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Overview

Three case studies will be presented:
1. Baltimore City Drill #1
2. Baltimore City Drill #2
3. (University of Maryland Medical System) UMMS Drill #1
Objectives

These case studies will illustrate:

- Plausible scenarios
- Typical first response activities
- Critical issues on-the-fly
- Considerations for planning
Baltimore City Drill #1

Section 1 of 2
June 6, 12 noon
Explosion at Inner Harbor
First responders
  – Bomb squad (Police department)
  – Hazmat (Fire department)
Detection of radiation (5 rem/hr)
What do you do?
Questions: Drill #1-1

- Does any first responder “go in?”
- If so, who?
- Who gets notified?
- What’s done in the meantime?
Bomb squad goes in to look for “secondary devices”
Bomb squad notifies (the rest of the) Police Department; Hazmat notifies (the rest of the) Fire Department
Baltimore City Health Department and Maryland Department of the Environment are also notified
Where is the answer to last question?
Wind from E @ 10 mph
12-block radius evacuation begun
Emergency Departments (EDs) alerted (victims + radioactivity)

What do you do?
Questions: Drill #1-2

- How do you organize the evacuation?
- To where do you direct the people?
- What do you tell the EDs (and why)?
- What should the EDs do?
The evacuation is performed from the inside out so that it may be halted in progress.

People are directed upwind to a designated site.
The evacuation is performed from the inside out so that it may be halted in progress.

People are directed upwind to a designated site.

The EDs must be alerted that radioactive victims will appear, and triage and decon should commence outside the ED.
Wind changes, from SW 3-5 mph

What do you do?
How do you know the wind changed direction?
How does the change in wind direction influence your thinking/planning?
Who do you notify?
Wind direction will influence the location of off-site triage and decon (upwind!)

So, ongoing monitoring of wind direction is critical

Health, Fire, and Police Departments all need notification
- Off-site radiation readings at background levels
- Off-site decon and triage set up
Questions: Drill #1-4

- How do you know the radiation readings?
- Where (and when) do you monitor?
- How do they influence your decisions?
- Where do you set up triage and decon?
- Are they in the same place?
- What do you need there?
On- and off-site radiation monitoring is critical
This monitoring is with a combination of detectors
Triage and decon can be done at the same (off-site) location; monitoring must be done here, too
Representative First Responder Detectors
15 minutes later: shots are fired on first responders; bomb squad leader killed

What do you do?
Questions: Drill #1-5

- Does anything change?
- If so, what?
First responders are pulled from the immediate scene

SWAT (QRT, Quick Response Team in Baltimore City) goes in to clear buildings of snipers
QRT (SWAT) goes into buildings to clear of snipers (at least two in two different buildings)
Two other suspicious packages identified; checked for radiation (negative)
One sniper killed; one taken into custody
Is the QRT activity “in parallel” with the PH activity?

What do you think about?
The QRT activity supercedes public health activities, which resume only after the “all clear”.

The QRT must be monitored for radiation dose and pulled if/when it gets too high.
- Victims evacuated to area hospitals
- Mayor has series of press conferences
Questions: Drill #1-7

- What are the next steps?
- What are the long term plans?
Answers: Drill #1-7

- The site is secured
- Evidence is gathered (don’t forget it’s a crime scene!)
- Environmental monitoring is enhanced
- Long-term remediation planning begins
What Did We Learn?

- Communication
  - Who knew what?
  - When did they know it?
  - Who told them?
- What was done correctly?
- What could be improved?
Operation Down Under
Explosion in subway
Victims are vomiting and seizing
Smoke, fire, and explosive damage
What do you do?
Questions: Drill #2-1

- Who arrives first, and what should they do?
- To which questions do you need an immediate answer?
- What do (can) you assume?
- Police and Fire Department personnel are on the scene first
  - Ideally, only those with appropriate personal protective equipment (PPE) will enter the subway … but this often is not the case
- You can assume some sort of “agent” is involved
- It is critical to identify both the agent and its environmental distribution
What do you do?

- Rescue, fire-fighting, and decontamination begin

- What do you do?
Questions: Drill #2-2

- How do you protect the first responders?
- Who do you “allow” to do what?
- How do you treat the victims?
- How do you decon the victims?
Answers: Drill #2-2

- Only first responders with Personal Protective Equipment (PPE) should go in and interact/rescue victims.
- The victims should be triaged and decontaminated away from the immediate site.
- Clothing should be removed, and the body (especially head and hands) should be washed.
Identification of agent (methylparathion)

What do you do?
How is the agent identified?
How do you get a sample?
How does the info help you?
The agent is identified from a sample:
  - Environmental “wipe” sample
  - Scrap of victim clothing
Chemical analyses are performed
The identity of the agent helps with triage, diagnosis, prognosis, and treatment planning
- Victims are evacuated to area hospitals
- Mayor has series of press conferences
Questions: Drill #2-4

- What are the next steps?
- What are the long-term plans?
Answers: Drill #2-4

- The site is secured
- Evidence is gathered (don’t forget it’s a crime scene!)
- Environmental monitoring is enhanced
- Long-term remediation planning begins
Dirty Bomb dispersed radioactivity in environment
  - The magnitude, height, and wind will tell you how far the agent will travel—as well as the risk to the public
  - Assume radioactivity stays airborne for a period of time and will be dispersed by wind
Explosion in subway
- Aerosolized a liquid that contained a chemical agent
- Fog, or liquid droplets in air containing chemical agent
- Must consider the aerodynamic properties of the liquid droplets produced by the explosion, not the agent itself