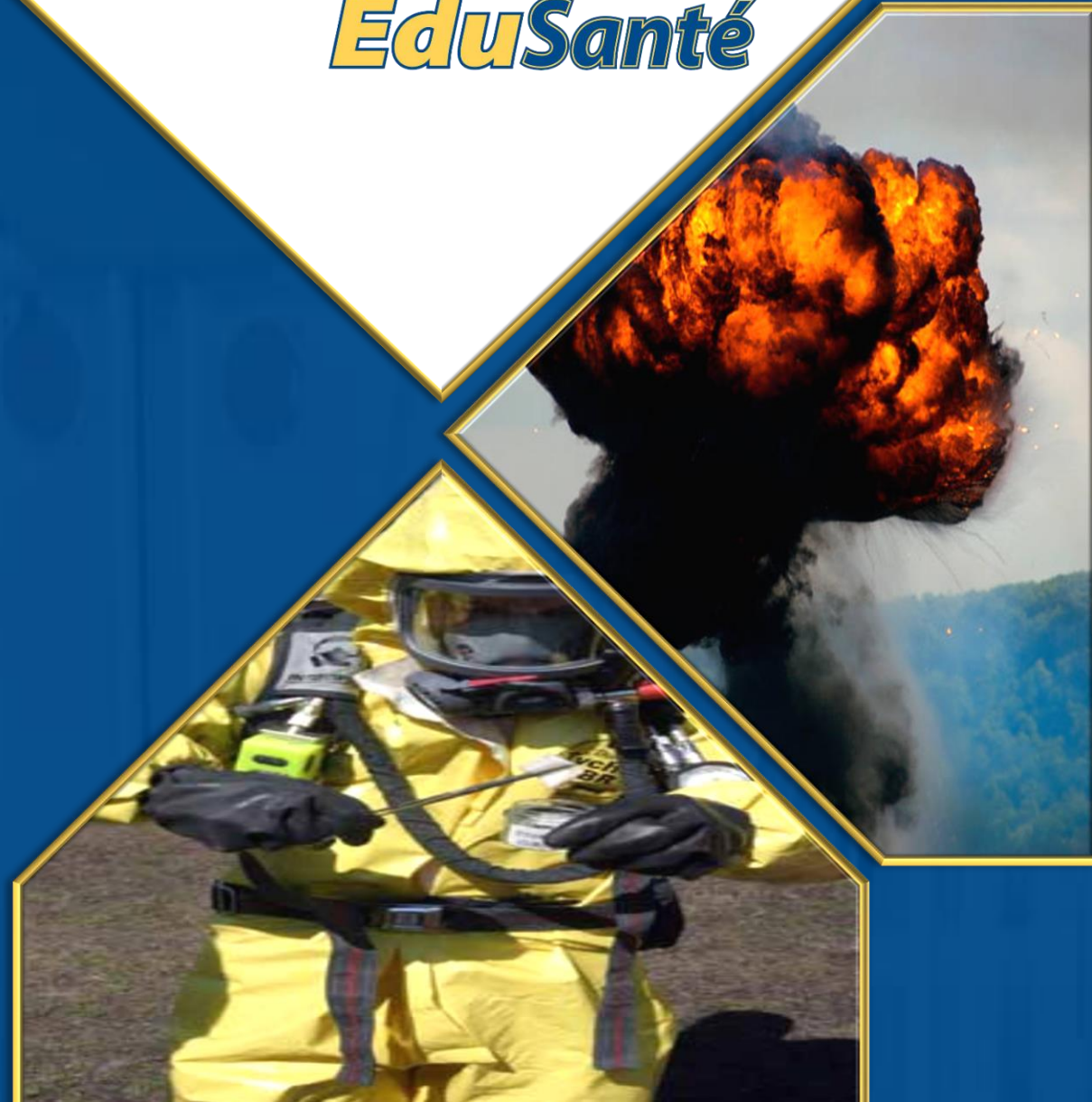


TERRORISM AND CBRNE EVENTS

Primary Care Paramedicine

Module: 20

Section: 02c



- Canada plays a significant military role in combating terrorism.
 - Canadians and Canada are potential targets for future terrorist activity.
 - Recent attacks
 - 2018 Toronto van attack
 - 2014 Ottawa National War Memorial
 - Historically
 - 1970s domestic terrorism in Quebec (Front de liberation du Québec)

- Canadian Security Intelligence Service (CSIS) and the Royal Canadian Mounted Police (RCMP) track a number of different activities.
 - Fundraising
 - Bases of operations
 - Attempts to procure weapons and materials

- Contributing to the threat
 - Persons trained in terrorist training camps
 - Veterans of campaigns in Afghanistan, Bosnia, Chechnya, etc.
 - Canadian citizens have travelled to Iraq to fight in the insurgency and may return with new skills and motivations.
 - Terrorist groups continue to intimidate and exploit Canada's immigrant and expatriate communities.
 - Terrorists in Canada have conducted preliminary reconnaissance against potential Canadian targets.

- Groups affiliated with Al-Qaeda
- Opposition to Western influences and secular forms of government in Muslim countries
- Not contained within borders of established nations

- Drug trafficking
- Migrant smuggling
- Government corruption
- Arms dealing
- Money laundering

- Defined by the Canadian Department of Justice
 - Participate in or contribute to any activity of a terrorist group
 - Facilitate a terrorist activity
 - Instruct anyone to carry out a terrorist activity or a terrorist activity in connection with a terrorist group
 - Harbour or conceal a person who has carried out or is likely to carry out a terrorist activity

- May be international or domestic
 - Violent religious groups
 - Extremist political groups
 - Technology terrorists
 - Single-issue groups

- CBRNE:
 - Chemical
 - Biologic
 - Radiologic/Nuclear
 - Explosive
- CBRNE events can be caused by accidents or terrorist acts.
- Motives and tactics of new-age terrorist groups have begun to change.
- CBRNE agents are easy to obtain or create.

Biologic agents:

- Organisms that cause disease or death
- Generally found in nature
- Can be created in laboratory
- Can be weaponized

Primary types:

- Viruses
- Bacteria
- Neurotoxins

- Hiroshima and Nagasaki during WWII involved a nuclear device.
- Nations with close ties to terrorist groups may have some degree of nuclear capability.
- Radioactive materials/waste
- Radiologic dispersal devices (dirty bombs)

- Can have devastating effects on living organisms
- Developed during WWI
- Liquid, powder, or vapor
- Categories:
 - Vesicants or blister agents
 - Pulmonary or choking agents
 - Nerve agents
 - Metabolic or blood agents
 - Irritating agents

- Most common weapons used by terrorists
- Incendiary weapons: agents and chemicals used to start fires
 - Can be combined with chemicals
- Categories:
 - Device designed to function by explosion
 - Chemical reaction

- Planning for a CBRNE Event
 - Multi-agency, coordinated response
- EMS terrorist response plan
 - Know your role.
 - Risk assessments can identify targets.
- Recalling paramedics during disasters
 - There must be clear knowledge of the number of paramedics and which organization they work for.
- CBRNE event training
 - Must be to at least awareness level

- Alternative health care facilities
 - Temporary off-site treatment centres can be used
- Patient tracking
 - Should begin immediately, as patients are triaged
 - Patient belongings require tracking; become part of criminal investigation
- Situational awareness
 - First line of defence

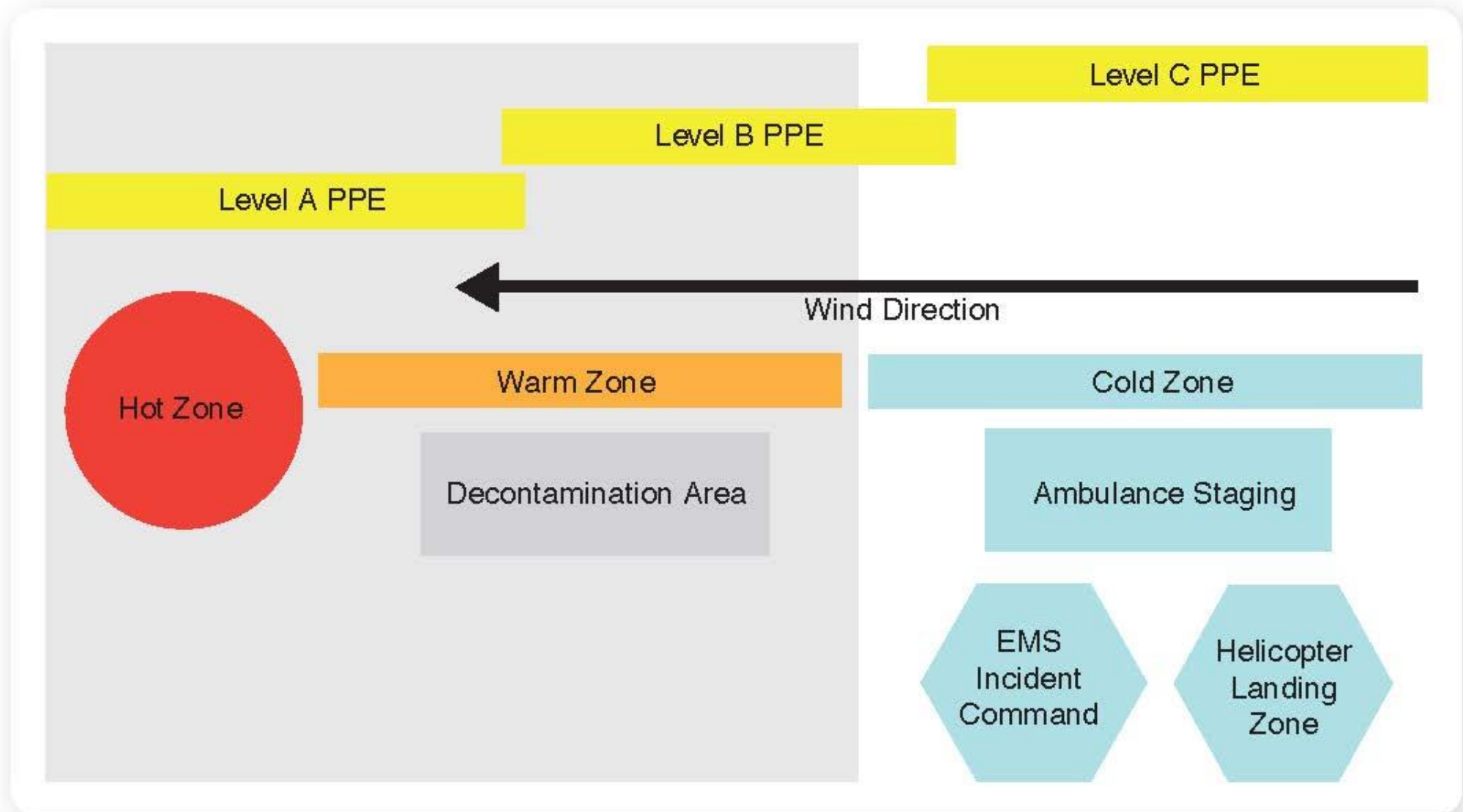
- Most acts of terror are covert.
- Be aware of:
 - Preincident indicators
 - Type of location
 - Type of call
 - Number of patients
 - Victims' statements

- Take the following actions:
 - Ensure scene and personal safety.
 - Notify dispatch/supervisor of incident.
 - Request additional/specialized resources.
 - Establish/coordinate command.
 - Initiate MCI procedures.
- Scene safety
 - If there are concerns, do not immediately enter.
 - Stage upwind and uphill.
 - Wait for assistance.
 - Park in a location that is safe and provides egress.



- Responsible for identifying all potential risks and placing control measures in place to mitigate them.
- Responder safety
 - Best to not come in contact with CBRNE agent; be aware of cross-contamination.
 - Use PPE that matches the complexity and duration of the incident.
- Notification procedures
 - Notify dispatch centre if CBRNE agent is suspected.
 - Establish staging area.
- Establishing command
 - Establish an ICS.
- Secondary device or event
 - Stay alert for out-of-place items or changes in scene condition.

- Persistence
 - How long an agent stay on surface before evaporating
- Volatility
- Route of exposure
 - Vapour hazard
 - Contact hazard
- Personal protective equipment
 - CBRNE- or hazmat-protective clothing is classified as level A, B, C, or D based on the degree of protection.



Signs and Symptoms

- Skin irritation/blisters
- Eye injuries
- Respiratory problems



Management

- Decontaminate.
- Support airway.
- Initiate transport.
- Gain IV access.
- Transport to burn centre.

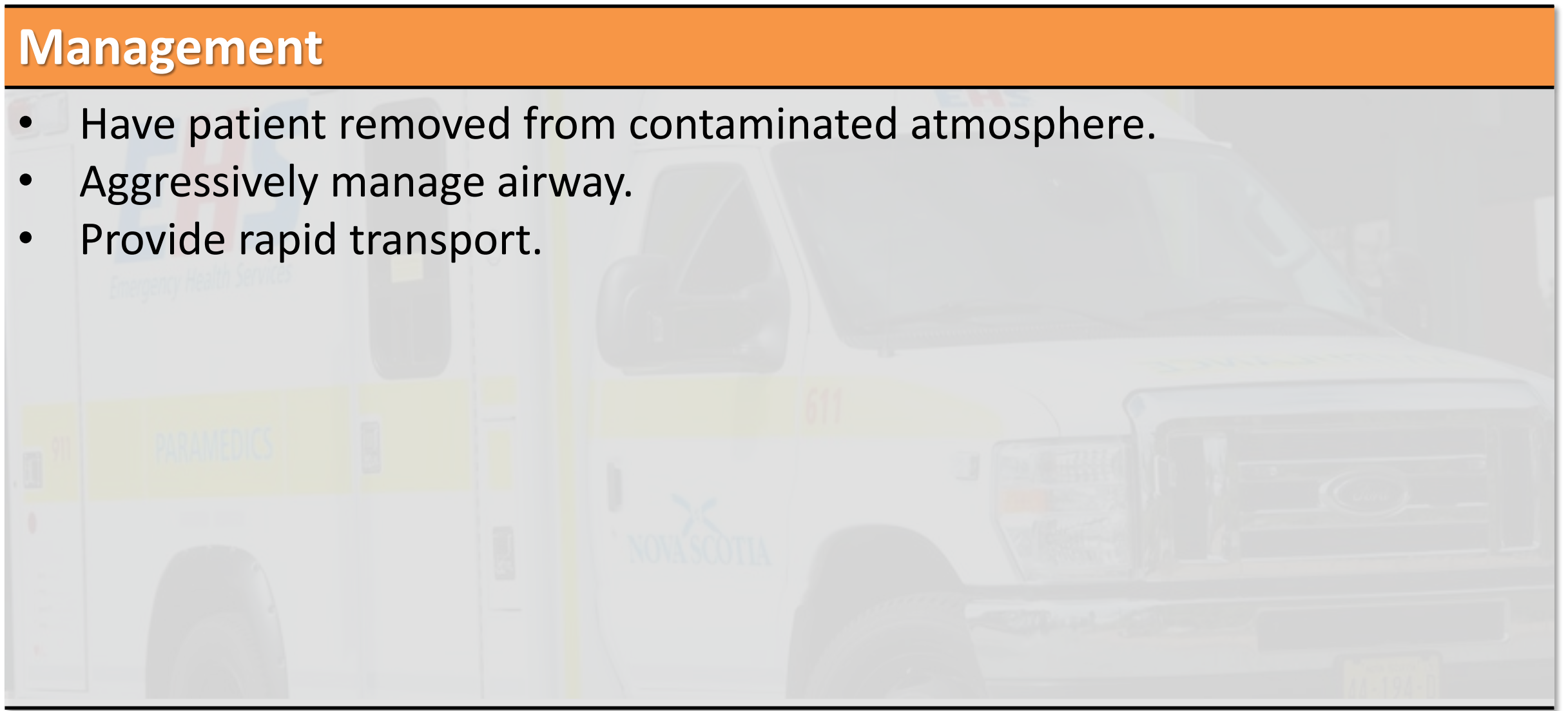


Pulmonary Agents (Choking Agents)

- Inhaled gases
- Cause damage to lung tissue
- Two classes:
 - Chlorine
 - Phosgene

Management

- Have patient removed from contaminated atmosphere.
- Aggressively manage airway.
- Provide rapid transport.



- Vapour (inhalation) or contact hazards
- Cause overstimulation of organs
- G agents
 - Sarin (GB)
 - Soman (GD)
 - Tabun (GA)
- VX nerve agent
 - More persistent
 - 100 times more lethal than sarin



Signs and Symptoms of Nerve Agents

Table 51-3

Symptoms of People Exposed to Nerve Agents

Mnemonic: SLUDGEM

- S** Salivation
- L** Lacrimation
- U** Urination
- D** Defecation
- G** Gastrointestinal distress
- E** Emesis
- M** Miosis

Mnemonic: DUMBELS

- D** Defecation
- U** Urination
- M** Miosis
- B** Bradycardia, Bronchorrhea, Bronchoconstriction
- E** Emesis
- L** Lacrimation
- S** Salivation

Management

- Patient decontamination prior to treatment
- Airway and ventilatory support (ABC)
- Atropine is used to block the nerve agent's overstimulation.
- 2-PAM chloride is used to eliminate the agent from the body.

- Many insecticides are organophosphates.
- Lower concentrations than found in nerve agents
- Symptoms and treatment are the same.

- Cyanide
- Affect the body's ability to use oxygen
- Common in industrial settings

Signs and Symptoms

- Shortness of breath
- Tachypnea
- Flushed skin colour
- Tachycardia
- Altered mental status
- Seizures
- Coma
- Apnea
- Cardiac arrest



Management

- Patient decontamination must occur.
- Support ABCs.
- Administer IV hydroxocobalamin (Cyanokit).
- Sodium nitrate and sodium thiosulphate may also be used.
- Use a bag-mask device or oxygen-powered ventilator device.

- Can be spread by dissemination
- Disease vector
- Communicability
- Incubation

- Require living host
- Replicate themselves within healthy cells

- Highly contagious
- Utilize routine precautions and PPE.
- Begins with high fever, body aches
- All lesions identical
- Blisters begin on face and extremities.
- Vaccine is linked to medical complications and, rarely, death.

- Ebola, Rift Valley, and yellow fever
- Cause blood to seep out from tissues and blood vessels
- Initially present with flulike symptoms
- All PPE and routine precautions must be taken.

- Do not require a host
- Can be fought with antibiotics
- Most infections begin with flulike symptoms.





- Deadliest substances known
- Produced by plants, marine animals, moulds, and bacteria
- May be inhaled, ingested, or injected

- Most potent neurotoxin
- Produced by bacteria
- Causes paralysis
- Paralysis leads to respiratory arrest.

- Derived from castor beans
- Causes pulmonary edema, respiratory/circulatory failure
- Treatment is respiratory and cardiovascular support.



Paramedic Roles During Biologic Events

- Syndromic surveillance
 - Identification of outbreaks
- Points of distribution (PODs)
 - Participation at distribution sites



- Types of terrorism
- CBRNE
- Paramedic response to terrorism and CBRNE events
- Chemical agents
- Biologic agents