

Chapter 41, Terrorism and Disaster Management

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1. Introduction to Terrorism and the EMT's Role

- You might respond to a terrorist event during your career.
- The question is when and where terrorists will strike again.
- You must be prepared mentally and physically for a possible terrorist event.
- There are key principles that apply to every response.
- The U.S. Department of Justice defines international and domestic terrorism.
 - They involve violent or dangerous acts that violate law.
 - These acts intend to intimidate a population or influence government policy.
 - Mass destruction, assassination, or kidnapping can affect government conduct.
- International terrorism occurs primarily outside the United States' jurisdiction.
- Domestic terrorism occurs primarily within the United States' jurisdiction.

2. Types of Terrorism and Emerging Threats

- Modern-day terrorism is common in the Middle East.
- Domestic terrorists have carried out multiple attacks in the United States.
- Only a small percentage of groups turn towards terrorism.
 - Examples include religious extremist groups or doomsday cults.
 - Extremist political groups also use terrorism.
 - Violent supremacy groups are included.
 - Groups seeking political, religious, economic, and social freedoms can be terrorists.
 - Cyber terrorists are also a type.
 - Single-issue groups may also turn to terrorism.

- An alarming new trend is the lone wolf terrorist attack.
 - This is a frequent threat in the United States.
 - Lone wolf terrorism is violence or threat of violence by a single actor.
 - The actor pursues political change linked to an ideology.
 - They do not receive orders or support from outside sources.
 - The motives of a lone wolf terrorist are not always clear.
 - Attacks may be targeted at schools, festivals, or shopping centers.
 - These attacks are difficult to predict.
 - Many lone wolf attacks involve firearms.
 - This type of event is classified as an active shooter event.
- active shooter events have prompted discussion of gun laws and mental health.
- Education of the public and first responders on treating casualties is also discussed.
- The Hartford Consensus recommends a THREAT response plan.
 - THREAT stands for threat suppression and hemorrhage control.
 - Rapid extrication to safety is included.
 - Assessment by medical providers is part of the plan.
 - Finally, transport to definitive care is included.
- EMS crews may be equipped with ballistic vests and helmets.
- They can assist law enforcement with threat and evacuation.
- Interagency training is key for EMS crews working with law enforcement.

Type of Terrorism	Primary Location	Key Characteristics	Examples
International Terrorism	Primarily outside the jurisdiction of the United States	Violent acts or acts dangerous to human life; intended to intimidate or coerce a civilian population, influence government policy, or affect government conduct	Common in the Middle East
Domestic Terrorism	Primarily within the jurisdiction of the United States	Violent acts or acts dangerous to human life; intended to intimidate or coerce a civilian population, influence government policy, or affect government conduct	Multiple attacks carried out in the United States; includes lone wolf attacks and active shooter events

3. Weapons of Mass Destruction (WMDs): Classification and Overview

- A weapon of mass destruction (wmd) is designed to cause mass death or damage.
- It can cause mass casualties or massive damage to property and infrastructure.

- Infrastructure includes bridges, tunnels, airports, and seaports.
- Acronyms like be nice or cbrne help remember wmd types.
- be nice stands for biologic, nuclear, incendiary, chemical, and explosive.
- cbrne stands for chemical, biologic, radiologic, nuclear, and explosive.
- To date, explosives have been the preferred wmd for terrorists.
- wmds are relatively easy to obtain or create.
- They are specifically geared towards killing large numbers of people.

4. Chemical Agents: Types, Effects, and Treatment

- chemical agents are manufactured substances with devastating effects.
- They can be liquid, powder, or vapor.
- This depends on the desired route of exposure and dissemination.
- Agents consist of vesicants, respiratory agents, nerve agents, and metabolic agents.
- vesicants are also called blister agents.
- Respiratory agents are also called choking agents.
- metabolic agents include cyanides.

Type of Agent	Primary Route of Exposure	Signs and Symptoms	Treatment
Vesicants (Blister Agents)	Skin contact, respiratory tract (if left on skin/clothing)	Burn-like blisters, skin irritation/burning/reddening, intense skin pain, gray skin discoloration, swollen/closed/irritated eyes, permanent eye injury/blindness, hoarseness/stridor, severe cough, hematemesis, severe dyspnea	No antibodies for mustard or CX exposure; British anti-Lewisite is an antidote for Agent L; decon before treatment; prompt airway support if inhaled; burn centers best equipped for wounds/infections
Pulmonary Agents (Choking Agents)	Respiratory tract (inhalation/vapor hazard)	Respiratory symptoms like dyspnea/tachypnea; damage to lung tissue, fluid leaks into lungs, pulmonary edema; difficulty breathing	Remove patient from atmosphere; aggressive ABC management; patient should rest; no antidotes; rest in position of comfort with head elevated; initiate proper transport; consider advanced life support; CPAP may benefit; advanced airway

			management needed for some
Nerve Agents	Any route of exposure	Extremely toxic and rapidly fatal; cardiac arrest within seconds to minutes; organophosphate effects; miosis (pinpoint pupils), vomiting, bradycardia, excessive salivation, seizures, coma, apnea, respiratory arrest, muscle paralysis	Provide O2 and ventilative support; use a DuoDote auto-injector (contains atropine and pralidoxime chloride)
Metabolic Agents (Cyanides)	All routes of entry	Affect body's ability to use oxygen; low doses: dizziness, lightheadedness, headache, vomiting; high doses: shortness of breath, respiratory distress, flushed skin, tachycardia, altered mental status, seizures, coma, apnea, cardiac arrest	Remove all patient clothes; decontaminate for liquid contamination; support ABCs

5. Biological Agents: Types, Dissemination, and Response

- Biologic agents pose difficult issues as wmds.
- They can be almost completely undetectable.
- Diseases caused by these agents often resemble minor illnesses.
- Biologic agents are grouped as viruses, bacteria, and neurotoxins.
- They may be spread in various ways.
- Dissemination is how terrorists spread the agent.
- A disease vector is an animal that spreads disease after being infected.
- communicability is how easily a disease spreads from human to human.
- If communicability is high, the person is contagious, like with smallpox.
- incubation is the time between exposure and the first symptoms.

Agent Type	Characteristics	Dissemination/Communicability	Response/Treatme
Viruses	Require a living host to multiply; invade healthy cells and replicate	Spread by direct methods (respiratory droplets) or vectors	Some viral agents have vaccines, but not often treatments

Bacteria	Do not require hosts to multiply; complex and larger than viruses	Generally cause flu-like symptoms initially	Infections can be fought with antibiotics
Neurotoxins	Most potent (botulinum toxin); affect nervous system function	Can cause muscle paralysis leading to respiratory arrest	Depends on the specific neurotoxin; ricin causes pulmonary edema, respiratory/circulatory failure
Smallpox (Virus)	Highly contagious; starts with high fever, body aches, headaches before rash; lesions are identical in development; small blisters beginning on face/extremities and moving towards chest/abdomen	Highly contagious, high communicability	Use standard precautions (exam gloves, HEPA filters, eye protection)
Viral Hemorrhagic Fevers (VHF) (Virus)	Caused by viruses like Ebola, Rift Valley, Marburg, yellow fever; causes blood to seep out of tissues/blood vessels; flu-like symptoms progressing to internal/external hemorrhaging	Spread by viruses	All standard precautions must be taken
Anthrax (Bacteria)	Caused by bacteria dormant in a spore; germ released when exposed to optimal temperature/moisture; pulmonary form is deadliest	Routes include inhalation, cutaneous, GI; inhalation form persists as severe cold	Antibiotics can treat successfully; vaccine available
Plague (Bacteria)	Natural vectors are infected rodents/fleas; bubonic plague infects lymphatic	Bubonic plague spread by vectors; pneumonic plague results from inhalation and is contagious	Untreated bubonic plague can lead to sepsis and death; pneumonic form has

	system (swollen lymph nodes); pneumonic plague is a lung infection		much higher death rate than bubonic
Botulinum Toxin (Neurotoxin)	Most potent neurotoxin; produced by bacteria; affects nervous system's ability to function	Introduced into the body	Causes muscle paralysis leading to respiratory arrest
Ricin (Neurotoxin)	Derived from mash left from castor bean; quite stable and extremely toxic	Routes of exposure include inhalation	Causes pulmonary edema, respiratory/circulatory failure leading to death; ingestion signs: fever, chills, headache, muscle aches, GI symptoms dehydration, GI bleeding, organ necrosis; inhalation signs: fever, chills, nausea, local irritation, sweating, headache, muscle aches, productive cough, chest pain, dyspnea, pulmonary edema, severe lung infections, cyanosis, seizures, respiratory failure

6. Radiological and Nuclear Terrorism

- Radiation is ionizing radiation from rays or particles.
- It is in the form of rays.
- This energy is found in radioactive material like rocks or metals.
- Radioactive material emits radiation and is unstable.
- It attempts to stabilize through a natural process called decay.
- Energy emitted from a strong source includes alpha, beta, gamma, or neutron radiation.
- Alpha is the least penetrating type.
- It cannot move through most objects.

- Beta radiation is slightly more penetrating than alpha.
- It requires a layer of clothing to stop it.
- Gamma rays are faster and stronger than alpha and beta.
- They penetrate the human body easily.
- Lead or several inches of concrete prevent gamma penetration.
- Neutron particles are among the most powerful forms of radiation.
- Neutrons easily penetrate lead.
- Several feet of concrete are required to stop neutrons.
- Sources of radiological material are generally used for beneficial purposes.
- These include medicine, killing germs, or construction.
- Used radiological material is considered waste.
- Materials are found in hospitals, healthcare facilities, and universities.
- Nuclear power plants and chemical/industrial sites also have these materials.
- Radiologic dispersal devices (RDDs) are containers designed to disperse radioactive material.
- A dirty bomb can injure victims with radioactive material and the explosive.
- The destruction capability of a dirty bomb is limited to the attached explosives.
- A dirty bomb is an ineffective wmd.
- Nuclear energy is made by altering or splitting radioactive atoms.
- This results in immense energy, usually heat.
- Nuclear material is used in medicine, weapons, naval vessels, and power plants.
- Nuclear material gives off all forms of radiation, including neutrons.
- Nuclear weapons are kept only in secure facilities.
- The likelihood of a nuclear attack is extremely remote.
- Small nuclear devices (SADMs) are believed to be missing since the Soviet Union's collapse.
- Patients exposed to excessive radiation are victims of acute radiation toxicity.
- The effect varies based on the amount of radiation and route of entry.
- Radiation can be introduced by all routes and through the body (irradiation).
- Being exposed to radiation does not make a patient contaminated.
- Patients with a radioactive source on their body are contaminated.
- They must be initially cared for by hazmat responders.
- Once deconned, you may treat them.
- Start with ABCs and treat for burns or trauma.
- Wear appropriate PPE.
- Secure plastic bags with body fluids obtained from the patient.
- Properly dispose of fluids with other potentially radioactive waste.
- No suits completely shield from radiation.
- Best protection is time, distance, and shielding.

7. Explosive and Incendiary Devices

- Explosive and incendiary devices are weapons used to start fires.
- Terrorists use flamethrowers, chemicals, and other devices.
- It is important to identify potential devices.
- Notify proper authorities and safely evacuate the area.
- Remember the possibility of secondary devices.
- Secondary devices are set to explode after the initial bomb.
- They are intended to injure responders and secure media coverage.
- Mechanisms of injury depend on the patient's distance from the explosion.
- Blast explosions occur in several ways.
- Primary blast is due to direct pressure effects on the body.
- Injury is almost exclusively in hollow organs.
- Secondary injury is from being struck by flying debris.
- Tertiary blast results from whole-body displacement and impact with the environment.
- Other indirect effects include crush injury from structure collapse.
- Quaternary blast injury includes any other injury caused by the blast.
- This includes toxic inhalation of gas or burns.
- Medical emergencies sustained while fleeing are quaternary injuries.
- Mental health disorders developing after the explosion are also included.
- The physics of an explosion involve a substance converting to large gas volumes under pressure.
- This releases explosive energy.
- A spherical blast wave extends in all directions.
- Flying debris and high winds cause conventional blunt and penetrating traumas.
- Tissues at risk are hollow organs like the middle ear, lungs, or GI tract.
- These are susceptible to pressure changes.
- Junctions between tissues of different densities and exposed tissues are prone to injury.
- The ear is sensitive to blast injuries.
- Patients may report tingling or pain in the ears or hearing loss.
- Primary blast injuries in the ear occur as contusions and hemorrhages.
- Solid organs are relatively protected from the shock wave.
- They may be injured by a secondary missile.
- Hollow organs may be injured by similar mechanisms as lung tissue.
- Large hematomas are the most visible sign of TQI.
- According to the CDC, blast lung is the most common cause of death.
- Neurologic injuries and head trauma are also common causes of fatality.
- Extremity injuries, including traumatic amputations, are common.

- Patients may die of massive hemorrhage without rapid tourniquet application.

8. EMT Response Principles and Scene Safety

- The basic foundation of patient care remains the same.
- Treatment can vary slightly.
- Always remember situational awareness.
- Recognize a terrorist event or indicators.
- Planning of most terror acts is covert.
- Public safety usually has no prior knowledge of the attack.
- You must be constantly aware of your surroundings.
- Understand the possible risks for terrorism.
- Know the current threat level from the Department of Homeland Security (DHS).
- The color-coded system was replaced by the National terrorism Advisory System (NTAS).
- Alerts from the NTAS summarize the threat and actions to take.
- First responders, government agencies, and the public can use this information.
- Be aware of NTAS information at the start of your workday.
- Make observations on every call for situational awareness.
- Consider the type of call and location.
- Note the number of patients.
- Listen to victim statements.
- Look for any pre-incident indicators.
- Remember scene safety when responding.
- Stage your vehicle a safe distance from the incident.
- Wait for law enforcement to advise if the scene is secured.
- If you doubt safety, do not enter.
- The best staging location is upwind and uphill from the incident.
- Failure to park safely endangers you and your partner.
- If your vehicle is blocked or damaged, you cannot transport victims or escape.
- Be aware of secondary devices.
- responder safety includes personal protective equipment (PPE).
- The best protection is preventing contact with the agent.
- The greatest threats are contamination and cross-contamination.
- Make notification procedures as soon as you suspect an attack.
- Notify dispatch when you suspect a terrorist attack or wmd.
- Tell dispatch the nature of the event and needed resources.
- Provide the estimated number of patients.
- Give the upwind route of approach or an optimal approach.
- It is important to establish a staging area for other units.

- Only trained responders with proper PPE should handle a wmd event.
- Keep in mind there may be more than one event or device.
- Establish command as the first provider on scene.
- The EMT may need to establish command until more personnel arrive.
- EMTs may function as medical branch, triage, treatment, or transport supervisors.
- They can also be logistics officers or command/general staff.
- If the incident command system is in place, find the medical staging officer for assignment.
- Reassess scene safety constantly.
- This is an important component of situational awareness.

Key Principle	Description	Source
Situational Awareness	Being constantly aware of surroundings and potential risks for terrorism; knowing the current threat level and NTAS alerts; making observations on every call (type, location, number of patients, victim statements, pre-incident indicators)	
Scene Safety and Staging	Staging vehicle a safe distance from the incident; waiting for law enforcement to secure the scene; not entering if scene is unsafe; staging upwind and uphill; parking vehicle in a safe location to avoid being blocked or damaged	
Secondary Devices	Additional explosives set to injure responders and gain media coverage; possibility must be remembered when responding	
Responder Safety and PPE	Preventing contact with the agent is best protection; being aware of contamination and cross-contamination; wearing appropriate PPE	
Notification Procedures	Notifying dispatch when a terrorist attack or WMD is suspected; providing nature of event, needed resources, estimated patients, and approach route	
Establishing Command	The first provider on scene may need to establish command; EMTs may function in various roles within the incident command system	
Reassessing Scene Safety	Constantly assessing and reassessing the safety of the scene as an important component of situational awareness	

9. Disaster Management and Public Health Considerations

- Other EMT roles include syndromic surveillance.
- This involves monitoring patients in emergency departments and alternate care facilities.
- You may need to record EMS call volume.
- Monitoring the use of over-the-counter medicines may also be required.
- Patients with flu-like symptoms are particularly important.
- Dispatch operations need awareness of unusual call numbers or unexplainable symptom clusters.
- This is important if clusters come from a particular region or community.
- Points of distribution (PODs) are part of the Strategic National Stockpile (SNS).
- PODs are existing facilities established for mass distribution of medical supplies.
- Supplies include antibiotics, antidotes, vaccines, and other medical materials.
- Medications can be released in push packs by the CDC's SNS.
- These push packages have a delivery time of about 12 hours anywhere in the country.
- EMTs, AEMTs, and paramedics may assist in medication delivery to the public.
- Your role may include triage, treatment, and transport.

This chapter covers the essential aspects of terrorism response and disaster management for EMTs .