triage done in the field.
- **Secondary triage** is done as patients are brought into the treatment area.
- During primary triage, patients are briefly assessed and identified, such as by attaching a triage tag.
- After primary triage, the triage supervisor communicates information to the medical branch director.
- This information includes the number of patients, the number in each category, extrication/movement recommendations, and needed resources.
- When initial triage is complete, **secondary triage (re-triage)** allows reassessment and category upgrades.
- There are four common triage categories: Immediate (Red), Delayed (Yellow), Minor or Minimal (Green), and Expectant (Black).
- Expectant patients are those likely to die.
- An orange tag may indicate an immediate category requiring a specific non-trauma destination.
- **triage tags** assist in tracking patients and keeping accurate records.
- triage tags should be waterproof, easily read, color-coded, and clearly show the category.

- Tags become part of the patient's medical record.
- The transport officer must be able to identify which patient was transported by which unit to which destination and their priority.

6. START and JumpSTART Triage Methods

- **START** stands for **Simple triage and Rapid Treatment**.
- START is one of the easiest triage methods.
- It uses a limited assessment of the patient's ability to walk, respiratory status, hemodynamic status (pulse), and neurologic status.
- **Step 1 (START):** On arrival, call out to patients and direct the walking wounded to a landmark.
- The walking wounded are considered green (third priority) patients.
- **Step 2 (START):** Assess non-walking patients starting with the first one.
- Assess respiratory status.
- If not breathing, open the airway with a simple maneuver.
- A patient who still does not breathe is triaged as expectant (black).
- If the patient begins to breathe after opening the airway, tag them as immediate (red), place in recovery position, and move on.
- If the patient is breathing, estimate the respiratory rate.
- A patient breathing faster than 30 or less than 10 breaths per minute is triaged as immediate (red).
- If breathing between 10 and 29 breaths per minute, move to the next step.
- **Step 3 (START):** Assess hemodynamic status by checking for bilateral radial pulses.
- An absent radial pulse implies hypotension, so tag as immediate priority (red).
- **Step 4 (START):** Assess neurologic status by assessing the ability to follow simple commands.
- A patient who is unconscious or cannot follow simple commands is an immediate priority (red).
- **JumpSTART triage** is used for **pediatric patients**.
- It is intended for children younger than one year or appearing to weigh less than 100 pounds.
- JumpSTART also begins by identifying the walking wounded.
- Infants and children not developed enough to walk or follow commands, including those with special needs, should be taken to the treatment sector

for secondary triage.

- JumpSTART has differences in respiratory status assessment compared to START.
- If a pediatric patient is not breathing, immediately check for a pulse.
- If there is no pulse, label the patient as expectant (black).
- If not breathing but has a pulse, open the airway with a manual maneuver.
- If the patient does not begin to breathe, give five rescue breaths and check respirations again.
- A child who does not begin to breathe should be labeled as expectant (black).
- The most common cause of cardiac arrest in children is respiratory arrest.
- The next step is to assess the respiratory rate.
- Then assess hemodynamic status by feeling the most comfortable pulse.
- Absence of a distal pulse labels the child as immediate priority (red).
- The final assessment for neurologic status uses a modified AVPU.
- A child who is unresponsive, responds to pain by posturing, makes incomprehensible sounds, or cannot localize pain is tagged as immediate (red).

7. Special Considerations and Destination Decisions in MCIs

- **Special triage considerations** exist for certain patients.
- Hysterical and disruptive patients may need handling as immediate priority.
- They may be transported off-site even if not seriously injured.
- A responder who becomes sick or injured should be handled as an immediate priority.
- Injured responders should be transported offsite as soon as possible.
- In hazmat incidents, patients are identified as contaminated or decontaminated before triage.
- **Destination decisions** are based on triage category.
- All patients triaged as immediate (red) or delayed (yellow) should preferably be transported by ground or air ambulance.
- In extremely large situations, a bus may transport the walking wounded (green).
- Immediate priority patients should be transported two at a time until all are transported.

- Delayed category patients can be transported two or three at a time.
- Finally, the walking wounded are transported.
- Expectant patients who are still alive would receive treatment and transport at this time.
- Dead victims are handled and transported according to standard operating procedure.
- Early notification allows receiving facilities to increase staffing and move patients.

8. Hazardous Materials (HAZMAT) Incidents

NFPA 704 Hazard Classification Levels	Description
0	Little if any health problem
1	Causes some irritation, but only mild
2	Causes temporary damage or residual injury unless prompt treatment
3	Extremely hazardous; minimal contact causes serious injury
4	So hazardous minimal contact will cause death

- Upon arrival at a possible hazmat incident, you must step back and assess the situation.
- Rushing into an unsafe scene can have catastrophic results.
- If overcome, you will be unable to assist patients.
- OSHA has published the **hazwoper standard** for hazmat response.
- First responders at an awareness level should understand hazardous substances and their risks.
- They should understand potential outcomes and recognize the presence of hazardous substances.
- First responders should be able to identify the substance if possible.

- Understanding their role and the need for additional resources is important.
- A **hazardous material** is any material posing unreasonable risk to persons, property, or the environment if not properly controlled.
- Train yourself to look at the whole scene for critical visual indicators.
- hazmat incidents can involve leaks from trucks or trains, emergencies at industrial plants, underground pipe leaks, fuel tank seepage, or vehicle crashes.
- It is important to approach the scene from a safe location and direction.
- Staying uphill and upwind is a good starting point.
- Use binoculars and view the scene from a safe distance.
- Question anyone involved in the incident.
- Identification can be difficult despite available resources.
- Little consistency is used on labels and placards.
- Dishonest transporters may not label containers appropriately.
- Maintain a high index of suspicion at truck or train tanker accidents.
- A visible cloud, strange smoke, or a leak/spill can indicate a hazmat incident.
- An unusual, strong, harsh odor can be an indicator.
- Many hazardous gases or fluids are odorless.
- If multiple people collapse or are unconscious with respiratory distress, assume a hazmat leak.
- Assume the scene is unsafe in such situations.
- The safety of you, your team, other responders, and the public is the first priority.
- If you see signs of a hazmat incident, stop at a safe distance.
- Park upwind and uphill from the incident.
- Rapidly size up the scene and call for hazmat.
- If you recognize danger when too close, immediately leave the danger zone.
- Assess the situation rapidly and provide as much information as possible when calling hazmat.
- Do not re-enter the scene.
- Do not leave the area until cleared by the hazmat team.
- Do not allow citizens to enter the scene.
- Avoid all contact with hazardous material.

- NFPA 704 classifies hazmat according to health hazard, fire hazard, chemical reactivity, and special hazards.
- Toxicity levels measure the health risk.
- Higher numbers indicate greater toxicity.
- Health hazard levels except zero require special training and protective gear.

9. Identifying Hazardous Materials and Information Resources

- Hazardous materials are stored in a wide range of **occupancies and locations**.
- The location and type of building indicate the possible presence of hazardous material.
- Safe **senses** to use are sight and sound.
- Using other senses that bring you close to a chemical should be done with caution or avoided.
- Clues seen and heard from a distance enable precautionary steps.
- A **container** is a vessel or receptacle holding the material.
- Container type, size, and material provide clues about the substance.
- Do not rely solely on container type to determine a hazmat incident.
- Containers can be divided into **bulk** or **non-bulk** storage.
- Bulk storage containers include fixed tanks, highway cargo tanks, railroad tank cars, totes, and intermodal tanks.
- Bulk containers are generally found in buildings storing large quantities of a chemical.
- Bulk containers are often surrounded by a **secondary containment system**.
- Secondary containment is an engineered method to control a spill if the main vessel fails.
- Totes have capacities from 119 to 703 gallons and can hold various chemicals.
- Shipping and storing totes can be hazardous as they lack secondary containment.
- Intermodal tanks are shipping and storage vessels holding 5,000 to 6,000 gallons.
- **Non-bulk storage vessels** are all other container types.
- They hold commonly used commercial and industrial chemicals.
- Drums are recognizable barrel-shaped containers.

- Bags are commonly used for solids and powders, like pesticide bags.
- Pesticide bags must be labeled with specific information.
- Carboys are used for transporting and storing corrosives and other chemicals.
- Uninsulated compressed gas cylinders store substances like nitrogen, argon, helium, and oxygen.
- The **Department of Transportation (DOT) marking system** uses labels, placards, and other markings.
- Marking systems indicate hazardous material from a safe distance and provide clues.
- **Placards** are diamond-shaped indicators on all four sides of transport vehicles carrying hazmat.
- **Labels** are smaller versions of placards placed on individual boxes and packages.
- The DOT system does not require all chemical shipments to be marked.
- Generally, a certain amount is required before a placard is needed.
- Commercial package services may carry small amounts below the weight limit without placards.
- Some chemicals require labels and placards for any amount, such as explosives, poisonous gases, and high-level radioactive substances.
- The **Emergency Response Guidebook (ERG)** provides guidance for responders at hazmat sites.
- The ERG is updated every three or four years and covers about 4,000 chemicals.
- **Material Safety Data Sheets (MSDS)** are a common information source about chemicals.
- MSDS provide information on chemical makeup, potential hazards, first aid, and safe handling.
- Facilities using or storing chemicals must have an MSDS on file for each chemical.
- **Shipping papers** are required when materials are transported.
- They include shipper/receiver names/addresses, material identification, quantity, and weight.
- Shipping papers for road transport are called bills of lading or freight bills, located in the vehicle cab.
- **Chemtrec** is operated by the American Chemistry Council.
- Chemtrec provides invaluable technical information for first responders.

- When calling Chemtrec, have basic information ready: chemical name, caller info, location, shipper/manufacturer, container info, carrier name, recipient, and incident description.

10. HAZMAT Scene Operations and Control Zones

Control Zone	Description	Purpose/Activity
Hot Zone	Area immediately surrounding the release. Most contaminated area.	All personnel and equipment must be decontaminated upon leaving.
Warm Zone	Area where personnel and equipment transition into and out of the hot zone.	Decontamination area is set up in the warm zone.
Cold Zone	Safe area where personnel do not need special protective clothing.	Personnel staging, command post, EMS providers, medical monitoring, support, and treatment after decon are located here. EMTs report to a designated area outside the hot and warm zones.

- At a hazmat scene, focus efforts on activities ensuring the safety and survival of the greatest number of people.
- Use ambulances and public address systems to alert and direct people near the scene to a safer area.
- You must establish **control zones** at a hazmat incident.
- Control zones are based on the chemical/physical properties, environmental factors, and scene layout.
- Securing access helps ensure no one accidentally enters the contaminated area.
- If the incident is inside a structure, control access at normal points of egress and ingress.

- If the incident is outside, control intersections, on/off ramps, service roads, and access routes.
- Control zones may expand or contract as needed.
- The **hot zone** is the most contaminated area surrounding the release.
- The **warm zone** is the transition area.
- The decontamination area is set up in the warm zone.
- The **cold zone** is the safe area where special protective clothing is not needed.
- Command post, staging, EMS, and post-decon medical areas are in the cold zone.
- An EMT's role is to report to a designated area outside the hot and warm zones.
- In the cold zone, EMTs provide triage, treatment, transport, and rehabilitation.

11. HAZMAT Classification and Personal Protective Equipment

PPE Level	Description	Required Equipment
Level A	Most hazardous. Provides full body protection.	Fully encapsulated, chemical-resistant protective clothing, SCBA, special sealed equipment.
Level B	Requires non-encapsulated protective clothing or clothing designed for a specific hazard.	Eye protection and breathing devices like SCBA.
Level C	Requires non-permeable clothing and eye protection.	Face mask with filter for inhaled air.
Level D	Minimal protection.	Work uniform, such as coveralls.

- The **NFPA 704 standard** classifies hazardous materials.
- Classification is based on health hazard, fire hazard, chemical reactivity, and special hazards.
- **Toxicity levels** measure the health risk of a substance.

- Levels range from 0 (little health problem) to 4 (minimal contact causes death).
- Level 0 causes little if any health problem.
- Level 1 causes some irritation but is only mild.
- Level 2 causes temporary damage or residual injury without prompt treatment.
- Level 3 involves extremely hazardous materials where minimal contact causes serious injury.
- Level 4 involves materials so hazardous minimal contact will cause death.
- All health hazard levels except zero require special training and protective gear not standard on most ambulances.
- **Personal Protective Equipment (PPE) levels** indicate the amount and type of gear needed.
- Level A is the most hazardous and requires fully encapsulated clothing, SCBA, and sealed equipment.
- Level B requires non-encapsulated protective clothing, eye protection, and breathing devices like SCBA.
- Level C requires non-permeable clothing, eye protection, and face masks with air filters.
- Level D is the work uniform providing minimal protection.
- All PPE levels require the use of gloves.
- Two pairs of rubber gloves are needed in case one pair must be removed due to heavy contamination.

12. Caring for Patients at a HAZMAT Incident

- It is only practical to provide the simplest assessment and essential care in the **hazardous zone**.
- This is due to dangers, time restraints, and bulky protective gear.
- No bandages or splints are applied in the hot zone except pressure dressings for bleeding control.
- The EMT providing care in the **treatment area** should assess and treat patients the same as any other patient.
- Care at a hazmat incident must address two issues: trauma and injury/harm from exposure to the toxic substance.
- Most serious injuries and deaths result from airway/breathing problems.

- If a patient is in distress, give oxygen at 12-15 liters via non-rebreather.
- Assist ventilations if needed with a bag valve mask and high flow oxygen.
- Treat the patient's injuries the same as any injury.
- Treatment for toxic substance exposure should focus on supportive care and initiating transport.
- It may be necessary to cut away clothing and do a rapid rinse for decontamination before transport.
- You will need increased protective clothing, including an SCBA, two pairs of gloves, goggles or face shield, a protective coat, respiratory depression, and a disposable fluid impervious apron.
- This protective gear helps make decontaminating the ambulance easier.
- Tape the cabinet door shut.
- Equipment kits, monitors, and items needed en route should be removed from the patient compartment.
- Place these items in the front of the ambulance or side compartments before loading the patient.
- Turn on the power vent ceiling fan and patient compartment air conditioning unit fan.
- When leaving the scene, inform the hospital that you are transporting a critically injured patient who has not been fully decontaminated.