Bioterrorism and Anthrax Attacks: Lessons Learned at the AMI Building

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Anthrax is a zoonotic disease caused by spores of *Bacillus anthracis*

- Naturally occurring among herbivores
- Spores can survive in soil for >40 years
- In humans, most common cases have been dermal (note black eschar)
- Fatality rate for inhalation anthrax may reach **95% even with antibiotic therapy**

(NRC, 2005, Reopening Public Facilities after a Biological Attack)
22 cases of anthrax were identified in U.S. from Oct 4th to Nov 20th, 2001

11 cutaneous
11 inhalational (5 were fatal)
32,000 people received antibiotics

Ames Strain was identified as the sole type of spore

NRC, Review of the Scientific Approaches Used During the FBI's Investigation of the 2001 Anthrax Letters
The American Media Building in Boca Raton housed National Inquirer, the Sun and Weekly World
Full Disclosure: My brother has written for Weekly World News.
AMI was the first to have a fatality: Robert Stevens, first U.S. inhalation case in 25 years.

No letter found at AMI.
Lesson One: Take full advantage of federal government resources

(They will be partners no matter what you want)
EPA and CDC shared all of their data. FBI shared none.
EPA results showed lower levels on 2nd floor

EPA wipe data, Second Floor (Source: ATSDR)
A Technical Working Group (TWG) guided and approved sampling plan and HASP

Co-Chairs

- **Mark Durno**, EPA, On-Scene Coordinator, Region V
- **Bruce Lippy**, Senior Consultant, Environmental Profiles, Inc.

- *Jointly signed the final release for the TWG*
Excellent support from TWG

• Patricia Bray, MD, MPH, OSHA, Office of Occupational Medicine
• Tony Intrepido, CIH, Field Operations, Chemical & Biological Countermeasures Division, Lawrence Livermore National Laboratory
• Todd D. Jordan, MSPH, CIH, OSHA Technical Center, Chemical Engineer, OSHA Health Response Team
Sampling protocol was developed with TWG

1. Risk-based strategy with multiple air and bulk sampling
2. Aggressive air sampling
3. Volumes 3 times > the space of each floor
4. Target clearance level: no culturable spores
HASP was developed from OSHA’s template for anthrax cleanup
Lesson Two: Understand who calls the shots

EPA had regulatory authority through a FIFRA Crisis Exemption (because we used bleach)

PBCHD had final say in opening the building
Lesson Three: Assume private sector projects will be different
Previous sampling showed the building could have been opened

- Fumigated with chlorine dioxide gas beginning on July 11, 2004
- 2,000 spore strips. All showed a 100 percent kill rate (8 log kill)
- Dispute between owner and abatement firm tied up data
“In July 2004, the AMI building was declared to have been successfully decontaminated.”
NRC, Reopening Public Facilities After a Biological Attack, 2005

Feb 2006 EPA was asked to review the previous sampling report without releasing it so the quarantine could be lifted. No response was received.
Lesson Four: Recognize HAZWOPER applies to biological attacks and use it.

All of the team had their cards and lots of experience. HASP briefing was important.
Boxes were disinfected and removed from basement for autoclaving, Dec. 2005 to Jan. 2006
Surfaces in basement were cleaned and sampled in March 2006. All were negative.

502 pallets of boxes with photos.
Dry Filter Units (DFUs) were provided by EPA

- 15 CFM flow
- Designed by the military for battlefield sampling
DFUs proved useful, flexible and durable.
Total Suspended Particulate Samplers had much greater flow

- Wide range of flow operating limits (39 to 60 CFM)
- Used for EPA environmental sampling
Shipping and analysis was performed by Microbiology Specialists, Inc.

- Sentinel lab in the Laboratory Response Network
- No Bacillus anthracis isolated

B. anthracis colony; overnight cultures on Sheep blood agar
Quarantine was lifted on February 12, 2007!

Thanks!

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