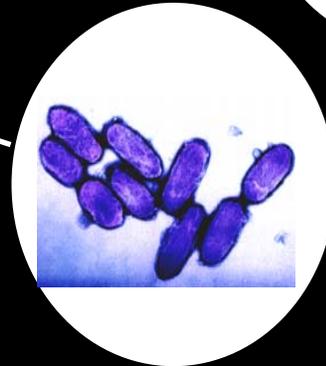
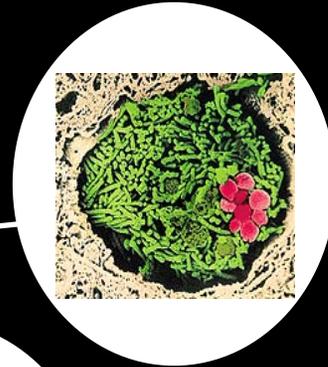
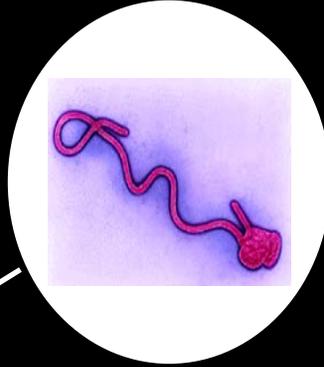
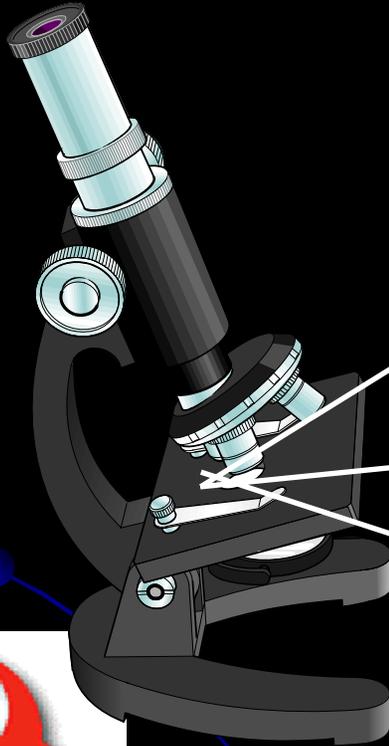


Rads, Rems, Bugs and Drugs...

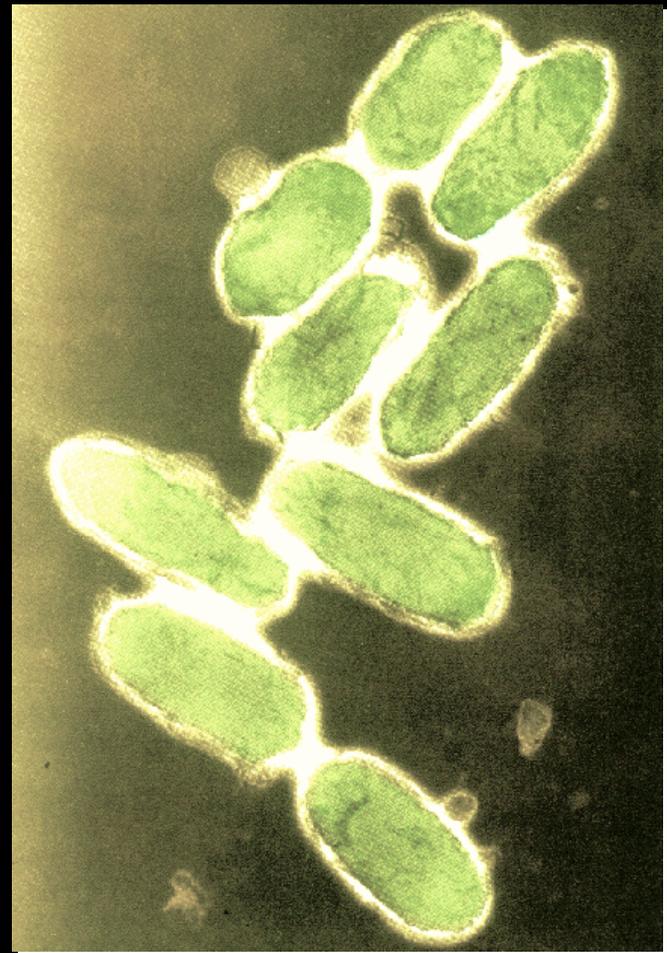
Biological Hazards Consequence Management – how does it compare to Radiological and Chemical Hazards?



Bettina Stopford RN
SAIC

Key issues for consideration...

- Biological hazards can occur in two distinct scenarios
- Both scenarios require different preparedness and response capabilities
- Ultimately, it is an effective, practiced, integrated plan that comprises the most effective response



Immediate Release Scenario

- Resembles a chemical spill or a radiological release initially
- An agent is inadvertently or deliberately release – spill, breach, escape etc.
- The release is immediately known
- Planning and response can be patterned after traditional chemical or radiological release mitigation and response plans, with some variables

Variables...

- There may be no way to quickly and accurately measure concepts such as PEL or IDLH
- Effects will be delayed, requiring long term monitoring for ultimate verification of severity of event
- Detection technologies have sensitivity and expense issues, and are not as robust as chemical and radiological detection

Planning considerations...

- Occupational Health issues are prevalent with biological agent since effects are delayed
- Requires active surveillance program
- Easy spread to neighboring community requires ongoing links to public health, medical and emergency management agencies
- Chemoprophylaxis should be planned for and readily available (agent specific)
- Ongoing environmental sampling is indicated
- Robust biosafety program with regular reviews and systems testing
- Particulate dispersion modeling may give little rapid data that would effect emergency response post release actions

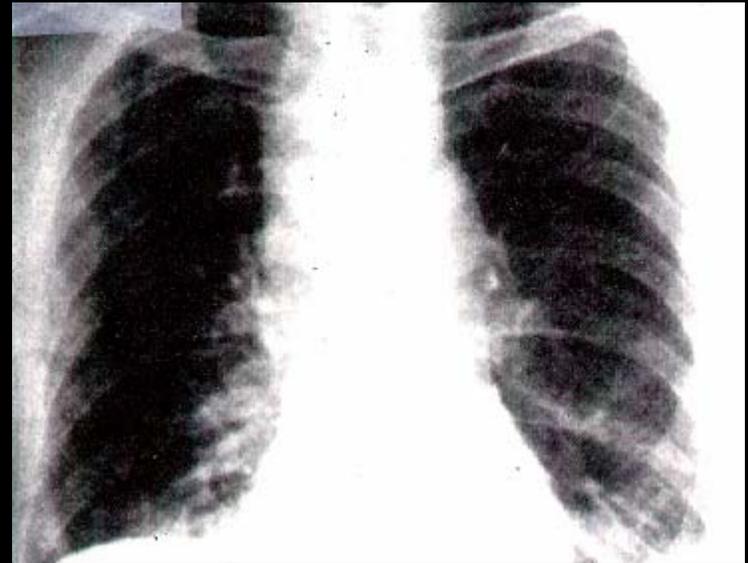
Delayed Detection of Release

- Detection will likely occur through syndromic surveillance in the community
- National public health surveillance is generally passive, and response capabilities vary widely by jurisdiction

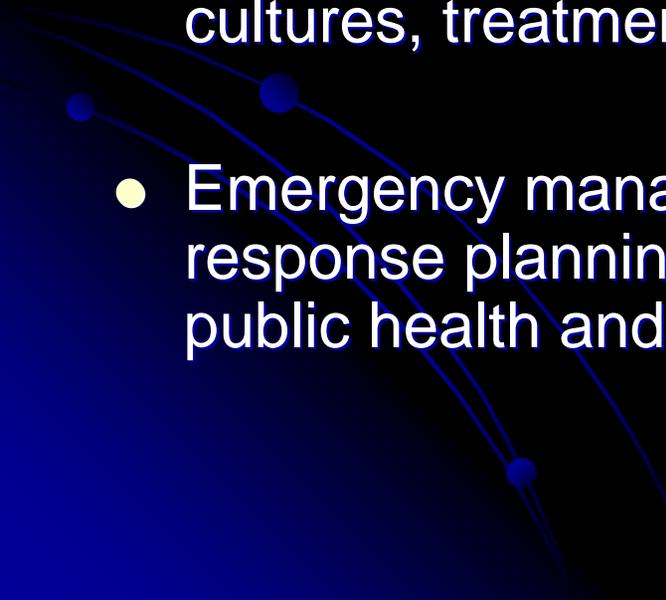


Delayed Detection of Release

- Public health may have minimal response capabilities
- They will be in charge, but will look to the site for expert guidance

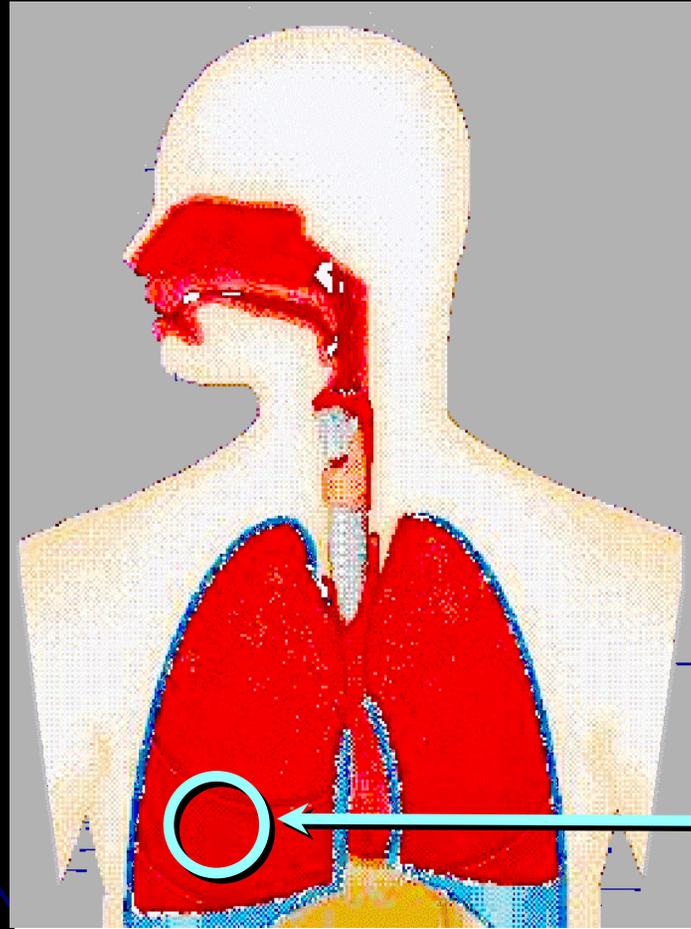


Planning considerations...

- Linked, active surveillance system
 - Review of detection technologies – sensors vs. filters
 - On-site, linked, medical monitoring, chemoprophylaxis capabilities, agent information to include relevant cultures, treatment and infectious pathways
 - Emergency managers embedded within community response planning – such as the LEPC model, but with public health and medical community
- 

Biological Warfare Agents Aerosol Particle Size

Maximum respiratory infection is caused by a particle in the 1 to 5 micron size range. This particle will reach the alveoli during normal respiration.



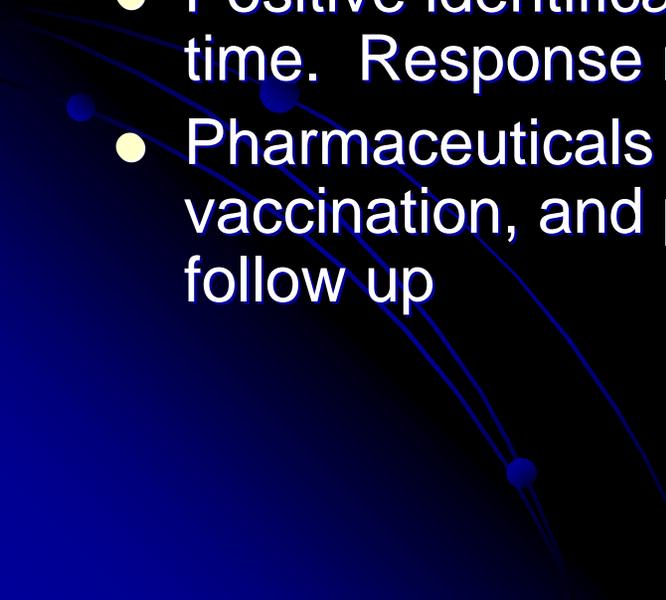
Larger particles
(trapped in
upper airways)

1-5 micron particles
(enter alveoli)

Chem/Rad similarities

- Safety processes are the key – release prevention
- HVAC, sealing breeched areas, embedded and handheld detection technologies – mitigation
- Staff training, awareness, well practiced pre and post release activities
- Pre-scripted and practiced community relations/PIO information
- Community trust and involvement with event planning

Chem/Rad differences

- Biological hazard detection may likely be medical signs and symptoms, delayed, and may occur without your knowledge in the general community
 - Limited or classified research on exposure criteria – different populations will react differently to the same exposure
 - Positive identification is via laboratory culture, and takes time. Response must occur without a definitive culture.
 - Pharmaceuticals and treatment is different, to include vaccination, and post exposure chemoprophylaxis and follow up
- 

In Summary...

- Start with known, practiced emergency response template
- Understand the differences, and plan accordingly
- Realize that relying on community based public health agencies for surveillance, diagnosis, mitigation, response and recovery is not the only answer
- Develop autonomous, yet integrated surveillance capabilities, work with occupational health to link screening and post event consequence management
- Plan, train and practice internally, and consistently with the local community

Plan, Train, Practice...

- Focus efforts on a solid, practiced biological emergency response plan - a good plan will save more lives and preserve continuity of operations than any piece of equipment

