

BIOTERRORISM



WATCH

Preparing for and responding to biological, chemical and nuclear disasters



IN THIS ISSUE

■ Fear factor:

Even considering the aura surrounding the 1918 flu strain, does flu strikes sufficient fear to invoke terror? cover

■ Recommended steps:

Scientists urge CDC and WHO to bring in experts to discuss the dangers of a weaponized flu threat. 35

■ Syndromic surveillance:

The wave of the future in bioterrorism surveillance is computer-based systems that serve as an early tripwire . . . 37

■ Smallpox apathy:

It's becoming increasingly apparent that there's more fear of the vaccine than an attack. . . . 38

■ News Brief:

CDC offers web link to real-time terror. 40

SEPTEMBER/
OCTOBER 2003

VOL. 2, NO. 5 • (pages 33-40)

Raising the ghost of 1918: Could flu be the ultimate bioweapon?

Skeptics doubt terror factor, but pandemic planning praised

In an age of exploding genetic engineering, could the Spanish influenza strain of 1918 — the unholy grail of infectious diseases — be resurrected as the ultimate bioweapon?

“It would not be easy; but with advances in this technology, it gets easier every day,” warns **Mohammed Madjid**, MD, lead author of a provocative new paper about the possibilities of using the flu virus as a weapon of bioterrorism.

To be certain, flu is not at the top of anyone’s list of bioterrorism concerns. It is a seasonal killer that we face annually with a striking complacency, given its death toll. On the contrary, for a while, the anthrax attacks of 2001 seemed to imbue every white powder with a deadly resonance. A total of five people died in the anthrax attacks. The Spanish flu epidemic in 1918 killed somewhere between 20 million and 40 million people globally.

“Our society is so fearful of anthrax right now,” says Madjid, a cardiologist at the University of Texas (UT)-Houston Health Center. “Imagine influenza. The virulent strain of Spanish flu had a fatality rate of 25% to 50%. That is almost 10 times that of SARS.”

Unfortunately, this is not an episode of *The Outer Limits*. Madjid and co-authors — including Scott Lillibridge, MD, national bioterrorism expert and director of the Center for Biosecurity and Public Health Preparedness at the UT School of Public Health in Houston — ask us to consider the possibility of malicious genetic engineering to restore the 1918 strain. “Sequencing of the genome of the 1918 Spanish influenza virus is nearly complete; once it is published, unscrupulous scientists could presumably utilize candidate virulence sequences,” they warn.¹

Genetic sequencing work has, indeed, been undertaken in part to try to understand the extraordinary virulence of the 1918 flu strain.² RNA from the 1918 pandemic virus was isolated from a preserved lung tissue sample. Nine fragments of viral RNA were sequenced from the coding regions of the virus. The sequences are consistent with a novel H1N1 influenza A virus that belongs to the subgroup of strains that infects humans and swine. Another team of virologists

determined that the 1918 strain was formed by a “recombination” of human and swine viruses that likely “changed the virulence of the virus.”³

Healthy people felled by strain

The virulence of the 1918 flu borders on legend, but even the Centers for Disease Control and Prevention (CDC) soberly recalls: “Some people who felt well in the morning became sick by noon, and were dead by nightfall. . . . With the Spanish flu, mortality rates were high among healthy adults as well as the usual high-risk groups. The attack rate and mortality was highest

among adults 20 to 50 years old. The severity of that virus has not been seen again.”⁴

All well and good around the campfire — but could the fabled strain be raised, so to speak, from the dead? In that regard, Madjid cites another disturbing, recent study: the successful creation of a poliovirus in vitro solely by following instructions from a written genetic sequence.⁵ In other words, all the future bioterrorist may need is something akin to a genome cookbook.

“The message is to be prepared, not panicked,” Madjid says. “It would not be very wise if we didn’t say anything about this and waited until something came up.”

Still, recreating a strain of the 1918 flu, if it is ever possible, would certainly take a sophisticated laboratory and sustained effort, says **William Bicknell**, MD, PhD, professor of international health at Boston University. “It would absolutely have to be state sponsored. You can’t say it won’t happen, but I think it is unlikely. There are plenty of things out there good enough as they are as terror weapons.”

Indeed, manipulating pathogens in the lab raises the possibility that you actually will create weaker strains or — having succeeded with a deadly version — infect yourself, he adds.

Flu could prove a potent killer even if the legendary 1918 strain remains in its grave. Madjid — a heart specialist by training — became interested in the bioterrorism issue after uncovering a surprising finding in a prior study: Influenza immunization reduces the risk of recurrent myocardial infarction by 66%.⁶ The findings were underscored by other research indicating that influenza immunization could half the rate of heart attack and stroke and cardiovascular death.⁷⁻⁹

The other side of the coin is that flu may be causing many more deaths than traditionally estimated or annually recorded. There are some data that suggest the 1918 influenza pandemic contributed to the epidemic of coronary heart disease mortality in the 20th century.¹⁰

Given the emerging link between flu, heart attack, stroke, and cardiac-related mortality, Madjid and colleagues hypothesize that many more people die of influenza-related illness than traditionally estimated. The typical projection of 20,000 deaths in the United States, for example, probably is closer to 90,000, they project.

Given such death tolls, virtually any nasty strain of influenza — particularly if engineered to evade the current vaccine — could be a dangerous bioweapon. More specifically, terrorists could take a particularly threatening strain — such as

Bioterrorism Watch (ISSN #1543-0243) is published bimonthly by Thomson American Health Consultants, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to **Bioterrorism Watch**, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

Customer Service: (800) 688-2421 or fax (800) 284-3291. Hours of operation: 8:30-6. Monday-Thursday, 8:30-4:30 Friday EST. World Wide Web: <http://www.ahcpub.com>. E-mail: customerservice@ahcpub.com.

Subscription rates: Free to subscribers of *Hospital Infection Control* and *Hospital Employee Health*. For nonsubscribers, the price is \$149. U.S. possession and Canada, add \$30 plus applicable GST. Other international orders, add \$30. (GST registration number R128870672.) One to nine additional copies, \$119; 10 to 20, \$104. Missing issues will be fulfilled by customer service free of charge when contacted within one month of the missing issue date. **Back issues**, when available, are \$50 each.

Photocopying: No part of this newsletter may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner. For reprint permission, please contact Thomson American Health Consultants. Address: P.O. Box 740056, Atlanta, GA 30374. Telephone: (800) 688-2421.

This continuing education offering is sponsored by Thomson American Health Consultants, which is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center’s Commission on Accreditation. Thomson American Health Consultants is an approved provider by the California Board of Registered Nursing for approximately 6 contact hours per year (provider #CEP10864).

Thomson American Health Consultants is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians. Thomson American Health Consultants designates this educational activity for approximately 6 hours in Category 1 credit toward the Physicians’ Recognition Award. Each physician should claim only those credits that he or she actually spent in the activity. This activity was planned and produced in accordance with the ACCME Essentials.

In order to reveal any potential bias in this publication, and in accordance with Accreditation Council for Continuing Medical Education guidelines, we disclose that Patrick Joseph and William Schaffner (both on editorial advisory board) report no consultant, stockholder, speaker’s bureau, research, or other financial relationships with companies having ties to this field of study.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

Editor: **Gary Evans**, (706) 742-2515.

Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@ahcpub.com).

Editorial Group Head: **Coles McKagen**, (404) 262-5420, (coles.mckagen@ahcpub.com).

Senior Production Editor: **Ann Duncan**.

Copyright © 2003 by Thomson American Health Consultants. **Bioterrorism Watch** is a trademark of Thomson American Health Consultants. All rights reserved.



Editorial Questions

For questions or comments, call Gary Evans at (706) 742-2515.

the H5N1 avian flu that briefly emerged from Hong Kong in the late 1990s — and perfect its pandemic possibilities.

“Very virulent strains appear from time to time,” Madjid says. “Somebody could culture it in tissue again and again until a strain comes up that could be transmitted to a person. So there are two ways to access [flu], from nature and by manipulating it in the lab.”

Several factors favor influenza as an effective weapon of bioterrorism, he notes. The virus is usually transmitted by direct contact, but also can be transmitted by aerosol (e.g., on a passenger plane). Aerosolizing flu also lessens the viral load necessary to induce infection. “Taken together with the fact that influenza virus is readily accessible and may be causing more deaths than previously suspected, the possibility for genetic engineering and aerosol transmission suggests an enormous potential for bioterrorism,” the authors conclude.

Influenza occurs naturally, so initial clusters of intentional infections would raise little alarm. With a relatively short incubation period (one to four days), vaccine may not be an effective response following delayed recognition of a

widespread flu release. “Immunization after exposure to influenza is, therefore, not protective, and even the neuraminidase inhibitors such as oseltamivir must be administered before symptoms develop or within the first 48 hours after their appearance,” Madjid and colleagues argue, adding the interesting twist that influenza poses a threat to world leaders because most are elderly.

An intentional release of a virulent flu strain essentially could result in a pandemic, which public health officials expect to occur naturally again at some point because of flu’s constant mutation. A pandemic typically occurs when the viruses’ annual antigenic drift becomes a sharp antigenic shift that circumvents population immunity.

The CDC estimates that the next global influenza pandemic will take a stunning toll in lives and dollars while virtually overwhelming the health care system. CDC researchers estimate that a pandemic flu strain in the United States would cause 89,000 to 207,000 deaths; 314,000 to 734,000 hospitalizations; 18-42 million outpatient visits; and 20 million to 47 million additional illnesses.¹¹ Patients at high risk (15% of the population) would account for approximately 84% of all

Scientists urge meeting on weaponized flu threat

CDC should list flu as bioterrorism threat

In underscoring the threat of influenza as a weapon of bioterrorism, concerned clinicians recommended the following seven measures:

1. The World Health Organization and the Centers for Disease Control and Prevention (CDC) should bring together experts in influenza, bioterrorism, health policy, international law, and ethics to study this matter. Authorities should recognize that smallpox-based lessons drawn from exercises such as Dark Winter are not all applicable to weaponized influenza. Depending on their other public health needs and resources and their likelihood of being targeted, countries might consider only some of the steps listed below, which are suggested in particular for the United States. The CDC should advance influenza as a critical agent in priority as a bioterrorism threat.
2. Physicians, nurses and their organizations, insurers; and health officials should increase efforts to immunize those for whom immunization currently is recommended. The policy might be extended to mandatory immunization of medical personnel, or even universal immunization.

3. Increase the security of laboratories conducting influenza research, and of manufacturers and distributors of vaccines and antivirals.
4. Stockpile antiviral drugs and increase capacity to develop and produce vaccine. These also might be added to the push-packs for urgent distribution by the U.S. Department of Health and Human Services.
5. Consider a federal influenza gene-sequencing and vaccine development program, based at high-security government, pharmaceutical, and university laboratories.
6. Expand active seroepidemiological surveillance and offer incentives to reporting of clinical cases. The recently developed influenza assays make serological surveillance simple and fast, yet are little used by clinicians. New syndromic surveillance systems are required, capable of detecting incipient epidemics.
7. Consider federal programs to develop antiviral filters, biosensors, and inactivation systems (e.g., ultraviolet) for ventilation systems. Such efforts could be part of a broader viral protection program.¹

Reference

1. Madjid M, Lillibridge S, Mirhaji P, et al. Influenza as a bioweapon. *J R Soc Med* 2003; 96:345-346. ■

deaths. Add an aspect of intentionality to those figures, and you begin to transform accepted disease into a weapon of terror. But regardless of whether it was natural or intentional, a pandemic would create considerable problems for hospitals, including nosocomial transmission to susceptible patients and staff.

According to infection control recommendations in CDC pandemic plans, incoming flu patients ideally would be treated under droplet isolation precautions with workers wearing masks within 3 feet of patients. However, the CDC concedes that this may not be practical during a pandemic. Use of masks to prevent transmission of influenza in the community — as was seen in 1918 and more recently with SARS — also is not likely to be effective in containing flu, the CDC warns.

Unlike the typical focal disaster, an influenza pandemic will be widespread, requiring preparedness in every community. Moreover, unlike natural disasters, demands on medical care in each community will last six to eight weeks until the first wave of infection is complete. If influenza-associated illness was as severe as in 1918, local health services easily could become overwhelmed very quickly, the CDC warns. Potential shortages are projected for intensive care unit beds, ventilators, antiviral agents, and antibiotics for treatment of secondary pneumonia. There may be a “high demand for mortuary/funeral services” the agency dutifully notes.¹²

Flu wanting in the terror factor?

Still — even granting the considerable aura surrounding the 1918 strain — there are psychological questions about a bioweapon that is as familiar as the common cold. The principal question is whether flu strikes sufficient fear to invoke terror.

“We are, unfortunately, inured to the flu cycle,” says **William Schaffner**, MD, chairman of the department of preventive medicine at Vanderbilt University in Nashville. “It would not cause terror. That’s why it is not on the ‘A’ list of bioterrorism agents. But if our colleagues’ attention to this heightens preparedness for pandemic flu, they will have done a good service and I congratulate them.”

Bicknell concurs, arguing that the terrorist just doesn’t get the bang for his buck with influenza. “A terrorist wants to terrorize,” he says. “A cloud of anthrax, smallpox, random bombings will terrorize. But with flu, lots of people will get it and not be very sick, some will be very sick, and some will die. If I were choosing weapons, I wouldn’t

go for it. I would go for something more horrible. If we had Ebola in St. Louis, that would be scary.”

Moreover, releasing flu is problematic in that the course of infection would be completely unpredictable. There would be the very real possibility of catastrophic “blow back” to untargeted allies of the terrorists, Schaffner adds. Who could have predicted, for example, that severe acute respiratory syndrome would arise in China and wreak havoc on Toronto?

“Why not Germany instead of Canada? These are mysteries,” Schaffner says. “Unless a terrorist was concerned only with creating anarchy, flu would not be a very good weapon.”

Add that treatments for flu are available and medicine has a long history of vaccine development, and the scales begin to tilt against flu as a bioweapon.

“Influenza will recur,” Bicknell says. “It modifies itself, and we may have another flu pandemic. How many of the [1918] deaths from flu were because we didn’t know about managing respiratory infection; we didn’t have antibiotics for bacterial superinfection? We don’t really know whether it would be like the flu pandemic of 1918. Far more important than worrying about the individual agent is our capacity to respond to an incident when it occurs.”

Indeed, Madjid emphasizes that viewing flu as a potential bioweapon only readies preparedness if another pandemic naturally occurs.

“Whatever thought we put into bioterrorism preparedness will be very useful for facing either a natural or man-made pandemic,” he says. “I hope there will never be such a disaster. But since we know that natural pandemics are coming, it is a very timely and useful thing to do.”

References

1. Madjid M, Lillibridge S, Mirhaji P, et al. Influenza as a bioweapon. *J R Soc Med* 2003; 96:345-346
2. Taubenberger JK, Reid AH, Kraft AE, et al. Initial genetic characterization of the 1918 ‘Spanish’ influenza virus. *Science* 1997; 275:1,793-1,796.
3. Gibbs MJ, Armstrong JS, Gibbs AJ. Recombination in the hemagglutinin gene of the 1918 ‘Spanish flu.’ *Science* 2001; 293:1,842-1,845.
4. Centers for Disease control and Prevention. Pandemic Influenza at: <http://www.cdc.gov/od/nvpo/pandemics/>.
5. Cello J, Paul A, Wimmer E. Chemical synthesis of poliovirus cDNA: Generation of infectious virus in the absence of natural template. *Science* 2002; 297:1,016-1,018.
6. Naghavi M, Barlas Z, Siadaty S, et al. Association of influenza vaccination and reduced risk of recurrent myocardial infarction. *Circulation* 2000; 102:3,039-3,045.

7. Siscovick DS, Raghunathan TE, Lin D, et al. Influenza vaccination and the risk of primary cardiac arrest. *Am J Epidemiol* 2000; 152:674-677.
8. Lavalley P, Perchaud V, Gautier-Bertrand M, et al. Association between influenza vaccination and reduced risk of brain infarction. *Stroke* 2002; 33:513-518.
9. Gurfinkel EP, de la Fuente RL, Mendiz O, et al. Influenza vaccine pilot study in acute coronary syndromes and planned percutaneous coronary interventions: The FLU Vaccination Acute Coronary Syndrome (FLUVACS) Study. *Circulation* 2002; 105:2,143-2,147.
10. Azambuja MI, Duncan BB. Similarities in mortality patterns from influenza in the first half of the 20th century and the rise and fall of ischemic heart disease in the United States: A new hypothesis concerning the coronary heart disease epidemic. *Cad Saude Publica* 2002; 18:557-577.
11. Meltzer MI, Cox NJ, Fukuda K. The economic impact of pandemic influenza in the United States: Priorities for intervention. *Emerg Infect Dis* 1999; 5:659-671.
12. Centers for Disease Control and Prevention. Pandemic Influenza: A Planning Guide for State and Local Officials (Draft 2.1) at: <http://www.cdc.gov/od/nvpo/pandemic/flu.htm>. ■

Syndromic surveillance picks up terror 'signals'

Establish thresholds, investigate anomalies

The wave of the future in bioterrorism surveillance is computer-based systems for syndromic reports that can serve as an early tripwire if an attack is under way.

Comparing selected clinical indicators against baseline thresholds, syndromic surveillance systems increasingly are being applied in health care systems and offered in the private sector.

But surveillance is nothing new to infection control professionals. The increasingly sophisticated syndromic systems don't replace time-honored gumshoe epidemiology, said **Adi Gundlapalli, MD, PhD**, an epidemiologist at University of Utah Medical Center in Salt Lake City.

"Computer-based surveillance systems are not really new, they are just novel applications," he said recently in San Antonio at the annual conference of the Association for Professionals in Infection Control and Epidemiology. "There are many surveillance systems we use almost every day for hospital-acquired infections. It can be as simple as flagging resistant organisms [in lab reports]."

Gundlapalli helped develop and monitor a syndrome-based surveillance system to detect

bioterrorism incidents during the 2002 Winter Olympics in Salt Lake City. "As professionals in infection control and hospital epidemiology, we have a unique expertise. We actually liaison between the hospital and public health," he said. "That turns out to be very important, especially when there is an event. You have to have pre-established relationships."

Held in February 2002, the winter Olympics was one of the first major international events held in the wake of 9/11 and in the shadow of the anthrax attacks. "There was a week or two in Salt Lake City that people were not even sure if the games were going to be held," Gundlapalli said. "Bioterrorism had become a reality. There was no question that this had changed from the academic papers."

Deciding what to track

To meet the threat, Gundlapalli and colleagues developed the Advanced Logic for Event Detection in Real Time (Alert) system. The system monitored patients seen in the University Hospital's emergency department, outpatient clinics, and a special clinic at the Olympic Village. "What we get out of it, for lack of a better word, are signals," he said. "Each data element is like a signal to us. The first question was what would be of interest to infection control personnel. The answer, of course, was everything. But you have to be able to handle it, so we sat down and talked about specific signals."

The surveillance indicators selected include emergency department admissions and orders for cultures, X-rays, and diagnostic tests. As specific clinical indicators were winnowed out, the clinicians also set threshold levels based on baseline data. "At the University of Utah hospital, we do 30 X-rays a day for various reasons," Gundlapalli said. "So on any day, if you are doing 60, then you know that there is something else going on. It may indicate that somebody is worried about something going on in the lungs."

By the same token, baseline levels and thresholds for response were set for blood cultures, stool cultures, and orders for diagnostic tests for specific diseases. "If someone orders a nasal swab for anthrax, you want to know about it," he said. "Even one — you want to know about." Other tracked indicators were patient's primary complaint, prescription of antibiotics, and use of any antidotes. "This is an attempt to look at patterns, to try and infer diseases or syndromes. I stress the point 'infer' because I don't think we can ever be sure just putting together syndromes," he added.

In the Alert system, patients are categorized on a 1 to 5 scale indicating severity of illness. The number increases as additional indicators are added to a patient's record. "We have a user interface that can be navigated," Gundlapalli told APIC attendees. "We are able to drill down. If I have a patient who comes up positive as an infectious pneumonia signal, then I could click on that and review their electronic medical record."

Beginning Feb. 1, 2002, the system was monitored via computer three or four times a day for four weeks. "It took about 30 to 45 minutes per session," he said. "You can imagine if I pulled up the grid and saw infectious pneumonia for five Level 4 or 5 patients, I would then go to the electronic medical records for each patient." The medical records were so complete, Gundlapalli only made two follow-up phone calls during the period to the physicians treating the actual patients. "We saw that most signals were within thresholds. The ER visits increased, on occasion, hospital admissions increased, and a lot of blood cultures were ordered during that time, which worried me a little bit. But really, no specific pattern was detected."

On one occasion, when the 75-patient threshold for daily emergency department visits hit 115, a surveillance colleague actually went to the hospital to get a first hand look at the situation, he said. "It was just a bad day for the ER. There was nothing specific. It shows you the power of this, but it also shows that you do need someone continuously monitoring this. You cannot have the computer make the decision."

The only real signal of a sharp disease increase was for influenza, which struck the Olympic village and surrounding areas, he noted. Syndromic surveillance can be done without such elaborate measures, he said, urging ICPs to be, above all, "smart observers." Use the resources you have and the triggers you can read within the limits of your program, Gundlapalli advised. ■

Smallpox: More fear of vaccine than of attack

But reactions actually less than projected

It is becoming increasingly apparent that fear of adverse vaccine reactions and the perception that there is little likelihood of a smallpox attack have undermined the federal immunization plan

for health care workers. Though originally projected at some 500,000, only 38,000 health care workers were immunized for smallpox as of July 18, 2003.

"The fact that the participation rate is lower than some projected has been generally attributed to the low perceived threat of a smallpox attack and continuing concerns about the risk of adverse reactions to vaccination," said **Julie Gerberding**, MD, director of the Centers for Disease Control and Prevention (CDC).

Gerberding testified July 24, 2003, at a congressional hearing on biodefense preparedness held by the Senate Health, Education, Labor and Pensions Committee. Despite the problems, the overall incidence of adverse reactions in both civilian and military populations has actually been lower than anticipated, she said.

"The low adverse reaction rate appears to be directly attributable to the efficacy of pre-vaccination screening that has ensured those at risk for complications do not receive the vaccine," Gerberding said.

"The occurrence of possible vaccine related heart problems, however, did surface as a possible adverse event that required further restricting the possible use of the smallpox vaccine in those at risk for heart disease," she explained.

The original plan called for vaccinations to be given to volunteers in two stages. In the second stage, which now appears to be somewhat in limbo, the plan was to expand the program to as many as 10 million additional health workers and other emergency response personnel.

With the program now stalled, there are discussions about revising the original goals and reconsidering the second stage. A recent report by the General Accounting Office (GAO) cites widespread concern about "insufficient resources to support the program and about liability protection.

Many potential volunteers are concerned about health risks to themselves and their co-workers, families, and patients and about compensation for adverse events and lost income."

50,000 HCWs may be enough

According to the GAO, the CDC has reconsidered the initial targets and said that as few as 50,000 vaccinated health workers nationwide would provide sufficient response capacity. "[The] CDC and some of the jurisdictions have indicated that as the program unfolds and they learn more, they are less concerned about achieving their initial

targets and are considering revising them,” the GAO report states.

“However, if the estimates are reduced for the numbers and types of vaccinated health workers in smallpox response teams, the CDC would need to provide guidance to ensure that smaller or fewer teams are organized and distributed in a manner that will provide adequate response capacity — that is, the capacity to effectively investigate an outbreak, care for patients, and vaccinate members of the public,” the report adds.

According to Gerberding’s Senate testimony, participation in the vaccination program has varied widely across the country. As a result, some states essentially remain nonimmunized and others have cadres of vaccinated workers in numerous hospitals. In 10 states (TX, FL, TN, OH, CA, MN, NE, NC, MO, LA), more than 1,000 health care workers have been vaccinated. Is education an issue? Gerberding said the CDC has conducted 74 training and education sessions, reaching 1.8 million health care workers.

The liability issues may be solved to some degree by the Smallpox Emergency Personnel Protection Act of 2003, which established a no-fault program to provide benefits and/or compensation to health care workers and emergency responders injured as the result of the administration of smallpox vaccine.

Though Congress approved the compensation bill, the Bush administration has not published the additional data specifying how much money someone will receive for various types of injuries.

“We are increasingly concerned about the delay,” Senate committee members Sens. **Ted Kennedy** (D-MA) and **Chris Dodd** (D-CT) stated in a letter to Health and Human Services Secretary Tommy Thompson. “Too many first responders, aware of the possibility of side effects, are refusing to participate in this very-high-priority vaccination program.”

Preparedness beyond vaccination

But Gerberding stressed that vaccination is only one element of overall smallpox preparedness. Other areas of progress she cited in her testimony include:

CE/CME questions

5. Which of the following was cited as a reason that influenza could be used as an effective bioweapon?
 - A. is readily accessible
 - B. may be causing more deaths than previously suspected
 - C. initial clusters of intentional infections would raise little alarm.
 - D. all of the above
6. According to William Schaffner, MD, releasing flu is problematic for terrorists because there would be the real possibility of catastrophic “blow back” to nontargets.
 - A. true
 - B. false
7. Which of the following were tracked as part of a syndromic surveillance system designed for the 2002 Winter Olympics?
 - A. emergency department admissions
 - B. orders for cultures
 - C. X-rays
 - D. all of the above
8. According to a report by the General Accounting Office, the CDC has reconsidered the initial targets for small pox vaccination and said that as few as how many vaccinated health workers nationwide would provide sufficient response capacity?
 - A. 500,000
 - B. 10 million
 - C. 50,000
 - D. 38,000

Answer Key: 5. D; 6. A; 7. D; 8. C

- All states and four designated cities have developed detailed pre-event and post-event smallpox response plans.
- Public health teams now are organized nationwide to respond to a suspected smallpox outbreak within six hours.
- A national information system has been

COMING IN FUTURE MONTHS

- Educate workers to assist with surveillance
- Triage after a dirty bomb
- Clinical pathways for bioterrorism agents
- Ricin: Make no beans about it
- Special focus on the clinical lab

implemented that can support smallpox and other emergency vaccination administration needs. It advances preparedness to know who needs to be vaccinated, to monitor vaccine take results, and track adverse vaccination events. The system produces information that decision makers and response teams need to support the protection of the population from communicable diseases in an emergency setting.

- Clinical and public health laboratories have improved their ability to detect and diagnose rash illness within 24 hours of presentation. Twenty-three laboratories nationwide have the training and reagents to screen for smallpox and differentiate it from other pox-related diseases (e.g., chickenpox and monkey pox).
- Current vaccine supplies and projected production continue to meet the goal of having sufficient smallpox vaccine for every American in the event of an emergency.
- More than 290,000 doses of vaccine are currently deployed, with vaccine available in every state and four major cities (New York City, Chicago, Los Angeles, and Washington, DC).

(Editor's note: The GAO report Smallpox Vaccination: Implementation of National Program Faces Challenges can be found at: <http://www.gao.gov/new.items/d03578.pdf>.) ■



CDC offers web link to real-time terror info

Register to receive e-mail alerts

CDC has set up a free registry to provide clinicians with real-time information to help prepare for (and possibly respond to) terrorism and other emergency events.

Participants will receive regular e-mail updates on terrorism and other emergency issues and on training opportunities relevant to clinicians.

For information on registration, go to: <http://www.bt.cdc.gov/clinregistry/index.asp>. ■

EDITORIAL ADVISORY BOARD

Kay Ball,
RN, MSA, CNOR, FAAN
Perioperative Consultant/
Educator
K&D Medical
Lewis Center, OH

Patrick Joseph, MD
Chief of Epidemiology
San Ramon (CA) Regional
Medical Center and
Summit Medical Center,
Oakland, CA
President, California Infection
Control Consultants
San Ramon, CA

Patti Grant,
RN, BSN, MS, CIC
Director, Infection Control
RHD Memorial
Medical Center
Dallas
Trinity Medical Center
Carrollton, TX

William Schaffner, MD
Chairman
Department of
Preventive Medicine
Vanderbilt University
School of Medicine
Nashville, TN

Katherine West
BSN, MEd, CIC
Infection Control Consultant
Infection Control/
Emerging Concepts
Manassas, VA

CE/CME instructions

Physicians and nurses participate in this CE/CME program by reading the issue, using the provided references for further research, and studying the questions. Participants should select what they believe to be the correct answers, then refer to answer key to test their knowledge.

To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing this semester's activity in November/December 2003, you must complete the evaluation form that will be provided and return it in the reply envelope to receive a certificate of completion. When your evaluation is received, a certificate will be mailed to you. ■

CE/CME objectives

After reading each issue of *Bioterrorism Watch*, the infection control professional will be able to do the following:

- identify the particular clinical, legal or educational issue related to bioterrorism;
- describe how the issue affects health care providers, hospitals, or the health care industry in general;
- cite solutions to the problems associated with bioterrorism, based on guidelines from the federal Centers for Disease Control and Prevention or other authorities, and/or based on independent recommendations from clinicians and bioterrorism experts. ■