Confounding On-the-Ground Compounds: The Challenges of Chemical Attacks by Terrorists

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Disclosure

I have no disclosures of any financial or commercial interests or relationships
Objectives

• Review the evolving landscape with respect to chemical agents

• Discuss the response to an attack with an unknown substance

• Review the countermeasures utilized during a chemical attack
The Problem

Terrorist attacks are increasing in frequency and complexity throughout the world, including the use of chemical-warfare agents.
The Objective

The classes of chemical-warfare agents that are most rapidly lethal (i.e., nerve and opioid agents and asphyxiants), should be quickly addressed with the use of a toclidrome-based system of rapid triage.
The Evolving Landscape

- Moscow Theatre Siege 2002 – deaths from aerosol of fentanyl-related compounds
The Evolving Landscape

- Assassination of Kim Jong-nam on February 13, 2017 with reported VX nerve agent
- Poisoning of Sergei and Yulia Skripal on March 4, 2018 with reported Novichok agent
- Poisoning of Charlie Rowley and Dawn Sturgess on June 30, 2018 with reported Novichok agent
Fourth Generation Agents (FGAs)

- Also known as A-series or Novichok
- Chemical warfare agents that are unique organophosphate compounds
- More persistent than other nerve agents
- At least as toxic as VX
Fourth Generation Agents (FGAs)

- May cause rapid or delayed onset of symptoms
- Require more aggressive supportive care, greater amounts of medication, and longer duration of treatment
Fourth Generation Agents (FGAs)

- Diarrhea
- Urination
- Miosis
- Bradycardia, Bronchorrhea, Bronchospasm
- Emesis
- Lacrimation
- Salivation, Secretions, Sweating

SLUDGE + killer Bs
FGAs – Prehospital Management

• **ABC** – supportive care

• **Decontamination** – Remove clothing, spot decontamination / gross decontamination

• **Drugs** – anticholinergics, reactivators, and anticonvulsants
FGAs – Prehospital Management

Decontamination = medical countermeasure that mitigates the conversion of an external dose to an internal dose
FGAs – Prehospital Management
Keys to Success?

- Define and educate about the problem
- Availability of job aid
- Simplify to the fewest number of steps / decision points
- Focused training
Conclusion

- Rise in complex, multimodal terrorist attacks
- FGAs present new unique challenges
- Ongoing preparedness for all hazards
- Job aids can help simplify the approach to a few immediate, time-critical steps
Thank You For Your Attention