

SOUTHWESTERN NEWS

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UT SOUTHWESTERN MEDICAL CENTER AT DALLAS EXPERTS LEAD FORUM TO OFFER FACTS ABOUT BIOTERRORISM

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DALLAS – In the wake of the Sept. 11 attack and daily reports of anthrax exposures, UT Southwestern officials convened a panel of experts to discuss bioterrorism – the psychology of a terrorist, how to recognize and respond to a bioterrorist attack, and UT Southwestern's innovative research approaches to counteract bioterrorism.

Four experts – Drs. Jaye Crowder, assistant professor of psychiatry; Kathleen Delaney, professor of emergency medicine; Robert Haley, chief of epidemiology; and Stephen Johnston, director of the Center for Biomedical Inventions – addressed a crowd of 350 Dallas-area residents at an Oct. 23 public forum sponsored by Southwestern Medical Foundation.

Citing anthrax as one of the pathogenic organisms most susceptible to antibiotics, Haley said this biological agent is also considered the most efficient bio-weapon because of several criteria: It's infective and stable in aerosol; a low dose can be highly infective; it has a short incubation period; and detection and identification are difficult.

"Anthrax is the most efficient and effective bio-weapon because it satisfies most of the criteria for an effective biological warfare agent," said Haley.

Haley also said people should not worry about there not being enough Cipro to treat everyone exposed to anthrax because supplies are plentiful of other common antibiotics that are effective in curing the strains of anthrax being used in the recent incidents in the United States.

He described the three clinical forms of anthrax: cutaneous, inhalation and gastrointestinal.

Antibiotic treatment makes it possible to cure all cases of cutaneous anthrax, which occurs when anthrax spores invade tiny cuts in the skin. Symptoms of this form of anthrax start with swelling and a dime-size pink spot that may itch. The spot and swelling usually appear on

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the arm, face or neck. After a day or two the spot becomes a blister and develops into a nonpainful, coal-black ulcer.

Inhalation anthrax, with symptoms often similar to influenza, can also be cured with antibiotics but can be fatal if not detected early, Haley said.

“Antibiotics are effective in the first two stages, but are usually ineffective in the final stage of inhalation anthrax,” he said. He added that people who have inhaled anthrax spores have several days to begin effective antibiotic treatments.

Symptoms usually begin one to 14 days after exposure but can occur as long as 60 days after exposure. They include mild flu-like illness with low-grade fever, muscle aches, cough and mild chest pain. The symptoms usually improve after three to five days, Haley said, but they worsen if untreated. High fever, severe chest pain, shock, respiratory failure and death are then the final stages of the disease.

Gastrointestinal anthrax, though highly uncommon, occurs when spores are ingested in contaminated, undercooked meat. There has not been a single case of this type of anthrax reported in the United States in modern history.

Dallas, although the eighth-largest city in the nation, is not considered a likely area for mass population biological warfare compared with other larger cities, one expert said, since most terrorist attacks are targeted toward a large number of people in small spaces. Dallas has approximately 2,500 people per square mile, compared with 66,800 per square mile in New York City and 16,000 in San Francisco.

“Our city is armed with ample antibiotics and local medical personnel in the event of anthrax exposure,” said Delaney, who is also medical director of the emergency department at Parkland Health & Hospital System. “We are currently keeping close track of the numbers of ‘flu’ patients that we see and educating physicians and other health-care providers so that early cases of disease from a biological weapon would be recognized. The goal of our effort is early detection, so antibiotics and/or vaccinations could be delivered to those who had been exposed in time to prevent illness and death.”

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In the case of a catastrophic event, Delaney said, the Dallas County Health Department would begin an epidemiological investigation and treatment of individuals and other high-risk groups exposed to the agent. Those efforts would be supported by both state and federal agencies.

"The Dallas medical community is primed to recognize and deal with this type of threat," she said.

While such biological agents like anthrax are cured with antibiotics, smallpox, a virus, is not. Johnston is working on novel methods to develop genetic-based vaccines and diagnostics that can prevent or stop a viral outbreak. Johnston has received significant funding from the U.S. Defense Department to develop such inoculations.

He is currently developing technologies to create vaccines from pathogens in six to nine months, rather than the two to 12 years presently required.

"The probability of a serious bio-threat actually happening is very rare," Johnston said, "but we have to be prepared if one is carried out."

In addition, Johnston is developing methods of producing a single vaccine that will protect against several agents and of producing a bio-signature diagnosis, which would provide a "fingerprint" of a person's health.

"This area is driven by the idea of quickly identifying if someone has an infection," he said. "If there is a mass exposure it would be advantageous to know who has the infection and who does not.

"This technology is in the very early stages, but it looks promising. This type of bio-signature system may be able to diagnose exposure to a pathogen much earlier than we currently do."

Such early "fingerprinting" could lead investigators more quickly to the place and cause of exposure.

While Dallas may not be considered a likely target for mass-population biological warfare, America is, Crowder said.

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"A society's vulnerability to terrorism is proportional to its prosperity," he said. "Without targets, there is no terrorism. If people had nothing to lose they wouldn't be fearful. Terrorism is a criminal act designed to induce a sense of fear or terror in target audiences beyond the immediate victims in order to accomplish specific goals."

A society's "general openness" is also related to terrorism, he said.

"You'll notice that there aren't any acts of terrorism in the People's Republic of China. That's because the government would not allow any account of the terrorist acts to be disseminated, which would destroy the basic principle of terrorism – to frighten people," he added.

A third component of a terrorist attack is vulnerability.

"We are now less vulnerable than we were prior to the Sept. 11 attack because we expect something," he said. "We're not going to be as frightened, and we're not going to be as devastated because the surprise factor is less."

In dealing with terrorism, Crowder said, "Go and do what you normally do and don't be paralyzed by the fear. That is the best way to beat this."

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