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AHA is leading a hospital rebellion against OSHA's tuberculosis mandate

APIC: New Year's Eve OSHA surprise 'disingenuous'

Charging that the Occupational Safety and Health Administration (OSHA) violated laws for regulatory review and comment, the American Hospital Association (AHA) is rallying opposition to recently mandated tuberculosis requirements that include annual respirator fit-testing.

"[We] encourage hospitals to ask OSHA to rescind the standard," says **Rosalyn Schulman**, senior associate director for policy at the AHA in Chicago. "We will be fighting it. At the same time, we will be letting hospitals know what the [requirements] are and what may occur if the standard is not rescinded. Ultimately, our main priority is getting this standard rescinded."

In dropping its hard-fought bid for a separate standard on tuberculosis, OSHA announced Dec. 31, 2003, that it will apply its existing general industry respiratory protection standards to health care facilities to protect workers from TB.[1,2] For infection control professionals that means that annual respirator fit-testing for health care workers — a procedure many ICPs have protested is labor-intensive and unnecessary — will be required beginning in July 2004. OSHA announced the move as a *fait accompli*, saying no comment period would be allowed because the TB requirements were being added to an existing general respiratory standard. That 1998 standard had a comment period before it was enacted, and there was a comment period during the protracted battle for the doomed TB standard.

The AHA argued that the Occupational Safety and Health Act, which empowers OSHA to regulate workplaces, requires a determination — based on substantial evidence — that there is a significant health risk under existing conditions. The question of evidence, or lack thereof, appeared to be answered by OSHA withdrawing its proposal for a separate TB standard. "OSHA subsequently agreed that such evidence did not exist and that the agency's proposed standard is unlikely to reduce the remaining health risk from TB," the AHA stated in a letter to OSHA. ". . . Our concern

is that OSHA has now used selected information taken from this process to justify imposing something different than the proposed rule for which the data were originally gathered."

Legal action discussed

The decision to impose the new mandate cannot be issued as a final rule without the opportunity to review or provide public comment, the AHA argued. "This decision is a substantially different action than merely withdrawing the proposed TB standard," the AHA letter stated. "We strongly disagree with OSHA's assertion that it has met the requirement to permit public comment during the comment period provided for the proposed TB standard. The decision to publish this mandate as a final rule violates OSHA law."

OSHA offered no rationale for instituting a new and costly respiratory protection standard against a disease that it acknowledged is declining and for which effective protective measures already exist, the AHA argued in the letter. **(See TB chart, p. 31.)** An OSHA spokesman would say only that the agency has received the AHA's letter and will respond directly to the AHA.

"TB has declined dramatically, including in health care settings," Schulman says. "With OSHA saying that hospitals are in substantial compliance with CDC [Center's for Disease Control and Prevention] guidelines on tuberculosis, and having made a decision to withdraw the TB standard, it's just counterintuitive. It doesn't make sense to now apply among the strictest respiratory standards to TB."

The AHA, which represents some 5,000 hospitals nationwide, has discussed the possibility of legal action to block the requirement, she confirms. "We have had some discussions about that, but it is not far enough along that I can really comment on it. What we would like them to do is rescind the standard and then open it up for some discussion on the issue."

A fair question

OSHA critics find a troubling disconnect in the agency's action. In withdrawing the TB standard, OSHA stated compellingly why its own regulation was not needed: "Hospitals, which are the settings where workers are likely to have the highest risk of exposure to TB bacteria, have come into substantial compliance with federal guidelines for preventing the transmission of TB," OSHA stated. "Overall reductions in TB mean that all workers are much less likely now to encounter infectious TB patients in the course of their jobs. [An] OSHA standard is unlikely to result in a meaningful reduction of disease transmission caused by contact with the most significant remaining source of occupational risk: exposure to individuals with undiagnosed and unsuspected TB."[1]

That reads like a page ripped out of an ICP's testimony against the proposed TB standard, but then in the same issue of the *Federal Register* OSHA announced that while it was withdrawing

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Editor: **Gary Evans**, (706) 742-2515.
Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@thomson.com).
Editorial Group Head: **Coles McKagen**, (404) 262-5420, (coles.mckagen@thomson.com).
Senior Production Editor: **Ann Duncan.**

Editorial Questions

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

U.S. Tuberculosis Cases and Case Rates per 100,000 Population

Year	Number	Rate	% Change No.	% Change Rate
1992	26,673	10.5	+1.5	+1.0
1993	25,287	9.8	-5.2	-6.7
1994	24,361	9.4	-3.7	-4.1
1995	22,860	8.7	-6.2	-7.4
1996	21,337	8.0	-6.7	-8.0
1997	19,851	7.4	-7.0	-7.5
1998	18,361	6.8	-7.5	-8.1
1999	17,531	6.4	-4.5	-5.9
2000	16,377	5.8	-6.6	-9.4
2001	15,989	5.6	-2.4	-3.4
2002	15,078	5.2	-5.7	-7.1

Source: Centers for Disease Control and Prevention, Atlanta.

the TB regulation it would include some of its requirements under the general respiratory standard.[2] This move was heralded in an OSHA press release as "extending the same high level of respiratory protection to workers exposed to tuberculosis that is provided to workers throughout general industry. This enhancement results from OSHA's decision to withdraw its 1997 proposal on tuberculosis."

The combination of the two actions raises a fair question: Why enhance TB protection for a worker group deemed "much less likely now to encounter infectious TB patients?" The Association for Professionals in Infection Control and Epidemiology (APIC) fired off a letter to OSHA telling the agency that its action was "disingenuous." APIC is urging infection control professionals to join a letter writing campaign to block the action. **(See related stories, p. 32; 33.)** The APIC example letter ICPs are being provided to work from charges that "OSHA made this decision without allowing time for public comment. A good-faith effort would have involved issuing a specific proposal to apply the general industry respiratory protection standard to patients with possible TB infection."

Dear OSHA

"With the grass-roots letter effort, we are trying to let [OSHA] know the thoughts and opinions of the people who are doing this every day," says **Patti Grant**, RN, MS, CIC, an APIC member and infection control director at RHD Memorial Medical Center in Dallas. "At the bare minimum, there should be a comment period."

ICPs are responding to the call. "I will use that [letter] and encourage my colleagues to use it, too," says **Jeanette Daniel**, RN, CIC, infection control coordinator at Henrico Doctors' Hospital in Richmond, VA. "I've shared the AHA letter with a lot of people, too."

In its formal letter to OSHA, APIC expressed concern that the agency "clearly ignored the fact that there is no scientific justification for this practice [annual fit-testing]. This information was presented at the time of those [TB and respiratory] rulemakings. In addition, regardless of the fact that information was gathered, it is disingenuous to later use only selected information as a justification for imposing something different than the rules for which they were originally gathered."

Another aspect of the agency's action that has provoked a strong response was the timing of the announcement: New Year's Eve. It does not take a conspiracy theorist to see the holiday timing as a way to head off initial resistance and criticism about an issue that has been highly controversial for almost a decade.

"I don't recall any precedent quite like this," says **Judene Bartley**, MPH, MS, infection control consultant to the AHA. "It was really such an unexpected event that occurred literally on New Year's Eve. It caught many of us by surprise that they would not only, on the one hand, withdraw the standard and, on the other, apply this general industry standard, which was designed with a very different scope."

The dynamics of exposure and transmission for biologic agents contrast dramatically with airborne chemical contaminants or particulate matter such as asbestos, the AHA argued.

"Biological organisms are transmitted differently than smoke and fumes and other agents for which the general industry standard was developed," Bartley says. "[Industrial agents] have actual thresholds and measurable percentages.

We don't have that for biological agents and that is not addressed in this current standard."

APIC's letter to OSHA echoed those sentiments, noting that "health care facilities are not like marine terminals, long shoring and construction sites, that can pre-assess the potential for exposure and determine levels of contaminants."

(Continued on page 36)

APIC to OSHA: TB was stopped without respirators

Early identification, isolation, and treatment

In a formal letter to the Occupational Safety and Health Administration (OSHA) regarding its recently announced tuberculosis requirements, the Association for Professionals in Infection Control and Epidemiology (APIC) made the following key objections to the action:

✔ **Nosocomial TB controlled prior to respirator use:**

The resurgence of TB seen in the late 1980s and early 1990s has been attributed to numerous demographic, epidemiologic, and clinical factors. In health care facilities, outbreaks of tuberculosis were controlled and prevented by early identification of cases, prompt isolation, and appropriate treatment. These outbreaks were controlled prior to the use of particulate respirators and fit-testing, when masks were the standard for protecting health care personnel. There is no evidence that respirators are necessary to control infectious diseases (due to the nature of infectious aerosols: particle size, electrostatic forces, etc.). The hierarchy of controls: early identification, prompt isolation, and appropriate treatment controlled transmission of TB with the use of submicron masks (not a respirator and not fit-testing).

✔ **Unreliable fit-testing methods:**

Prior to 1995, respirator certification procedures included a fit-testing component. This is no longer the case and should be reinstated. Rather than placing the responsibility on every employer and user, the regulatory process for manufacturers should include a fit-test component; only respirators with good facial fit characteristics should be certified and information regarding facial fit characteristics should be made available to employers and users. Priority should be given to the development and assurance of enhanced fit characteristics for particulate respirators for all uses under the General Industry Respiratory Protection Standard regardless of the applicability of this general standard to health care exposures to patients. Various methods of fit-testing have been described, yet the validity, reliability, reproducibility, and effectiveness of fit-testing and fit-testing methods have not been established. Numerous studies have been published that would suggest that different methods produce different results, and the provision of fit-testing does not necessarily correlate with proper donning of respiratory protection in the work setting. In addition, the incremental benefit of fit testing is dependent upon the fit characteristics of the device itself (i.e., if the respirator has inherently good fit characteristics, the incremental benefit is minimal).

✔ **IOM Report:**

In early 2000, Congress commissioned a third-party study of the proposed TB rule by the Institute of Medicine (IOM). Throughout the Dec. 31, 2003, withdrawal notice, OSHA refers to important findings in the IOM study that reinforce the agency's decision to withdraw the proposed TB rule. It is interesting to note, however, that OSHA chooses not to cite the IOM's concerns on the subject of annual fit-testing of respirators, choosing instead to impose this requirement through an already-existing regulatory mechanism, for no apparent or justified reason. Had OSHA considered the IOM's conclusions on this subject, we are sure that the agency would again have found the CDC's recommendations completely adequate for addressing respiratory protection. In its report *Tuberculosis in the Workplace,* IOM concluded the following, with respect to fit-testing of respirators:

"Modeling studies suggest that the benefits of respiratory protection are directly proportional to the presence of risk. In facilities that admit only the occasional individual with tuberculosis or that have a policy of transferring such individuals, workers are likely to see no or very marginal additional protection from an extensive respiratory protection program. Administratively, a program for fit-testing of personal respirators requires trained personnel to conduct a complicated series of tests. Scheduling for an annual fit test must allow time for the test as well as time for workers to get to and from the test site (which may be on another floor or in another building).

A requirement for annual retesting multiplies the number of people who must be scheduled and tested each year. The more workers who are covered by an employer's respiratory protection program, the more complex will be the employer's administrative burden and the greater the expense. For large medical centers that treat substantial numbers of tuberculosis patients, annual fit-testing can be a major undertaking that involves thousands of workers."[1]

Reference

1. Institute of Medicine — Committee on Regulating Occupational Exposure to Tuberculosis. *Tuberculosis in the Workplace.* Washington, DC: National Academy Press; 2001. ■

APIC appeals to ICPs to write letters to OSHA

In launching a protest letter-writing campaign against new federal requirements regarding tuberculosis, the Association for Professionals in Infection Control and Epidemiology created the following template:

John L. Henshaw
Assistant Secretary of Labor
Occupational Safety and Health Administration
200 Constitution Ave. N.W.
Washington, DC 20210

Dear Assistant Secretary Henshaw:

I am writing as an infection control professional (ICP) at _____(Facility) in _____(City), ___(State). Health care facilities throughout the country are very concerned by a recent decision by the Occupational Safety and Health Administration to apply the General Industry Respiratory Protection Standard to respiratory protection against *M. tuberculosis*.

I appreciate OSHA's decision to withdraw the proposed TB rule; however, if OSHA has decided that there is no scientific basis for the proposed OSHA TB rule and has revoked it (and rightfully so), why then is the agency now applying the General Industry Respiratory Protection Standard to exposure to TB? This would require not only respirators and initial fit-testing but also *annual* fit-testing, a more stringent requirement than in the now-withdrawn proposed TB rule.

Fit-testing was one of the most burdensome requirements in the proposed TB rule and the least scientifically justified. The incidence of TB is the lowest ever reported in the United States, and outbreaks have been controlled without this new burdensome and unnecessary mandate. *Annual* fit-testing has not been a part of TB control programs in facilities and will be difficult to implement with limited health care resources. If I thought for one moment that this would benefit the health care workers entrusted to my care, I would not be writing this letter. Annual fit-testing will not provide any added protection for workers who already are protected by my implementation of the respiratory protection recommendations in the 1994 CDC Guidelines.

[Please add facility-specific information such as:
- *number of true TB patients you actually serve in a year, vs. the number of people isolated every year;*
- *number of HCWs entering and exiting rooms of isolated patients; or number of HCWs who would need fit-testing and annual fit-testing;*
- *time and resources required to do this, and who at the hospital would be responsible (and what their other duties are);*
- *anything else that will convey how this requirement will negatively affect you and your facility.]*

OSHA made this decision without allowing time for public comment. The announcement was published in the *Federal Register* on New Year's Eve 2003. A good-faith effort would have involved issuing a specific proposal to apply the General Industry Respiratory Protection Standard to patients with possible TB infection.

I am respectfully requesting that OSHA rescind its decision to include TB under the General Industry Respiratory Protection Standard, as it contradicts the very sound decision to withdraw the proposed TB rule. At the very least, OSHA should present the scientific rationale for its decision and allow a time period for public review and comment.

Thank you for your kind attention to my concerns.

Sincerely,

Name
Facility
Address
Phone

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Art of the matter: Tattoos, body piercing, and HCV

Is CDC surveillance undermined by 'paradox'?

Personal statements and adornments made though tattoos and body piercing may have an insidious underside: Evidence continues to mount that they increase the risk of hepatitis C virus.

While public health officials remain unconvinced of a firm link in the United States, a recently published Australian study implicates both tattooing and body piercing in the spread of HCV.

Lending weight to the findings is the fact that they were published in the *American Journal of Infection Control*, the peer-reviewed publication of the Association for Professionals in Infection Control and Epidemiology (APIC).

"As tattooing and body piercing become increasingly fashionable worldwide, there is a growing need to improve infection control practices among nonmedical skin penetration operators," explained **Jeanne Pfeiffer**, RN, MPH, CIC, APIC president. "It's imperative that commercial tattooists and body piercers adhere to sound infection control guidelines to protect themselves and their clients from transmission of hepatitis B and C infections."

Noting that that 70% of patients with HCV may develop chronic liver disease, she added, "The most frustrating aspect of the spread of these diseases is that they are so easily preventable."

As part of the study, researchers examined infection control practices among tattooists and body piercers in Sydney, Australia. A low proportion of owners/managers and staff at the tattoo and piercing sites gave the correct answer for the purpose of disinfection (52.8%/26.9%) and sterilization (50%/53.8%). About one-third of owners/managers (38.8%) and 56% of staff reported that their infection control compliance could be improved. Approximately one-fourth of owners/managers reported that the frequency of inspections was inadequate.

Even though the majority of demonstration and inspection items were complied with, deficiencies were observed concerning washing of hands, wearing of gloves, and sterilization procedures, the authors found.[1]

In the United States, **Robert Haley**, MD, professor in the department of internal medicine at the University of Texas Southwestern Medical Center in Dallas, has found historic data that traces HCV infection to tattooing.[2]

Haley assessed the relative importance of all risk factors for infection with HCV identified in a computer literature search. HCV seroprevalence and risk factors were measured in 626 consecutive workers from the southwestern United States visiting an orthopedic clinic for evaluation or treatment of back pain in 1991 and 1992. Of 626 workers, 43 (6.9%) were seropositive for HCV.

While injecting drug use, heavy alcohol consumption, and a history of ancillary work in health care all emerged as risk factors for HCV infection, the predominant risk factor was tattooing. "We did a multivariate analysis to try to determine how many cases were attributable to each risk factor," Haley says. "It wasn't just that 30% of the cases had a tattoo; 30% of the cases were attributable to tattoos."

However, the Centers for Disease Control and Prevention (CDC) is not convinced that tattooing and body piercing are independent risk factors for HCV infection in the United States.

In information posted on the CDC infectious disease web site, the agency stated: "In other countries, HCV infection has been associated with folk medicine practices, tattooing, body piercing, and commercial barbering. However, in the United States, case-control studies have reported no association between HCV infection and these types of exposures. . . . Although any percutaneous exposure has the potential for transferring infectious blood and potentially transmitting bloodborne pathogens, no data exist in the United States indicating that persons with exposures to tattooing and body piercing alone are at increased risk of HCV infection."

The tattooing paradox

In a recent update of his prior study, Haley has found a "tattooing paradox" that suggests CDC surveillance is being confounded by subclinical HCV infection.[3] The CDC hepatitis branch does not recommend routine regulation and inspection of tattoo parlors because surveillance of HCV-positive acute hepatitis cases rarely identifies tattooing in the incubation period. However, the

majority of seroepidemiological studies agree that tattooing is a strong, independent risk factor for subclinical HCV seropositivity.

Haley hypothesized that this paradox could be explained if transmission of HCV by tattooing generally caused subclinical HCV seropositivity without the acute hepatitis syndrome.

He reanalyzed data from the aforementioned study of 626 consecutive patients who were unaware of their HCV serologic status and whose risk factors were ascertained by interview of an internist. A history of injection-drug use was strongly associated with both HCV seropositivity and a history of acute hepatitis. Having a commercially applied tattoo was strongly associated with HCV seropositivity, but not with a history of acute hepatitis.

"Intravenous injection of relatively large quantities of inocula of HCV may be more likely to result in the relatively rare acute HCV hepatitis syndrome, whereas intradermal exposure to small quantities of inocula may cause only subclinical HCV infections," Haley concluded. "If so, public policy on regulation and inspection of tattoo parlors should be determined by seroepidemiological studies rather than by the [CDC] Sentinel Counties Study of acute hepatitis cases."

For its part, the Alliance of Professional Tattooists (APT) on its web site clearly warned tattoo artists about the risk of transmitting and acquiring hepatitis: "The disease to consider when getting tattooed is hepatitis," the alliance stated. "Hepatitis, unlike HIV, is a very hardy virus that can survive long periods outside the human body and can be transmitted through little more than a scratch with an infected needle."

To prevent transmission of bloodborne pathogens, APT urged tattoo artists to autoclave their single service equipment, use individual portions of ink and lubricant, dispose of used sharps appropriately, use registered virucidals to clean their stations between clients, and use barrier protection.

"Basically, the artist must treat everyone [including themselves] as though they were infectious," the APT stated. "That way, everyone is protected and the potential for infection is reduced to next to nothing."

[Editor's note: Canadian public health officials have developed comprehensive infection control guidelines for tattooing, piercing, and electrolysis.[4] To obtain copies of the guidelines, contact the Canadian Medical Association at (613) 731-8610, ext. 2307 or (888) 855-2555. The publication can also be accessed via the Internet at www.hc-sc.gc.ca/hpb/lcdc.]

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(Continued from page 32)

Still, with severe acute respiratory syndrome and the threat of emerging infections, doesn't it make sense to adopt the full regimen of OSHA requirements for particulate respirators? Bartley doesn't buy that argument, noting that the vast majority of "airborne" pathogens are really transmitted by large droplet [i.e., influenza] and do not warrant use of N95 respirators.

Cost at what benefit?

OSHA estimated the total cost of compliance to be close to $12 million nationally, with more than 90% comprised of fit-testing and training expenditures for the N95 particulate respirators commonly used for TB protection. Still, the agency said the costs represent only 0.005% of the revenues of the affected establishments in the hospital sector. That figure seems a little more imposing when individual ICPs look at the impact on their systems.

For example, Daniel says her six-hospital system estimated previously it would cost $200,000 to refit test everybody to purchase new respirators. "We did that based on the number of employees we had and the number that would have to be fitted just to change a product, which would essentially be the same thing as refit testing everybody every year."

APIC argued in its letter that the OSHA's estimates "grossly underestimate" the true costs. Fit-testing is extremely time-consuming, labor-intensive, and difficult to limit to small groups of workers. "Since TB patients can be any age and often have other underlying disorders requiring hospital care, the feasibility of limiting fit-testing to a nominal number of workers is neither practical nor in the best interest of patient care," APIC stated.

"Given the numbers of people that are hired, not just to do [fit-testing] initially but to do it annually, this is a major outlay of [resources] at a time when there are so many other constraints," Bartley says. "What benefits are we getting for that additional cost? There is no study that shows the efficacy of [annual] fit-testing in terms of providing a maximum benefit for the worker. These are the kind of issues we would like to see OSHA air in a more public forum, not under a mandate of the current [respiratory] standard."

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Dissenting opinion: An ICP who favors fit-testing

Saw workers convert despite N95 use

Though annual respirator fit-testing is being widely criticized, an infection control professional strongly recommends the practice after seeing a group of co-workers get infected with tuberculosis even though they were wearing N95 respirators.

"I don't know why people wouldn't to it," says **Christy Tarr**, RN, BSN, CIC, infection control coordinator at Wheeling (WV) Hospital. "One employee getting exposed because of improper [respirator] fit is one too many."

The defining moment for Tarr came about three years ago when a TB patient — who was not compliant with respiratory etiquette — infected a number of workers even though they were following infection control recommendations to wear particulate respirators. Tarr and colleagues surmised that the workers' masks must have fit improperly, allowing airborne TB to slip through to their respiratory systems.

"We had a cluster of employees who converted [TB skin tests] because this patient was almost what is called a 'superspreader,'" she tells *Hospital Infection Control*. "The employees were wearing respirators and still converted, so we took a very aggressive approach to analyzing our respirators and fit tests."

The hospital had been using a qualitative fit-testing program that involved detecting smells, tastes, or irritants to see if the mask was properly sealed.

"The qualitative is very subjective," she says. "It is dependent on how well someone senses something. We formed a multidisciplinary team to evaluate how we do things, and the team found one overwhelming issue and that was the employees did not feel secure in the respirators they were using and the fit-testing process."

Tarr and colleagues switched the program over to a quantitative test using a machine that detects

leaks in the facial seal of the respirator.

"With the quantitative, it is a number," she says. "It's very scientific. The machine looks at particles in the air and does some computations. A lot of the subjectivity is taken out. It just tells you whether or not you have a breach in your [mask] seal. We [also] evaluated several mask styles and found an adjustable reusable respirator."

Popular diets can change seal

The annual fit-testing program began about two years ago and has yielded surprising results for a procedure that has been branded as having little benefit. Though the quantitative fit-testing equipment and software constitute an expensive purchase — in the $10,000 range — the initial expenditure was well worth it, she says.

"It has been very beneficial," she says. "We have caught employees throughout the year [with inadequate fits]. We have been surprised to find that people who have lost weight on [popular diets] have lost significant amounts in their face. It affected their seal and some ended up having to use a different respirator style because they failed the fit test with their old mask."

Under the program, employees have their fit testing in conjunction with their annual PPD (purified protein derivative) TB test. At some time during their birth month, the workers go to employee health and complete a medical evaluation form while they wait to then have their PPD applied.

"They are dispersed throughout the year just about evenly," she says. "On your birth month, you come in, and it is kind of like a one-stop shop."

In the time between the PPD application and the reading of the test, a physician reviews the medical evaluation form and makes the decision whether the employee is cleared for fit-testing or needs additional evaluation.

"In the interim time between the application of PPD and when it needs to be read — about 48 to 72 hours — the physician has a chance to review the questionnaire and see if the employee needs a physical or if they can go ahead and be fit tested," Tarr says. "So by the time the employees come back for their PPD read, they know whether or not they need to be examined or just go ahead and be fit tested."

To ensure compliance, the hospital maintains a policy that employees are not permitted to work if they did not get their PPD applied and read before the last day of their birth month. "We actually [fit test] all employees that have the potential to have to work in airborne precautions," she says. "We have 2,000 employees, and about 900 of those meet the criteria for needing a fit test. We actually fit test about 1,200 people a year to account for all of the employee turnover."

Employees use reusable, adjustable N95 respirators and store them in zip-lock bags on their units. An identical "test" mask is used for the fit-testing procedure. The mask has a hole in it for connection to the fit-testing equipment.

Employees bring both their test mask and dedicated mask, which is also stored in a zip-lock bag — to their annual fit-testing.

"Once you do the work and get the process coordinated, you develop a well-oiled machine," Tarr says. "It is much smoother than you ever dreamed, and you have good data and records. You feel confident that you have people in masks that fit them." ■

Contact isolation: Is patient *too* isolated?

A sobering, provocative finding

Synopsis: As determined by process of care measurement, adverse event occurrence, and patient satisfaction, quality of care is compromised by infection control procedures.

Source: Stelfox HT, et al. **Safety of patients isolated for infection control.** *JAMA* 2003; 290:1,899-1,905.

To determine whether isolation procedures used for control of methicillin-resistant *Staphylococcus aureus* (MRSA) in hospitals might affect patient safety, Stelfox and associates retrospectively reviewed data from two large, urban teaching hospitals: Sunnybrook and Women's College Health Sciences Centre in Toronto and Brigham and Women's Hospital in Boston.

Stelfox, et al., analyzed two sets of patients: a consecutive series of adults admitted to the Toronto hospital for a one-year period and a series of adult

patients consecutively admitted to the Boston hospital during a 3.5-year period with a diagnosis of congestive heart failure (CHF). The latter group was studied because established standards of care relating to management of CHF facilitated an objective measurement of quality of care. In each series, patients who were managed with contact precautions, as specified by Centers for Disease Control and Prevention guidelines, were matched to controls (two control patients for each isolated patient) by identifying patients who occupied each isolated patient's hospital bed immediately before and immediately after the isolated patient. Isolated patients were either colonized (in 96% of cases) or infected (in 4%) with MRSA.

Safety was assessed by three criteria: process of care, adverse events, and patient satisfaction. Process of care was a surrogate for thoroughness of care and included indicators such as vital sign recording, presence or absence of nurses' and physicians' notes, and in the CHF cohort, whether left ventricular function and ejection fraction were evaluated, whether education efforts were documented, and if follow-up appointments were scheduled. Adverse events served as a marker for outcomes of care and included injuries that lengthened hospital stay, produced disability, or resulted in abnormal laboratory test results. Patient satisfaction was assessed by identifying instances of patients' leaving against medical advice, complaints about medical care, and altercations or suicide attempts.

The results? Isolated patients received a lower level of care, as reflected in vital sign deficiencies, absence of nurses' and physicians' notes, documentation of patient education and follow-up appointment scheduling, and differences in medications prescribed upon hospital discharge. In addition, isolated patients had an increased incidence of such adverse events as falls, pressure ulcers, and fluid and electrolyte disorders. Patient satisfaction was much lower in isolated patients than in controls (isolated patients were 23 times more likely to have lodged a complaint). No differences in hospital mortality were observed.

Comment by Jerry D. Smilack, MD, infectious disease consultant Mayo Clinic Scottsdale (AZ).

This sobering, provocative report raises important questions that are infrequently asked whenever isolation procedures are instituted. In our quest to limit transmission of infections to patients and ourselves, do we inadvertently reduce the level of care to isolated patients? What is the psychological effect of isolation on patients and their visitors?

Others[1,2] have noted that health care worker contact with patients is reduced when isolation precautions are imposed. In the present study, Stelfox, et al., have carefully documented serious safety and medical care deficiencies associated with isolation precautions for MRSA. Since data were gathered primarily by retrospective chart review — with its attendant reliance on documentation — one might wonder what additional deficiencies would have been observed had concurrent review been in place.

Stelfox, et al., correctly call for further studies to determine whether certain components of isolation procedures might be more important for control of infection but less deleterious than others. They also wonder whether their findings apply to hospitals of smaller sizes or different locales.

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1. Kirkland KB, et al. Adverse effects of contact isolation. *Lancet* 1999; 354:1,177-1,178.

2. Higgins L, et al. Do physicians examine patients under contact precautions less frequently? *J Gen Intern Med* 2001; 16(suppl 1):200. Abstract. ■

Needlestick workbook available from CDC

Comprehensive guidance posted on the web

The Centers for Disease Control and Prevention (CDC), which has been criticized for not being more directive and aggressive on preventing needle stick injuries, has posted an impressive, interactive workbook on the issue. The document is on the web site of the CDC's Division of Healthcare Quality Promotion (formerly the hospital infections program) at www.cdc.gov/ncidod/hip/.

"This workbook contains a practical plan to help health care organizations prevent sharps injuries," the CDC stated. "Once implemented, the program will help improve workplace safety for health care personnel. At the same time, it may help health care facilities meet the worker safety requirements for accrediting organizations [and] federal and state regulatory standards."

Noting that the injuries are "often preventable," the CDC estimates that 385,000 needlesticks — some 1,000 every day — are sustained by hospital-based health care personnel annually. Similar injuries occur in other health care settings, such as nursing homes, clinics, emergency care services, and private homes. Sharps injuries are primarily associated with occupational transmission of hepatitis B virus, hepatitis C virus, and HIV, but include the transmission of more than 20 other pathogens, the CDC stated.

"The true magnitude of the problem is difficult to assess because information has not been gathered on the frequency of injuries among health care personnel working in other settings [e.g., long-term care, home health care, private offices]," the CDC warned. ". . . In addition, surveys of health care personnel indicate that 50% or more do not report their occupational percutaneous injuries."

An effective sharps injury prevention program includes several components that must work in concert to prevent health care personnel from suffering needlesticks and other sharps-related injuries. The CDC plan is designed to integrate into existing performance improvement, infection control, and safety programs. It is based on a model of continuous quality improvement, an approach that successful health care organizations increasingly are adopting. The main concept is a systematic, organizationwide approach for continually improving all processes involved in the delivery of quality products and services. The program plan also draws on concepts from the industrial hygiene profession, in which prevention interventions are prioritized based on a hierarchy of control strategies.

The workbook includes several sections that describe each of the organizational steps and operational processes. A toolkit of forms and worksheets is included to help guide program development and implementation. The workbook also contains:

- Comprehensive overview of the literature on the risks and prevention of sharps injuries in health care personnel.
- Description of devices with sharps injury prevention features, and factors to consider when selecting such devices.
- Internet links to web sites with relevant information on sharps injury prevention.
- The Joint Commission on Accreditation of Healthcare Organizations standards for surveillance of infection, environment of care, and product evaluation.
- Center for Medicare & Medicaid Services compliance with the Conditions for Medicare and Medicaid Participation.
- Occupational Safety and Health Administration

CE/CME *questions*

9. Rosalyn Schulman, AHA senior associate director for policy, said OSHA's move to add new requirements for TB prevention is "counterintuitive." Which was among her cited reasons?
   A. TB has declined dramatically, including in health care settings.
   B. OSHA said hospitals are in substantial compliance with federal TB guidelines.
   C. OSHA decided to withdraw its proposed TB standard.
   D. all of the above
10. Christy Tarr, RN, BSN, CIC, became an advocate of annual respirator fit-testing after seeing a cluster of health care workers:
   A. volunteering to do the procedure
   B. become infected with TB due to lack of respirators
   C. become infected with SARS while wearing respirators
   D. become infected with TB despite wearing respirators
11. The CDC reported that case control studies in the U.S. have irrefutably linked hepatitis C virus infection with previous tattooing or piercing.
   A. true
   B. false
12. Researchers found that patients in isolation precautions received a lower level of care, as reflected in:
   A. vital sign deficiencies
   B. higher mortality
   C. absence of nurses' and physicians' notes
   D. A and C

COMING IN FUTURE MONTHS

- CDC international emerging infections conference
- Nosocomial infections as an indicator of patient safety
- Infection control in long-term care: The graying of America
- How to do an infection-related root-cause analysis
- Influenza Pandemic: Past as prelude

(OSHA) Bloodborne Pathogens Standard (29 CFR 1910.1030) and its related field directive, *Inspection Procedures for the Occupational Exposure to Bloodborne Pathogens Standard* (CPL 2-2.44, Nov. 5, 1999) requiring use of engineered sharps injury prevention devices as a primary prevention strategy (www.osha.gov/SLTC/ blood bornepathogens/index.html/).
- State OSHA plans that equal or exceed federal OSHA standards for preventing transmission of bloodborne pathogens to health care personnel.
- State-specific legislation that also requires the use of devices with engineered sharps injury prevention features and, in some cases, specific sharps injury reporting requirements (www.cdc.gov/niosh/ndl-law.html/).
- Federal Needlestick Safety and Prevention Act (PL 106-430), (Nov. 6, 2000). ■

CE/CME instructions

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CE/CME answers

9. D 10. D 11. B. 12. D

CE/CME objectives

After reading each issue of *Hospital Infection Control*, the infection control professional will be able to do the following:

• identify the particular clinical, legal, or educational issue related to epidemiology;

• describe how the issue affects nurses, hospitals, or the health care industry in general;

• cite solutions to the problems associated with those issues, based on guidelines from the federal Centers for Disease Control and Prevention or other authorities, and/or based on independent recommendations from clinicians at individual institutions. ■

Supplement to *Hospital Infection Control* and *Hospital Employee Health*

BIOTERRORISM WATCH

Preparing for and responding to biological, chemical and nuclear disasters

THOMSON
AMERICAN HEALTH CONSULTANTS

IN THIS ISSUE

MARCH/APRIL 2004
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Syndromic surveillance: Wave of the future for bioterrorism preparedness

Old walls between hospitals, public health are coming down

The threat of bioterrorism and the continuing emergence of new infectious agents have spurred the development of syndromic surveillance systems, which may detect clusters of cases much earlier than traditional methods. What does that buy you? Time.

"Syndromic surveillance is trying to pick up a day, two days, even hours in some instances, of a larger pattern of indicators that suggest the need for a public health investigation," says **Daniel Sosin**, MD, MPH, director of the division of public health surveillance and informatics at the Centers for Disease Control and Prevention (CDC).

Syndromic surveillance systems typically use health-related data that precede diagnosis but may signal an outbreak that warrants public health response. Some surveillance systems use the International Classification of Diseases (ICD) diagnostic codes with a set of syndromes caused by the major bioterrorism agents.

Other systems abstract data from emergency department logs, 911 calls, or nurse call lines. Syndromic surveillance systems often draw on data sources that already exist, but have not been designed specifically for public health surveillance purposes. "Clinical providers always have and will continue to have a major role in disease reporting and public health surveillance," Sosin says. "Probably, still the most important surveillance system we have is the telephone. The health care provider says, 'I'm seeing something unusual; are you seeing something in the community?' That direct connection between a clinician [and the public health department] will continue to be important."

The CDC began trialing such programs in 1999, setting up enhanced syndromic surveillance activities for high-profile community events such as national political conventions. As part of those efforts, the CDC has identified syndrome categories indicative of the clinical presentations of several critical bioterrorism-associated conditions.[1] **(See table of syndromes, pp. 11-13.)** The Department of Defense's ESSENCE program (Electronic Surveillance System for the Early Notification of Community-based Epidemics) also uses broad syndrome groups using ICD codes that approximate natural infectious disease outbreaks or

bioterrorism.[2] These syndrome groups currently are under routine surveillance at military medical treatment facilities. Other public health agencies also have developed syndrome-based definitions and code groupings according to their own data sources and surveillance goals.

The idea is not to create a national system, but guide local health departments in creation of syndromic surveillance programs that are appropriate for their resources and community needs, Sosin says. "Public health truly is local. The identification of public health threats day in and day out has to happen at the local health department. Different local health departments have different risk scenarios; the threat is different in different jurisdictions; and they have different resources to respond. So the thresholds will and should vary. We have a lot to learn yet. It isn't appropriate that we go out with a single model and tell everybody to do it," he explains.

To assist in the continued development of these systems, the CDC has posted a draft framework document that can be used for evaluating or creating syndromic surveillance programs.[3] The model and several other CDC documents on syndromic surveillance have been posted on a web site for comment and review. **(See editor's note, p. 13.)** Eventually, such systems in one form or another are expected to be adopted throughout the nation, further bringing down the traditional walls between infection control and public health.

It will be important that the surveillance systems are designed to capture the best data from both a clinical and public health viewpoint. Therefore, infection control professionals (ICPs) should consider participating if syndromic surveillance systems are being developed by their local public health departments.

"An important thing about these guidelines and this framework is that if they are employed, then we are not going to send hospital epidemiologists on wild-goose chases," says **J. Marc Overhage**, MD, PhD, an advisor to CDC on the issue and professor of medicine at Indiana University School of Medicine in Indianapolis. "Ensuring the quality of the process up front is going to be very critical for ICPs so that they are not chasing shadows. In some of the bioterrorism surveillance systems, there is a little bit of that going on today. These guidelines bring some rigor and some thoughtfulness to these systems in advance so ICPs are not subjected to bad systems that add unnecessary work."

The CDC concedes that the utility of the new systems for early detection and response to outbreaks has not been well established. Significant costs may be incurred in developing and managing these surveillance systems and investigating false alarms, the CDC framework draft states. That makes it even more important that there is two-way communication between public health agencies and the clinical community.

Ideally, the clinicians and laboratories report cases and clusters of cases of unusual diseases, while health departments provide consultation on case diagnosis and management, alerts, surveillance summaries, and clinical and public health recommendations and policies.

"[Syndromic surveillance systems] should

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This education activity is intended for nurses and physicians with a special interest in bioterrorism, particularly in the acute-care setting.

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.

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Editor: **Gary Evans**, (706) 742-2515.
Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@thomson.com).
Editorial Group Head: **Coles McKagen**, (404) 262-5420, (coles.mckagen@thomson.com).
Senior Production Editor: **Ann Duncan.**

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Editorial Questions

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

Text-Based Syndrome Case Definitions & Associated Category A Conditions

Syndrome	Definition	Category A Condition
Botulism-like	ACUTE condition that may represent exposure to botulinum toxin ACUTE paralytic conditions consistent with botulism: cranial nerve VI (lateral rectus) palsy, ptosis, dilated pupils, decreased gag reflex, media rectus palsy. ACUTE descending motor paralysis (including muscles of respiration) ACUTE symptoms consistent with botulism: diplopia, dry mouth, dysphagia, difficulty focusing to a near point.	Botulism
Hemorrhagic Illness	SPECIFIC diagnosis of any virus that causes viral hemorrhagic fever (VHF): yellow fever, dengue, Rift Valley fever, Crimean-Congo HF, Kyasanur Forest disease, Omsk HF, Hantaan, Junin, Machupo, Lassa, Marburg, Ebola ACUTE condition with multiple organ involvement that may be consistent with exposure to any virus that causes VHF ACUTE blood abnormalities consistent with VHF: leukopenia, neutropenia, thrombocytopenia, decreased clotting factors, albuminuria	VHF
Lymphadenitis	ACUTE regional lymph node swelling and/ or infection (painful bubo- particularly in groin, axilla or neck)	Plague (Bubonic)
Localized Cutaneous Lesion	SPECIFIC diagnosis of localized cutaneous lesion/ ulcer consistent with cutaneous anthrax or tularemia ACUTE localized edema and/ or cutaneous lesion/ vesicle, ulcer, eschar that may be consistent with cutaneous anthrax or tularemia INCLUDES insect bites EXCLUDES any lesion disseminated over the body or generalized rash EXCLUDES diabetic ulcer and ulcer associated with peripheral vascular disease	Anthrax (cutaneous) Tularemia
Gastrointestinal	ACUTE infection of the upper and/ or lower gastrointestinal (GI) tract SPECIFIC diagnosis of acute GI distress such as Salmonella gastroenteritis ACUTE non-specific symptoms of GI distress such as nausea, vomiting, or diarrhea EXCLUDES any chronic conditions such as inflammatory bowel syndrome	Anthrax (gastrointestinal)

(Continued on next page)

become valuable tools for infection control practitioners if they meet the standards that are set out [in the framework document]," Overhage points out. "Part of the goal of the framework is to develop systems that are robust enough that the conclusions can be trusted, and the ICP can say, 'Here's something I should at least look at, if not worry about.' They don't have to do all the legwork to find that thing."

While the systems can detect the signs of a bioterrorism attack, such marriages between public health and clinical care also will be helpful as

(Continued on next page)

the traditional boundaries within the health system continue to blur and disappear.

"Lengths of stay are becoming dramatically shorter," Overhage says. "Our average length of stay at the hospital is 2.3 days. That patient goes home, but they still have an infection, are still being treated with antibiotics. They just became a public health problem instead of a hospital problem. There really is that interface; that hand-off happens all the time now. It will increasingly happen as we do not even admit patients to the hospital, but manage them [from the onset] as an outpatient."

But syndromic surveillance systems still are in

Source: Centers for Disease Control and Prevention, Atlanta.

a phase of relative infancy, and must await the development of more sophisticated models. For example, syndromic surveillance systems for bioterrorism are limited in their ability for early detection of single cases or small outbreaks. In such cases, early clinical manifestations of diseases that may be due to terrorism are common and nonspecific. Individual case detection and follow-up investigation of all people with nonspecific syndromes that could be due to one of the terrorism agents would put unreasonable demands on public health staff, the CDC framework draft emphasizes.

"At this stage, syndromic surveillance is most useful for large outbreaks, the catastrophic kinds of events," Sosin explains. "It is very important to us to detect [those] at an early stage, so it doesn't diminish the potential role of syndromic surveillance. But for detecting 11 cases of inhalational anthrax, it is not very practical; because at the early stages, it presents like an upper-respiratory infection that is fairly common. We don't want to be triggering public health investigations based on very small numbers and individual cases."

That situation might improve over time, as researchers identify health indicators that are more specific to particular bioterrorism agents. "It will take some time to decipher, to learn what indicators are more sensitive, more specific, and more closely aligned to the kinds of events we are trying to detect," he says. "Improvements in the data sources and improvements in our detection and analytical methods could help us do a better job of weeding out the noise from the signals we want to respond to."

(*Editor's note: The CDC encourages review and comment on its syndromic surveillance framework document at* www.cdc.gov/epo/dphsi/syndromic.htm. *If you would like to share comments, suggestions, and relevant examples that could be used to strengthen the CDC framework document, send them to Daniel M. Sosin, MD, MPH, Director, Division of Public Health Surveillance and Informatics Epidemiology Program Office, Centers for Disease Control and Prevention, Mailstop K-77, 4771 Buford Highway N.E., Atlanta, GA 30341-3717.)*

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1. Centers for Disease Control and Prevention. *Syndrome Definitions for Diseases Associated with Critical Bioterrorism-Associated Agents.* Atlanta; 2003. Web: www.bt.cdc.gov/surveillance/syndromedef/index.asp.
2. Centers for Disease Control and Prevention. *Draft Framework for Evaluating Syndromic Surveillance Systems for Bioterrorism Preparedness.* Atlanta; 2003. Web: www.cdc.gov/epo/dphsi/syndromic/framework.htm.
3. Department of Defense, Global Emerging Infections System. *ESSENCE: Electronic Surveillance System for the Early Notification of Community-based Epidemics.* Washington, DC. Web: www.geis.ha.osd.mil/geis/surveillanceactivities/essence/essence.asp. ■

Hospitals lack medical equipment for bioterror

Alliances may be solution to vent shortage

While most urban hospitals across the country reported participating in basic planning and coordination activities for bioterrorism response, they do not have the medical equipment to handle the number of patients that would be likely to result from a bioterrorism incident, according to a report by the General Accounting Office (GAO).[1]

Hospitals reported they lacked the equipment needed for a large influx of patients. For instance, if a large number of patients with severe respiratory problems associated with anthrax or botulism arrived at a hospital, a comparable number of ventilators would be required to treat them. Yet half of the hospitals reported having fewer than six ventilators per 100 staffed beds.

Almost all hospitals reported participating in a local, state, or regional interagency disaster preparedness committee. In addition, most hospitals reported having provided at least some training to their personnel on identification and diagnosis of disease caused by biological agents considered likely to be used in a bioterrorism attack, such as anthrax or botulism. In contrast, fewer than half of hospitals have conducted drills or exercises simulating response to a bioterrorism incident.

To obtain information on the extent of hospital bioterrorism preparedness, the GAO conducted a survey between May and September 2002, of 2,041 urban hospitals across the country that have emergency departments (EDs). Overall, 1,482 (73%) of the hospitals responded to the survey. In general, larger hospitals reported more planning and training activities than smaller hospitals. The resources that hospitals and their EDs would require for responding to a large-scale bioterrorism attack are far greater than those needed for everyday use. The specific equipment, supplies, and facilities needed could vary depending upon what type of attack occurred, but many scenarios anticipate the demand for health care could quickly outstrip the ability of hospitals to respond.

Regional plans can help address capacity deficiencies by providing for the sharing among hospitals and other community and state agencies and organizations of resources that, while adequate for everyday needs, may be in short supply on a local level in an emergency. Many of the capabilities required for responding to a large-scale bioterrorism attack are required for responses to naturally occurring disease outbreaks. Such a dual-use response infrastructure improves the capacity of local public health agencies to respond to all hazards, the GAO reported.

Reference

1. General Accounting Office. *Most Urban Hospitals Have Emergency Plans but Lack Certain Capacities for Bioterrorism Response.* Web: www.gao.gov/new.items/d03924.pdf. ■

Smallpox vaccine may confer immunity to HIV

Cross-immunity between disparate viruses

Could smallpox — the historic scourge of mankind and still the most feared of the bioterror agents — be a major weapon against the global HIV epidemic? Might fire be fought with fire? As provocative as that sounds, a bioterrorism researcher is building a case that smallpox historically may have blocked the emergence of HIV and vaccinia may now provide the basis for a vaccine against the AIDS virus.

An epidemiological review of the emergence of HIV-1 in Sub-Saharan Africa and the eradication of smallpox in the same region suggests a correlation between the two, implying the possibility of a cross-immunity between these widely disparate viruses, says **Raymond S. Weinstein**, MD, a researcher at the National Center for Biodefense at George Mason University in Manassas, VA.[1]

As smallpox was eliminated as a natural disease and human immunity waned, HIV was no longer held in check and began to emerge and infect the human population, he theorizes.

Studies that have looked a the emergence of HIV-1 and HIV-2 support the theory. Both variations of HIV probably first appeared around 1940 (plus or minus 20 years), he notes.

"What are the chances of two different viruses emerging in two different locations within the same decade that are derived from viruses that have been around for thousands of millennia?" he asks *Bioterrorism Watch*. "It's an awfully big coincidence. However, if you [postulate] that smallpox was suppressing the emergence of HIV — which actually did exist in extremely low numbers — then you can see that stopping the

[smallpox] immunizations and loss of immunity to smallpox is what allowed HIV to spread."

Weinstein has tested the hypothesize in one study involving 20 volunteers and now is attempting to replicate the results in a larger group of 60 test subjects. The researcher and colleagues are testing the susceptibility to HIV-1 infection in peripheral blood mononuclear cells (PBMCs) from subjects recently immunized with the vaccinia virus.

"The hardest part is finding the subjects and getting them together to get fresh blood because it doesn't work with frozen blood," he says. "We found that [PBMC] cells from individuals that were vaccinated within the previous three to nine months were resistant to infection with HIV. We don't know yet what the mechanism is, but it may be that in patients who haven't been infected it may prevent infection. Or some patients may get infected, but [smallpox vaccination] prevents progression [of HIV]."

Results demonstrate that immunization resulted in a fourfold reduction in viral replication with macrophage- (CCR5) tropic HIV-1, but not with T-cell- (CXCR4) tropic virus. This reduction in R5-HIV replication was further enhanced when autologous serum was added to the cell cultures. Since the vast majority of new HIV-1 infections are with an R5 tropic strain, these findings suggest that vaccinia immunization might be a new useful tool in the fight against the worldwide HIV pandemic, Weinstein emphasizes.

In particular, evolutionary pressure from naturally occurring smallpox disease appears to have spurred the development of a genetic mutation called CCR5 Delta 32, he explains.

"People who have that mutation are resistant to HIV. They are not just long-term survivors, but people who have multiple exposures and never become infected. It was the constant pressure from smallpox that [prompted] the success of that [mutation] It started as a single mutation somewhere between 800 and 1200 years ago in Northern Europe," Weinstein says.

"Now, one out of 10 people has it. It protected them against smallpox, but now that there is no smallpox, we are finding that it protects them against HIV, too," he adds.

CE/CME *questions*

5. Syndromic surveillance systems may use which of the following data sources?
   A. diagnostic codes
   B. emergency department logs
   C. nurse call lines
   D. all of the above
6. According to Raymond Weinstein, MD, historic evidence and ongoing studies suggest that smallpox and HIV may have:
   A. cross-immunity
   B. evolved from the same virus
   C. been originally developed as bioweapons
   D. all of the above
7. Standard (universal) precautions as practiced with any other mass-casualty incidents (trauma, chemical, biological, etc.) is generally sufficient for protection from radioactive contamination.
   A. true
   B. false
8. According to a GAO survey, which piece of equipment would be in particularly short supply if large influx of patients with severe respiratory problems arrived at a typical urban hospital?
   A. heart monitors
   B. stethoscopes
   C. X-ray equipment
   D. ventilators

If the findings are borne out in subsequent peer-reviewed studies, the possibility exists for an HIV vaccine or treatment based on the vaccina virus (cowpox) vaccine commonly used for smallpox. Also, the researchers are looking at the possibility of eventually using — as yet unapproved — smallpox vaccines that use nonreplicating vaccina for immunization of immunocompromised people.

Reference

1. Weinstein RS, Alibek K, Weinstein MM, et al. Protection against HIV-1 infection in vitro by prior immunization with vaccinia virus. Plenary address abstract. Presented at the First International Conference — Crossing Boundaries: Medical Biodefense and Civilian Medicine. Arlington, VA; November 2003. ■

COMING IN FUTURE MONTHS

- ■ CDC conference on emerging infections
- ■ Laboratory security
- ■ Genetic alteration of pathogens
- ■ Anthrax vaccine: Is it safe?
- ■ Maximize resources with partnerships

Health workers fear nuclear terrorism

Follow standard precautions, decontaminate pts

Hospitals and public health agencies should prepare for the unique features of radiological terrorism, such as mass casualties with blast injuries combined with burns, the Centers for Disease Control and Prevention (CDC) recommends. In guidance posted on its bioterrorism web site on Dec. 31, 2003, the CDC emphasized health care workers may be particularly fearful of radiation incidents and possible exposures.

"While patient care is a top hospital priority, it is vital that hospital personnel are protected from injury and disease while doing their job," the CDC added. "During a mass casualty radiological event, it is likely that hospital personnel will be concerned about radiation contamination. To alleviate their concern, hospital personnel should be educated about the potential health effects resulting from radiation exposure, learn what personal protective equipment they will need for precautionary measures and be trained so they can respond effectively to a radiological incident."

Standard (universal) precautions as practiced with any other mass casualty incidents (trauma, chemical, biological, etc.) generally is sufficient for protection from radioactive contamination. In a particular note about use of masks, the CDC said surgical masks should be adequate if N95 respirators are not available. The respirators should be available in hospitals because they already are recommended for health care worker protection against severe acute respiratory syndrome, TB, and certain other infectious diseases.

"Experience in human decontamination indicates that careful procedures for removing clothing and decontaminating patients prevents aerosolization of radioactive particles, and dosimetry of health care workers using surgical masks has not found evidence of contamination," the CDC stated.

(Editor's note: To see Interim Guidelines for Hospital Response to Mass Casualties from a Radiological Incident, *go to: www.bt.cdc.gov/radiation/pdf/MassCasualtiesGuidelines.pdf.)* ■

CE/CME answers

5. D **6. A** **7. A** **8. D**

CE/CME instructions

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CE/CME objectives

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- 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. ■