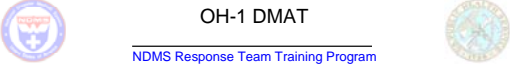


Disaster Issues in Public Health

ABC's of Bioterrorism Part 2

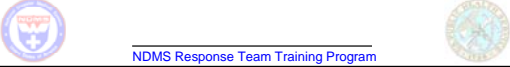
Paul Rega, MD, FACEP
Senior Medical Officer
OH-1 DMAT



NDMS Response Team Training Program

Objectives


- Identify the differences between chemical, radiological and biological terrorism
- Identify signs or indications of a possible terrorist attack
- Identify considerations and precautions for bioterrorism patient care
- Recognize pediatric and geriatric populations are at special risk in a bioterrorist attack



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Distinctions Between Chemical and Biological Terrorism


<u>Chemical</u>	<u>Biological</u>
<u>Speed at which attack results in illness</u>	
Rapid, usually minutes	Delayed, days to weeks
<u>Distribution of affected patients</u>	
Downwind area near point of release	May spread regionally, nationally, internationally




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Distinctions Between Chemical and Biological Terrorism

<u>Chemical</u>	<u>Biological</u>
<u>First Responders</u>	
Law enforcement, EMS	Emergency Dept. Clinics, Private Practice
<u>Decontamination</u>	
Important in most scenarios	Not necessary in most cases




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Distinctions Between Chemical and Biological Terrorism

<u>Chemical</u>	<u>Biological</u>
<u>Medical Intervention</u>	
Chemical antidotes	Vaccines, antibiotics, anti-virals
<u>Isolation/Quarantine</u>	
No need after decontamination	Important with transmissible diseases




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Radiological Hybrid

- Covert radiological exposure possible
 - Delayed manifestations

- Overt exposure likely
 - Nuclear event
 - Dirty bomb



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Covert Assault Clues

- Severe disease manifestations in previously healthy people
- Higher than normal number of patients with fever and respiratory/GI complaints
- Multiple people with similar complaints from a common location



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Covert Assault Clues

- An endemic disease appearing during an unusual time of year
- Unusual number of rapidly fatal cases
- Greater number of ill/dead animals



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Covert Assault Clues

- Rapidly rising & falling epidemic curve
- Greater number of patients with:
 - Severe pneumonia
 - Sepsis
 - Sepsis with coagulopathy
 - Fever with rash
 - Diplopia with progressive weakness



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Variations in Clinical Presentation

- Proper emphasis on clinical manifestations due to inhalation or ingestion of bioterror agents BUT
- Need to increase awareness of alternative manifestations
 - Cutaneous anthrax
 - Bubonic plague
 - Ocular, pharyngeal, cutaneous aspects of tularemia



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Considerations for Bioterrorism Patients

- Decontamination
- Standard precautions
- Airborne precautions
- Droplet precautions
- Contact precautions
- Therapeutic precautions



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Decontamination Considerations

Removal of clothing in the decontamination procedure has the additional advantage of detecting weapons or a secondary device on a victim or "pseudo-victim."



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Standard Precautions

- Wear gloves
- Wear face shield
- Wear cap/gown
- Wear shoes
- Wash hands

For every bioterrorist response



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Standard Precautions

- Process contaminated equipment and linen.
- Clean and disinfect environmental surfaces.
- Adhere to occupational health and blood-borne pathogen requirements to lessen risk of infection with performing risky patient procedures.
- Place patients at risk for environmental contamination in private or cohort location.



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Airborne Precautions

- Place patient in negative pressure room, when possible.
- Apply high-intensity air filter respiratory protection.
- Limit patient transport.
- Place tight sealing mask on patient when transporting.

Smallpox and Viral Hemorrhagic Fever



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Droplet Precautions

- Place patient in private or cohort room.
- Wear masks, eye protection, and face shields within three feet of patient.
- Limit patient transport.
- Apply suitable masking of patient when transport is required.

Plague



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Contact Precautions

- Place patient in private/cohort room.
- Limit patient transport.
- Apply suitable mask on patient during transport.
- Dedicate patient care equipment to one patient. Otherwise, clean and disinfect between patients.

Smallpox, T2 Mycotoxin,
Viral Hemorrhagic Fever



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The Value of Respiratory Protection

- N-95/N-100 respirators
 - Fit-tested
- PAPRs/APRs
 - HEPA filtering




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Therapeutic Precautions


- Certain medications that may be contraindicated in specific circumstances (i.g., pediatrics, pregnancy) may be advisable to administer after a bioterrorist attack when the risk of contracting a lethal disease is weighed against the drug effect.



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Therapeutic Precautions

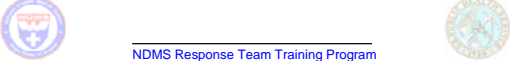
- When treatment may deviate from normal standard of care, consultation with regional and federal authorities is necessary.
- Knowledge of absolute contraindications, relative contraindications, and adverse effects of therapeutic regimen
 - For example
 - Smallpox vaccine
 - Ribavirin



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Specific Pediatric Considerations

- Greater exposures to aerosolized agents due to increased respirations/minutes
- Increased exposure to transdermal toxins due to greater surface/mass ratio



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Specific Pediatric Considerations

- Greater permeability of intact skin resulting in easier absorption
- Increased risk of heat loss with showering due to an increased total body surface area
- Greater risk of dehydration/shock due to vomiting and diarrhea



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Geriatric Vulnerabilities

- Co-morbidity
- Poly-pharmacy
- Decreased mobility
 - Impaired balance
 - Decreased strength
- Decreased sensory capabilities
- Impaired mental status
- Communication impairments
 - Vision
 - Speech
 - Hearing
- Decreased physiologic reserves
 - Fluid reserves
 - Impaired thermoregulation
- Limited socioeconomic support



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Agencies of Assistance

- CDC Emergency Preparedness & Response Branch: 1-770-488-7100
- DOJ Domestic Preparedness National Response Hotline (agencies only): 1-800-424-8802
- USAMRIID: 1-888-872-7443 (1-888-USA-RIID)
- Domestic Preparedness Helpline (M-F), 0900-1800): 1-800-368-6498



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Summary

- Distinctions between chemical, radiological and biological attacks
- Indicators of bioterrorism
- Precautions for bioterrorism patients
 - Decontamination, standard precautions, airborne precautions, droplet precautions, contact precautions, therapeutic precautions and pediatric considerations
- Special considerations for the pediatric and geriatric populations



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