

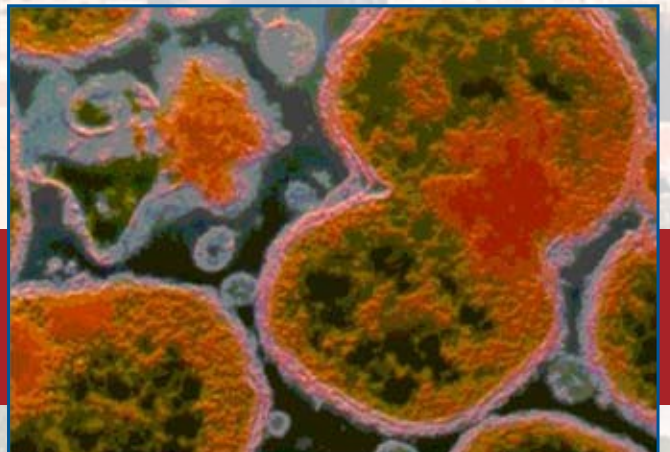
# **Anthrax Symposium**

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## **Catastrophic Incident Recovery: Long-Term Recovery from an Anthrax Event Symposium**

**Sheraton Hotel—Seattle, WA**

**March 2008**



## Acknowledgements

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# **Catastrophic Incident Recovery: *Long-Term Recovery from an Anthrax Event* Symposium Summary Report**

March 2008

This symposium was sponsored by the  
*Interagency Biological Restoration Demonstration*,  
a collaborative regional program jointly funded by the  
U.S. Department of Homeland Security and the U.S. Department of Defense.





## Executive Summary

On March 19, 2008, policy makers, emergency managers, and medical and Public Health officials convened in Seattle, Washington, for a workshop on *Catastrophic Incident Recovery: Long-Term Recovery from an Anthrax Event*. The day-long symposium was aimed at generating a dialogue about restoration and recovery through a discussion of the associated challenges that impact entire communities, including people, infrastructure, and critical systems.

Three nationally recognized experts discussed the properties of anthrax as an agent, the medical oversight of the 2001 anthrax event, and the socio-psychological residue of an anthrax event. Three afternoon panels focused on the long-term impacts to sectors and communities, including the potential economic implications, the possible impacts on public health and medical services, and the decision-making framework that would prioritize recovery efforts.

Key topics and issues that resulted from discussions included:

- impact of the dispersibility of anthrax
- resources (especially for health care) and logistics required to handle an event of this scale
- fear management and restoring confidence
- paramount importance of communication among and between all levels
- command and control across jurisdictions
- the trickle-down effect of commerce and the need for small businesses to be engaged in planning and preparing
- medication dissemination and prescription follow-through
- economic impact on the health care system of the under- and uninsured
- need for cooperative politics and engaging elected officials.

The symposium was sponsored by the Interagency Biological Restoration Demonstration, a collaborative regional program jointly funded by the U.S. Department of Homeland Security and the U.S. Department of Defense. To aid the program's efforts and inform the development of blueprint for recovery from a biological incident, this report presents the key issues identified at the symposium.

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## Introduction

Much attention to date has been focused on the immediate response to catastrophic events, while defining the next steps—how to recover from events and restore communities to normalcy—remains largely unexplored. The purpose of the workshop was to bridge that gap and begin to identify recovery issues, concerns, and needs.

By increasing the knowledge of anthrax as an agent of bioterrorism, the symposium also educated policy makers, emergency managers, and medical and Public Health officials.

The symposium was sponsored by the Interagency Biological Restoration Demonstration (IBRD), a collaborative regional program jointly funded by the U.S. Department of Homeland Security (DHS) and the U.S. Department of Defense (DoD). The IBRD program is aimed at developing policies, methods, plans, and applied technologies to restore large urban areas, DoD installations, and critical infrastructures following the release of a biological agent.

This workshop report presents the key issues identified during the symposium that will help to inform the development of a blueprint for recovery and restoration following a biological incident. This report provides summaries of the presentations, each followed by the key points; questions and answers with the presenters; reviews of the panels, starting with the key points; and a concluding discussion about the key issues identified overall. The Appendices provide acronyms, the symposium agenda, the presentations, speaker and presenter biographies, questions and answers, and participant contact information.



*Left to right: Steve Stein (Pacific Northwest National Laboratory [PNNL]), Carl Brown (DoD), Lance Brooks (DHS), Ann Lesperance (PNNL) and Ron Sims (King County Executive) snapped a photo during a lunchtime break.*



## Anthrax—It's the Spores...

Dr. John D. Malone (“JD”) is an infectious diseases physician with a master’s degree in Public Health and is Program Manager for the Center for Biological Monitoring and Modeling at PNNL. Dr. Malone started the day with an excellent overview of anthrax characteristics and the mitigation of infectious anthrax.

Anthrax spores have a heat-resistant outer coating that enables them to last up to 40 years in the environment. A consequential feature of the anthrax spore is its size, a diameter of about 3 to 5 microns (many thousands could fit on head of a pin). Weaponized anthrax spores may be smaller—1.5 to 2 microns in diameter—and highly concentrated. Weaponized anthrax travels quickly through air and is easily dispersible, and may also be genetically engineered to have a reduced susceptibility to penicillin or an increased toxin potency. The lethality of *Bacillus anthracis* is due to the three types of toxins produced when it invades a cell (a lethal factor, an edema factor, and a protective antigen), which, in combination, cause an overwhelming inflammatory response.

There are three infectious forms of anthrax—pulmonary, cutaneous, and intestinal. The chief pathway for infection is inhalation, as the tiny size of the inhaled spores allows them to enter directly into lung sacs. The cutaneous form of anthrax is naturally occurring in the United States and results in a raised skin lesion with a black center. (This is commonly misinterpreted as a spider bite; the difference is that the anthrax lesions are painless.)

The number of spores thought to be required for lethal exposure changed after 2001, and it is now known that a scant few spores can result in death of the elderly, young children, and immunocompromised individuals. (The 94-year-old woman who died from anthrax in 2001 was probably exposed to only 1 to 3 spores.) Typically, however, 18-800 spores are enough to produce illness in an individual. Time-to-illness can be from one to four days, but the period is dose-dependent and can be up to several weeks.<sup>1</sup> The number of spores required to produce a skin lesion is not known.

The anthrax vaccine is safe and effective and requires annual boosters, but it does not result in immunity. When entering a potentially contaminated area, immunized responders should wear personal protective equipment. Spores can be dispersed very rapidly throughout a building via aerosolization, and movement should be minimized to prevent re-aerosolization. Anthrax spores in the water supply are not considered a threat (dilution, filtration, and chlorination help). Decontamination requires copious amounts of water with soap. Clothing should be sealed in plastic bags. Bleach solutions are effective for cleansing surfaces, but should not be used on skin. Alcohol hand cleansers are not effective.



*Dr. JD Malone of PNNL explains that the lethality of *Bacillus Anthracis* is due to toxin produced when invading cells of the body.*

<sup>1</sup> Meselson M, J Guillemin, M Hugh-Jones, A Langmuir, I Popova, A Shelokov, and O Yampolskaya. 1994. “The Sverdlovsk anthrax outbreak of 1979.” *Science*, 266: 1202–1208.

The most effective treatment for anthrax is the vaccine with a combination of antibiotics,<sup>2</sup> which vary depending on the infection and patient sensitivities. For pulmonary anthrax, three antibiotics (e.g., quinolone—ciprofloxacin, clindamicin, penicillin) are administered. After 60 days of vaccine and antibiotics, the antibiotics should be continued for an additional 30 days. Supplemental quantities of the vaccine and antibiotics are available from the Strategic National Stockpile (SNS).

## Key points about anthrax

- The size of anthrax spores makes them highly virulent via inhalation. Pulmonary anthrax is far more potentially lethal than cutaneous.
- The number of spores required for lethal exposure is extremely low, especially for individuals with immunocompromised systems.
- Weaponization of anthrax makes it extremely dispersible. This should be of chief concern during remediation, as it easily re-aerosolizes.
- The anthrax vaccine is safe and effective. It requires annual boosters.
- First responders should wear personal protective equipment (PPE).



*Speakers Dr. Martin, Dr. North, and Dr. Malone discuss the implication of an anthrax event with Ann Lesperance before the event begins.*

<sup>2</sup> Friedlander AM, SL Welkos, MLM Pitt, JW Ezzell, PL Worsham, KJ Rose, BE Ivins, JR Lowe, GB Mikesell, WB Lawrence. 1993. "Postexposure Prophylaxis Against Experimental Inhalation Anthrax." *The Journal of Infectious Diseases* 167(5):1239-1243.



## Anthrax at the Capitol! Lessons Learned from 2001

Dr. Gregory Martin is an infectious diseases physician and Program Director for the Infectious Disease Clinical Research Program at the Uniformed Services University of the Health Sciences in Bethesda, Maryland. (The opinions expressed in Dr. Martin's talk should neither be construed as official views of the U.S. Navy nor the DoD, and the described use of antibiotics and vaccines here is FDA unapproved.)

Dr. Martin provided medical oversight of the 2001 anthrax event in Washington, D.C. The event revealed that many previous understandings of anthrax and how to respond were inaccurate. For example, the extreme dispersibility of anthrax spores was not well understood at the

time, and two floors of the building were evacuated while the rest of the building remained occupied. It was also discovered that shutting down ventilation is very challenging for large buildings—response planning should include this factor and involve engineers.

There was limited knowledge in the community about bioterrorism, so local response had not been established. Incident response became a massive coordination effort of local and several federal agencies and medical and remediation teams. Communication was of paramount importance, including frequent team meetings, daily briefings to the Senate, House, and office staff, and daily conference calls between Capitol Hill medics and the hospital community.



*Dr. Gregory Martin of the U.S. Navy presents the lessons learned from the 2001 anthrax event in Washington, D.C.*

Managing panicked people was a challenge, and hospitals were overwhelmed by the “worry well.” Five days after the event and beyond, people still wanted nasal swabs to rule out exposure. Most ERs had little or no information on handling anthrax. It was also found that calling patients with test results was inadequate—an offsite area should be set aside to share results in person.

Regarding prophylaxis, experience showed that using the anthrax vaccine post-exposure can be effective. Pre-event, it was assumed that 60 days of antibiotics would be sufficient to prevent inhalation anthrax, but that is now questionable. Antibodies do not remain in people after antibiotics are stopped, making infection still possible.

Contamination, remediation, and dispersion were significant issues. Prior assumptions about spore dispersion (e.g., handling unopened envelopes would not result in significant aerosol dissemination, or opening a letter containing anthrax spores would contaminate only a small area) were inaccurate and dramatically insufficient. (Dr. Martin cited Canadian studies that concluded that anthrax spreads like a gas.<sup>3</sup>)

The cost for remediation was \$23M (\$27/square foot), in contrast to the EPA's original estimate of \$5M. Senator Daschle's office was stripped to bare cement, the furniture and computers were discarded, and artifacts were irradiated. Sandia decontamination foam was used and the area was gassed with gaseous chorine dioxide. And yet, spores re-aerosolized. Sixty

<sup>3</sup> Kournikakis B, SJ Armour, CA Boulet, M Spence, and B Parsons. 2001. Risk Assessment of Anthrax Threat Letters. Technical Report No. DRES-TR-2001-048, Defence Research Establishment Suffield, Canada.

days following the release, floor-level measurements under semi-quiescent conditions yielded 170 CFUs, and 11,000 CFUs with active disturbance.

Since the event, knowledge nationwide has improved dramatically; spending has skyrocketed, and research in many neglected areas is improving, although some complacency is setting in.

## Key points about the Capitol Hill event

- A well-structured response is critical—it can calm the masses.
- Constant information briefs help control the media frenzy.
- Anthrax spores are readily dispersible in the extreme; movement should be kept to a minimum to prevent re-aerosolization.
- HVAC system shutdown is critical in an anthrax event, but requires careful planning ahead of time to execute promptly.
- Cleanup costs are significant and easily underestimated.
- Responders should be prepared for the fact that most ER physicians do not know about anthrax.
- Post-exposure, Dr. Martin recommends immediate vaccination and antibiotics.
- Demand that first responders have access to immunizations.
- A 60-day course of antibiotics is not enough, especially if patients are not immunized.
- If giving prophylaxis, give 7–10 days to allow adequate time for testing and results (intolerance is common with multiple antibiotics).
- Not every spore kills—it depends on immune responses.
- Obtain work and home phone numbers of patients as well as exposure history at time of sampling if possible, but provide test results in person, not over the phone.
- NEVER base diagnosis just on a gram stain; do not release results as positive until confirmation via PCR, DFA, and/or  $\phi$  phage.

Following Dr. Martin's talk, the floor was open for questions from the audience:

- *What is response protocol? Who brings the vaccine?* The Centers for Disease Control and Prevention (CDC) likely will deliver the vaccine. We should be pushing for hazardous materials (HAZMAT) workers to be on a immunization program.
- *How long does the vaccine last?* After the initial series of doses in the first year, annual boosters are needed.
- *What happened that the 1st responders were exposed?* The first responders were exposed because they opened the rest of the letter while investigating the scene.



## Psychological, Behavioral, and Social Responses

Dr. Carol North is Professor of Psychiatry at the University of Texas Southwest Medical Center, Department of Psychiatry, whose epidemiology research is focused on disasters.



*Dr. Carol North, University of Texas, shares the psychological, behavioral, and social responses related to bioterrorism events such as an anthrax exposure.*

Dr. North discussed the psychological, behavioral, and social responses to the Capitol Hill attack based on interviews that were conducted within months of the event.

Bioterrorism is “stealth terrorism”—it’s sneaky, uncertain, and invisible. Not knowing can be a worse experience than knowing the worst, and the psychological reaction is part of the terror. Furthermore, bioterrorism easily overwhelms the health-care system as providers of health care become essentially first responders.<sup>4</sup> Add to that the stress caused by treatment: immunization, infection control, decontamination, and quarantining all elicit strong reactions. This was all exemplified in the reactions to the Capitol Hill incident.

**Stress.** Most interviewees had been significantly stressed, regardless of whether they

were in the hot zone or not. Displacement and disruption of work was as stressful as the event itself. Media sensation also added to stress levels. Interviewees were angry at the news media for over-dramatizing events or conditions. It caused family and friends to worry excessively, which was burdensome to the interviewees and impeded their ability to be supportive.

**Perception.** It is challenging to determine the exposure boundaries of a hot zone, and this uncertainty leads to perception—driving fear as much as actual reality does. Perceived exposure of the interviewees did not correspond with actual physical contact or contamination—many who were not in the hot zone believed they had been exposed. Interviewees also had ongoing concerns about the effects of remediation (e.g., irradiated mail). This was likely a result of a lack of advanced planning, and a lack of cohesion in the decision process for determining the remediation process.

**Medical procedures.** Testing and administering of antibiotics were conducted in a group setting, with no privacy to discuss medications, and a lack of reassurance. Interviewees were not confident about the extent of testing. Because health care providers were focused on pathology, not psychology, interviewees were annoyed by “that’s normal” responses from them, rather than questions about *why* they were feeling what they were feeling.

**Prescription adherence.** Adherence to medication dosage schedules was alarmingly low. Nearly half of those interviewed said they had stopped taking it prematurely, due to side effects or feeling better (deciding it wasn’t needed). The news media also influenced prescription adherence.

<sup>4</sup> Norwood AE, HC Holloway, and RJ Ursano. 2001. “Psychological Effects of Biological Warfare.” *Military Medicine* 166(12 Suppl):27-28.



**Authority.** Many interviewees who were in the hot zone lost trust or esteem in the authorities. One factor came from interviewees being tested in the same building as the contamination. Another factor was the lack of information. There were disconnections among authority, and stories and messages changed, and interviewees became unsure of who to trust in the health community. Interviewees said they found out most things via the media, often hearing it on CNN before hearing it first-hand from officials. Most of them wanted to receive information and guidance directly from their leader.

**Communication is the key.** Because mental health effects follow perception more than reality, risk communication is a critical component in bioterrorism response. By making people feel better appropriately in early stages, thoughtful communication is mental health intervention. Some communication do's and don'ts include:

- Listen to concerns, and respond to emotions with empathy—not facts.
- Exemplify calm and control.
- Be honest, and get the facts right. If you're not sure, say so.
- Avoid speculating or projecting, and don't give any guarantees.
- Accept blame if it's appropriate, and avoid becoming entangled with criticism.
- Communicate what you do know and provide boundaries around the unknown.

## Key points about the social response

- The uncertainty factor in bioterrorism has an acute influence on mental health effects.
- The mental health effects of bioterrorism are very similar to influenza or staph epidemics—the two groups should get together.
- Responses from interviewees focused mostly on safety concerns and being informed. There was little about Post-Traumatic Stress Disorder (PTSD), but a lot about stress.
- Mental health effects followed *perception* of exposure, not reality.
- There must be a well-established response plan in place, including
  - privacy provided for testing exposed individuals and sensitivity training to respond to their concerns.
  - a planned decision process for how the remediation strategy is to be selected.
  - plans to address prescription adherence; the vast majority of interviewees did not follow/complete prescriptions as directed.
- Risk communication is critical—thoughtful communication is mental health intervention.
  - Listen and respond with empathy.
  - Be a model of calm and control.
  - Be honest and certain about the facts.
  - Accept blame, but focus on the solution, not the accusation.
  - Communicate what is known, and set boundaries around the unknown.

## Q&A Discussion with Presenters

### *What are the mental health effects on first responders, especially in bioterrorism?*

We have not studied first responders in bioterrorism, nor is much literature available. In the Navy, the things that minimize the effects of combat are leadership, unit cohesion, training, and trust in equipment—which would likely be the same for the health-care system.

### *For initial testing in buildings by first responders with field assay equipment, how good is that equipment, how much should be invested, and what is your impression of the value of the equipment (especially if a state lab is nearby?)*

This is controversial area. In certain high-risk areas, it's worthwhile for them to have it right away, like on Capitol Hill. Equipment has improved but is not yet all that specific (often find false positives, and with low numbers of spores, false negatives). There is value to having it; you need some mechanism to get rapid results, even if a really good local lab can provide immediate testing within hours. It would also help to quickly defuse anthrax hoaxes.

### *It's not surprising that involved people get upset with the media. What do you suggest response organizations do in the preparation stages to get facts to media for better reporting?*

It is definitely recommended to develop a trusting relationship with the news people in advance so that when something happens, you can limit the damage because they will call you and not someone else. It appears that Seattle is ahead of that curve.

### *Were you involved with the group that determined which remediation tactics to take?*

(Martin) was only peripherally involved; it was very controversial at that point, and quite political about what would be used, and what agencies would be involved. Eventually it was a smaller body, headed by the EPA, who took control that helped, but at that point no one could do it right—people were upset that there was no right answer.

### *Regarding people falling off of taking their medication, do you have suggestions on creating a mechanism to reach to them during that time, to encourage them to follow through with the regimen?*

This has a similarity to the Human Immunodeficiency Virus (HIV) population—it is very important to take all meds, every day, on time. Psychosocial support groups and friends and family following up help this well, through accountability and encouragement. It's important the patient has a relationship with someone they would not want to let down. During the interviews, nurses occasionally got folks who treated it like a confessional, who often felt guilty, wanted to know what they could do to “make up for it”—change the regimen? Despite the surprising guilt they felt, many still didn't take it.



*Ann Lesperance moderates the question-and-answer session with the panel of presenters.*

### *What about socioeconomic issues for evacuation? As an example, after Katrina, the folks who had money simply left—but there were many left in the city who were poor or from young crowds. Have you thought about how to reach out to them?*

We learned a lot from Katrina that's wrong in this culture, emphasizing the need to focus on response/recovery/support for ALL of the community, to ensure we learn how best to support the community's own residents. Seattle has good leadership from elected officials, invests in it, and direct agencies to address “vulnerable populations.”

The key is to understand how other people receive information and respond so we can change how we operate. In the case of Seattle's widespread power outage, just warning people on television, radio, and newspapers about carbon monoxide from charcoal and gas stoves didn't work because many people didn't speak English and didn't get the warnings—resulting in several deaths.

Isolated and vulnerable populations and issues include:

- those without their own physician and the homebound
- nursing homes needing fuel for emergency generators
- special clinics to handle people with critical needs
- dealing with some elderly and some people from other countries who don't trust the government and would not respond well to being removed from their homes
- language barriers.



*Ron Sims, County Executive, King County, praises the workshop participants while providing his remarks and observations.*



## Long-Term Economic Implications (Panel 1)

The first panel focused on the potential long-term economic implications and requirements for recovery. To represent a range of sectors, Panel 1 included Charles Axton, Director of Disaster Assistance, Federal Emergency Management Agency (FEMA) Region 10, Dick Walter, Vice President of Operations, Association of Washington Business (AWB), Ron Harmon, Emergency Management Director, Port of Seattle, and Charles Mattes, Senior Director of Global Security, Tischman Speyer.

### Key issues

- Toward economic recovery from an anthrax event, which has many potential economic elements, FEMA's contribution is limited to coordination and technical assistance, and other government agencies need to be engaged to support recovery efforts.
- Communication in the event of a disaster is a major concern and should be well planned in advance, including reaching small businesses in an emergency that don't have contingency plans.
- Small-to-medium-sized businesses need to be engaged in planning and preparing and encouraged to have contingency plans.
- The Port is integral to the region's economy—its impact is far-reaching.
- How do we respond to an aerosolized release in an urban environment? How do we contain the event in the time it takes to assess it?
- How do we physically decontaminate the huge, complex area occupied by the Port?
- How do we test whether active spores are still in a building? And, how do you clean it up? Any given large building will have multiple owners, requiring coordination of cleanup. There will also be issues of competing for qualified cleanup resources.
- It is essential to learn how to manage fear. How do you convince people that a building has become safe again? Down the road, how do we overcome the perception of the whole place being tainted?



*Facilitator Mike Midgley of Cubic directs a question from the audience to panel member Dick Walter, VP of the AWB who encouraged engaging businesses as communication conduits, and recommended contingency plans for small businesses. (Pictured from left to right: Mike Midgley, Charles Axton, Dick Walter, Ron Harmon, Charles Mattes)*

**The government's and FEMA's roles.** The government can be expected to provide an adequate command center and structure to hold the city, and to provide well-trained first responders. FEMA works with 1) the Federal Bureau of Investigation (FBI) as the lead law enforcement organization, to ensure efforts are coordinated in a unified manner; 2) other federal agencies (e.g., the U.S. Department of Health and Human Services [HHS] and the U.S. Environmental Protection Agency [EPA]), to provide additional technical resources if needed; and 3) the state, to facilitate needed resources for state operations.

**Funding.** Toward economic recovery, FEMA's contribution is limited, and other government agencies need to be engaged to support those recovery efforts. If a Presidential declaration of a disaster is established, FEMA can use funding mechanisms to reimburse the state, county, or city; or to bring other resources to bear on debris removal, remediation, emergency notification, security of perimeters; as well as sort out the legal responsibilities of agencies such as HHS and EPA.

## Communication

- **Across jurisdictions.** Disaster recovery exercises consistently reveal a need for improved communications (e.g., processes or tactics are inconsistent). It is critical to stay in communication with the entire city/region, provide accurate info on all aspects of an incident, and provide it in time to be acted on.
- **With the public.** Communication plans must be established before an event, and the public needs to know what to expect. The Severe Acute Respiratory Syndrome (SARS) outbreak in Hong Kong demonstrated that you must have accurate local and national government communications and convey sufficient information to the public well enough to allay fear. FEMA has the systems and capabilities to ensure that the information is 1) processed to be unified by all agencies and responders, and 2) coordinated to be made available to the public.
- **With small business.** Communication must reach small businesses, which then must be incentivized to engage. Many government workers aren't necessarily aware of what triggers businesses to take (or not take) action. Also, business owners and managers don't understand many of the acronyms that are being used and thus aren't sufficiently informed. Communication must be clear so that businesses can: relate and react to the information; know what to do, where to go, how to clean, how to handle inspections, how to get operations up and running, how to handle the psychological aspects; and trust in the government.
- **Technologies.** A database is key. If communication systems such as cell phones, TV, and radio go down other means may still function, such as text messaging. Youtube.com can be used to reach younger audiences. This should all be considered when planning in advance.

**Contingency plans for small-to-medium-sized businesses.** Small businesses have had little involvement in planning and preparing. Of particular concern are contingency plans. In a disaster, how can these businesses be reached? How do we get them to react appropriately? (People are driven first by personal safety and then by family concerns, and they would likely flee the scene and go home – with potentially dire consequences in the case of an anthrax event.) The AWB can help engage local chambers to provide outreach and incentivize businesses to get involved. For example, insurance companies offering a reduction in their rates for businesses with contingency plans in place could help involve more businesses.

**Business viability after an event.** What can we put in place to incentivize businesses to stay in business? We need to build a recovery plan with enough flexibility so that government agencies can help (e.g., with permitting processes or tax breaks). Also, nearly half of small businesses are funded with credit cards, and very few have alternative suppliers. We may need to bring banks together for financial aid. (There is a Federal Deposit Insurance Corporation [FDIC] initiative to provide aid to that sector of society.)

The Port of Seattle is integral to the region's economy. If the Port doesn't operate, many businesses would suffer, producing an immediate economic reaction in the region. The Port's critical dependency is the system itself, because everything is intermodal—they are all time-critical, all interconnected. (For example, in the December 2007 I-5 floods, trucking, rail, air, and ship cargos all suffered.)

**Decontamination and cleanup.** The HVAC system can increase the likelihood for an entire building to be infected, depending on the type (central core versus floor-specific), the source (external release versus inside the building), and the time of year (bringing in outside air or recirculating). Few companies can actually test for contamination of anthrax spores. Any given large building will have multiple owners, requiring coordination—partners must agree to the expenditures for decontamination of large areas. If many buildings are involved, com-

petition for qualified testing and cleaning companies will become an issue. And how do we physically decontaminate the huge, complex area occupied by the Port?

**Overcoming perceptions and reoccupying.** How do you convince people that a building has become safe again? How do we overcome the perception of the whole city/region being tainted? Building confidence and changing perception of an area after an anthrax attack would take extensive time and investment, and commerce is fickle—if a port has to be rebuilt, businesses will move elsewhere and not return; moving is expensive.



*Charles Axton, Division Director, Disaster Assistance for FEMA Region 10, answers a question from a workshop participant.*



## Public Health and Medical Services Implications (Panel 2)

The second panel focused on the impact to the health-care community and the major factors to consider from that perspective for recovery planning. Panelists included Anne Newcombe, Clinical Nurse Manager of Emergency Services, Harborview Medical Center, Michael Loehr, Director of Preparedness, Seattle/King County Public Health, Dr. Chris Littell, Officer, Public Health Emergency, Fort Lewis, John Erickson, Special Assistant, Washington State Department of Health, and Richard Marks, President, KPS Health Plans.

### Key issues identified during the panel on health care system impacts:

- An event of this scale calls for massive logistics operations for medication distribution, hospital supplies, etc. Private sectors can help solve that problem.
- Establish a clear command structure for Roles, Responsibilities, Accountabilities, and Authorities (R2A2), across local jurisdictions and levels of government, and the prioritization of resources.
- How do we handle the increase in demand as available resources (beds, supplies, staff) diminish?
- How do we determine the hot zones and who was exposed? How do we advise the public on who needs to seek care? We need to manage that demand, standardize care amongst providers, and communicate it to the public.
- We must protect our health-care providers and responders. How do we keep them coming to work? How can we ensure their good health and insurance?
- How do we handle the under- and uninsured? Our health-care system is crumbling, and a major disaster will cause severe economic problems.
- Plenty of consistent communication may be the most important thing to help people get through such an event—from and between all levels. This must include plans for isolated and vulnerable populations.
- Elected officials need to be engaged. Send them this report? Also, the governor has many opportunities to make decisions.

**Communication.** Drills and exercises continually demonstrate that communication breaks down and needs to be improved. Risk communication helps address the public fear factor. Communication to the patient must begin before they even become a patient (e.g., during the Seattle power outage, families and cell phones were needed to get the message out about



*The Public Health and Medical Services Implications Panel focused on the impact of an anthrax-type event to the health-care community. Richard Marks, President of KPS Health Plans, responds to a question and shares his concerns for vulnerable populations, indicating that Hurricane Katrina was a good lesson learned for insurance companies. (Pictured from left to right: Mike Midgley, Richard Marks, John Erickson, and Dr. Chris Littell. Not pictured: Michael Loehr and Ann Newcombe)*

carbon monoxide.) How do we communicate to the appropriate sectors and special populations? Providers, insurers, and the state will need to consistently deliver the same message. Also, the right message needs to go to health-care employees, so that they aren't afraid to come to work.

**Command and control across jurisdictions.** There are inherent multi-jurisdictional conflicts necessitate a clear command structure for R2A2 across local jurisdictions and levels of government, and the prioritization of resources. We need joint decision-making. Elected officials need to be continually engaged.

**Determining exposure.** In an urban environment, the time lapse from release to symptoms makes evacuation an unlikely option. The goal would be to mobilize treatment to treat as many people in place as quickly as possible, and augment that capacity. How do you determine who was exposed and what does that mean? How long is exposure viable? How would isolation and sheltering be enforced? Quarantine would probably have to be voluntary.

**System overload.** How do we deal with the influx of people who think they've been exposed—and keep them separate from normal ER patients? As demand increases and hospital capacity decreases, the personnel pool would shrink, resources would become scarce, and services would have to be prioritized. Medical supplies would quickly run out, and other limited resources (e.g., ambulances, travel ways) would potentially cause a competition between jurisdictions.

**Large-scale logistics.** An anthrax event could infect or potentially infect hundreds of thousands; we need to focus on logistical preparedness. The private sector has expertise in moving products efficiently and quickly. Plans exist for getting the SNS supply to states for local distribution, but long lines could become a security issue without enough staff to oversee distribution.

Potentially distribute via some public facility? Could pharmacies provide it prescription-free for 60 days? Would insurance consider pre-distribution of medication to subscribers?

**Establishing emergency health-care standards.** Clinical practice guidelines should be established and treatment regimens should be standardized as much as possible. Every hospital must have the same contingency plan. The capacity issue at hospitals would mean changing our standard of care (e.g., lower RN-to-ventilator-patient ratio), but hospitals are not willing to accept the liability of making those decisions.



*Ann Newcombe, Harborview Hospital, responds to a question, sharing her insights on communicating with patients and families to leverage their respective personal communication networks during such an event. Seated with her is Michael Loehr, Seattle/King County Public Health.*

**Care for health-care responders.** Personnel may become isolated and unable to get to or away from hospitals. We need to protect our health-care responders. How can we assuage their fear and ensure that they show up to work? How can we help them through the trauma? What about their insurance—especially volunteers? (Perhaps there are “war on terror” exclusions to Labor and Industries [L&I]?)

**The under- and uninsured.** There would be a huge impact of the uninsured, especially as jobs are lost as a result of the event. Already, uninsured patients are on the increase (1 in 7 are uninsured), so the financial fallout for local healthcare systems could be severe. Since triage should be based on clinical needs and not a “wallet biopsy,” this may require standing up additional facilities.





## The Decision-Making Framework for Recovery: Key Questions and Prioritization (Panel 3)

How do you make decisions for long-term recovery at a regional level? What are the factors and priorities? How do you allocate resources and restore confidence? The decision-making framework for catastrophic incident recovery requires the identification of such questions and the criteria to prioritize and answer them. The third panel tackled these issues, with members Gil Kerlikowske, Chief of Police, Seattle Police Department, Barb Graff, Director, City of Seattle Office of Emergency Management, Steve Bailey, Director, Pierce County Emergency Management, James Whitfield, Regional Director, DHHS Region 10, John Pennington, Director, Snohomish County Emergency Management, and James Kane, Plans Officer, Fort Lewis Plans, Training, Mobilization, and Security.

### Key issues identified during the panel on a decision-making framework for recovery:

- The response effort from law enforcement becomes very complex. Plans should aim to reduce the strain on law-enforcement resources whenever possible.
- We're not very good at the transition from emergency response to recovery. How do we set the priorities? What are the criteria to decide what gets done first?
- At the end of the emergency stage (months and years down the road), where do needed resources come from and how do we define the endpoint of restoration?
- How do we ensure, on a regional level, that the right elected officials are making the right decisions? How do we engage them?
- We need to ensure true continuity across government levels and across the state's many overlapping jurisdictions. What agency or level of government is most appropriate to lead a cross-jurisdictional effort?
- Communication is a big issue. We need to include vulnerable and isolated populations in the plans, and communication channels must be tested in advance.



*The third panel focused on decision-making frameworks for recovery of an anthrax-type event in the Seattle area. Panel members included Jim Kane, John Pennington, James Whitfield, Steve Bailey, Barb Graff, and Gil Kerlikowske.*

- Funding is an issue—without funding mechanisms in place, things don't get done in a timely manner.
- Keeping order regarding treatment, getting medication, and prioritizing patients is a concern. We should use the media to help control chaos.
- We must ensure that the state pulls the pieces together to examine what long-term recovery will look like.

**The strain on law enforcement.** The response effort from law enforcement becomes very complex; catch the “bad guy,” provide emergency response, and perform a multitude of other responses. Plans should seek to reduce the strain on law-enforcement resources whenever possible.

**Defining recovery and transitioning from response.** This kind of emergency would last for a very long time, so the recovery plan should be implemented even during response. Also, the Emergency Operations Center (EOC) structural integrity must be maintained over the long-term response, with an overlap to recovery. How do we go about setting the priorities to return to business as usual? What are the criteria to decide what gets done first? Where do needed resources come from for long-term recovery, and how do we define the endpoint of restoration? What specific resources are available now, what are their capabilities, and are we aware of that across the nation?

**Engagement of elected officials.** Recovery involves a multitude of local elected officials. People are already overwhelmed with important initiatives—how do we engage them? Who makes the decisions for recovery? How do we get the right officials engaged in making the needed decisions? Who will feel left out? To prevent misinformed criticisms of decisions, we need to ensure that opposing political figures have key information.

**Roles and continuity.** The state has many overlapping jurisdictions. Who does what? What agency or level of government is most appropriate to lead a cross-jurisdictional effort? We need to ensure true continuity of government across levels. Not everyone “speaks federal,” and plans must be developed for all governments. The federal government understands that emergency response is the local government’s first responsibility, but they need continual information to know it’s being handled. How can the Feds be present and helpful without federalizing the situation?

**Communication.** A big challenge to being prepared is apathy (e.g., “terrorism is an East Coast phenomenon”). We need to have a good plan for reaching out, including vulnerable and isolated populations. We have to test the communication channels in advance. To help keep order regarding treatment, getting medication, and prioritizing patients, there needs to be control of the chaos through media and public information.

**Funding.** Without funding mechanisms in place, things don’t get done in a timely manner. Without the Stafford Act (presidential declaration of disaster) to release federal funding, we are “dead in the water.”



*James Whitfield, Regional Director for DHHS Region 10, expresses his concern that key information be shared efficiently across jurisdictions during such an event to ensure appropriate and timely response.*



## Conclusions

Interest in recovery, because it is long-term, may fade before the recovery is complete. This possibility was reflected in the symposium, as the discussion frequently turned its attention to response rather than recovery.

Following are the key issues—a combination of response and recovery—that were most often discussed or raised the greatest concern throughout the symposium.

**The dispersion of anthrax.** Anthrax spores, particularly the weaponized form, are likely to cover a wider area than most people expect. The number of spores required to infect individuals depends on their physiology and can be a very small number. This, combined with the efficiency of dispersion, can make it very difficult to accurately identify the affected population, particularly the part of the population that has absolutely not been exposed. Some infrastructure adaptations could be used to substantially reduce population exposure. For example, buildings should be designed with independent ventilation systems for each floor so that they can be shut down more easily.

**Resources.** Such an event calls for massive logistics operations for medication distribution, hospital supplies, etc. How do we handle the increase in demand for care as available resources (beds, supplies, staff) diminish? Private sectors can help solve that problem of distribution. Also, we must protect our health-care providers and responders. How do we keep them coming to work? How can we ensure care for them (and their families) and their insurance needs? There will also be issues of competition for qualified cleanup resources.

**Fear management.** It is essential to learn how to manage fear. Keeping order regarding treatment, medication provisions, and patient prioritization is a strong concern. The uncertainty factor in bioterrorism has an acute influence on mental health effects (the mental health effects of bioterrorism are very similar to influenza or staph epidemics), and the effects are driven by perception more than reality.

How do you convince people that a building has become safe again? Complete recovery (zero viable spores) is stunningly expensive, making psychosocial aspects of recovery a critical component of a successful effort—especially if a large area is tainted. Down the road, how do we overcome the perception of the whole Seattle Seaport being tainted?

Media has an enormous influence and should be strategically implemented. Trusting relationships should be developed with news people in advance, so that when something happens, you can limit the damage because they will call you (and not someone else).

**Communication, communication, communication.** Communication in the event of a disaster is a major concern abundantly echoed during the symposium. Risk management and risk communication will be critical in the recovery process. Communication should be well planned in advance, including vulnerable and isolated populations; this has not really been done. We also have to test the communication channels in advance.

Plenty of consistent communication is probably the most important thing to help people get through such an event—from and between all levels. One of FEMA's roles is to unify communications and the messaging that goes to those affected and the rest, including family and community and potentially global news media. That information must be processed and unified by all agencies and responders, and coordinated to be made available to the public.

News media is a major factor. People get their information from the media, and media coverage has a deep and broad impact. It affects stress levels, people's perception of their risk, the families of the involved, even medication choices. For people directly involved in



an emergency, hearing information from the media instead of first-hand has extensive ramifications. Thoughtful communication is mental health intervention.

**Command and control across jurisdictions.** The state has many overlapping jurisdictions. What agency or level of government is most appropriate to lead a cross-jurisdictional effort? A clear command structure for R2A2 across local jurisdictions and levels of government, and the prioritization of resources, need to be established. Also, we need to ensure true continuity of government across levels.

Response has to deal with diverse issues—language barriers, communication, adequate medical response—how do you get your medical staff to hospitals if roads, etc. are shut down? Also, the medical community is not yet prepared to recognize and treat an anthrax attack. We need to be able to maintain the structural integrity of the EOC over the long-term response with an overlap to recovery.

Shutting down sea ports would result in a huge economic impact throughout the country, not just in Seattle. There is a trickle down effect if ports close—truckers, ships, trains. System wide—if there is a break in the chain, everybody suffers. Very few small businesses have alternate suppliers and would not be able to stay in business. How do we physically decontaminate the huge, complex area occupied by the Port? Economics plays a huge role in the decisions made.

**Small business has big consequences.** Small to medium size businesses need to be engaged in planning and preparing, and encouraged to have contingency plans. Emergency plans should include ways to reach small businesses that don't have contingency plans. Small businesses usually have very little operating capital, and measures must be planned to ensure that small businesses can continue to operate during and after an event.

**Medication dissemination and prescription follow-through.** There are robust plans for The logistics of distributing medication on such a large scale are staggering, and security becomes a big part. It's important to have plenty of distribution points and not to have a lot of lines for the medicine queue. Perhaps it would make sense for public health to distribute medications via pharmacies or some other public facility so that long lines would not become a security issue. Perhaps pharmacies could provide them prescription-free for 60 days. Perhaps the insurance industry may consider pre-distribution of medication to subscribers in such an event.

Medications, once provided, may not be taken for the prescribed amount of time, and plan must be made to address prescription adherence. Mechanisms will be required to encourage people to follow through with the regimen.

**The under- and uninsured.** Major disasters send many uninsured into the system, and this is a big concern. How do we handle the under- and uninsured? Our health care system is crumbling, and a major disaster will leave severe economic problems.

**Politics.** We must ensure, on a regional level, that the right elected officials are making the decisions. Elected officials need to be engaged—how can we engage them now? The governor has many opportunities to make decisions. We need to have a system to ensure that political figures have access to key information to reduce ignorant criticism of the opposition's decisions. Finally, we must ensure that the state pulls the pieces together to examine what long-term recovery will look like.

## Appendix A: Acronyms

AWB	Association of Washington Business
CDC	Centers for Disease Control and Prevention
DHS	U.S. Department of Homeland Security
DoD	U.S. Department of Defense
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ER	emergency room
FBI	Federal Bureau of Investigation
FDIC	Federal Deposit Insurance Corporation
FEMA	Federal Emergency Management Agency
HAZMAT	hazardous materials
HHS	U.S. Department of Health and Human Services
HIV	Human Immunodeficiency Virus
HVAC	heating, ventilation, and air conditioning
IBRD	Interagency Biological Restoration Demonstration
IDCRP	Infectious Disease Clinical Research Program
KPS	Kitsap County Medical Society?
L&I	Labor and Industries
MOU	Memorandum(s) of Understanding
PEP	post-exposure prophylaxis
PFO	Principal Federal Official
PNNL	Pacific Northwest National Laboratory
POD	Point of Dispensing
PPE	personal protective equipment
PTSD	Post-Traumatic Stress Disorder
R2A2	Roles, Responsibilities, Accountabilities, and Authorities
RN	Registered Nurse
SARS	Severe Acute Respiratory Syndrome
SNS	Strategic National Stockpile
VMI	Vendor-Managed Inventory
WHO	World Health Organization

## Appendix B: Agenda

### **Catastrophic Incident Recovery: Long Term Recovery from Anthrax Event**

Sheraton Hotel  
1400 6th Avenue – Metropolitan Room A  
Seattle, WA 98101

March 19, 2008  
8:00 a.m. to 4:30 p.m.

- |              |  |   |
|--------------|--|---|
| <b>8:00</b>  | <b>Breakfast and Registration</b>  |   |
| <b>9:00</b>  | <b>Welcome</b>   | Ann Lesperance, MSPH<br>Pacific Northwest National Laboratory                   |
| <b>9:05</b>  | <b>Anthrax...It's the Spores</b>   | John D. Malone, MD, MPH<br>Pacific Northwest National Laboratory                |
| <b>9:45</b>  | <b>Anthrax at Capitol Hill!<br/>Lessons Learned from 2001</b>  | Gregory Martin, MD<br>US Navy, Medical Corps                                    |
| <b>10:45</b> | <b>Break</b>   |   |
| <b>11:00</b> | <b>Psychological, Behavioral,<br/>and Social Responses</b>   | Carol North, MD<br>University of Texas<br>Southwest Medical Center              |
| <b>11:45</b> | <b>Q&amp;A, Discussion with Presenters</b>   |   |
| <b>12:00</b> | <b>Remarks and Observations</b>  | Ron Sims, County Executive<br>King County                                       |
| <b>12:15</b> | <b>Working Lunch (IBRD Overview)</b>   | Lance Brooks<br>Dept. of Homeland Security                                      |
| <b>1:00</b>  | <b>Panel 1 – Long-Term Economic Implications of a Catastrophic Event<br/>such as an Anthrax Attack</b> |   |
|              | <b>Facilitator:</b>  | Mike Midgley, Cubic   |
|              | <b>Panelists:</b>  | <b>Ron Harmon</b> , Port of Seattle,<br>Emergency Manager                       |
|              |  | <b>Dick Walter</b> , Vice-President,<br>Association of Washington Business      |
|              |  | <b>Charles Mattes</b> , Senior Director of Global Security,<br>Tischman Speyer  |
|              |  | <b>Charles Axton</b> , Division Director Disaster Assistance,<br>FEMA Region 10 |



**2:00 Break**

**2:10 Panel 2 – Public Health and Medical Services Implications of a Catastrophic Event such as an Anthrax Attack**

**Facilitator:** Mike Midgley, Cubic

**Panelists:** **Anne Newcombe**, Clinical Nurses Manager,  
Harborview Hospital

**Michael Loehr**, Preparedness Director,  
Seattle King County Public Health

**Dr. Chris Littell**, Public Health Emergency Officer, Fort Lewis

**John Erickson**, Special Assistant,  
Washington State Department of Health

**Richard Marks**, President, KPS Health Plans

**3:10 Break**

**3:20 Panel 3 – The Decision-Making Framework for Catastrophic Incident Recovery such as an Anthrax Event: Key Questions and Prioritization**

**Facilitator:** Mike Midgley, Cubic

**Panelists:** **Barb Graff**, Director Emergency Management, City of Seattle

**Gil Kerlikowske**, Chief, Seattle Police Department

**Steve Bailey**, Director Emergency Management, Pierce Co.

**James Whitfield**, Regional Director, DHHS Region 10

**John Pennington**, Director Emergency Management,  
Snohomish Co.

**James Kane**, Directorate of Plans, Training, Mobilization,  
and Security, Fort Lewis

**4:20 Wrap Up  
and Closeout** Ann Lesperance

**4:30 Adjourn**

## **Appendix C: Presentations**



## Appendix C-1: Anthrax—It's the spores...

### Anthrax – It's the spores...

John D. Malone, MD, MPH  
Center for Biological Monitoring and Modeling  
Pacific Northwest National Laboratory  
Richland, Washington  
[John.Malone@pnl.gov](mailto:John.Malone@pnl.gov)  
o) 509-376-9635/cell 509-531-2386/personal cell 619-838-7784

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### “Anthrax - It's the spores” topics

- ▶ Anthrax bacteria, spore characteristics:  
lung, skin - mechanism of illness
- ▶ Spores – dangerous – weaponized anthrax
- ▶ October- November 2001 US Postal Transmission
- ▶ Diagnostic tests
- ▶ Treatment, Post Exposure Prophylaxis, Vaccine
- ▶ Personal Protective Equipment (PPE)
- ▶ Decontamination – facilities, humans, pets

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## Anthrax (*Bacillus anthracis*) bacteria

- ▶ Gram positive rod – stains blue under the microscope, terminal spore, forms chains, grows in air or lower oxygen levels. Colonies – “ground glass” “curled hair” - comma edges – beaten egg white consistency
- ▶ Resting state spores (5  $\mu$ ) germinate into active rod shaped cells in mammals. Cells produce fatal toxins; edema factor, lethal factor, protective antigen combination – toxins destroy cells,  $\uparrow$  immune system
- ▶ Spores highly protective “coat” – heat resistant, survive 40 years
- ▶ Ancient cattle, buffalo “cloven hoofed” disease - 5th plague Book of Exodus,  $\downarrow$  Egyptian cattle. **Ames strain** is one of 89 types – source diseased cow that died in Texas 1981. Misabeled as coming from Ames, Iowa. Used 2001 US Postal letter attack
- ▶ Present US, Canada, common in Africa, Middle East. Most susceptible: cattle, sheep, goats, (ruminants – eat spores on grass)  $\downarrow$  24 hours. Horse, pigs, cats, dogs less susceptible.  $\downarrow$  mice, guinea pigs. Annual livestock vaccination (live Sterne strain) – endemic areas

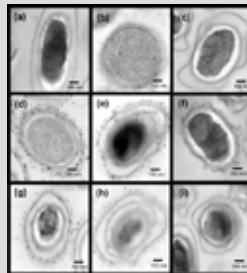
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## Anthrax - bacteria, spores, cultures



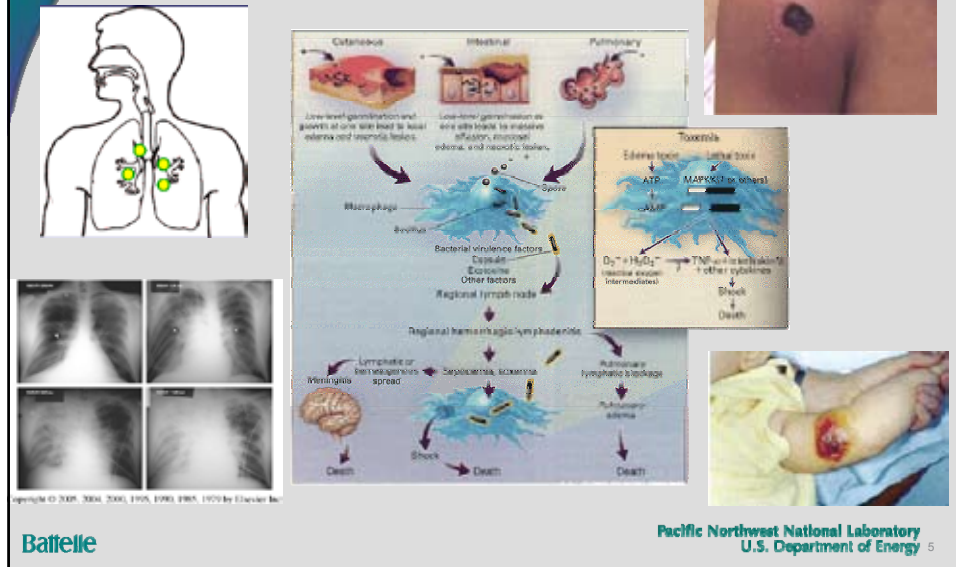
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## Anthrax – lung, skin, intestinal illness



## Anthrax Skin lesions

- ▶ Transmission – spores into abraded area, close contact spores to skin. Onset 5-7 days.
- ▶ Infectious dose unknown
- ▶ Appear – begin as pimple → heaped up margin (edema factor), black center (*anthracis* Greek for black) Swollen area lymph nodes.
- ▶ Naturally occurring in US – Cutaneous
- ▶ Commonly misdiagnosed (spider bite), easily treated- oral antibiotics (cipro, doxy, amox) not contagious.

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## Anthrax spores DANGEROUS

- ▶ Size – less than 5 microns – able to reach terminal lung sacs, consumed by WBC, carried to lymph nodes, germinate, multiply, spread to lymph, blood
- ▶ Very small number → inhalational anthrax  
8000- 50,000 (fit on head of a pin) ID<sub>50</sub>  
minimum infectious dose much less  
2500-55,000 LD<sub>50</sub> (weapons grade ref DIA)  
50-98 LD<sub>10</sub> 14-28 LD<sub>5</sub> 1-3 LD<sub>1</sub>
- ▶ Postal Service model 2001: 10,000 people – exposure range 18-863 spores; low as 2-9 spores
- ▶ Travel quickly- Act as a gas, Reaerosolize, Last for years
- ▶ Time to illness (1- 4 days) – dose dependent (60 days at Sverdlosk), personal health factor

<http://www.cidrap.umn.edu> accessed 27 Feb 2008

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## “Weaponized” Anthrax Characteristics

- ▶ Small particle size
- ▶ High concentration spores
- ▶ Treated to reduce clumping (dryers)
- ▶ Neutralization of the electric charge
- ▶ Antimicrobial resistant (penicillin); genetic modification ↑virulence (toxins), ↓vaccine immunity
- ▶ Scenarios: WHO 1970 – 50kg,  $6 \times 10^{15}$  spores, city  
5M → 250K ill, 100K deaths  
OTA 1993 -100kg → 3M deaths

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## Sverdlosk Bioweapon Anthrax Release 1979



- <1 gram spores  
28 grams=1 ounce
- 96 human cases-documented  
77 pulmonary  
66 deaths (87% fatal)
- Survivors - 3 weeks hospital
- Last case 43 days after release
- No cases < 24 years old

*Bacillus globigii*  
1mg = 1 million  
infectious doses  
(8-10K spores)

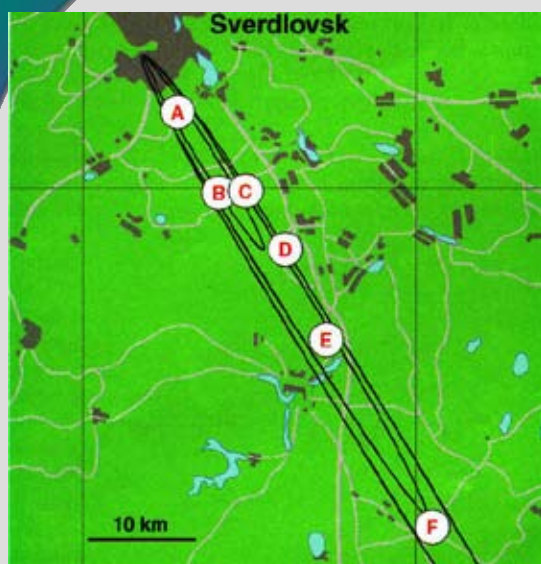


Meleson. The sverdlosk anthrax outbreak of 1979.  
*Science* 1994;266:1202

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## Sverdlosk Bioweapon Anthrax Release 1979



- Villages (A-F) animal anthrax
- Sheep > susceptible  
monkeys, humans
- Human settlements in grey

Meleson. The sverdlosk anthrax outbreak  
of 1979. *Science* 1994;266:1202

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## Anthrax spores in letters: District of Columbia, Florida, New Jersey, New York: Oct - Nov 2001

- ▶ 2001 Events- 22 people infected - 11 inhalational confirmed ( 5 deaths ) / 11 cutaneous (7 confirmed/4 suspected). (Compare 42 confirmed deaths (no children) accidental anthrax bioweapons factory release Sverdlovsk,now Ekaterinberg,1979)

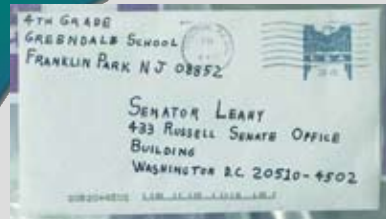
### Major Event Times

- ▶ Oct 2 – Boca Raton, Palm Beach (American Media), 163 yo **First Case**, 73 yo coworker ill, contaminated worksite, 1 nasal swab positive/ 1,075
- ▶ Oct 9- NYC (NBC Headquarters) cutaneous, Oct 16 cutaneous 2 - 7 month old child (ICU care – hemolytic anemia), 3 positive nasal swabs – Police officer brought letter to lab ( ref *MMWR* Oct 19, 2001)
- ▶ Oct 21- NYC Mail room worker cutaneous, Oct 25 – Hospital mail room worker Inhalation ↓ Trenton New Jersey Postal facilities (letters to NYC/DC) - inhalational confirmed 56 yo; 54yo mail sorter-skin 15 Oct - 43yo inhalational; Oct 17- 51yo bookkeeper skin – mail from Trenton Postal facility; Washington D.C. confirmed 4 cases inhalational single postal facility, 59 yo male State Dept mail room; Florida – confirmed 2 cases. Inhalational 6/10 survived – early recognition: cutaneous 11 all survive (5 day incubation, exposed areas) (ref *MMWR* Nov 02, 2001)
- ▶ 11 Sept - 17 Oct 2001 Public concern: CDC survey 40 State Health Dept- 7K telephone reports to health depts/ 4800 required follow – up; 1K tests at public health labs – 4 areas in country identified, nationwide concern, hoaxes, threats.
- ▶ 16 November final case - Connecticut - 94 yo homebound woman ill Nov 16, 121 Nov

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## Anthrax letters October 2001



<http://www.fbi.gov/pressrel/pressrel01/102301.htm>

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**Case of anthrax at NBC adds to worries; Tom Brokaw aide likely infected by mail sent to anchor Saturday, October 13, 2001** By SCOTT SHEPARD COX NEWS SERVICE

•WASHINGTON -- A new case of anthrax -- involving an employee at NBC News in New York -- and attacks elsewhere added to American anxieties about bioterrorism yesterday, less than 24 hours after the FBI warned of new terrorism on the horizon.

•Last evening, Vice President Dick Cheney suggested links between the anthrax cases and Osama bin Laden, chief suspect in the Sept. 11 attacks on New York and Washington.

•The FBI, already investigating three cases of inhalation anthrax in Florida, launched a criminal investigation to find the source of **skin anthrax involving an assistant to NBC News anchor Tom Brokaw**. The case prompted a scramble by federal officials to try to calm the public, already on alert from the FBI warning Thursday more terrorist attacks might occur in the next several days.

•"The American people need to go about their lives," President Bush said at the White House. He said the fourth case "has got to cause concern for our nation,"

•Confusion swept The New York Times building in Midtown Manhattan as a threatening letter containing a white powder prompted first a lockdown and then an evacuation of the third-floor newsroom. Mail was addressed to reporter Judith Miller, who co-wrote a recent best-seller on bioterrorism.

•In Washington, the FBI and hazardous-materials experts were called to the State Department for the second time in three days when a suspicious white powder was found in an office.

•In California, police cordoned off the Los Angeles Times' downtown building after employees found a "powderlike substance" in the third-floor newsroom. The substance was later found to be harmless.

•In Ohio, the offices of The Columbus Dispatch newspaper were quarantined after an employee opened a Halloween card and found a powdery substance.

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**Case of anthrax at NBC adds to worries; Tom Brokaw aide likely infected by mail sent to anchor Saturday, October 13, 2001** By SCOTT SHEPARD COX NEWS SERVICE

• Attorney General John Ashcroft and Health and Human Services Secretary Tommy Thompson tried to calm the public, stressing that there is **no** link between the New York anthrax case and the three cases discovered at a tabloid media company in Florida. They also repeated several times that anthrax is not contagious.

• Barry Mawn, head of the FBI office in New York, emphasized that authorities "see no connection whatsoever" to the Sept. 11 attacks that destroyed the World Trade Center and killed more than 5,000 people. Anthrax spores were most likely transmitted by mail to the NBC News employee in New York, a 38-year-old woman whose identity remained confidential. The mail was addressed to Brokaw, who was being tested for anthrax.

• Brokaw thanked viewers for their concern and then spoke of his colleague. "She has been -- as she always is -- a rock. She's been an inspiration to us all," he said. "But this is so unfair and so outrageous and so maddening, it's beyond my ability to express it in socially acceptable terms."

•The woman contracted the skin form of anthrax. Three days after handling the letter, she noticed a dark-colored lesion on her skin and on Oct. 1 began taking the antibiotic Cipro for another infection. When the lesion developed characteristics of anthrax, "a very alert and astute clinician" ordered skin tests.

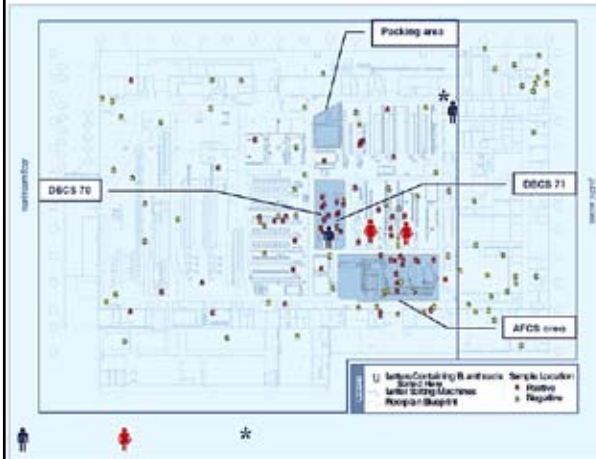
•Ashcroft warned the public not to open any suspicious mail. "Do not open it, do not shake it; leave the area and call local law enforcement," he said.

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## USPS Trenton New Jersey Processing and Distribution Center



4 spore containing envelopes mailed to NYC media and Wash DC Hart building processed in facility Sept 18 and Oct 9.

High speed machines sort 30K letters/hour

Environmental samples initially taken October 18-19, 2001, and work stations of New Jersey case-patients on dates when letters containing *Bacillus anthracis* were sorted. Blue man = male, cutaneous anthrax; red woman = female, inhalational anthrax; \*machine mechanic cutaneous worked the night the letters containing *B. anthracis* destined for New York were sorted. (Incubation period 5-9 days all)

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## Anthrax Diagnostic Tests

- ▶ Microscopic gram stain – Gram positive rod with a terminal club shape spore
- ▶ Culture (humans, animals) – blood – machines (Bactec) read out maybe misclassified, grow on plates
- ▶ PCR- Polymerase Chain Reaction
- ▶ Check for antibodies in exposed at 2 weeks
- ▶ Immuno histochemical stains – biopsy
- ▶ Hand held (environmental) assays rapid – insensitive, nonspecific in 2001

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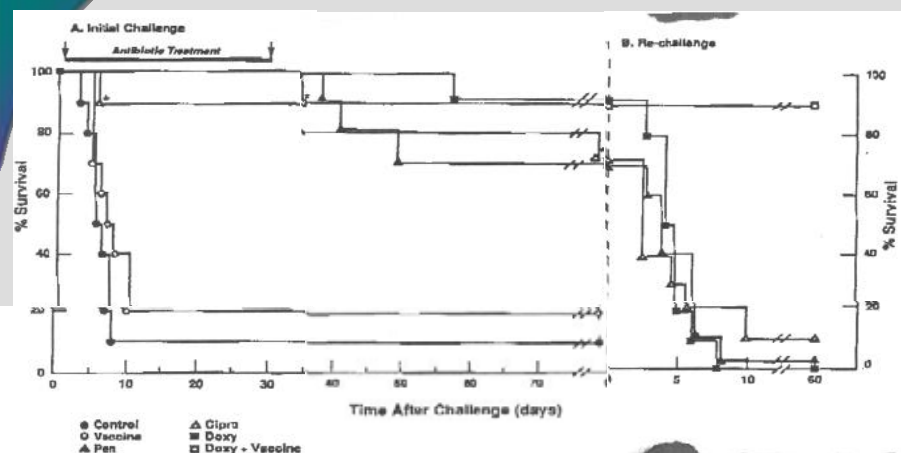
## Anthrax vaccine- Safe and Effective

- ▶ Made by Bioport (previously Michigan State Dept Health Lab); 6 Shots; time 0, weeks 2, 4, months 3, 6; year 1
- ▶ Sterne strain (non lethal) Anthrax killed supernatant broth. Contains multiple parts of anthrax toxins, cover all forms anthrax
- ▶ Toxin components stimulate antibodies – help fight infection
- ▶ 2 weeks for initial antibody rise, antibodies best at 1 month. A help- not protective, especially high dose exposure
- ▶ DoD delivered over 1M doses – 1 death- Lupus like reaction (multiple vaccinations – smallpox/anthrax)
- ▶ Side effects - Arm soreness, swelling most common, nodules possible
- ▶ Livestock (cattle, sheep, horse, goat, pig) Sterne (saponin) – KC cows

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## Combination Antibiotic and Anthrax Vaccine Post Exposure

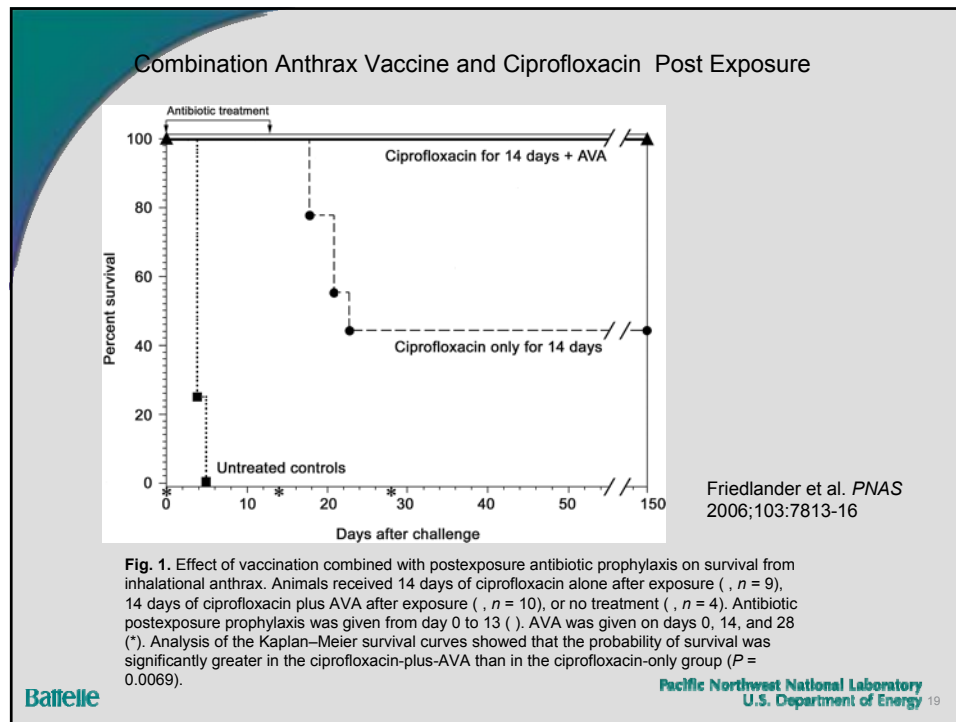


Effect of postexposure antibiotic treatment and vaccination on survival for inhalation anthrax and subsequent rechallenge. **A.** Groups of 10 animals were exposed to aerosol of anthrax spores on day 0 and were untreated (control), given vaccine only on days 1 and 15, or treated with penicillin (pen), ciprofloxacin (cipro), doxycycline (doxy), or doxy plus vaccination. Antibiotics were given from days 1 to 30. **B.** Survivors were rechallenged by aerosol on days 131-142 (day 0, B), percentage survival is plotted against day after initial challenge (A) or rechallenge (B). \*, 3 animals that died of causes other than anthrax. All other ciprofloxacin-treated animals survived the 30 days of treatment with negative blood cultures. One animal died of anthrax 6 days after antibiotic was stopped. Another animal in the ciprofloxacin group died 73 days after antibiotic was discontinued. Autopsy revealed no evidence of anthrax.

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Postexposure Prophylaxis Against Experimental Inhalation Anthrax *The Journal of Infectious Diseases* 1993  
Volume 167 Pages 1239-42 Friedlander et al.

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## Treatment

- ▶ Lungs – 3 IV antibiotics (quinolone - ciprofloxacin, clindamicin, penicillin), frequent drainage fluid, ventilator support, immune serum not proven
- ▶ Skin – oral antibiotic – ciprofloxacin/levofloxacin/doxycycline, amoxicillin if penicillin sensitive
- ▶ Children – cipro (joint/ cartilage problems), doxycycline (teeth staining)
- ▶ Pregnancy amoxicillin best, cipro/doxy issues
- ▶ Length 60 days antibiotics + vaccine/ 90 days antibiotics only – includes skin cases as may have lung spores

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## Post Exposure Prophylaxis

- ▶ Antibiotics (cipro/doxy/amoxicillin)
  - 90 days no anthrax vaccine
  - 60 days with anthrax vaccine
- ▶ National Pharmaceutical stockpile
  - Ciprofloxacin/levofloxacin
  - Doxycycline
  - Anthrax vaccine
- ▶ Side effects –
  - Cipro: kidney damage, joint pains in young active, tendon rupture, cartilage damage
  - Doxycycline: teeth staining young, sun sensitivity
  - Ampicillin: diarrhea, vaginitis, penicillin allergy
  - Drug interactions (BCPs, antidepressants)

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## National Pharmaceutical Stockpile-2 Basic Components



- ▶ Eight 12-hour Push Packages - immediate response. Fully stocked, positioned environmentally controlled secured warehouses, deployment 12 hours Presidential decision.
- ▶ Push Paks - supplies, pharmaceuticals, medical equipment (ventilators) - 50 tons –fill 747/767 or four 48ft semi's. Cover different agents, threat not completely identified. Specifics closely held: Cipro 100M tabs/\$95M Oct 24, 2001; (Levo qd added?), doxy (cheap), anthrax vaccine 10M doses available/ (Emergent Biosolutions Biothrax) contract \$400M produce 18.75M doses Sept 2007
- ▶ Vendor Managed Inventory (VMI) material - Larger or multi-phased response, arrive within 24 to 36 hours. Follow on packages tailored
- ▶ State/Local responsible distribution/security January 24, 2002- Washington State DOH, local, federal agencies, conducted an exercise of NPS dispensing portion of the Washington State plan. (Beaton, Stevermer, Wicklund, Owens, Boase, Oberle)

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## Personal Protective Equipment

- ▶ Enter potentially contaminated area: Respirators (N-95), Pappars, Military gas mask, Tyvex suit, taped cuffs, boots, gloves. Remediation workers add anthrax vaccine/prophylactic antibiotics.
- ▶ Handle white powder – BSL3 lab, above suit
- ▶ Clinical micro lab – blood culture, suspicious plate – BSL2 (lab coat, wash hands) – not spore forming
- ▶ Healthcare worker caring for patient – standard precautions (Patient would have change of clothes and shower) before incubation period 1-2 days (Homeless person with a beard?)
- ▶ Perception of risk and actual risk? Professional obligation?

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## Decon

- ▶ Water – Lots! Warm (cold in Seattle), children hypothermic
- ▶ Soap – especially hairy areas (Johnsons Baby shampoo) – water wash down spores to groin. NO bleach on people.
- ▶ Change clothes – plastic bag
- ▶ Privacy issues significant – avoid further victim trauma
- ▶ Surfaces (Household bleach 1/10 solution 1 part bleach/9 parts water
- ▶ Alcohol based hand cleaners – not effective
- ▶ Buildings – Capitol Hill Offices – Dr. Martin

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## Commonly Asked Good Questions

- ▶ Anthrax spores in the water supply – not a problem, highly diluted, also screened out by filtration, chlorination a help.
- ▶ Pet decon – wash dog, dog shampoo, brush hair spores
- ▶ Spores washed into the Harbor. What about whales, seals? – no problem – marine mammals do not get anthrax – disease of cows
- ▶ White powder in my kitchen/ house? – If you are not in a risk area by intelligence or “common sense” not a problem.
- ▶ Clean the ambulance – wash down with 1/10 bleach

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## Anthrax “Take Home” Points


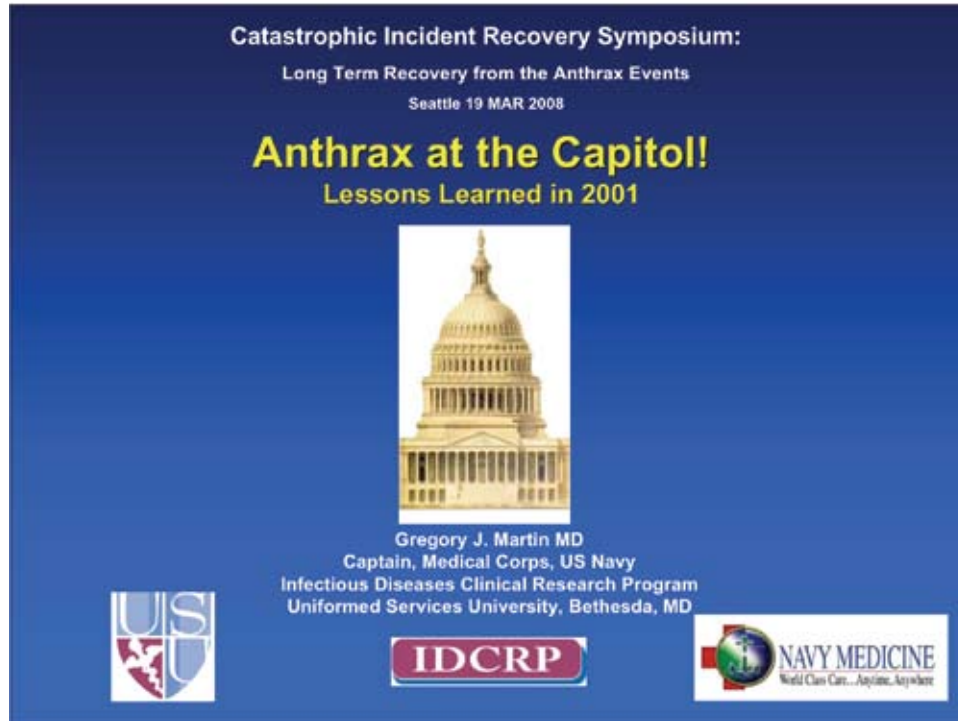
- ▶ Small # spores → sick - ↑young, old, infirm
- ▶ Spores (weaponized) easily spread
- ▶ Spores last for years environment
- ▶ Anthrax vaccine is NOT protective – only a help
- ▶ After anthrax exposure: 60-90 days antibiotics+Vac
- ▶ Post exposure/early treatment - ↓ death rate
- ▶ “Full” PPE with respirators required for powders
- ▶ Human decon - warm H<sub>2</sub>O + soap; surfaces bleach

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## Appendix C-2: Anthrax at the Capitol! Lessons Learned in 2001



- The opinions expressed in this talk are mine and should not be construed as official views of the US Navy nor the Department of Defense
- FDA unapproved use of antibiotics and vaccines will be discussed

## Anthrax at the Capitol

### Goals for this Talk

- Review the events from a first hand point of view
  - First Responders
  - CDC
  - Medical Team
  - Hill staffers who were exposed
- Challenges
- Controversies
  - How dangerous are spores?
  - How many days of antibiotics?
  - Role of immunization?
  - How do you clean this up?

## The Setting

- **11 Sep** – Al Qaeda attacks in NY and DC
- **4 Oct** – An employee of America Media Corp in Boca Ratón, Florida dies of inhalation anthrax
- **12 Oct** – A case of cutaneous anthrax is diagnosed in NYC



## Anthrax in the Capitol

15 October 2001

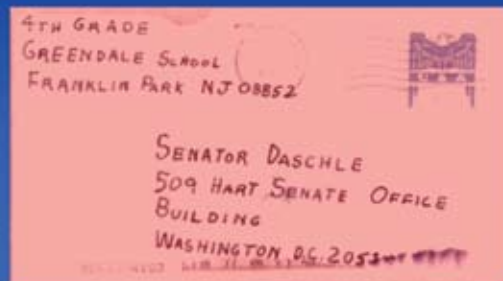


- The incidents obviously occurred in a time of great fear of further terrorism
- Knowledge of bioterrorism in the medical community and municipalities was limited
- Response at the local level had not been well established and was obviously untested



## Senator Daschle's Office

- Monday, 15 OCT ~0945
- A letter from a fourth grade class in Franklin Park, NJ is opened in Senator Daschle's 6th floor office in the Hart Senate Office Building by an intern
- A "poof" is noted as the envelope is partially opened





## Anthrax!

- Capitol Police are called and HAZMAT team sent to Sen Daschle's office
- Air conditioning for area is shut down (~45 minutes later)
- Initial Hand Held Assays are positive for *Bacillus anthracis*
- HAZMAT team removes the letter



Infectious Diseases Service, Nat'l Naval Medical Center, Bethesda, MD

## The Daschle Letter

09-11-01  
YOU CAN NOT STOP US.  
WE HAVE THIS ANTHRAX.  
YOU DIE NOW.  
ARE YOU AFRAID?  
DEATH TO AMERICA.  
DEATH TO ISRAEL.  
ALLAH IS GREAT.

- OAP medical team arrives to evaluate staff
- Staff is moved to an unoccupied office on another floor for evaluation
- Nasal swabs are done on 60 staff
- Ciprofloxacin prophylaxis is begun on each of the staff

## The First Night

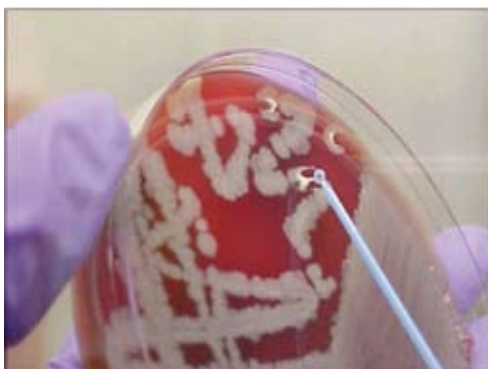
- The suspect areas in the Hart Building (5th and 6th floors) are closed
  - Remainder of building remains open and occupied
- The letter is opened at the CDC and is reported to the media as “weapons grade anthrax”
- The nasal swabs of those 60 in the area of concern are sent to Nat’l Naval Medical Center in Bethesda
  - Streaked on BAP, CAP y MacConkey to R/O *Brucella*, *Yersinia* and *Francisella* at ~1600.



## Morning 16 Oct

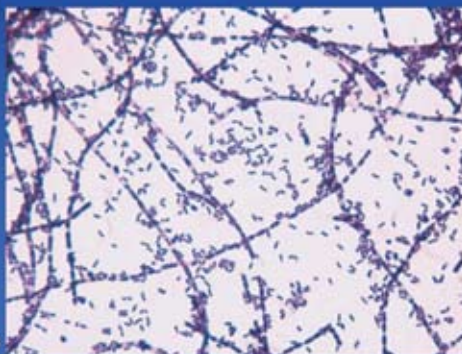
- Nearly half of the 60 plates demonstrate non-hemolytic colonies a ~10 hours incubation
  - 13/13 samples from the room where the letter was opened were positive and many had colonies “wall to wall”





Growth of *B. anthracis* on blood agar plates

Gram stain anthrax at 12 hours growth,  
note significant spore formation



Photos: Rob Paolucci, NNMC Infectious Diseases

## Tuesday, 16 October



- Results reported to ADM Eisold and Sen Daschle by 0530
- Press conference is held to announce the results
  - The media goes wild
- By 1800, 28 cultures are characteristic of anthrax
- USAMRIID confirms that the initial powder from the envelope is positive for anthrax by PCR and gamma phage
- OAP medical team starts nasal swabbing all those who were on the 5th and 6th floor Hart

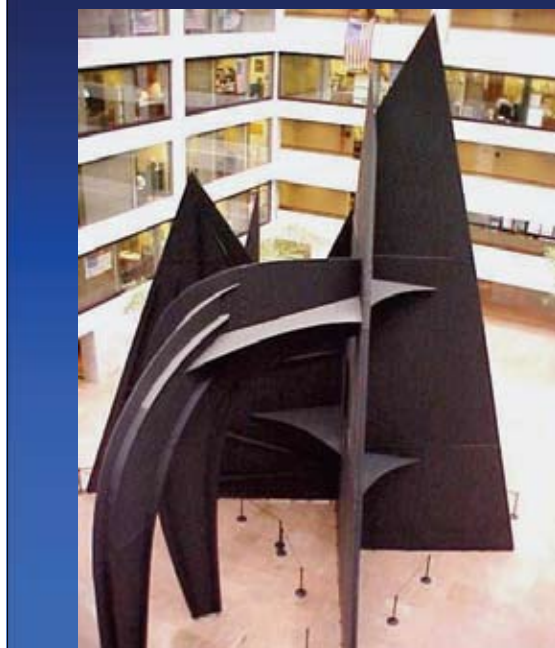




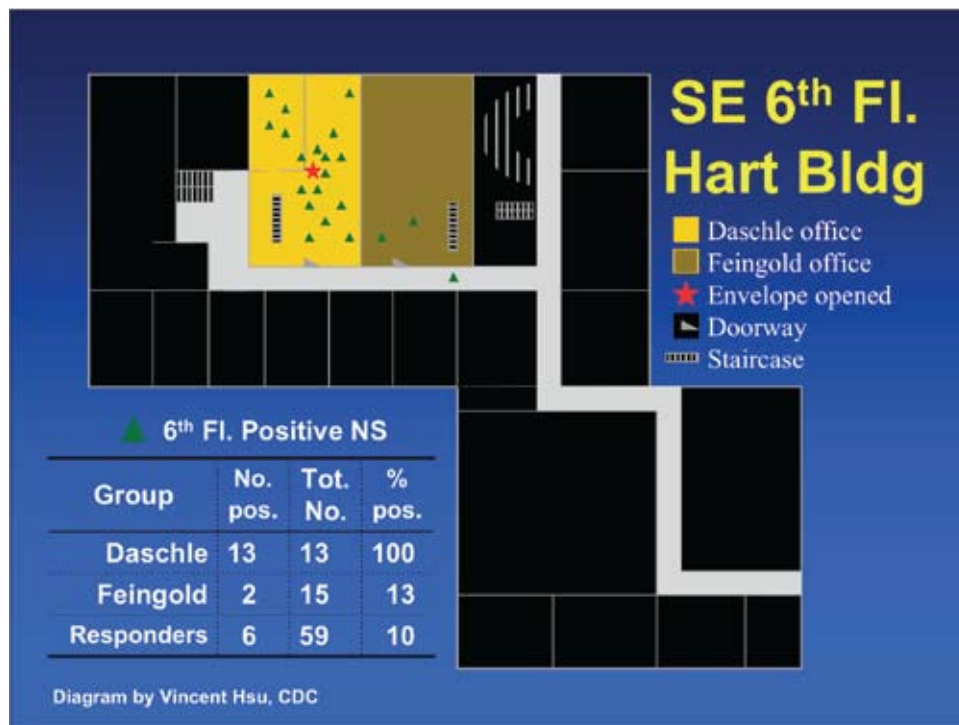
**US Capitol Complex**



**Hart Senate Office Building**

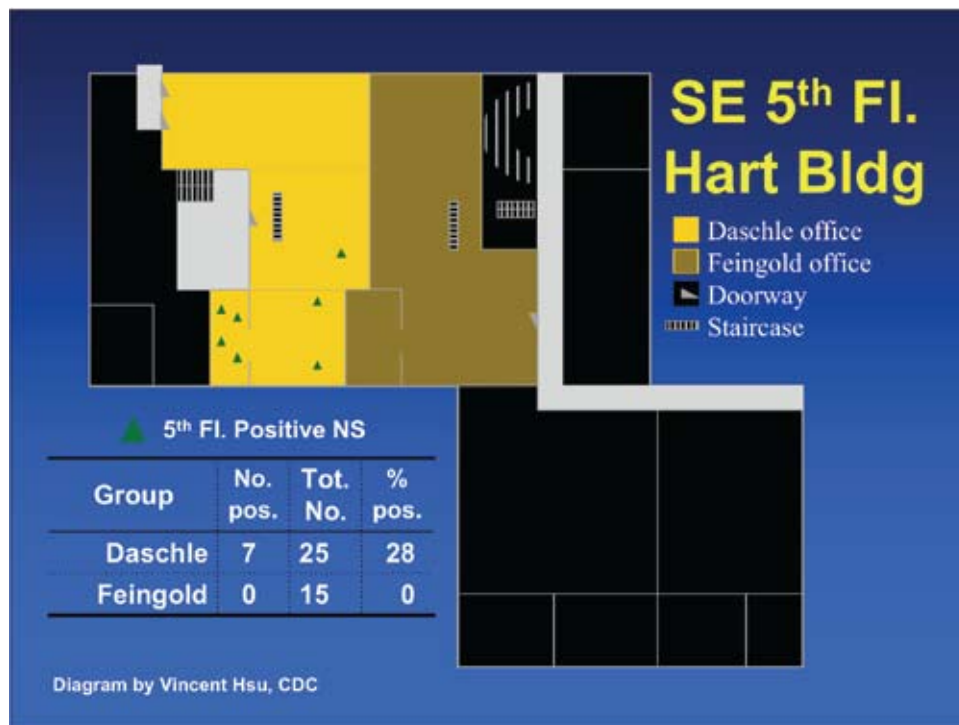


**Hart SOB Atrium**



### Daschle Suite Stairwell





## Positive Nasopharyngeal Cultures

Location	No. +	Total	% +
<b>Exposed Staff:</b>	<b>22</b>	<b>65</b>	<b>45</b>
Sen. Daschle 6 <sup>th</sup> fl.	13	13	100
Sen. Daschle 5 <sup>th</sup> fl.	7	25	28
Sen. Feingold 6 <sup>th</sup> fl.	2	15	13
Sen. Feingold 5 <sup>th</sup> fl.	0	12	0
<b>Exposed Responders:</b>	<b>6</b>	<b>35</b>	<b>17</b>
In Daschle's 6 <sup>th</sup> fl.	5	6	83
Not in Daschle's 6 <sup>th</sup> fl	1	30	3
<b>Other office visitors</b>	<b>0</b>	<b>252</b>	<b>0</b>

>6600 additional NPCs from the Capitol and Supreme Court complexes are negative



## “The Science is Evolving”

- Assumptions prior to 15 OCT 01:
  - handling unopened envelopes would not result in significant aerosol dissemination - **WRONG**
  - only a small area would be contaminated by opening a letter containing anthrax spores - **WRONG**
  - 60 days of antibiotics would be sufficient to prevent inhalation anthrax - **??**
  - Anthrax immunization indicated?
    - CDC recs: **NO**
    - DoD recs: **YES, and ASAP**

## “There will be no more swabbing”

- Despite >5 days from the initial event staff are clamoring for swabbing or repeat testing in the belief that it “rules out” anthrax exposure.
- >6600 swabs are ultimately done at the Capitol complex on everything human to dog noses.
- Off site areas are established for patients to check results and ask questions, keeping the main office somewhat less crowded
- Additional staff from NNMC & WRAMC assist in evaluating patients concerned about sx

## Incident Response

### Medical Team discrete from Remediation Team

- A continuous series of briefings at every level are performed by the Capitol physician staff
  - From the Senate and House caucuses to the night cleaning crew
- A daily conference call is set up between the Capitol's medical unit and local hospitals to answer questions and inform the medical community of the latest developments
  - Most effective method to disseminate info and decrease rumors
- Incident Response Team is set up in the National Botanical Gardens to handle all issues related to evaluation and remediation of contaminated buildings
  - Massive coordination effort of Capitol Police, Architect of the Capitol, CDC, DoD, EPA and nearly every federal agency that exists

## White Powder Letters

### Plan for SOPs

- Should a potential anthrax letter recipient:
  - close the door, stay in the room, await HAZMAT?
  - leave room for another area and await HAZMAT?
- Key issues:
  - How much does a recipient inhale after opening a letter before they might be able to leave?
  - How much contamination occurs by leaving the room for another area?

## How Dangerous are Spores in a Letter?

Person 1



Defence R&D Suffield, Canada

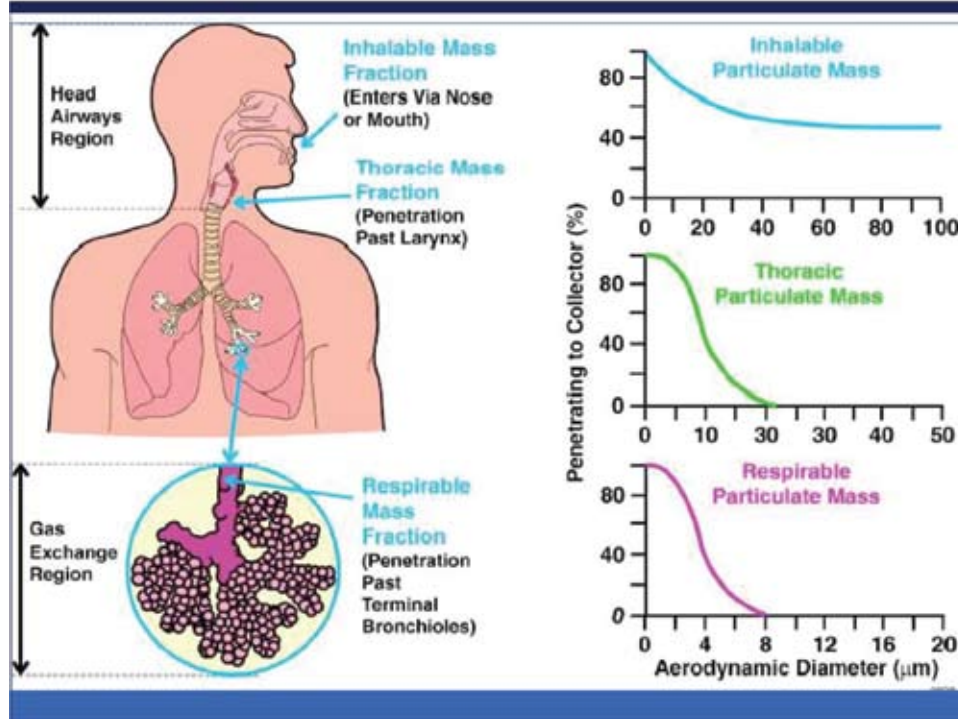
## How large an inoculum?

Canadian Defence Research Establishment Suffield

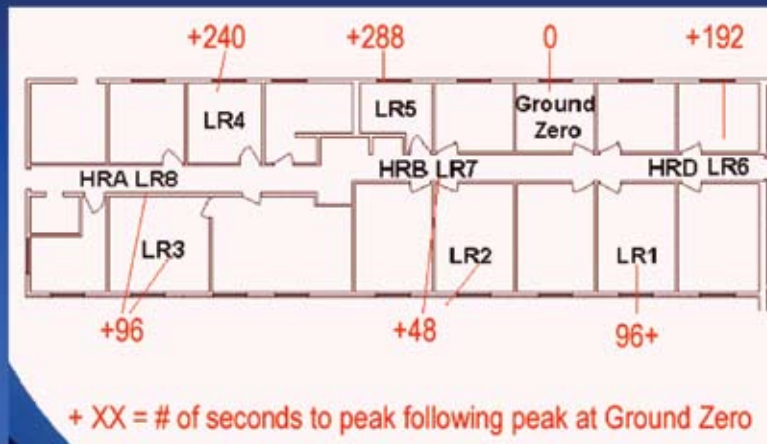
- Risk of transmission of spores from an envelope
- 0.1 or 1.0 g of *Bacillus globigii* spores released in a 10x18x10' room
- Significant numbers of spores aerosolized within seconds
  - >99% 2.5 to 10  $\mu\text{m}$  size
  - estimate of 480 to 3080  $\text{LD}_{50\text{s}}$  potentially inhaled in 10 min.
  - “the aerosol would quickly spread throughout the room so that other workers....would likely inhale lethal doses”

Kournikakis B, Armour SJ, Boulet CA, et al. Risk Assessment of Anthrax Threat Letters. Defence Research Establishment Suffield 2001; Technical Report TR-2001-048





## How Fast Do Anthrax Spores Spread in a Room?



Objective Assessment of the Hazard from Anthrax Terrorist Attacks in an Office Environment  
 Bill Kournikakis and Jim Ho  
 Defence R&D Canada - Suffield

## Evaluation of Exposed Individuals

- Since exposure occurred in October we expected numerous cases of URIs
- OAP offices were overwhelmed with those who felt they might have inhalation or cutaneous anthrax
- Teams of Internists, Pulmonologists and Dermatologists were sent to assist in evaluation
- Any questionable patients were referred to NNMC or WRAMC Infectious Diseases who were also on site
- CDC Worked on the epidemiological evaluation



## “Remediation”



## Remediation Agents used at the Capitol

NOV 2001 estimated cost by EPA: \$5 million

Final cost: \$23 million or \$27 per sq ft

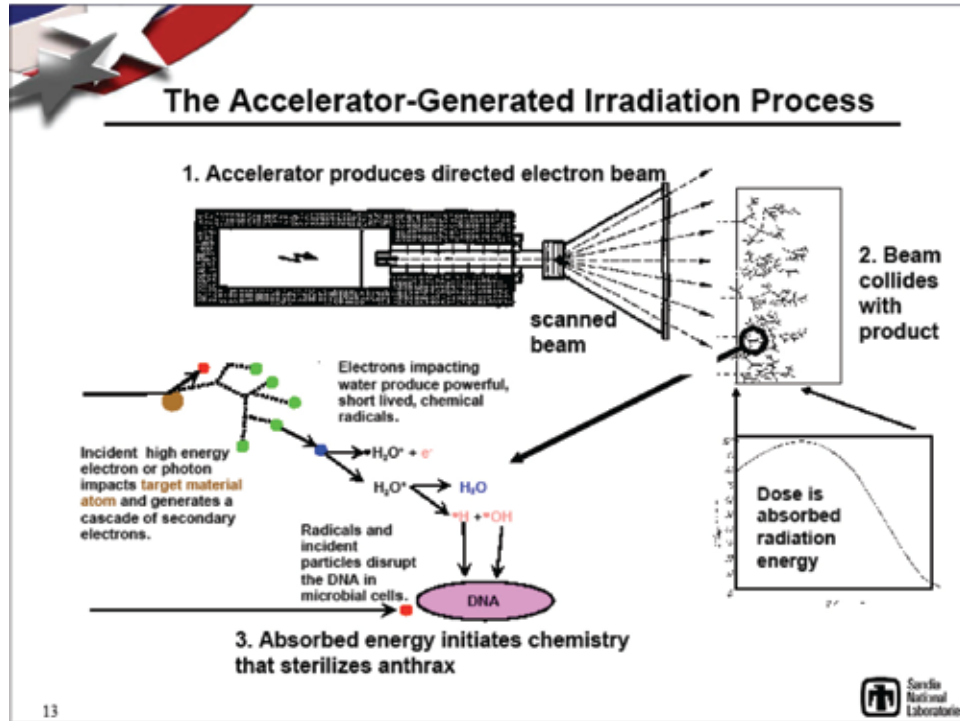
- Bleach
- Chlorine dioxide
- Ethylene oxide
- Hydrogen peroxide
- Peroxyacetic acid
- Methyl bromide
- Paraformaldehyde
- Vaporized hydrogen peroxide



EAS Whitney et al. Inactivation of *Bacillus anthracis* spores. Emerg Infect Dis 9-6:623-627 2003 Jun.  
<http://www.cdc.gov/ncidod/EID/vol9no6/02-0377.htm>

Dorothy A. Canter. Remediating Sites with Anthrax Contamination: Building on Experience Jul 03  
<http://www.epa.gov/nhsr/pubs/paper/AnthraxRemediation020607.pdf>





## Air Sample Results

### Senator Daschle's 6th Floor Office

- Re-aerosolization does occur
- Quantity of viable anthrax spores detected during remediation:
  - Mail Handling Area:
    - Semi-quiescent, floor level - 170 CFUs/m<sup>3</sup>
    - Active movement, floor level – 11,000 CFUs/m<sup>3</sup>
    - Active movement, Breathing zone – 710 CFUs/m<sup>3</sup>

## Back to those Exposed

- CDC recs Oct 2001:
  - 60 days of antibiotics
  - No need for anthrax immunization
- Our questions:
  - How many days of antibiotics are appropriate?
  - Should we immunize?
  - Were illnesses in exposed individuals “sub-clinical” inhalation anthrax

## Are 60 Days Sufficient?

### Primate Studies

- Antibiotics 24 h post exposure prevented development of disease for 30 days
- Five of 29 animals developed fatal inhalation anthrax 6-28 days after stopping antibiotics
- No animals surviving after antibiotic prophylaxis developed an antibody response

Friedlander AM, Welkos SL, Pitt MLM, et al. Postexposure prophylaxis against experimental inhalation anthrax. J Infect Dis 1993;167:1239-42

## Are 60 days sufficient?

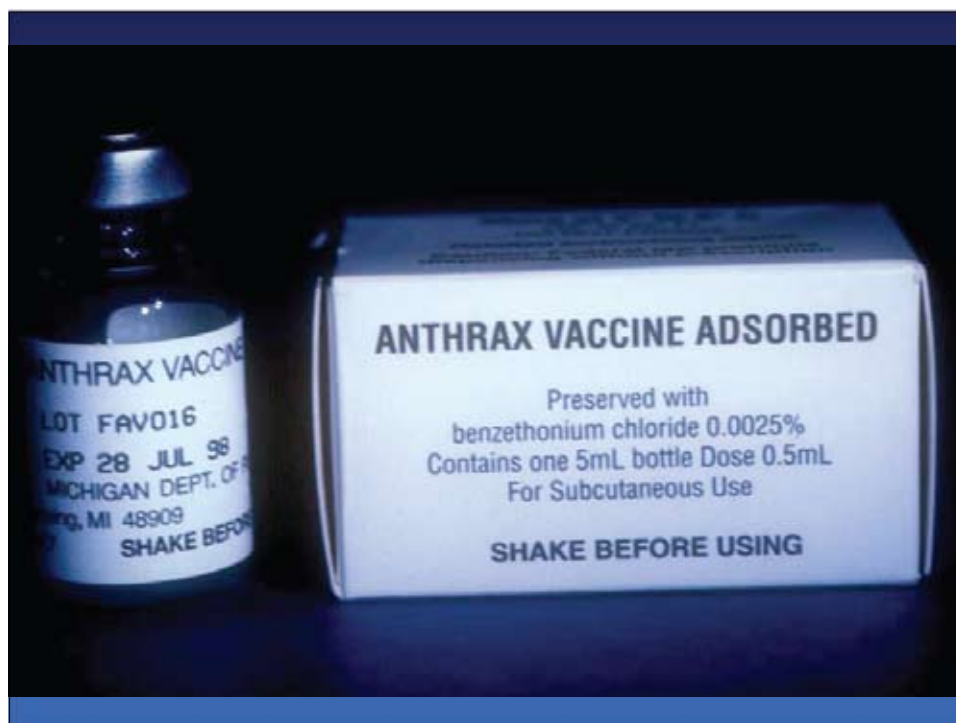
### Earlier Primate Studies and Spore Kinetics

- Persistence of viable spores in 50 animals with PCN and vaccine prophylaxis
  - 42 days: 15-20% of initial retained spores
  - 50 days: 2%
  - 75 days: 0.5-1.0%
  - 100 days: Traces
- Death of one animal from anthrax 98 days after spore inhalation
- Viable spores in the lungs of all apparently healthy monkeys sacrificed 55-84 days post exposure

Henderson DW, Peacock S, Belton FC. Observations on the prophylaxis of experimental pulmonary anthrax in the monkey. J Hyg 1956; 54:28-36

Glassman HN. Discussion - Industrial Inhalation Anthrax. Bacteriol Rev 1966; 30:657-659

Gochenour WS, Sawyer WD, Henderson JE, et al. On the recognition and therapy of Simian woolsorter's disease. J. Hyg 1963; 61:317-322





## Anthrax vaccine

Anthrax vaccine, FDA approved for preexposure prophylaxis, could not be utilized post exposure without an IND protocol approved mid Dec

- 63 staff from the Hart Building were "strongly recommended" to receive anthrax vaccine
- 58/63 (92%) chose vaccine
- 5/63 chose to remain on antibiotics alone:
  - Pregnancy, chronic fatigue syndrome and previous neoplasm were some who opted not to be vaccinated
  - 1 pregnant woman chose to be vaccinated



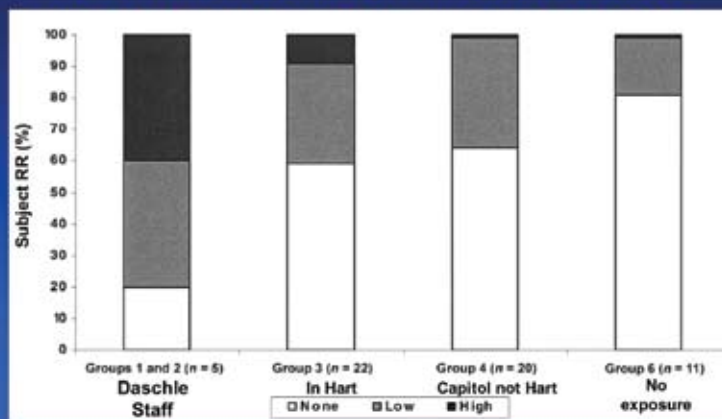
## How extensive is exposure?

Our study looked at 124 people in 7 groups:

1. 28 Senate staffers with nasal cultures positive
2. 31 in the same spaces as group 1 but with negative cultures
3. 24 who were in the Hart Building
4. 20 were in the Capitol complex but not Hart
5. 2 individuals who developed inhalation anthrax
6. 12 with no anthrax exposure
7. 7 unexposed but had received anthrax vaccine

Doolan, Freilich,... Martin. *The US Capitol Bioterrorism Anthrax Exposures: Clinical Epidemiological and Immunological Characteristics*. J Inf Dis 2007;195:174-184

## Antibody vs Cellular Immune Responses Does a Threshold for Infection Exist?



Ranked cell-mediated immune responses in unimmunized subjects at any time point after exposure to anthrax spores. Samples were

- collected 2 weeks after immunizations 1 and 3 and were processed and analyzed as described in the legend to figure 2. Data are the ranked subject
- response rate (RR) of either lymphocyte or monocyte populations. Responses were categorized as high or low, relative to the group mean ( $P < .05$ ).

## Lessons Learned

- Do not release results as positive until confirmation via PCR, DFA and/or  $\gamma$  phage
- If giving prophylaxis, give 7-10 days to allow adequate time for testing and results
  - Intolerance to multiple antibx is common
- Obtain work and *home* phone numbers as well as exposure hx at time of sampling if possible

## Lessons Learned

- Well structured Incident Response is critical
- Informing those who were exposed:
  - You cannot give enough informational briefs
  - “I brought spores home and contaminated my family”
  - Nasal swabbing is an epidemiologic tool
- The CDC has excellent staff who can provide great guidance but there is a bureaucracy that can make “real time” decisions difficult to make
- The local medical community is an invaluable resource but must remain informed
  - Conference calls
  - Focused informational briefs

## “The Science has Evolved”

- Assumptions prior to 15 OCT 01:
  - handling unopened envelopes would not result in significant aerosol dissemination - **WRONG**
  - only a small area would be contaminated by opening a letter containing anthrax spores - **WRONG**
  - 60 days of antibiotics would be sufficient to prevent inhalation anthrax - **??**
  - Anthrax immunization indicated?
    - CDC recs: **NO then but yes now**
    - DoD recs: **YES, and ASAP**



## Conclusions and Controversies

- Previous assumptions about spore dispersion are inaccurate
  - Anthrax spores spread rapidly and may be readily reaerosolized
  - Exposures may be significantly higher and more widespread than expected
  - Exposures may lead to subclinical infection with cellular and antibody immune responses
  - What is an acceptable “threshold” exposure to spores remains unknown – must we remediate to zero spores?
- The optimum duration of post-exposure prophylaxis and role of anthrax immunization remain controversial
- Symptoms reported by participants at the US Capitol were unlikely to be due to subclinical inhalation anthrax
  - Most symptoms were probably associated with post exposure prophylaxis (PEP)
- There is some evidence of both antibody and cellular responses to spore exposure despite use of antibiotics

## The BW Threat

### What has changed since the 2001 Anthrax events?

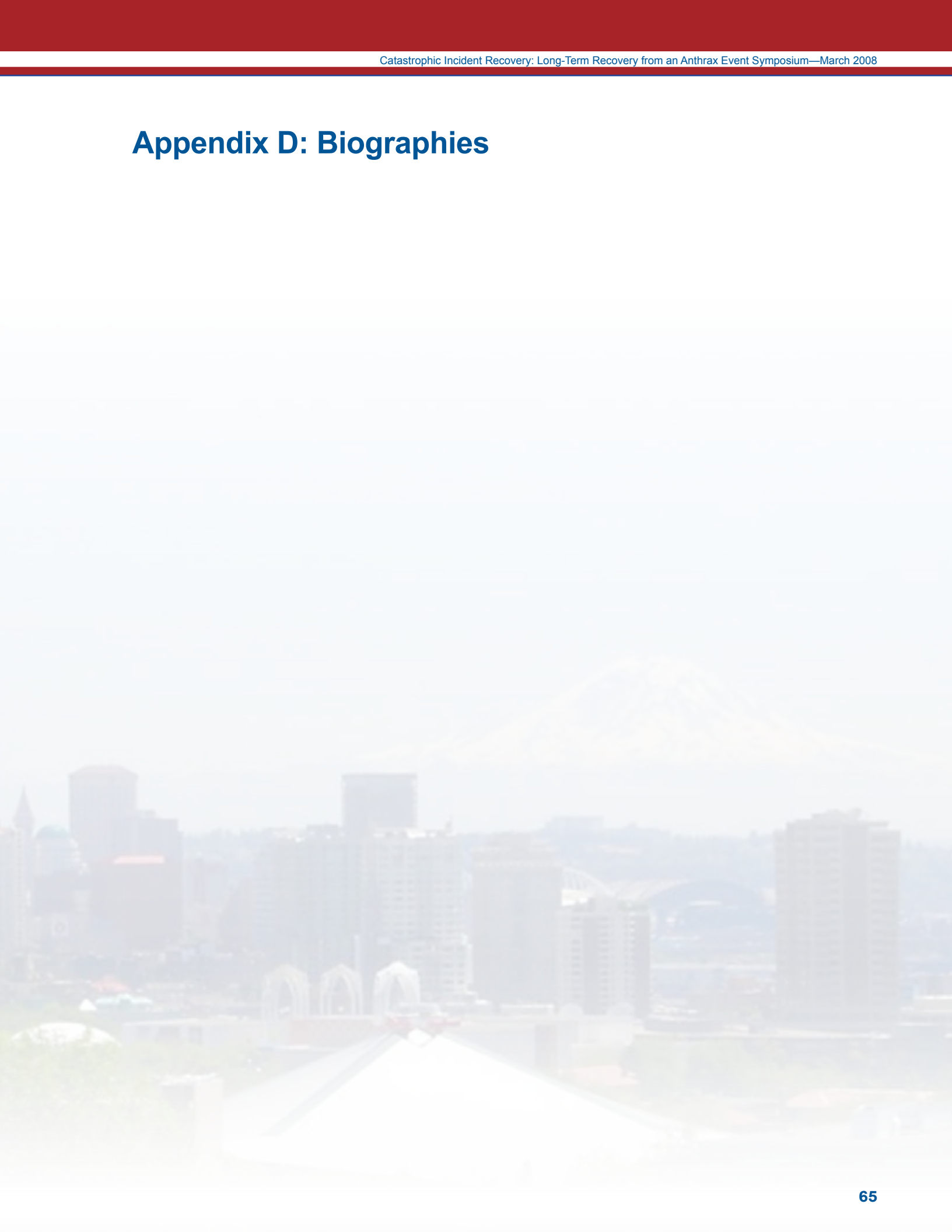
- Knowledge nationwide has improved dramatically
- Spending has skyrocketed
- Research in many neglected areas is moving rapidly
- Some degree of complacency is setting in
- Many controversies remain
- We are better prepared than seven years ago but still have a long way to go

**Thanks for your attention**

**[gmartin@idcrp.org](mailto:gmartin@idcrp.org)**



## Appendix D: Biographies





## Appendix D-1: Speakers

### **Ann Lesperance, MSPH**

*Deputy Director of Regional Programs, Northwest Regional Technology Center*

Ms. Lesperance has over 25 years of experience in designing and implementing environmental and health projects domestically and internationally, focusing on environmental and national security issues from a technical and public policy perspective and national security. As the Deputy Director of Northwest Programs for PNNL's NW Regional Technology Center for Homeland Security, Ms. Lesperance works with the State and Local Emergency Management, Public Safety, and DHS Operational Field Organizations. The overriding objective of the Center is to enhance the partnership between the Regional Federal, state and local organizations and DHS to better articulate and prioritize technology needs and to accelerate deployment of new and emerging technology solutions regionally and nationally. Ms. Lesperance is currently engaged in national security programs focusing on public health preparedness issues and also projects related to coastal and maritime security.

She has a B.A. from the University of Wisconsin and an M.S., Public Health, University of California at Los Angeles (UCLA), School of Public Health.

### **John D. Malone, MD, MPH**

*Program Manager*

Dr. John D. Malone ("JD") is a Program Manager for the Center for Biological Monitoring and Modeling, Pacific Northwest National Laboratory, and is an Infectious Diseases Physician with a Masters in Public Health. He is a Fellow, Infectious Diseases Society of America; Fellow, American College of Physicians; and a Certified Physician Executive by the American College of Physician Executives. An Adjunct Professor of Medicine, Uniformed Services University of the Health Sciences, he has authored or co-authored over 50 publications, several specific to anthrax and anthrax vaccination. He completed a 30-year U.S. Navy Medical Corps Officer career (retired 06) in July 2004 with final duty assignment as Commanding Officer, Medical Treatment Facility, USNS MERCY Hospital ship and was pleased to be part of Seattle Seafair 2003.

### **Gregory Martin, MD**

*Infectious Disease Physician*

*Program Director, Infectious Disease Clinical Research Program, Department of Preventive Medicine and Biometrics, Uniformed Services University of Health Sciences*

Dr. Martin is an Infectious Diseases Physician and Program Director, Infectious Disease Clinical Research Program (IDCRP), Department of Preventive Medicine and Biometrics at the Uniformed Services University of the Health Sciences Bethesda, Maryland. IDCRP research is focused toward clinically important infectious disease threats to the warfighter and military community including Methicillin-Resistant Staphylococcus aureus and other multiply drug resistant organisms such as Acinetobacter, a significant infectious complication of war wounds, along with travel and tropical diseases, and HIV infection.

Captain Martin, Medical Corps, United States Navy, continues a distinguished career in service to the Nation. In 2001 during the anthrax letter attacks, he supplied comprehensive specialty care and expertise to the Office of the Capitol Physician. He has been the Program Director, Infectious Disease Fellowships at the National Naval Medical Center/Walter Reed Army Medical Center, and Officer in Charge, Naval Medical Research Center, Lima Peru. His commitment to advancing education began early in his career when leading the "Medicine in the Tropics" course stationed in San Juan, Puerto Rico.

**Carol S. North, MD, MPE**

*Professor of Psychiatry, University of Texas Southwestern Medical Center Department of Psychiatry*

Dr. North and the Nancy and Ray L. Hunt Professor of Crisis Psychiatry at UT Southwestern Medical Center in Dallas. She holds a joint appointment in Surgery/Emergency Medicine in the Division of Homeland Security. Dr. North is also Director of the Program in Trauma and Disaster at the Veterans Administration North Texas Health Care System in Dallas. Dr. North completed medical school and residency training in psychiatry at Washington University School of Medicine in St. Louis, followed by a NIMH fellowship and a Masters degree, both in psychiatric epidemiology, at the same institution.

For two decades, Dr. North has continuously conducted federally funded research investigation into mental health effects of disasters, psychiatric aspects of medical illness, alcohol and drug abuse in homeless and indigent populations, and psychoeducation for patients with serious mental illness and their families. Dr. North has been an international leader in shaping the science of disaster mental health epidemiology. She and her research team have studied nearly 3,000 survivors of major disasters, including the bombings in Oklahoma City and the U.S. Embassy in Nairobi, Capitol Hill anthrax attacks, the September 11th terrorist attacks, and Hurricane Katrina. Under contract with the September 11th Fund, Dr. North developed mental health training programs provided to several thousand New York City mental health professionals after the 9/11 terrorist attacks, and subsequently this training has expanded nationally as P-FLASH (Practical Front-Line Assistance and Support for Healing).

Dr. North has authored more than 130 peer-reviewed scientific published articles, served on editorial boards for scientific journals, and chaired or served on committees for federal grant review and development of terrorism policy for the Institute of Medicine. She has testified to the U.S. Senate on disaster mental health effects, advised the Carter Center and the White House, debriefed Surgeon General Satcher, informed the U.S. Federal Drug Administration about post-traumatic stress, and provided consultation to the city of New York's Department of Health on post-9/11 mental health response and preparation. For her work in academic psychiatry and public service, Dr. North has received recognition by Congress; awards from the American Psychiatric Association, the National Alliance for the Mentally Ill, and the St. Louis Mental Health Association; the Washington University psychiatry residents' Teacher of the Year award; and inclusion in The Best Doctors in America.

**Ron Sims**

*King County Executive*

In his third term as King County Executive, Ron Sims has built his career in public service around the progressive principles of social justice, good government, and environmental stewardship. County Executive Sims has been a leader in addressing the region's need to be better prepared for natural or man-made threats. He directed the Seattle King County Public Health Department to be a national model for county health agencies on emergency preparedness, which is why they have been actively involved in the Symposium today.

As Executive, he is charged with overseeing the 13th largest county in the nation. It includes the city of Seattle, with an overall population of 1.8 million, King County is home to about 30% of Washington State's population and alone accounts for more than 40% of the state's jobs. The county government has a workforce of over 13,000 and an annual budget of \$4.4 billion. Mr. Sims is the former chairman of the Sound Transit Board of Directors, a member of the advisory board of the Brookings Center on Urban and Metropolitan Policy and the Puget Sound Clean Air Agency, Co-Chair of the Committee to End Homelessness, founding Chair of the Puget Sound Health Alliance, and sits on the board of trustees for Rainier Scholars. He has a national reputation for boldness and vision, and is a champion of reforming government processes to better serve the people of the dynamic, forward-thinking Puget Sound region.



## Appendix D-2: Panelists

### **Charles Robert Axton**

*Director of the Disaster Assistance, FEMA Region 10*

Mr. Axton's is the Director of the Disaster Assistance Division for U.S. DHS, FEMA, Region 10, Seattle, Washington. This territory includes the states of Alaska, Idaho, Oregon, and Washington. Mr. Axton is responsible for the delivery of post-disaster assistance programs to individuals and families, state and local governments, and certain private non-profit organizations.

### **Steven C. Bailey**

*Director, Pierce County Department of Emergency Management*

As the director of the Department of Emergency Management, Mr. Bailey manages 5 divisions of Pierce County government. These include the division of Emergency Management, the Fire Prevention Bureau, the Division of E9-1-1 and Radio Communications, and the County's Office of Emergency Medical Services. Mr. Bailey is also the sponsoring agency chief of Washington Task Force 1, one of FEMA's 28 national urban search and rescue teams. After the 9/11 incident, Mr. Bailey was appointed co-chair of the Pierce County Terrorism Early Warning and Response Task Force by Pierce County Executive John Ladenburg.

Prior to his appointment in Pierce County, Mr. Bailey served for more than 27 years in the Seattle Fire Department, rising to the rank of Assistant Fire Chief in charge of the Operations Division, managing 900 personnel and the response to 65,000 emergency incidents a year. He also served as the Deputy Chief of the Personnel Division and as the Director of the City of Seattle's Emergency Management programs. Mr. Bailey has also worked on a congressionally mandated program with the United States Fire Administration and the Federal Emergency Management Agency, chairing a national committee that has developed a new guide book for emergency response personnel who respond to hazardous materials incidents.

### **John Erickson**

*Special Assistant, Washington State Department of Health*

*Director of the Public Health Emergency Preparedness and Response Program*

Mr. Erickson is a Special Assistant with the Washington State Department of Health and Director of the Public Health Emergency Preparedness and Response Program. In this role he coordinates the overall agency work on emergency preparedness. He also administers the bioterrorism cooperative agreements with the Centers of Disease Control and Prevention and the Health Resources and Services Administration. As such he is involved in all aspects of biological, chemical, and radiological emergency planning with Washington State's hospitals, local public health agencies, and other federal, state, and local partners.

Prior to this he was the Director of the Department's Division of Radiation Protection. Mr. Erickson joined the Washington program in 1982 as an environmental health physicist. He moved up through the ranks within the Division becoming the Director in 1996. John received his training at the University of California at Los Angeles and the University of Washington. He holds an MS degree in nuclear chemistry.



**Barb Graff***Director, City of Seattle's Office of Emergency Management*

As the Director of Seattle Office of Emergency Management, Ms. Graff manages the multi-hazard interdepartmental emergency management program for the city of Seattle and coordinates its relation to other emergency response agencies and community groups. The program encompasses all phases of integrated emergency management, including preparedness, mitigation, response, and recovery.

Ms. Graff chairs the King County Advisory Committee on Emergency Management and Regional Homeland Security Council. She is a member of the Washington State Emergency Management Association and the International Association of Emergency Management. Since 1998, Ms. Graff has been a contributing author and regional champion of a voluntary effort to coordinate emergency response plans within King County, known as the Regional Disaster Plan for Public and Private Organizations. In 2004, Ms. Graff served on a State of Washington Task Force to review local emergency management programs and recommend improvements to the state's overall emergency planning and response capability.

Prior to Seattle, Ms. Graff worked for the city of Bellevue for 21 years; seven of those in the City Manager's Office and fifteen as Emergency Preparedness Manager. In that capacity she managed more than 20 presidentially declared disasters and full-scale exercises and in 2003, led Bellevue's emergency management program through a national pilot of the relatively new national Emergency Management Accreditation process. Ms. Graff chairs the national Emergency Management Program Review Committee. A native of Puget Sound, she holds a Bachelor of Science degree in Sociology from the University of Washington.

**Ron Harmon***Emergency Management Director, Port of Seattle*

Mr. Harmon is responsible for design and management of the overall emergency preparedness program for the Port of Seattle. This responsibility includes risk analysis, developing emergency plans that comply with the FAA, Homeland Security, and the National Transportation and Safety Board.

Mr. Harmon is also responsible for developing mitigation plans and continuity of business plans. He is tasked with maintaining NIMS compliance and to prepare and manage ECC level emergency management training and response.

Mr. Harmon has 37 years of experience in emergency service as a responder, trainer, and administrator.

**James Kane***Plans Officer – Directorate of Plans, Training, Mobilization, and Security (DPTMS), U.S. Army Garrison, Fort Lewis, Washington.*

Mr. Kane is responsible for coordinating Fort Lewis' emergency planning and preparedness efforts to include development and participation in exercises and associated training as well as coordinate and develop emergency response plans and related documents.

**Gil Kerlikowske**

*Chief of Police, Seattle Police Department*

Chief Kerlikowske is a 35-year law-enforcement veteran and was appointed as the Chief of Police for the Seattle Police Department on August 14, 2000. Chief Kerlikowske has made numerous contributions to the Seattle Police Department during his tenure. Some of the Chief's major accomplishments have been:

- Managing an Urban Area Security Initiative federal grant worth \$51 million for the city of Seattle and surrounding areas in emergency preparedness.
- Implementing a less lethal options program to provide officers with alternatives to lethal force when circumstances warrant.
- Leading the department to national accreditation from the Commission on Accreditation for Law Enforcement Agencies, which was first accredited in 2003 and re-accredited in 2006.
- Emphasizing the importance of officer training and safety.

He serves as Vice President of the Major Cities Chiefs Association, which is an organization composed of 55 of the largest law-enforcement agencies in the United States. He is a member of the International Association of Chiefs of Police, which is the world's oldest and largest non-profit membership organization of police executives. He serves as an executive board member to the Northwest High Intensity Drug Trafficking Area (HDTA), which addresses the demand reduction of importation and local drug trafficking. He is a member of the Washington Association of Sheriffs and Police Chiefs and the King County Police Chiefs Association, which strives to enhance cooperation and develop partnerships between law-enforcement agencies within King County and Washington State.

He holds a B.A. and M.A. in criminal justice from the University of South Florida in Tampa, and is a graduate of the National Executive Institute at the Federal Bureau of Investigation's Academy in Quantico, Virginia.

**MAJ Christopher T Littell, DO, MPH**

*Public Health Emergency Officer, Fort Lewis, Washington*

*Chief, Epidemiology & Disease Control Service, Department of Preventive Medicine*

*Madigan Army Medical Center, Fort Lewis, Washington*

As the Fort Lewis Public Health Emergency Officer, in concert with the Western Regional Medical Command Public Health Emergency Officer, MAJ Littell advises the Installation Command on the development and execution of operational plans in response to emergencies of public health significance. As the Medical Epidemiologist for Madigan Army Medical Center, he is also responsible for disease surveillance, reporting, outbreak investigations, related public health programs, and clinical services for Blood Bank referrals, Latent Tuberculosis, Tobacco Cessation, Travel Medicine, and Sexually Transmitted Diseases. Finally, as Deputy Director of the Public Health Residency at Madigan, he is responsible for training residents, rotating interns and medical students in epidemiology and public health practice.

**Michael Loehr***Director of Preparedness for Seattle/King County Public Health*

For the past five years, Mr. Loehr led Public Health's efforts to enhance disaster preparedness and response capabilities across the health-care system in King County. Mr. Loehr's specific responsibilities include:

- overseeing planning, training, and exercise programs for all hazards
- maintaining the Public Health Emergency Operations Center
- serving as Incident Commander for the Public Health and Medical Response
- establishing linkages with regional partners such as hospitals, first responders, community-based organizations, businesses, neighboring jurisdictions, and emergency managers.

Prior to working with Public Health, Mr. Loehr worked for two years with the King County Office of Emergency Management. He managed the county's Emergency Operations Center and developed operational procedures for all hazards facing King County. Prior to joining King County, Mr. Loehr spent 6 years with the Florida Division of Emergency Management serving as the Response Section Administrator and State Operations Section Chief.

**Richard Marks***President KPS Health Plans*

Richard has worked in the health care industry for more than 30 years, including 20 years in management at Group Health Cooperative. KPS is a not-for-profit health insurance company based in Bremerton, Washington. Prior to joining KPS in 2007, Mr. Marks worked as an independent management consultant, specializing in strategic and business planning for hospitals and health systems. He worked for several years with Public Health Seattle King County on emergency preparedness planning, and assisted in the development of the King County Healthcare Coalition.

**Charles Mattes***Senior Director of Global Security, Tishman Speyer*

Charles Mattes CPP, CPIS joined Tishman Speyer in October 1998, as the Senior Director of Global Security for Rockefeller Center in New York City. In March 2000, he was named Senior Director of Global Security and currently oversees all security for 40 million square feet of Class A commercial real estate worldwide. Mr. Mattes retired as an Assistant Chief in October 1998 after 25 years with the New York City Police Department. He is certified as both a Certified Protection Professional (CPP) and a Critical Infrastructure Protection Specialist (CIPS). As the Commanding Officer of the Special Operations Division, he was responsible for managing police emergency response resources during critical incidents. Through such assignments, he has developed an extensive liaison with both federal and local law-enforcement agencies.

He is a Security Task Force member for BOMA International, the Real Estate Round Table, and REBNY. He also belongs to International Security Managers Association (ISMA), American Society for Industrial Security International (ASIS), and the United Nations' Landmark Buildings Security Task Force.

Mr. Mattes holds a Master of Arts degree in both Education and Public Administration, and is a graduate of Columbia University's Police Management Institute, Graduate School of Business. He served in the U.S. Army's Military Intelligence Division from 1970 to 1973, and attended both their Vietnamese Language School at Fort Bliss, Texas, and their Counter-Intelligence School at Fort Holabird, Maryland.



**Anne Newcombe RN Bsc (Hons)**

*Clinical Nurse Manager of Emergency Services at Harborview Medical Center*

Ms. Newcombe is the Clinical Nurse Manager of Emergency Services located at Harborview Medical Center in Seattle, Washington. Her current responsibilities include managing the daily operations of Harborview's level-one Emergency Department and Medical Center disaster preparedness. Special interest and focus are on all-hazard preparedness and engaging local hospitals and institutions in planning and response. Ms. Newcombe has also spoken at the national and international level on Emergency Department throughput and high census management.

Ms. Newcombe also has experience in Emergency and Trauma Nursing both in the United Kingdom (UK) and USA. She obtained her BSc (Hons) from the University of Manchester, UK, Diploma in Health Services Management from the Royal College of Nursing, London, UK, and Certificate in Professional Practice (Trauma Nursing) from the University of Nottingham, UK.

**John Pennington**

*Director of Snohomish County's Department of Emergency Management*

Mr. Pennington came to Snohomish County following over four years as director of the DHS FEMA Region 10. During his tenure with FEMA, he handled more than 15 federal disasters and emergency declarations, and successfully deployed his division in support of many national events, including the Space Shuttle Columbia disaster and hurricanes Katrina and Rita. DHS Secretary Tom Ridge appointed Mr. Pennington as one of the nation's first Principal Federal Officials (PFO) in 2004 and Mr. Pennington was later deployed as a deputy PFO for the DoD/DHS exercise, Alaska Shield/Northern Edge. Mr. Pennington was also appointed Federal Coordinating Officer for the three northwest states that received displaced citizens after Hurricane Katrina.

Mr. Pennington is a former four-term lawmaker from Southwest Washington. He has completed over 20 courses through the Emergency Management Institute, and is currently pursuing his Masters in Emergency and Disaster Management.

**Dick Walter**

*Vice President of Operations, Association of Washington Business (AWB)*

Mr. Walter is AWB's chief financial officer and oversees internal policy formulation, human resources, membership recruitment and retention, and various AWB operations. He also coordinates the Board of Directors, and the Executive, Finance, and Nomination Committee meetings.

Mr. Walter has been active in the community serving in president and board capacities for the Olympia-Thurston County Chamber of Commerce; the Thurston County Economic Development Council; and many charitable organizations. His prior work experiences include numerous executive and management assignments with Xerox Corporation and GT&E.

He earned his undergraduate degree in engineering from the U.S. Military Academy at West Point, New York, and a Masters in business administration from the University of Washington. Dick is a native of Chicago and has lived in Olympia since 1974 with his wife Geri and three daughters.

**James Whitfield***Regional Director for DHHS Region 10*

Mr. Whitfield was appointed as Secretary Leavitt's Regional Director for Region 10 in July 2005. Mr. Whitfield is the Secretary's top representative in the region, responsible for guidance and coordination of DHHS policies in Alaska, Idaho, Oregon, and Washington. Prior to his appointment, Mr. Whitfield served as the senior officer for community relations for the Washington Health Foundation in Seattle, a statewide non-profit organization dedicated to improving the health of Washington communities. During his tenure at the foundation, he was responsible for developing and implementing a statewide campaign to make Washington the healthiest state in the nation. He served as a licensed life and health insurance analyst and agent with a Seattle financial services firm and is intimately familiar with the health insurance system in Washington State. He has also managed his own small business and served as a technology consultant. As President of CityClub, a Seattle non-profit organization with some 600 members, he leads the effort to foster civic engagement and non-partisan civil discourse on issues of concern to Puget Sound.

A graduate of the University of Iowa, Mr. Whitfield was born in Arkansas and moved to Washington State from the Chicago area in 1997.



## **Appendix E: Questions and Answers**





## Appendix E-1: Panel Questions and Answers

### Panel 1 Q&A: Long-Term Economic Implications

#### *What can be expected from the government in an emergency response?*

After first response is underway, the incident cause must be determined as an accident or a threat before the level of government involvement is set. For example, if it's an accidental hazardous material spill, the spiller must clean it up. But if it is an intentional act, it becomes a federal issue. In this case, feds and locals must work together for investigation and recovery efforts. (In the national contingency plan, at least for accidental spill, the EPA is the lead agency; along the shoreline, the Coast Guard leads. It is unclear, however, who pays the bill for the cleanup.)

The government can be expected to provide an adequate command center and structure to hold the city, and to provide well-trained first responders. While they address initial concerns, the command center should be pulling additional resources. It is critical to stay in communication with the entire city/region, provide accurate info on all aspects of an incident, and provide it in time for it to be acted on.

#### *Where does FEMA fit into that?*

Where FEMA is concerned, the initial response begins with locals—fire, law, and local elected officials, neighbors, and so on. Then FEMA addresses how locals will be supported by state and then federal government by providing the right resources at the right place at the right time. For example, FEMA would work to facilitate qualified cleanup firms, as part of a unified approach between state, city officials, the EPA, etc.

Another FEMA role is to unify communications and the messaging that goes to those affected and the rest, including family and community and potentially global news media. That information must be processed to be unified by all agencies and responders, and coordinated to be made available to the public. It's a daunting task and it takes hard work, but FEMA has the systems and capabilities. FEMA's financial role in reimbursement begins after a presidential declaration—life-saving efforts fall under a different process.

#### *What about costs?*

Cost? Specifically to anthrax, FEMA's role is when/if there is presidential disaster or emergency declared.

#### *How do you communicate during an event?*

A database is key. If communication systems such as cell phones, TV, and radio go down, other means may still function—text messaging. YouTube can be used to get to the young.

#### *How would small businesses be affected?*

Many government workers have never worked in other businesses, and aren't necessarily aware of what triggers businesses to take (or not take) action. Communication must extend beyond the response community and reach small businesses, which must be incentivized to engage. Communication must be clear so that they can: relate and react to the information; practice what to do, where to go, how to clean, how to handle inspections, how to get operations up and running, how to handle the psychological aspects, and trust in the government.

Insurance companies like the idea of offering incentives to businesses with contingency plans, but they are cautious in taking initiative. It is important that insurance companies step up in these situations, as relationships are everything. They should be out in the field and work with local chambers (happy to help if asked) to initiate seminars and engage contributors to make plans happen in the community.

## *What are the Port's critical dependencies?*

The Port's critical dependency is the system itself, in analogy to a chain, because everything is inter-modal. For example, in the recent I-5 floods, trucking suffered, and rail, air, and ship cargos all suffered. These are all time-critical, all interconnected. Today, an economy is literally system-wide—a true chain; you break a link, it all suffers. The “just-in-time” supply chain works for business in general, but is terrible in a disaster. Very few small businesses have alternative suppliers and would not be able to stay in business.

## *How do you rebuild confidence for an area after an event; how do you recover the local economy?*

Building confidence and changing perception of an area after an event such as an anthrax attack takes extensive time and investment, and commerce is fickle—if a port has to be rebuilt, businesses will move elsewhere and not return; it is expensive to move. Take, for example, the earthquake in Kobi, Japan, in 1995. It completely wiped out the seaport, devastating all regional businesses. The government stepped in to rebuild the harbor, and vastly improved upon what had existed before within two short years. But the effects are still felt. Locals believe that business growth from 1995 to 2007 would have been around 40%. In 2007, however, it was only at 80% of the business level in 1995.

## **Panel 2 Q&A: Public Health and Medical Services Implications**

### *How would the capacity surge be handled?*

There is a history of local collaboration among hospitals and other health-care providers. The health-care coalition brought together a number of medical facilities to work on disaster preparedness, and an anthrax event would clearly have a huge impact on the health-care system. As hospital capacities decrease, demand increases. Personnel may become isolated and unable to get to or away from hospitals. Medical supplies are limited and would quickly run out, and other limited resources (e.g., supplies, ambulances, travelways) would potentially cause a competition between jurisdictions. Medical services would become scarce and have to be prioritized.

Communication to the patient must begin before they even become a patient, as was seen during the Seattle power outage. (Families and cell phones were needed to get the message out about not using charcoal for heat inside their homes.) Providers, insurers, and the state will all need to deliver the same message—there must be consistency, even as the message evolves. Also, the right message needs to go to health-care employees, so that they aren't afraid to come to work.

Every hospital must have the same contingency plan, and we must engage the community in advance so that they really know what to expect. The surge capacity issue at hospitals would mean that they should cancel all planned procedures to open up available beds. (They may not, though, because of the huge economical loss.) We would need to change our standard of care so that instead of one RN/ventilator patient, there might only be 1 RN/several ventilator patients. As it stands, hospitals are not willing to accept the liability of making those decisions.

### *If there were an outdoor release, what would dictate the boundaries of evacuation?*

In the event of an external release in an urban environment, evacuation would probably not occur, because it would be too late. The plume would be gone by the time the sick show up. What about isolation? Sheltering? How would those be enforced? Quarantine would probably have to be voluntary. Since you can't move the city, the goal would be to mobilize treatment to treat as many people in place as quickly as possible, and augment that capacity.

### *Are there enough medications, and who would distribute them?*

In the event of bioterrorism, the State Department of Health would help supply the medications where needed from the Strategic National Stockpile. SNS supplies cover about 15 to 20 percent of the population—enough for a local event, but not provisions for the nation's entire population.



There are robust plans for getting the SNS supply to states and then locally distributed. Perhaps it would make sense for public health to distribute medications via pharmacies or some other public facility so that long lines would not be a security issue. (Some small counties don't have the staff to oversee distribution of medication and possible ensuing riots.) Perhaps pharmacies could provide them prescription-free for 60 days. Mr. Marks is confident that the insurance industry would consider pre-distribution of medication to subscribers in such an event.

Washington State has a major analytical capability in the Laboratory Response Laboratory, but there aren't clinical services at the state level.

***What about care for the uninsured and first responders?***

In triage situation, the host differentiates between the insured and uninsured, but triage should be based on clinical needs and not "wallet biopsy." First responders would typically have insurance coverage, but volunteers may not. (Perhaps there are "war on terror" exclusions to L&I?) Legislation is changing and improving the coverage of registered health-care workers—a year ago, the legislature expanded its liability legislation to cover responders and facilities in response to a big event.

Finally, it was noted that elected officials need to be continually engaged. It was strongly recommended that this report be sent to their offices.

## **Panel 3 Q&A: The Decision-Making Framework for Recovery**

***What does it mean to federalize an event, and what does that mean for local and state officials?***

There is a big difference between a strong federal presence and federalization. The federal government fully understands that emergency response is the local government's responsibility first—they just want lots of information to know it's being handled. To federalize an event means that a federal face is placed in front of the event. This has a strong effect on the expectations of the public on what will be done. It also removes control from local and state officials.

***What agency or level of government is most appropriate to lead a cross-jurisdictional effort?***

Currently, it's still on-the-fly, and it depends on the event boundaries. If it involves multiple cities, the county should oversee it; if it involves multiple counties, then the state would. (There would have to be a cultural leap of faith for the state to fill that void.) The UASI region has a framework in place.

More exercises will help define this need. At an operational level, the region would perform well because good relationships are in place and we understand each other. The struggle would be at policy level and cohesive guidance. Major jurisdictions have elected officials, but when you get to the next layer, there is such a wide variety of involved political groups, it gets sketchy (e.g., can the county speak for the city?)

***Are there plans to address long-term implications of keeping order regarding treatment?***

This could be most problematic. The reality is that if the presence of anthrax broke, people would be in their cars heading home. We can call in many for short-term solutions, for stockpiles, traffic and crowd control, but then how would we secure bins for pharmacies, etc., that would be hot black market items? (There is a plan being developed for local enforcement.) It's important not to have a lot of lines for the medicine queue. Be sure you have plenty of distribution points if you go to regional distribution or if you don't have law enforcement. There is a need for centralized locations for treatment where you can provide security.

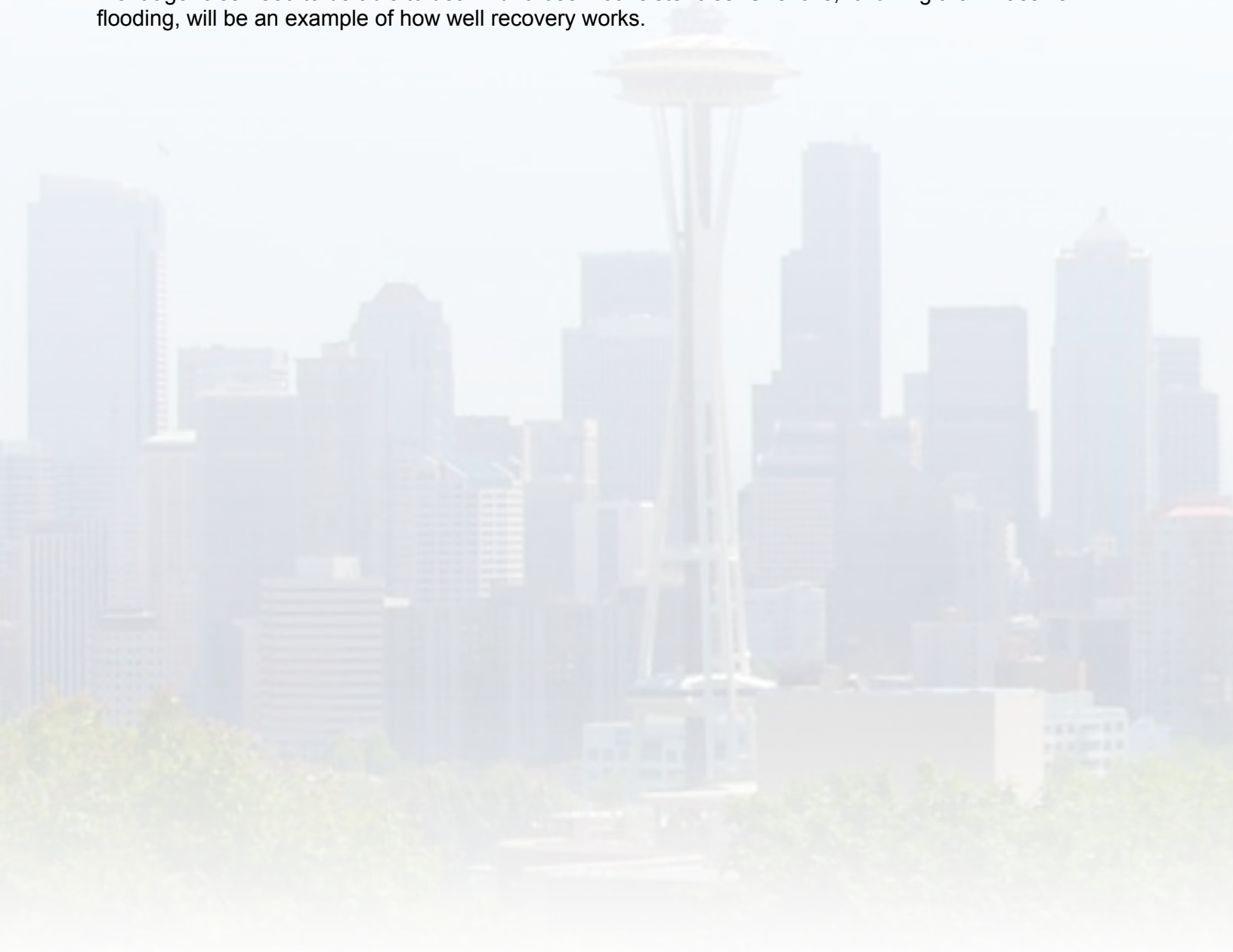
There is a political reality of establishing priorities. What happens when one hospital has a patient, another has four patients and they both think they should be the priority? There needs to be control of the chaos through the news media and other sources of public information.



*For smaller businesses, with typically 7-10 days of working capital, what measures might be put in place to ensure that these can continue?*

Small-and-medium-sized businesses may only have enough resources for 2 to 3 days. Small businesses account for 85 percent of business. Forty eight percent of those businesses fund their business with credit cards. We may need to bring together banks for financial aid because we can't do without these small businesses. They are what keep this country running. (There is an FDIC initiative to provide aid to that sector of society.)

There is a lack of recovery planning and getting the right people to get the work done. When you lose small business, you lose tax receipts, funds for fire and police, and so on. (One Starbucks Emergency Manager was quoted as say, "We'll watch to see what you do; if it's not sufficient, we may not reopen any stores.") What can we put in place to incentivize them to stay in business? It may involve government agencies helping with permitting processes or tax breaks. To pull a task force together after the fact (Oklahoma City, for example) does not work. We need to build a recovery plan with enough flexibility so that government agencies can help. Consistent messages are an unrealistic goal, so government agencies need to be able to deal with those inconsistencies. Chehalis, following their massive flooding, will be an example of how well recovery works.



## Appendix E-2: Question and Answer Cards

- 1) We have been discussing inside buildings, but how would an anthrax event outside a building determine priorities? That is, the streets, vehicles, etc. are exposed. Who addresses this?  
 Ron Harmon – HAZMAT response teams with County and Feds. Very difficult to contain.  
 Charles Axton – The coordination of limited response resources is a common function of local emergency operations centers (EOCs), state EOCs, the FEMA regional response coordination centers, and the FEMA national response coordination center.
- 2) How important would messaging be in terms of communication to your markets outside the region?  
 Ron Harmon – VITAL to communicate any change or no change in the supply chain.
- 3) Who is responsible for, who would you look to for, cleanup of the streets, city buses, etc?  
 Ron Harmon – National plan says that Public Health is responsible for clean up. Coast Guard on shoreline and waterborne.
- 4) Would FEMA work to coordinate the limited resources of qualified cleanup firms when multiple sites are impacted (private facilities and governmental facilities)? Has any discussion occurred to have a plan in place for this conflict?  
 Charles Axton – The process and mechanisms for response operations would not be altered. FEMA would remain in support of the state(s) and the state(s) would be in support of the impacted local officials to provide life-saving/sustaining resources. FEMA would continue to work with our federal partners to fulfill resource requests from the state(s).
- 5) Is bioterrorism response covered by the Stafford Act? If not, what needs to be done to ensure federal financial support of the cost of responding and recovering from bioterrorism or large-scale infectious disease outbreaks?  
 Charles Axton – Bioterrorism could be an “occasion or instance” as defined as an “Emergency” under Section 102(1) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.
- 6) Seattle/King County Public Health is working hard to coordinate health care resources at the local level. Charles Axton told us FEMA will coordinate with other federal agencies and the state. *What coordination efforts exist between state and counties?*  
 Michael Loehr – In Washington, the State Department of Health does not engage in resource coordination during emergencies. Local jurisdictions are expected to do this on their own. It is unclear the extent to which the state EOC will serve as a resource management center. However, State EMD is expecting local jurisdictions to develop plans for logistically staging resources that come in from other jurisdictions. This responsibility is assumed at the state level in other parts of this country.
- 7) Would the health insurance industry consider “pre-distribution” of medication to your members ahead of an event?  
 Richard Marks – Health insurers would collaborate with public health, health-care providers, pharmacy benefits managers, and other interested parties to create the most effective pre-distribution process for medications in advance of an event. Health insurers have contact lists for subscribers and may be able to share such information on a need-to-know basis, but they do not routinely handle medications.

- 8) In the event of an outdoor release of anthrax spores in an urban environment, how would you determine the boundaries of the evacuation zone?

Dr. Chris Littell – The question presumes confirmation of viable spores in the environment, and the recommendation by public health, at least at the county if not state level, is that the risk to human health warrants evacuation. Assuming the “environment” was within range of a biowatch or equivalent monitoring device located on Fort Lewis, on-post law-enforcement/fire/HAZMAT personnel would be responsible for responding to the initial alarm, and the incident commander would coordinate for additional capability as necessary (e.g. contact the 10th Civil Support Team). In the 24–48 hours between an alarm, if one existed, and confirmation from the east coast contract and/or Washington State authorities, the FBI may very well take over, and the methods of detection/confirmation and defining a perimeter may be scripted by consensus among state and Federal officials. There is no background level of blister agent on Fort Lewis; with anthrax I believe the test would need to distinguish between weapons-grade and naturally occurring spores and, if that’s not possible, defining a perimeter may not be possible either.

- 9) What elements of preparedness are you most concerned about related to isolation enforcement?

Michael Loehr – Numbers—the more people that are legally ordered into isolation, the more challenging it is to track them, identify when someone has broken isolation, mobilize the court system and law-enforcement agencies to detain the individual, and house them in a jail isolation room (space is very limited). If folks are not “ordered” into isolation, rather a public statement is issued saying that all people with these symptoms should isolate themselves, it is still a requirement to abide by those instructions but law-enforcement and courts will not be relied upon to enforce.

- 10) If there was a major wide-area bioterrorism event in an urban area and potentially hundreds of thousands of people were potentially exposed, are there enough medications and vaccines? Who has responsibility for providing medications—the federal folks, versus state and local folks?

Anne Newcombe – I can only speak from a hospital point of view; no there are probably not enough medications kept locally of course that does depend on the actual event. However, there are available federal stockpiles that would be utilized—public health agencies and hospitals do have plans for distribution of medications once directed by Public Health to do so.

Michael Loehr – There are enough antibiotics in pill form to cover several hundred thousand. Vaccine for anthrax is still under development; I’m not sure of the current quantities. Feds are responsible for getting pills to the state Department of Health. State Department of Health is responsible for getting pills to local Public Health. Local Public Health is responsible for getting pills to the victims. Feds would be responsible for managing any vaccine program for anthrax.

Dr. Chris Littell – Given the scale of such an event, and sensitivity on the part of both the public and the CDC about responding in a timely manner to a probable terrorist event, the definition of exposure and whether or not PEP and/or vaccination are warranted would likely be consensus-based, between county, state, and Federal Public Health officials. The Feds own the SNS and while the counties—and perhaps the state—have stockpiled some amount of certain medications, they would be dependent on the SNS.



11) In a “catastrophic anthrax” event how would points of distribution be stood up to provide medications to a large part of the population? What are the current assumptions?

- Assumptions: 3–5,000 people, 50–100K
  - Health care will be impacted
  - Health care providers are impacted
  - Demand goes up by 100 to 500%
  - Medical resources are limited
  - Adjacent communities will be impacted
- Command Structure – *Key*
- Change our thinking – *Graded*
- *Integrate with business*
- Protect first responders
  - Police
  - Fire
  - Public Health
  - Volunteers

Michael Loehr – Point of Dispensing (POD) sites are already identified in several cities across the county to serve the general public. First responders would receive a separate cache and would dispense to themselves and families if needed. Hospitals would receive a cache and would dispense to their staff and families if needed. Public Health would lead the operation and management of the public PODs. Staffing these sites would be the greatest challenge.

12) Surge capacity issue – what is the current hospital bed expansion plan? Also, where will the state/county get the additional medical providers?

Anne Newcombe – As discussed at the symposium, there are plans to increase the hospital bed capacity during such an event, as this would be a disaster. The King County Healthcare Coalition has been instrumental in working with area hospitals to come up with plans, such as stopping planned admission, using surge areas within hospitals (i.e. clinic space for inpatients) and also consideration of alternative standards of care (remembering that this is during a disaster). Other options are also being investigated such as alternate care facilities that would provide some medical care and help decompress the hospitals to allow the hospitals to care for the sickest patients. Additional medical providers, again depending on the event/agent, would depend on what “pool” of staff you would utilize. If it was a local non-contagious event, then using volunteers, retirees, and federal teams would be an option. If it were a contagious event such as pan flu, you have to assume that all the United States is affected; therefore, we really have to use our local staffing resources—current staff, volunteers, and retirees.

Dr. Chris Littell – Not my lane. Currently, a longstanding nursing shortage has and will continue to determine census capacity within Federal and civilian hospitals alike. There are a certain amount of soft admissions in any hospital, probably more so in Federal facilities where admission and length-of-stay criteria aren’t driven as tightly by reimbursement justification, and there are a certain number of elective surgeries in any hospital that would be deferred to free up some additional capacity in the event of a mass causality. With no change in the standard of care and faced with and sudden increase in patients requiring admission, most facilities will hedge on soft admissions and postpone elective procedures. Places like Harborview, that shoulder indigent care, probably would have less flexibility in this regard.

- 13) For an emergency triage situation, how will hospitals/care providers give service or differentiate between insured and uninsured? Is payment for service the primary concern? What about coverage for first responders or other volunteers—will insurance companies refuse to cover charges for medical services because the person put themselves in danger?

Richard Marks – Hospitals and emergency departments provide triage and emergency services to all patients regardless of their ability to pay. Safety net providers, such as community clinics and some health departments, also provide care to people who may have no insurance and limited financial means. In an emergency, it is likely that many health-care providers will be willing to assist in addressing the health-care needs of the individuals who are affected by the event, regardless of their ability to pay. Most first responders are likely to have adequate health insurance and would be covered through their employer's medical insurance plan or Workers Compensation. Volunteers may be a more difficult population to insure unless they have health insurance coverage through another source, such as Medicare for retirees or a spouse's coverage.

- 14) You made a comment that insurers would certainly be willing to provide long-term care for first responders/providers—that seems to conflict with what's happening in NYC, with the 9/11 firefighters and their long-term health (respiratory) issues...could you explain this?

Richard Marks – My comments may not have been clear. Long-term-care coverage is a potential problem for first responders and/or providers. Most employers do not offer long-term-care coverage and many people do not have it. If first responders or providers need medical care over a long time period and remain employed, their medical costs should be covered. But, if they are unable to work and have limited insurance or require long-term-care (non-medical) services, they are likely to not be covered.

- 15) Which agency and/ or level of government should lead the coordination effort that is cross-jurisdictional for a recovery effort for an anthrax event like IBRD is proposing?

Barb Graff – It depends on the geographic scope of the area of impact. I would suggest the Chief Elected Official from the affected area(s) plus the primary Public Health officials. So, for example, if anthrax were released in downtown Seattle, and rural Pierce County, that would include the Seattle Mayor, the Public Health Officer for Seattle King County, the Pierce County Executive, and the Pierce County Public Health Officer.

Steve Bailey – If it is cross-jurisdictional it needs to be a Unified Command with representatives from the affected jurisdictions.

- 16) With an event like this, and the fact that most small-to-medium-sized businesses only have 7–10 days' working capital, what things should be considered that need to be put in place to maintain businesses and the welfare of companies?

Barb Graff – You know a much better agency to ask this question would be either Branden Hardenbrook or Matt Morrison from the Pacific North West Economic Region—or a Chamber of Commerce. I don't think I could do justice to their expertise.

Steve Bailey – In my opinion, we need to have in place the immediate expertise at the technical level to provide key information on the effects of the contamination, the area impacted, time lines for remediation, and a strong information dissemination plan to keep business fully informed on the possible impacts long term.

## Appendix F: Participant Contact Information

### Ken Almond

Cubic, Inc.  
2280 Historic Decatur Rd, Suite 200  
San Diego, CA 92106  
858-810-5740  
[ken.almond@cubic.com](mailto:ken.almond@cubic.com)

### John Andrus

Lt Col  
US Air Force  
15625 92 Way SE  
Yelm, WA 98597  
253-982-2343  
[john.andrus@us.af.mil](mailto:john.andrus@us.af.mil)

### Charles Axton

Disaster Assistance Division Director  
FEMA Region 10  
130 228th St SW  
Bothell, WA 98021  
425-487-4685  
[charles.axton@dhs.gov](mailto:charles.axton@dhs.gov)

### Ken Back

Emergency Preparedness Director  
Washington Department of Health  
101 Israel Road,  
PO Box 47816  
Olympia, WA 98504  
360-236-4534  
[ken.back@doh.wa.gov](mailto:ken.back@doh.wa.gov)

### Sheri Badger

Pierce County EMD  
2501 South 35th St, Suite D  
Tacoma, WA 98409  
253-798-2204  
[sbadger@co.pierce.wa.us](mailto:sbadger@co.pierce.wa.us)

### Steve Bailey

Director  
Pierce County EMD  
2501 South 35th Street  
Tacoma, WA 98409-7405  
(253) 798-3307  
[sbailey@co.pierce.wa.us](mailto:sbailey@co.pierce.wa.us)

### Sandi Benbrook-Rieder

Benbrook and Associates LLC  
830 West State Route 4  
Cathlamet, WA 98612  
360-795-3294  
[slbenbrook@yahoo.com](mailto:slbenbrook@yahoo.com)

### Clarissa O. Berkman

Communications  
PNNL  
PO Box 999  
MSIN - K7-73  
Richland, WA 99352  
509-375-3980  
[clarissa.berkman@pnl.gov](mailto:clarissa.berkman@pnl.gov)

### Kimberlee Betts

Emergency Management Coordinator  
Pierce County EMD  
2501 South 35th St, Suite D  
Tacoma, WA 98409  
253-798-2683  
[kbetts@co.pierce.wa.us](mailto:kbetts@co.pierce.wa.us)

### Amy Blanchard

CD Program Manager  
Snohomish Health District  
3020 Rucker Ave  
Everett, WA 98201  
425-339-8610  
[ablanchard@shd.snohomish.wa.gov](mailto:ablanchard@shd.snohomish.wa.gov)

### Larry Bocknek

DTRA  
6413 Lake Meadow Dr  
Burke, VA 22015  
703-850-0792  
[lbocknek@cambor.com](mailto:lbocknek@cambor.com)

### Diane Bonne

Response Manager  
Seattle/King County Public Health  
401 Fifth Avenue  
Seattle, WA 98104  
206-263-8724  
[diane.bonne@kingcounty.gov](mailto:diane.bonne@kingcounty.gov)

### Jeff Bowers

Acting Director  
King County Office of Emergency Management  
3511 NE 2nd St  
Renton, WA 98058  
206-205-4062  
[jeff.bowers@kingcounty.gov](mailto:jeff.bowers@kingcounty.gov)

### Lance Brooks

S&T/8-015  
DHS Dept. of Homeland Security  
Washington, DC 20528  
202-254-5768  
[lance.brooks@dhs.gov](mailto:lance.brooks@dhs.gov)



**Carl Brown**

DTRA Defense Threat Reduction Agency  
8725 John J Kingman Rd, STOP 6201  
Fort Belvoir, VA 22060-6201  
703-767-3340  
[carl.brown@dtra.mil](mailto:carl.brown@dtra.mil)

**Hollianne Bruce**

Epidemiologist  
Snohomish Health District  
3020 Rucker Ave, Suite 300  
Everett, WA 98201  
425-339-5213  
[hbruce@shd.snohomish.wa.gov](mailto:hbruce@shd.snohomish.wa.gov)

**Chris Burke**

Sr. Environmental Specialist  
City of Tacoma  
2201 Portland Ave  
Tacoma, WA 98421-2711  
253-502-2247  
[cburke@cityoftacoma.org](mailto:cburke@cityoftacoma.org)

**Dr. Roger Case**

Island County Public Health  
1 NE 6th Street  
Box 500  
Coupeville, WA 98239  
360-240-5575  
[rogerc@co.island.wa.us](mailto:rogerc@co.island.wa.us)

**Katie Crockett**

Tauri Group  
6363 Walker Lane  
Alexandria, VA 22310  
571-480-4188  
[katie.crockett@taurigroup.com](mailto:katie.crockett@taurigroup.com)

**Ed Cunningham**

Program Manager  
ATT  
16221 NE 72nd Way  
Redmond, WA 98027  
425-580-7854  
[ec4857@att.com](mailto:ec4857@att.com)

**Joseph Donovan**

Sr. Vice President  
Beacon Capital Partners  
1655 North Fort Myer Drive  
Arlington, VA 22209  
540-539-5694  
[jdonovan@beaconcapital.com](mailto:jdonovan@beaconcapital.com)

**Trevor Downen**

2Lt  
62 CES Readiness Emergency Management  
555 Barnes Blvd  
McChord AFB, WA 98338  
253-982-5413  
[trevor.downen@mcchord.af.mil](mailto:trevor.downen@mcchord.af.mil)

**Roger Edington**

Tacoma Fire Department  
901 Fawcett Ave  
Tacoma, WA 98402  
253-5915705  
[redingto@ci.tacoma.wa.us](mailto:redingto@ci.tacoma.wa.us)

**Bill Ekse**

UASI Working Group  
Snohomish County Emergency Management  
3509 109th Street S.W.  
Everett, WA 98204  
425-388-5061  
[bill.ekse@co.snohomish.wa.us](mailto:bill.ekse@co.snohomish.wa.us)

**John Erickson**

Special Assistant  
Washington Department of Health  
P.O. Box 47890  
Olympia, WA 98504-7890  
(360) 236-4033  
[jlerickson@doh.wa.gov](mailto:jlerickson@doh.wa.gov)

**Pat Evens**

Homeland Security Coordinator  
U.S. Postal Inspection Service  
10700 27th Ave S  
Seattle, WA 98168  
206-768-4427  
[patsy.r.evans@uspis.gov](mailto:patsy.r.evans@uspis.gov)

**Lt. James Fisk**

Seattle Fire Department  
301 2nd Avenue South  
Seattle, WA 98020

**Nancy Furness**

Assistant Director of Communicable Diseases  
Snohomish Health District  
3020 Rucker Ave, Suite 208  
Everett, WA 98201  
425-339-8612  
[nfurness@shd.snohomish.wa.gov](mailto:nfurness@shd.snohomish.wa.gov)

**Barb Graff**

Director  
 Seattle Emergency Management  
 Seattle Police Headquarters  
 610 Fifth Avenue  
 Seattle, WA 98124  
 (206) 684-0437  
[Barb.graff@seattle.gov](mailto:Barb.graff@seattle.gov)

**MAJ Terry Gram**

10th Civil Support Team  
 Building 6  
 Camp Murray, WA 98430  
 253-512-8963  
[terry.gram@wa.ngb.army.mil](mailto:terry.gram@wa.ngb.army.mil)

**Rick Grimstead**

Sheriff  
 Skagit County Sheriff's Office  
 600 S 3rd  
 Mt. Vernon, WA 98273  
 360-336-9450  
[rickg@co.skagit.wa.us](mailto:rickg@co.skagit.wa.us)

**Ron Harmon**

Emergency Manager  
 Port of Seattle  
 Sea-Tac Airport  
 Box 68727  
 Seattle, WA 98168  
 206-439-5182  
[harmon.r@portseattle.org](mailto:harmon.r@portseattle.org)

**David Harrowe**

Medical Epidemiologist  
 Tacoma/Pierce County Public Health  
 3629 South D Street  
 Tacoma, WA 98405  
 253-798-7388  
[dharrowe@tpchd.org](mailto:dharrowe@tpchd.org)

**Jim Henriksen**

Seattle/King County Public Health  
 401 5th Ave  
 Seattle, WA 98104  
 206-263-8430  
[jim.henriksen@kingcounty.gov](mailto:jim.henriksen@kingcounty.gov)

**John Himmel**

Safety & Emergency Operations Manager  
 Washington Department of Transportation  
 310 Maple Park Ave, SE  
 PO Box 47358  
 Olympia, WA 98504  
 306-705-7973  
[himmelj@wsdot.wa.gov](mailto:himmelj@wsdot.wa.gov)

**Dr. Mike Hinds**

AF/A5XP  
 4875 Eisenhower Ave, Suite 210  
 Alexandria, CA 22304  
 703-212-2419  
[hindsr@saic.com](mailto:hindsr@saic.com)

**David Holcomb**

Protective Security Advisor (PSA)  
 DHS  
 915 Second Ave, Room 806  
 Seattle, WA 98174  
 206-220-6612  
[david.holcomb@dhs.gov](mailto:david.holcomb@dhs.gov)

**Eric Holdeman**

Principal  
 ICF International  
 1526 28th PL SE  
 Puyallup, WA 98374  
 253-848-5095  
[eholdeman@icfi.com](mailto:eholdeman@icfi.com)

**Yolanda Houze**

Washington State Public Health Laboratory  
 1610 NE 150th St  
 Shoreline, WA 98155-9701  
 206-418-5471  
[yolanda.houze@doh.wa.gov](mailto:yolanda.houze@doh.wa.gov)

**Debra Jelcick**

Sergeant  
 Seattle Police Department  
 610 5th Ave  
 PO Box 34986  
 Seattle, WA 98124-4986  
 206-684-0469  
[debbie.jelcick@seattle.gov](mailto:debbie.jelcick@seattle.gov)

**Steve Jennings**

DTRA  
 6033 Washington Blvd  
 Richmond, VA 22205  
 571-436-2747  
[steve.jennings@cbrne.com](mailto:steve.jennings@cbrne.com)

**MSgt Jeremy Jones**

62 Civil Engineer Squadron  
 555 Barnes Blvd  
 McChord AFB, WA 98338  
 253-982-2014  
[jeremy.jones-02@mcchord.af.mil](mailto:jeremy.jones-02@mcchord.af.mil)

**James Kane**

U.S. Army Garrison, Fort Lewis  
Box 339500  
IMWE-LEW-PLO-P, MS-16  
Fort Lewis, WA 98433-9500  
253-967-0488  
[james.kane2@conus.army.mil](mailto:james.kane2@conus.army.mil)

**Martin Kastner**

Non-Commissioned Officer-In-Charge, Bioenvironmental Engineering  
62nd Medical Group/SGOAB  
690 Barnes Blvd  
McChord AFB, WA 98338  
253-982-3921  
[martin.kastner1@mcchord.af.mil](mailto:martin.kastner1@mcchord.af.mil)

**Pamela Keeley**

Health Services RN  
American Red Cross  
4402 S. Ferdinand St  
Seattle, WA 98118  
206-234-9315  
[pamkeeley@mac.com](mailto:pamkeeley@mac.com)

**Marty LaFave**

Battalion Chief of EMS  
Bellevue First Department  
450 110 Ave NE  
Bellevue, WA 98004  
425-452-6982  
[mlafave@bellevuewa.gov](mailto:mlafave@bellevuewa.gov)

**Karen Larson**

Organization Agency for Toxic Substances and Disease Registry  
1200 Sixth Ave, Suite 1910  
Seattle, WA 98104

**Ann Lesperance**

Deputy Director, Northwest Regional Technology Center for Homeland Security  
PNNL  
1100 Dexter Ave, Suite 400  
Seattle, WA 98110  
206-528-3223  
[ann.lesperance@pnl.gov](mailto:ann.lesperance@pnl.gov)

**MAJ Jin Lim**

10th CST  
717 SW 323rd. St  
Federal Way, WA 98023  
253-512-8479  
[jjin.lim@us.army.mil](mailto:jjin.lim@us.army.mil)

**Sarah Lindsay**

62nd Medical Group  
690 Barnes Blvd  
McChord AFB, WA 98338  
443-889-2217  
[sarah.lindsay@mcchord.af.mil](mailto:sarah.lindsay@mcchord.af.mil)

**MAJ Chris Littell**

Madigan Army Medical Center  
Building 9040 Fitzsimmons Drive  
Tacoma, WA 98431  
[christopher.littell@us.army.mil](mailto:christopher.littell@us.army.mil)

**Michael Loehr**

Preparedness Director  
Seattle/King County Public Health  
401 5th Ave  
Seattle, WA 98104  
206-263-8687  
[michael.loehr@kingcounty.gov](mailto:michael.loehr@kingcounty.gov)

**Erika Lund**

Seattle Emergency Management  
105 5th Avenue South, Suite 300  
Seattle, WA 98104  
206-233-5089  
[erika.lund@seattle.gov](mailto:erika.lund@seattle.gov)

**Ryan Madden**

DTRA  
8725 John J. Kingman Road  
Fort Belvoir, VA 22060  
703-767-3351  
[ryan.madden@dtra.mil](mailto:ryan.madden@dtra.mil)

**John Malone** (not Popfon)

MD, MPH  
PNNL  
Cypress Steet, 300 Area  
P7-51  
Richland, WA 99354  
509-376-9635  
[john.malone@pnl.gov](mailto:john.malone@pnl.gov)

**Ben Maltz**

Science Officer and State Surgeon WAARNG  
10th CST  
Building 6  
Camp Murray, WA 98430  
253-377-7247  
[ben.r.maltz@us.army.mil](mailto:ben.r.maltz@us.army.mil)

**Gabriel Marcus**

Costco  
999 Lake Drive  
Issaquah, WA 98027  
425-313-2591  
[gmarcus@costco.com](mailto:gmarcus@costco.com)



**Richard Marks**

Interim President & CEO  
KPS Health Plans  
400 Warren Avenue  
Bremerton, WA 98337  
[rmarks@kpshealthplans.com](mailto:rmarks@kpshealthplans.com)

**Gregory Martin**

Director, Captain, Dr.  
Uniformed Services University  
IDCRP Bldg 28 Suite 201  
4301 Jones Bridge Road  
Bethesda MD 20814  
301-295-1465  
[gmartin@idcrp.org](mailto:gmartin@idcrp.org)

**Lt. Col Jeffrey Mason**

US Air Force  
690 Barnes Blvd  
McChord AFB, WA 98338  
253-982-3921  
[jeffrey.mason1@mcchord.af.mil](mailto:jeffrey.mason1@mcchord.af.mil)

**Patrick Massey**

FEMA Region 10  
130 228 Street  
Bothell, WA 98021  
425-487-4600  
[patrick.massey@dhs.gov](mailto:patrick.massey@dhs.gov)

**Charles Mattes**

Senior Director of Global Security  
Tishman Speyer  
45 Rockefeller Plaza  
New York, NY 10111  
[cmattes@tishmanspeyer.com](mailto:cmattes@tishmanspeyer.com)

**Shawn McAllister**

Program Coordinator  
Pierce County EMD  
2501 South 35th St Suite D  
Tacoma, WA 98409  
253-798-7542  
[smccal1@co.pierce.wa.us](mailto:smccal1@co.pierce.wa.us)

**Jodi Melland**

Communications Specialist  
PNNL  
PO Box 999, MSIN:K9-18  
Richland, WA 99352  
509-375-2240  
[jodi@pnl.gov](mailto:jodi@pnl.gov)

**Max Messman**

Homeland Security Regional Coordinator  
Washington State Emergency Management Division  
Building 20  
Camp Murray, WA 98430  
253-512-7010  
[m.messman@emd.wa.gov](mailto:m.messman@emd.wa.gov)

**Andy Michels**

Port of Tacoma  
Box 1837  
Tacoma, WA 98401  
253-293-4486  
[amichels@portoftacoma.com](mailto:amichels@portoftacoma.com)

**Mike Midgley**

Cubic, Inc.  
2280 Historic Decatur Rd, Suite 200  
San Diego, CA 92106  
858-810-5749  
[mike.midgley@cubic.com](mailto:mike.midgley@cubic.com)

**Cynthia Miron**

Public Health Emergency Response Coordinator  
Tacoma/Pierce County Public Health  
3629 South D Street  
Tacoma, WA 98405  
253-798-6556  
[cmiron@tpchd.org](mailto:cmiron@tpchd.org)

**Jason Moulton**

Loss Prevention Director  
Safeway  
1121 124th Ave NE  
Bellevue, WA 98005  
[jason.moulton@safeway.com](mailto:jason.moulton@safeway.com)

**John Mower**

Cubic, Inc.  
2280 Historic Decatur Rd, Suite 200  
San Diego, CA 92106  
858-810-5778  
[john.mower@cubic.com](mailto:john.mower@cubic.com)

**Dr. Mike Muhm**

Boeing  
PO Box 3707  
MC 7H-90  
Seattle, WA 98124-2207  
425-865-1062  
[mike.muhm@boeing.com](mailto:mike.muhm@boeing.com)

**CDR Lucienne Nelson**

NORTHCOM  
250 Vandenburg St, Suite B016  
Peterson AFB, CO 80914  
719-556-3127  
[lucienne.nelson@northcom.mil](mailto:lucienne.nelson@northcom.mil)

**Anne Newcombe**

Harborview Medical Center  
Clinical Nurse Manager  
325 Ninth Ave  
Seattle, WA 98104-2499  
206-744-6141  
[enewcomb@u.washington.edu](mailto:enewcomb@u.washington.edu)

**Eileen Newton**

Disaster Coordinator  
Franciscan Health System  
1717 S. J Street  
Tacoma, WA 98405  
253-426-6664  
[eileennewton@fhshealth.org](mailto:eileennewton@fhshealth.org)

**Sean Nolan**

DTRA  
9006 Stratford Lane  
Alexandra, VA 22308  
703-283-8493  
[sean.nolan\\_contractor@dtra.mil](mailto:sean.nolan_contractor@dtra.mil)

**Dr. Carol North**

UT Southwestern Medical Center  
6363 Forest Park Rd.  
Dallas, TX 75390-8828  
214-648-5375  
[carol.north@utsouthwestern.edu](mailto:carol.north@utsouthwestern.edu)

**Sandy O'Donnell**

Tacoma/Pierce County Public Health  
3629 South D Street  
Tacoma, WA 98405  
253-798-7687  
[sodonnell@tpchd.org](mailto:sodonnell@tpchd.org)

**Dr. Kristin Omberg**

LANL  
PO Box 1663, MS K551  
Los Alamos, NM 87545  
505-667-9628  
[komberg@lanl.gov](mailto:komberg@lanl.gov)

**LTC David Patsiga**

10th CST  
Building 6  
Camp Murray, WA 98430  
253-377-7234  
[david.patsiga@us.army.mil](mailto:david.patsiga@us.army.mil)

**John Pennington**

Director  
Snohomish County Emergency Management  
3509 109th St SW  
Everett, WA 98204  
[john.pennington@co.snohomish.wa.us](mailto:john.pennington@co.snohomish.wa.us)

**Michaelle Pennylegion**

Program Manager  
Seattle/King County Public Health  
401 5th Ave  
Seattle, WA 98104  
206-263-8306  
[michelle.pennylegion@kingcounty.gov](mailto:michelle.pennylegion@kingcounty.gov)

**Jim Price**

Training & Development Specialist  
Tacoma/Pierce County Public Health Department  
3629 South D Street  
Tacoma, WA 98405  
253-798-6548  
[jprice@tpchd.org](mailto:jprice@tpchd.org)

**Jim Pryor**

Assistant Chief  
Seattle Police Department  
610 5th Ave  
PO Box 34986  
Seattle, WA 98026  
206-386-0061  
[jim.pryor@seattle.gov](mailto:jim.pryor@seattle.gov)

**Laurence Raine**

DHS  
1120 Vermont Ave  
Washington, DC 20005  
202-254-6112  
[Laurence.raine@dhs.gov](mailto:Laurence.raine@dhs.gov)

**Ron Rasmussen**

Lieutenant  
Seattle Police Department  
610 3rd Ave  
Seattle, WA 98104  
206-233-5189  
[ronald.rasmussen@seattle.gov](mailto:ronald.rasmussen@seattle.gov)

**Margaret Read**

Business & Continuity Manager  
AT&T  
16221 NE 72nd Way  
Redmond, WA 98027  
425-580-7527  
[margaret.read@att.com](mailto:margaret.read@att.com)

**David Rees**

Environmental Protection Agency  
1200 Sixth Ave  
ECL-116  
Seattle, WA 98104  
206-553-1808  
[rees.david@epa.gov](mailto:rees.david@epa.gov)

**Susan Reinertson**

Regional Administrator  
FEMA Region 10  
130 228th St SW  
Bothell, WA 98021  
425-487-4604  
[susan.reinertson@dhs.gov](mailto:susan.reinertson@dhs.gov)

**CAPT Julie Sadovich**

DHS  
1120 Vermont Ave, NW  
Washington, DC 20854  
202-254-5652  
[julie.sadovich@dhs.gov](mailto:julie.sadovich@dhs.gov)

**Jessica Sandusky**

Pacific Northwest National Laboratory  
1100 Dexter Ave N., Suite 400  
Seattle, WA 98109  
206-528-3422  
[jessica.sandusky@pnl.gov](mailto:jessica.sandusky@pnl.gov)

**Justin Schumacher**

SNS/MRC Coordinator  
Tacoma/Pierce County Public Health  
3629 South D Street, MS 111  
Tacoma, WA 98405  
253-798-7675  
[jschumacher@tpchd.org](mailto:jschumacher@tpchd.org)

**Mike Scott**

Battalion Chief  
Kent Fire Department  
24611 116 Ave SE  
Kent, WA 98030  
253-856-4308  
[mscott@ci.kent.wa.us](mailto:mscott@ci.kent.wa.us)

**Annie Searle**

Washington Mutual  
1301 Second Ave  
WMC0601  
Seattle, WA 98115  
206-500-2250  
[annie.searle@wamu.net](mailto:annie.searle@wamu.net)

**Dr. Will Shaw**

PNNL  
PO Box 999, MS K9-30  
Richland, WA 99352  
509-372-6140  
[will.shaw@pnl.gov](mailto:will.shaw@pnl.gov)

**Jim Sheline**

Fort Lewis DPTMS  
BLDG 2027, Room 335C  
Fort Lewis, WA 98433  
253-967-0476  
[jim.sheline@us.army.mil](mailto:jim.sheline@us.army.mil)

**Donna Smith**

LERC Labor Education & Research Center  
700 South Second Street  
Mount Vernon, WA 98221  
360-419-3310  
[dsmith@co.skagit.wa.us](mailto:dsmith@co.skagit.wa.us)

**Earl Sodeman**

Medical Services Administrator  
Seattle Fire Department  
301 Second Avenue South  
Seattle, WA 98104  
206-386-1483  
[earl.sodeman@seattle.gov](mailto:earl.sodeman@seattle.gov)

**Steve Stein**

Director, Northwest Regional Technology Center  
for Homeland Security  
PNNL  
1100 Dexter Ave N, Suite 400  
Seattle, WA 98109  
206-528-3340  
[steve.stein@pnl.gov](mailto:steve.stein@pnl.gov)

**Robert Stenner**

PNNL  
PO Box 999, MSIN:K3-54  
Richland, WA 99352  
509-531-6438  
[robert.stenner@pnl.gov](mailto:robert.stenner@pnl.gov)

**Greg Thomas**

ASTDR Region 10  
1200 6th Ave, #1910  
Seattle, WA 98101  
206-553-5113  
[gthomas@cdc.gov](mailto:gthomas@cdc.gov)

**Randolph Thur**

DHS  
3320 Woodburn Village Dr  
Annandale, WA 22003  
571-277-6080  
[randolph.thur@associates.dhs.gov](mailto:randolph.thur@associates.dhs.gov)



**Nigel Turner**

Public Health Manger  
Tacoma/Pierce County Public Health  
3629 S D Street  
Tacoma, WA 98418  
253-798-6057  
[niturner@tpchd.org](mailto:niturner@tpchd.org)

**Nancy Valentine**

PNNL  
PO Box 999 MS: K2-10  
Richland, WA 99352  
509-375-2070  
[nancy.valentine@pnl.gov](mailto:nancy.valentine@pnl.gov)

**Dr. Sheila Van Cuyk**

LANL  
PO Box 1663  
Los Alamos, NM 87545  
505-665-4839  
[svancuyk@lanl.gov](mailto:svancuyk@lanl.gov)

**Lee Ann Veal**

LANL  
PO Box 1663, MS K551  
Los Alamos, NM 87545  
505-606-1945  
[lveal@lanl.gov](mailto:lveal@lanl.gov)

**John Verrico**

Spokesman, Science & Technology  
DHS  
Washington, DC 20528  
202-254-2385  
[john.verrico@dhs.gov](mailto:john.verrico@dhs.gov)

**Ray Walker**

Tauri Group  
6363 Walker Lane  
Alexandria, VA 22310  
571-480-4202  
[ray.walker@taurigroup.com](mailto:ray.walker@taurigroup.com)

**Dick Walter**

Vice Presidents of Operations  
Association of Washington Buisnesses  
P.O. Box 658  
Olympia, WA 98507-0658  
(360) 943-1600 ext. 1039  
[Dickw@awb.org](mailto:Dickw@awb.org)

**James Whitfield**

Regional Director  
DHHS Dept. of Helath and Human Services  
2201 6th Avenue, MS-01  
Seattle, WA 98124  
(206) 615-2010  
[James.whitfield@hhs.gov](mailto:James.whitfield@hhs.gov)

**Mark Williamson**

Fort Lewis DPTMS  
BLDG 2027, Room 335C  
Fort Lewis, WA 98433  
253-967-0367  
[mark.a.williamson@conus.army.mil](mailto:mark.a.williamson@conus.army.mil)

**Joby Winans**

Tacoma/Pierce County Public Health  
3629 South D Street  
Tacoma, WA 98405  
253-798-2853  
[jwinans@tpchd.org](mailto:jwinans@tpchd.org)

**Tony Winters**

NORTHCOM  
250 Vandenburg St, Suite B016  
Peterson AFB, CO 80914  
719-554-3939  
[anthony.winters@northcom.mil](mailto:anthony.winters@northcom.mil)

**Jody Woodcock**

Program Manager  
Pierce County EMD  
2501 South 35th St, Suite D  
Tacoma, WA 98409  
253-798-7021  
[jwoodco@co.pierce.wa.us](mailto:jwoodco@co.pierce.wa.us)

**Julie Zobel**

Intern  
Tauri Group  
6363 Walker Lane  
Alexandria, VA 22310  
703-993-8630  
[julie.zobel@taurigroup.com](mailto:julie.zobel@taurigroup.com)