

BIOTERRORISM: COULD IT HAPPEN HERE?

AS WE ENTER the new millennium it's once again time to think about the unthinkable. In January 2000 we introduced you to the specter of bioterrorism. Since then, you've been asking, "Could it happen here? In Oregon?" The short answer is (as several of you reminded us after the January 2000 article*), it already has! In 1984, 751 people in and around Wasco County became ill with diarrhea, 388 of whom were confirmed by culture as having *Salmonella* Typhimurium. What was the source of the outbreak? A religious cult—the Rajneeshees—trying to gain influence over local politics contaminated various food and water sources in The Dalles in an attempt to influence the outcome of an election. How did they do it? They obtained a culture of *S. Typhimurium* from a reputable biological supply house; developed the ability to grow *S. Typhimurium* in their own laboratory; systematically tested their ability to transmit the disease to selected individuals; and finally contaminated salad bars with *S. Typhimurium*. This same group also attempted to contaminate The Dalles' water supply and had contemplated the deliberate use of the human immunodeficiency virus (HIV) or *Salmonella* Typhi to cause disease.

There are other recent examples of biocrimes. A hospital laboratorian used *Shigella dysenteriae* to make 12 fellow workers ill by contaminating pastries and muffins left in a laboratory lunchroom. As we noted last January, Aum Shinrikyo, in addition to the successful use of poisonous sarin gas, also attempted to use *Bacillus anthracis*, the organism that causes anthrax, and botulinum toxin to cause illness, but they failed.

POTENTIAL AGENTS

The lesson of the attacks by the Rajneeshees and others is that almost any pathogen or toxin that can be transmitted by food, by water, through the air, via vectors, or by contact with blood or body fluids could be used by terrorists to cause

large numbers of people to become ill. In a national effort to prepare for a bioterrorist attack, the Centers for Disease Control and Prevention (CDC) recently categorized and prioritized the organisms that are believed to be of greatest potential use as agents of bioterrorism.

Category A

High-priority agents include organisms that pose a risk to national security because they 1) can be easily disseminated or transmitted person-to-person; 2) cause high mortality, with potential for major public-health impact; 3) might cause public panic and social disruption; and 4) require special action for public-health preparedness. Category A agents include

- Variola major (smallpox);
- *Bacillus anthracis* (anthrax);
- *Yersinia pestis* (plague);
- *Clostridium botulinum* toxin (botulism);
- *Francisella tularensis* (tularemia);
- the filoviruses, Ebola hemorrhagic fever and Marburg hemorrhagic fever; and
- the arenaviruses, Lassa (Lassa fever), Junin (Argentine hemorrhagic fever), and related viruses.

Category B

The second highest priority agents include those that are 1) moderately easy to disseminate; 2) cause moderate morbidity and low mortality; and 3) require specific enhancements of CDC's diagnostic capacity and disease surveillance. Category B agents include

- *Coxiella burnetii* (Q fever);
- *Brucella* species (brucellosis);
- *Burkholderia mallei* (glanders);
- the alphaviruses, Venezuelan equine encephalomyelitis, eastern and western equine encephalomyelitis;
- ricin toxin from *Ricinus communis* (castor beans);
- epsilon toxin of *Clostridium perfringens*; and
- *Staphylococcus* enterotoxin B.

A subset of the Category B agents includes pathogens that are food-

waterborne, including, but not limited to

- *Salmonella* species;
- *Shigella dysenteriae*;
- *Escherichia coli* O157;
- *Vibrio cholerae*; and
- *Cryptosporidium parvum*.

Category C

The third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of 1) availability; 2) ease of production and dissemination; and 3) potential for high morbidity, mortality, and major health impact. Category C agents include

- Nipah virus;
- hantaviruses;
- tickborne hemorrhagic fever viruses;
- tickborne encephalitis viruses;
- yellow fever virus; and
- multidrug-resistant *Mycobacterium tuberculosis*.

WHAT CAN BE DONE LOCALLY?

Health-care providers, hospitals, local health departments (LHDs), law enforcement officials, and emergency planners should begin planning how they will respond to any large outbreak of disease, whether naturally occurring (e.g., pandemic influenza), or caused by a bioterrorist. This requires close coordination with local, state and federal agencies to ensure that all can respond effectively to a bioterrorist event. The Federal government is stockpiling supplies of medical equipment (respirators, etc.) and medications (antibiotics, anti-viral agents, vaccines, etc.), and supplies regionally to help states respond to a bioterrorist attack. These will be made available if we have an outbreak of disease that overwhelms our ability to care for patients.

Health-care providers, hospitals, and emergency medical response personnel should ensure that infection control procedures are up-to-date and followed, especially if there is a suspicion of an infectious disease or bioterrorist event. (Recently we received a call inquiring about the need for follow-up and medical care for a laborato-

*Thank you very much. Your prizes are in the mail!

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ry worker who smelled a culture tube and worked with the organism outside of a hood—potentially endangering the health of the worker and other laboratory employees. The organism was later identified as a species of *Brucella*.) Health-care providers and supporting staff may be in critically short supply following a bioterrorist event. It is important that you keep yourself healthy and available to provide care to the ill; following established infection control (standard precautions) and employee health procedures is an important way of maintaining our supply of doctors and nurses.

WHAT IS THE OREGON HEALTH DIVISION (OHD) DOING?

Working with LHDs, the CDC, and our neighboring states, we are developing plans for statewide response to disease outbreaks. Through a CDC grant, we added staff to improve our ability to detect disease outbreaks, respond to the outbreaks, and limit their impact on Oregon. We have provided additional epidemiology training to our LHDs and will continue to expand our training as well as our ability to communicate with our LHDs through a Health Alert Network. The Oregon State Public Health Laboratory is expanding its diagnostic capabilities. We are coordinating our bioterrorism efforts with other disease programs (like pandemic influenza response planning), ensuring that disease surveillance and control programs are robust. We and Oregon Emergency Management are coordinating response programs so that Oregon's response to disease outbreaks is quick and appropriate.

WHAT ABOUT THE NATIONAL RESPONSE?

If there is an actual bioterrorist attack a number of local, state, and federal agencies

will become involved. The Federal Bureau of Investigation assumes responsibility for management of the overall incident. The Federal Emergency Management Agency will assist in recovery. There may be medical and biological agent reconnaissance assistance from various states' National Guard units as well as manpower and materiel support from the Department of Defense. CDC will manage the stockpile and distribution of medical supplies and equipment and, along with OHD, be involved in the medical response to the incident.

HOW CAN YOU PREPARE?

When you hear hoof beats outside your door, you don't open your door expecting to see zebras. That said, we will recognize a zebra only through suspicious health-care-providers. The emergence of West Nile encephalitis on the east coast of the United States went unrecognized for several months because the signs and symptoms were similar to those of Saint Louis encephalitis. Suspicion about the cause of elevated numbers of deaths in birds by zoo veterinarians and reporting by an infectious disease specialist of abnormally high numbers of encephalitis patients with unusual patterns of muscular weakness lead to the eventual recognition of West Nile virus as the cause of the outbreak. Similarly, our recognition of and response to bioterrorist events will occur only via prompt reporting by those of you hunting in the bush. Report diseases as required by state law.

With today's high-speed, worldwide transportation an exotic disease can appear anywhere in the world. As you can tell from the CDC list of potential bioterror-

ism agents, a terrorist could use a number of these exotic diseases to make large numbers of people ill. Will we start investigating right away? It depends, but your reporting of unusual events will start the ball rolling. Contact your LHD or OHD **immediately** (503/731-4024 during business hours, 503/731-4030 at other times) if you see

- Unusual numbers of undifferentiated febrile illnesses or other medical events you believe are of public health significance;
- Anyone with a disease in Category "A"; or
- Multiple cases of the illnesses in Category "B" or "C."

WHERE CAN YOU GO FOR ADDITIONAL INFORMATION?

The following are sources of information on bioterrorism and response on the Internet.

Oregon Health Division: <http://www.healthoregon.org/acd/bioterr/home.htm>

Johns Hopkins University Center for Civilian Biodefense Studies: <http://www.hopkins-biodefense.org/>

Centers for Disease Control and Prevention: <http://www.bt.cdc.gov/>

FBI's National Domestic Preparedness Office: <http://www.ndpo.gov/>

The United States Army's Medical Research Institute of Infectious Diseases: <http://www.usamriid.army.mil/>

The United States Army's Medical NBC Information Server: <http://www.nbc-med.org/others/>

In a future issue of the *CD Summary*, we'll discuss our progress on planning for bioterrorism events and tell you where to get additional information.