Hospital Employee Health®

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## IN THIS ISSUE



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# Massive stockpiling causes spot shortages of N95 respirators

*Some hospitals face delays for current needs*

Massive stockpiling of N95 respirators by major corporations preparing for pandemic influenza has caused supply problems for hospitals, which need N95s for current infectious disease hazards such as tuberculosis.

Spot shortages and delivery delays raise concerns about how hospitals would obtain respiratory protective equipment during an influenza pandemic. Most hospitals still rely on just-in-time delivery, which makes them vulnerable to supply disruptions, says **David Naylor,** vice president of sales for Thorofare, NJ-based Aramsco Inc., the world's largest distributor of N95 respirators.

Financial services, utilities, and other major companies are buying the respirators as part of a business continuity plan for pandemic preparedness, says Naylor. "The overall market is being consumed by Fortune 500 companies," he says. "You have companies that never bought an N95 before that now buy $10 million of them."

Yet hospitals, which are strapped for money and rely on federal or state grants for pandemic planning, haven't been able to create substantial stockpiles, Naylor says.

"Their day-to-day purchases are enough to keep the hospital running in normal conditions but would probably be a problem even in an unusual flu season," he says. In a worst-case scenario, he predicts, "it could be we'll find ourselves, like in the 1918 flu, wrapping linens across our face."

Inflexible purchasing policies compound the problem for hospitals, he says. For example, Aramsco doesn't sell to the health care market; the distributor maintains an inventory of 10 million respirators. But a hospital struggling with an N95 shortage might be unable to purchase from Aramsco because they aren't a part of the hospital's contracting system.

"We have contingency plans in case things don't go well," Naylor says. "These hospitals need to have the same."

## Manufacturers struggle with capacity

The status of hospital supplies of N95s varies depending on the distributor, the manufacturer, and the model. Some hospitals have had a steady flow to meet their needs. Others have failed to receive their regular order. Switching products, even temporarily, requires re-fit-testing employees.

"Right now, there's a national shortage of respirators," says **Michael Tapper,** MD, chief of infectious diseases at Lenox Hill Hospital in New York City and a member of the Healthcare Infection Control Practices Advisory Committee, an expert panel that reports to the Centers for Disease Control and Prevention. Tapper shared his concerns with the FDA and U.S. Department of Health and Human Services.

"The stockpiling is going on for pandemic influenza preparedness, but in the interim there's an immediate shortfall of respirators for other diseases that are known to be airborne-transmitted," he says.

Demand spiked suddenly and sharply. The U.S. government plans to build its stockpile to almost 104 million by fall 2007. France is stockpiling 685 million respirators. Some state governments also are stockpiling.

Smaller purchases, such as hospitals', have encountered difficulties as manufacturers scramble to supply those large orders. "We are investigating the availability of the manufacturing resources for these products," says FDA spokeswoman **Karen Riley**.

The delays relate in part to distribution channels. Some distributors did not adapt to delays as manufacturers slowed deliveries, says Naylor.

Manufacturers such as 3M Corp. have been building new plants and adding to their existing capacity. "We're definitely committed to ensuring that our current distribution channels are getting the products that they need," says spokesperson **Jacqueline Berry.**

On its web site, 3M offered reassurances that it was addressing the needs of current customers:

"3M is attempting to ensure that N95 respirators go to the customers who need them most. We are prioritizing new and existing customers who are fulfilling the requirements of their occupational respiratory protection programs. We are protecting our current channel by not setting up any additional distribution. We are not prioritizing stockpiling except for when governments and states are increasing their readiness for natural disasters and a potential pandemic. For the most highly constrained products, we are building schedules to make sure that distributors have the most reliable supply of respirators possible."

For hospitals, there is a lesson to be learned from this shortage. Naylor calls it the "Yo-Yo plan"— as in, "You're On Your Own" if a pandemic or other emergency strikes.

"If you need to depend on someone to survive, you're putting yourself at risk," he says. ■

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# Complacency could be deadly in pandemic

*Hospitals are ill-prepared, reports say*

Hospitals are ill-prepared to cope with even a mild pandemic and are likely to face shortages of staff, protective equipment, bedspace, and other supplies.[1]

The pressures that face hospitals daily would be magnified and health care systems would quickly become overwhelmed if there were a sudden influx of patients suffering from a novel influenza virus, according to a panel of preparedness and public health experts and hospital leaders convened by the Center for Biosecurity of the University of Pittsburgh Medical Center.

That conclusion echoes other warnings. Complacency could be deadly, says **William Charney,** DOH, a national occupational health consultant based in Seattle who compiled the recent book, *Emerging Infectious Diseases and the Threat to Occupational Health in the U.S. and Canada* (CRC Press, 2006).

"We are taking for granted that our health care systems are going to be able to deal with thousands of sick and dying people, when in fact at the current level of preparedness they will be overwhelmed and chaos is quite predictable," Charney writes.

About half of the nation's emergency departments (48%) function at or above capacity, according to the Center for Biosecurity report. About 30% of hospitals lose money, and the total number of hospital beds, hospitals, and emergency rooms has been declining.

"We have a lot less surge capacity in our health care system now than we did even 20 or 30 years ago," says **Eric Toner,** MD, senior associate with the Center for Biosecurity and lead author of the report.

The pandemic of 1968 was one of the mildest on record. But Toner says, "I doubt we could handle a 1968 pandemic now. Our hospitals have trouble dealing with a bad flu season as it is."

One of the greatest areas of weakness involves the protection of the health care workforce. Hospitals already struggle with staff shortages, particularly with respect to nurses or other licensed practitioners. Yet more than a third of hospital employees may fail to show up if there is a pandemic; in one survey, 42% of health care workers said they would not report to work during a flu pandemic.[2]

"The already existing shortage of health care workers will certainly be worse in a pandemic," says Toner. "How bad it will be is anybody's guess, but certainly it will be significant."

Even now, hospitals are competing with corporations and governments for a limited supply of respirators, and some are having trouble getting the respirators to meet their current needs, such as protection against tuberculosis. **(See related article on p. 13.)**

Rural hospitals, with limited local resources, face particular difficulties preparing for a pandemic. "Every hospital in every community needs to be working in collaboration with its neighbors and [local] emergency management organization to plan cooperatively," says Toner, who spoke recently at a teleconference on pandemic preparedness presented by AHC Media, the publisher of *HEH*.

For rural hospitals, that may mean reaching out to other health care facilities that are miles away, Toner says.

## Tab for preparedness: $1 million

Preparing for a pandemic will be costly; the Center for Biosecurity estimates that to be ready for a severe pandemic, similar to the historic influenza pandemic of 1918, an average-sized hospital of 164 beds would need to spend $1 million, including $200,000 to develop a pandemic-specific plan, $160,000 for staff education and training, $400,000 to stockpile "minimal" personal protective equipment, and $240,000 to stockpile basic supplies.

Hospitals also will need to spend about $200,000 a year to maintain preparedness, the center estimates.

Meanwhile, a pandemic would financially cripple hospitals, as they would lose money on delayed or canceled elective procedures while paying more for staff and supplies and treating more uninsured patients.

The solution: more government spending for preparedness, tied to specific goals, and funds to reimburse hospitals for uncompensated care and extraordinary costs in a pandemic, the center said.

But don't rely on the federal government to save the day when a pandemic hits. Although there is a national stockpile of antiviral medications, N95 respirators, and vaccine, the supply is

small compared to the immediate demand that would occur. Preparation must be local and regional, says Toner.

Yet for most hospitals, pandemic planning has been sketchy. "Hospitals are not taking this nearly as seriously as they should," says Toner. "Few hospitals have started stockpiling [PPE, antivirals, and other supplies] to the extent that they should. Almost every hospital has some sort of pandemic plan, but they've not been committing the resources necessary to get prepared."

## Without HCWs, all is 'moot'

Occupational health is one of the most critical areas of preparedness. "The No. 1 priority is protecting the health care workers. If we don't have health care workers, then everything else is moot," says Toner.

Yet Charney worries that hospitals are not planning to provide adequate respiratory protection. Charney and contributors to his book, Mark Nicas, John H. Lange, and Giuseppe Mastrangelo, contend that health care workers caring for patients with emerging infectious diseases need respirators that are more protective than the N95 — either the elastomeric half-mask respirator or powered air-purifying respirator (PAPR).

Both of those respirator types are reusable; the PAPR does not require fit-testing. Currently, the Centers for Disease Control and Prevention says that the use of an N95 during an influenza pandemic would be "prudent" and that an N95 or greater respiratory protection should be used during aerosolizing procedures, such as a bronchoscopy.

"We don't know how many viruses will be emitted and how far they'll travel and what the dose response will be [with an emerging infectious disease]," Charney asserts. "While the experts are arguing about [how influenza is transmitted], they're recommending lower-quality safety measures."

In their planning, hospitals must think through issues of supply for disposable products and disinfection of reusable ones. Toner recommends tiered levels of protection based on the health care worker's patient contact and degree of risk.

"Hospitals can't just stockpile one [item]," he says. "They need to really think this through and stockpile a number of different measures."

Cohorting patients can reduce the potential employee exposure and allow the hospital to concentrate its protective measures on those employees at greatest risk, he notes.

## Lining up volunteers

If your health care workers don't feel safe, they won't show up for work. That is a maxim that many occupational health experts emphasize in pandemic planning.

HCWs also may stay home to care for ill family members or as the only caregiver for children whose schools have been closed as an infection control measure. Meanwhile, you'll need more health care workers than ever to care for a surge of patients.

Where will you find them?

As part of pandemic planning, hospitals need to identify volunteers, including retired health care workers and those who have left clinical care, who can help during a crisis period, according to the Center for Biosecurity. Their credentials would need to be verified, and the registration of volunteers would need to be kept up to date.

The U.S. Department of Health and Human Services is developing a state-based Emergency System for Advanced Registration of Volunteer Health Professionals. Hospitals should contact their state public health departments for more information on those efforts.

Meanwhile, hospitals should plan for just-in-time training for volunteer workers and employees who may take on new duties when elective procedures are canceled.

"What are the essential things they need to be taught in order to do what we ask them to do?" says Toner. You should also consider "what functions in a hospital can be done by relatively untrained people."

*[Editor's note: To order a copy of AHC's audio conference,* Pandemic Peril: Is Your Hospital Ready for Avian Flu?, *call customer service at (800) 688-2421.]*

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# OSHA: Use airborne precautions with H5N1

*Agency issues guidance for workers*

Be prepared with isolation rooms and airborne precautions for patients with suspected H5N1 avian influenza infection.

That is one message in a new guidance from the U.S. Occupational Safety and Health Administration, "Protecting Employees Against Avian Flu" (www.osha.gov/dsg/guidance/avian-flu.html).

The guidance mirrors the recommendations of the Centers for Disease Control and Prevention (CDC), but it differs in important respects from the recent planning documents for pandemic influenza.

It states that patients who have traveled within 10 days to a country with avian flu activity and are hospitalized with severe fever and respiratory illness or are being evaluated for possible avian influenza for other reasons should be placed under airborne precautions. Health care workers caring for the patient should use N95 respirators, face shields and goggles, and gloves and gowns.

The CDC is currently reconsidering that guidance and will be issuing an update, says **Michael Bell,** MD, associate director for infection control at CDC's Division of Healthcare Quality Improvement.

"It was based on concern that because SARS and avian influenza arise from the same part of the world and they may look similar at first, we didn't want to miss any cases of SARS," he says.

The primary occupational risk for avian influenza occurs among poultry workers, Bell notes. Transmission to health care workers has not occurred even when infection control precautions were lacking.[1]

"Despite the very large numbers of people exposed to avian influenza virus, the impact on health care workers has been essentially zero," Bell says.

Meanwhile, hospitals and public health authorities need to continue to be aware of the signs and symptoms of SARS, he says. Infection control experts expected SARS to return a year after the outbreak in 2003, and they don't know why it disappeared. "We need to continue to be vigilant and ready to respond appropriately," Bell says.

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# Which HCWs will be first to get vaccine?

*Hospitals consider pandemic scenarios*

The Dana-Farber Cancer Institute in Boston will not be on the front lines in an influenza pandemic. The surge of sick patients seeking an emergency room will not be showing up at Dana Farber's doorstep.

Nonetheless, a pandemic would cause disruption at the specialty hospital and put both patients and employees at risk. The hospital is drafting plans for symptom screening of patients, the use of limited antivirals and vaccine, and the inflow of oncology patients from acute-care hospitals.

A planning committee and subcommittees meet regularly to discuss such topics as prioritization of antiviral medications and vaccines.

"It will be a plan we would put into place for any kind of infectious agent, whether it be bioterrorism, the flu, or some other infectious agent," says **Lisa Foster**, MS, ANP, program manager of the hospital's occupational health services.

The annual flu response also provides a framework for pandemic response, Foster notes. A flu team meets each fall to identify vaccine supply issues and to design a vaccination strategy, determining who should receive the first doses.

"We would do the same thing in a pandemic situation, Foster says.

Vanderbilt University Medical Center in Nashville has conducted drills, imagining possible pandemic scenarios, and has made changes as a result. For example, though it still uses just-in-time ordering, the medical center increased its on-site stock of masks and respirators.

Yet hospitals can't do all the planning on their own. In some communities, a critical component is missing: coordination.

Hospital leaders need to meet to discuss how they would collaborate to cope with scarce resources or manage the flow of patients.

"It's very difficult for any single hospital to take that leadership role," says **William Schaffner,** MD, chair of the department of preventive medicine at Vanderbilt University. "That leadership falls on the local public health authorities."

Federal and state public health authorities also need to lower administrative burdens during a crisis, he says.

"In the throes of a pandemic, the systems that we have in place to care for patients and to do public health are going to be overwhelmed," he says. "The [federal authorities] need to be very restrained in asking for information.

"Reporting to the local and state health department exactly how many people have been admitted and discharged by age group is not going to be our highest priority," he says. ■

# When being hit is 'just part of the job'

*HCWs often don't report violent assaults*

Health care workers rarely report workplace assaults, according to a review of two community hospitals and two nursing homes as part of a five-year study of health care workplace safety.

A series of focus groups with 50 nurses found that nurses are reluctant to report incidents that don't result in serious injury. This is especially true for physical assaults by patients, researchers found. When they did report incidents to their managers, the managers often discouraged them from taking further action and the events often weren't reported to employee health, the study found.

Nurses often are concerned about income loss and low reimbursement in workers' compensation, as well. But they also may view assaults by patients as simply "part of the job," especially if the patient is cognitively impaired, according to a summary of findings.

The five-year PHASE (Promoting Healthy and Safe Employment in Healthcare) study was conducted by researchers at the University of Massachusetts Lowell and sponsored by the National Institute for Occupational Safety and Health. In addition to focus groups, the study included surveys of workers, an analysis of U.S. Occupational Safety and Health Administration and workers' compensation injury reports, and interviews with managers and hospital leadership.

The study examined various types of injuries, including patient handling injuries, at two hospitals and two long-term care centers.

Concerns about reporting injuries were especially apparent in the handling of violent incidents. "We kept being told by managers, by workers, by supervisors that it's just part of the job," says principal investigator **Craig Slatin**, ScD, MPH, co-director of the Center for Public Health Research and Health Promotion at the University of Massachusetts Lowell. "'Of course, if you work with people who have Alzheimer's, they might flail and you're going to get hit."

That attitude prevents hospitals from taking measures that would improve safety and security and leaves nurses feeling that they are not supported, notes co-investigator **Lee Ann Hoff**, PhD, RN, a nurse anthropologist who specializes in crisis and violence issues. Hoff was team leader of the focus group research and analyzed almost 500 transcribed pages of remarks.

"The power of the nurses stories' speak for themselves," she says. "The nurses feel they get blamed for what happens to them."

For example, one nurse reported that her nurse manager would "rip up the incident reports" and verbally attack nurses for "trying to cause trouble." She would ask them, "Why are you making out these incident reports just because someone got punched in the face?"

## Nurses 'frequently' threatened, pinched

Nurses may not be reporting assaults to employee health, but other measures reveal the extent of the workplace violence problem.

On average, nurses suffer assaults 74% more often than all other occupations, and mental health workers experience more than four times as many assaults, according to the U.S. Department of Justice National Crime Victimization Survey.

About 30% of nurses reported being "regularly or frequently" physically threatened, pinched, scratched, spit on, or having their hand or wrist twisted in a 2004 survey of 172 Massachusetts nurses conducted by the Massachusetts Nurses Association (MNA) and the University of Massachusetts at Amherst. ("Regularly" was defined as nine or more times in the past two years; "frequently" referred to incidents that occurred four to eight times in the past two years.)

## Prevention Strategies for Employers

*The National Institute for Occupational Safety and Health (NIOSH) offers this advice for hospital employers to prevent violent incidents:*

To prevent violence in hospitals, employers should develop a safety and health program that includes management commitment, employee participation, hazard identification, safety and health training, and hazard prevention, control, and reporting. Employers should evaluate this program periodically. Although risk factors for violence are specific for each hospital and its work scenarios, employers can follow general prevention strategies:

**Environmental Designs**

- Develop emergency signaling, alarms, and monitoring systems.
- Install security devices such as metal detectors to prevent armed persons from entering the hospital.
- Install other security devices, such as cameras and good lighting, in hallways.
- Provide security escorts to the parking lots at night.
- Design waiting areas to accommodate and assist visitors and patients who may have a delay in service.
- Design the triage area and other public areas to minimize the risk of assault.
- Provide staff restrooms and emergency exits.
- Install enclosed nurses' stations.
- Install deep service counters or bullet-resistant and shatterproof glass enclosures in reception areas.
- Arrange furniture and other objects to minimize their use as weapons.

**Administrative Controls**

- Design staffing patterns to prevent personnel from working alone and to minimize patient waiting time.
- Restrict the movement of the public in hospitals by card-controlled access.
- Develop a system for alerting security personnel when violence is threatened.

**Behavior Modifications**

- Provide all workers with training in recognizing and managing assaults, resolving conflicts, and maintaining hazard awareness.

*Source:* NIOSH, Violence: Occupational hazards in hospitals, April 2002 (Publication No. 2002-101). Available at http://www.cdc.gov/niosh/2002-101.html.

Almost half the nurses in the survey said they had been punched at least once. Seven had been strangled in the past two years, eight were sexually assaulted, and two were intentionally stuck with a contaminated needle, the survey found. Patients committed the majority of violent acts.

Only 20% of the nurses said they felt their employers were very concerned about their health and safety, including the problem of workplace violence.

The MNA learned from Norfolk County (MA) District Attorney William R. Keating that by ignoring the smaller acts of violence, hospitals allow a climate that increases the risk of more serious incidents, says **Evelyn Bain**, MEd, RN, COHN-S, associate director/health and safety coordinator of the Massachusetts Nurses Association in Canton, MA.

"If you don't address the very basic and frequent levels of violence of any kind, then it tends to escalate to a greater degree of violence," she says.

Employee health professionals may not even be aware of violent events because they may be reported only to the frontline supervisor, says Bain. "Workplace violence is not necessarily [formally] reported until it gets to a level of major injury," she says.

### *Violence prevention policies lacking*

Most hospitals have a written policy on workplace violence. Unfortunately, many do not act on those policies.

For example, nurses said they found it difficult to report incidents when they faced time pressures and heavy workloads, a cumbersome reporting process, and unsupportive supervisors, Slatin says. Although facilities offered training on workplace violence at orientation and annual competency days, the training was often minimal, he says.

"Only one facility had a comprehensive violence prevention program in place," he says. "It

was primarily put in place to protect patients from being harmed by each other or by the workers."

The U.S. Bureau of Labor Statistics recently conducted a survey of employers related to their violence prevention programs. Almost all of the larger employers in health care and social assistance, which would include hospitals, had violence prevention policies.

But less than half of those employers had a method for identifying a history of violence among patients or visitors, the survey showed. Less than half of all health care and social assistance employers provided training on risk factors and strategies to reduce violence.

Sometimes a serious incident can lead to change at a hospital. One hospital included in the PHASE study had implemented tighter security in the emergency department after an incident in another part of the facility.

Employees received training on techniques to calm agitated patients and visitors and to prevent escalation of tense situations. Security was beefed up in the unit, and employees were able call for more security personnel.

"The emergency department staff was protected from the risk of being harmed from someone coming in who was deranged or very angry or on drugs," Slatin says. ■

# Raise alert for falls in winter weather

*Slips and falls are costly for hospitals*

One of the greatest hazards at your hospital may be the pathway from the parking lot to the front door.

Slips and falls are one of the costliest injuries for hospitals, and they're more likely to occur in the winter than any other time of year. Plows may keep your pavements and parking lots clear of snow, but just a trickle of water that re-freezes can create treacherous black ice.

Hospitals have gone beyond salt and snowplows to keep employees from falling during the winter.

Hamot Medical Center in Erie, PA, uses temperature-sensitive Ice Alert reflective signs. *(See editor's note for information about products to prevent winter slips and falls.)* If the temperature is more than 32 degrees, they are white. If it is less than 32, they turn blue. "It's just a reminder that it's possible it could be icy and slippery in the parking lot," says **Brian Hammer**, CHEM, manager of safety and regulatory compliance.

Stickers on the windows of the hospital's exits remind employees that "blue indicates freezing temperatures."The reminders are especially helpful in this city on a lake, where it can be sunny one minute and snowy the next. "We have continual weather changes through the day. Erie's slogan is, 'If you don't like the weather, wait 15 minutes, it will change,'" says **Beverly Smith,** RN, COHN, employee health nurse manager.

In addition to the signs, the hospital has launched an awareness campaign, with reminders in employee newsletters and information at the fall flu vaccine fair.

Facilities and maintenance workers have been encouraged to wear proper footwear that has a tread. A few years ago, a worker wearing shoes with no tread fell on a patch of ice that was covered by a thin dusting of snow; he was seriously injured and unable to return to work.

It's important for employees not to become complacent about the winter weather, Smith says. "We're trying to continually make sure people are aware," she says.

### Route to safe STEPS

In an awareness campaign at Western Pennsylvania Hospital in Pittsburgh, employees are asked to watch their STEPS. The Safe STEPS program urges them to: stay alert, take your time, evaluate your environment, proceed with caution, and have success in your travels.

A safety fair focused on slips and falls provided specific information geared toward the units that experience the most injuries of that type: engineering, environmental services, dietary, home care, and the operating room.

For example, dietary workers need to wear slip-resistant shoe covers. Engineering workers need to check for faulty ladders. Home health workers are especially at risk for falls in the wintry weather or tripping on cords in the patient's home.

Door prizes and refreshments enticed employees to participate in the fair and answer safety questions.

Employee health coordinator **MaryAnn Gruden**, MSN, CRNP, NP-C, COHN-S/CM, also has focused her accident investigation on slips and falls. When an injury is reported, she accompanies the employee to the site of the accident and looks for hazards that could be abated.

"Slips, trips, and falls can be so significant for the employee," she says. "We're hoping with the increased awareness we will see a decrease in [those injuries]."

*[Editor's note: More information about the IceAlert system is available at www.icealert.com or from IceAlert/Blue Star Inc., (800) 831-4551. Slip-resistant shoes are available from Shoes For Crews at www.shoesforcrews.com. YakTrax (www.yaktrax.com) are traction devices that can be placed on the outside of shoes.]* ■

# Study: Gaps persist in HBV immunizations

*HCWs need to remain vigilant*

About one in four health care workers who are offered the hepatitis B vaccine decline to take it, according to a study by the Centers for Disease Control and Prevention.[1] Although the occupational risk of acquiring hepatitis B has declined dramatically since the 1980s, health care workers still need to be vigilant about vaccination, says **Ian Williams**, PhD, MS, chief of the Epidemi-ologic Research and Field Investigations Team in the Division of Viral Hepatitis at the CDC.

A cross-sectional study of 300 U.S. hospitals found that 75% of health care workers offered the vaccine received it, says Williams. Yet there were differences based on demographics and job type. For example, among staff physicians and nurses the coverage rate was 81% — an indication that a significant number are declining the vaccine. Hepatitis B vaccination was even lower among phlebotomists and nurses' aides (71%).

"You'd think it should be 100% and it's not," says Williams. "We've come an incredibly long way, but we're still not at 100%. We should be."

In the 1980s, about 12,000 health care workers acquired hepatitis B each year from blood and body fluid exposures. Currently, CDC hepatitis experts estimate that there are fewer than 200 new cases among health care workers each year.

The incidence of new infections among health care workers is now lower than in the general population. Yet health care workers need to remain vigilant about protecting themselves, says Williams. "A lot of people have forgotten that hepatitis B was a substantial occupational risk," he says.

Hepatitis B is significantly more transmissible than HIV; the likelihood of acquiring HBV after an exposure ranges from 3% to 30%, depending on the source patient's e antigen status and viral load. The virus also can survive at least a week in dried blood and poses a danger from surface contamination.[2]

Vaccinating health care workers during their training, such as in nursing or medical school, is an effective way to ensure that they are protected, says Williams. About 90% of children and infants are vaccinated against hepatitis B, and that cohort will be protected when they become adults, he notes.

Although HBV titers decline over time, "cellular memory" provides long-lasting protection of at least 20 years. "It doesn't look like booster doses are necessary at this point, but it's certainly something we're looking at very carefully," he says.

The CDC recommends testing health care workers for antibody status within one to two months after completing a three-dose series of HBV vaccine. A small portion — 5% or 10% — will not respond and will need a second three-dose series. Anyone who tests negative after the second series is considered a non-responder to the vaccine.

Newly identified non-responders should be tested for chronic HBV infection, the CDC recommends. Following an exposure, they should receive two doses of hepatitis B immune globulin. (If the health care worker had received only one series of the HBV vaccine, they should receive one dose of immune globulin and be revaccinated.)[3] "The major determinant of the effectiveness of PEP is early administration of the initial dose of vaccine," the CDC says.[4]

In its most recent guidance, issued Dec. 8, 2006, the CDC also raises the issue of intradermal vaccination of non-responders: "Intradermal vaccination has been reported to be immunogenic in persons who did not respond to intramuscular vaccination; however, intradermal vaccination is not a route of administration indicated in the manufacturers' package labeling."

In its latest guidance, the CDC says that occupational health programs should:

- identify all staff whose work-related activities involve exposure to blood or other potentially infectious body fluids in a health care,

laboratory, public safety, or institutional setting (including employees, students, contractors, attending clinicians, emergency medical technicians, paramedics, and volunteers);

• provide education to staff to encourage vaccination;

• implement active follow-up, with reminders to track completion of the vaccine series among persons receiving vaccination; and

• provide appropriate post-vaccination testing.

### References


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# Flu campaign goes beyond the mandate

*Virginia Mason uses incentives, options*

Almost everyone gets the flu shot at Virginia Mason Medical Center in Seattle. It isn't an option. It's a condition of employment.

But the hospital still works hard to spice up its annual flu vaccine campaign with other options, incentives, education, and innovative approaches. There's more to the mandatory vaccine than the mandate.

"You have to continuously educate and promote [the vaccine] and work with staff," says **Beverly Hagar,** BSN, COHN-S, employee health manager. "It's definitely a year-long campaign."

The Virginia Mason flu team includes representatives from employee health, human resources, inpatient nursing, pharmacy, asthma and allergy, infectious disease, and communications, as well as legal and other management staff.

## CNE *questions*

5. According to David Naylor, vice president of sales for Aramsco Inc., which of the following contributes to hospital problems with maintaining N95 supply?

A. Confusion over brands
B. Fit-testing requirements
C. Hospital stockpiling
D. Just-in-time delivery

6. According to the Center for Biosecurity at the University of Pittsburgh Medical Center, how much would it cost an average-sized hospital of 164 beds to prepare for a pandemic?

A. $100,000
B. $500,000
C. $1 million
D. $2 million

7. According to a five-year study by the University of Massachusetts Lowell, why do nurses say they don't often report assaults by patients?

A. They accept a level of violence as part of their job.
B. They are afraid of retaliation.
C. They don't know how to report.
D. They rarely are assaulted by patients.

8. What percentage of health care workers receive the hepatitis B vaccine, according to a study by the Centers for Disease Control and Prevention?

A. 75%
B. 80%
C. 90%
D. 95%

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

## CNE instructions

Nurses participate in this continuing education program by reading the issue, using the provided references for further research, and studying the questions at the end of the issue. Participants should select what they believe to be the correct answers, then refer to the list of correct answers to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing this semester's activity with the **June** issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided to receive a credit letter. ■

The campaign slogan, "Save Lives, Immunize," was chosen from employee suggestions as part of a promotional campaign in 2005. This year, employees received a lanyard with the slogan when they got their flu shot.

The flu vaccine "kick-off" began with a tailgate party featuring football players and cheerleaders from the Seattle Seahawks. In a room adorned with Seahawk posters and paraphernalia, the football players were among the first to get their vaccine — followed by about 750 employees.

Nurses wore Seahawks jerseys as they vaccinated employees at six stations, and the party atmosphere included music, hotdogs and chips, and prizes.

The hospital then launched its "Double Shot" promotion. Hospitals (and patients) could get their flu shots from drive-through stations. As a bonus, they also received a shot of espresso.

Within a month, the hospital had already vaccinated 78% of its employees.

### *Moving beyond the controversy*

The mandatory flu vaccine policy has brought both acclaim and controversy to Virginia Mason.

The Washington State Nurses Association argued that the policy violated nurses' rights to bargain over their working conditions. A U.S. district court judge agreed, and the vaccine is optional for those inpatient unionized nurses.

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However, last fall, an administrative law judge ruled that the hospital could require nurses to wear masks in patient care areas for infection control during the influenza season.

"We take an oath: 'First, do no harm,'" says **Greg Poland**, MD, a flu vaccine expert and director of the Mayo Vaccine Research Group at the Mayo Medical School of the Mayo Clinic and Foundation, who has been outspoken in favor of mandatory vaccination of health care workers. "This is a patient safety issue."

In this flu vaccine campaign, Virginia Mason employees were required to receive their flu vaccine by Dec. 13 or begin wearing masks and face possible termination. Those with documented medical contraindications such as allergies or religious objections must wear masks during the flu season and may be asked to take antiviral medications during a flu outbreak. Nurses who choose not to receive the vaccine also must wear masks.

Virginia Mason vaccinated 98% of its employees in the 2005-2006 flu season — 4,504 of 4,588 employees. Most nurses received the vaccine despite the dispute: 515 of 599, or 86%, were immunized. Thirty-one employees received an accommodation and seven were terminated.

In the 2006-2007 flu season, more than 98% have been vaccinated. "The organization has reached a 100% fitness for duty, combining influenza immunization and masking," says spokeswoman **Kim Davis**. Before establishing the mandatory policy, the hospital's highest rate of vaccination was 55%.

"As an organization, we're proud that we were the first to implement this," says Hagar. "It wasn't easy to implement. We had to face a lot of hurdles. We definitely had administrative support, and they were forward-thinking in moving on this initiative."

### *Coping with logistic challenges*

The logistics of vaccinating some 5,000 employees within six weeks is daunting for the employee health staff of two full-time nurses and

## COMING IN FUTURE MONTHS

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- Building awareness of hand hygiene
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an administrative assistant. They received support from light-duty nurses and flu "champions" on units. In a "peer vaccination" program, nurses who received training from employee health provided vaccinations to their co-workers in their units.

Every shot administered at the hospital generated two copies of documentation — one for the employee to keep and one to be entered into the Oracle database.

Physicians were required to receive vaccines as a condition of their credentialing, and vendors had to demonstrate proof of vaccination to receive a badge allowing them on campus. Volunteers, students, and contracted service workers, such as the housekeeping staff, were also required to receive the vaccine.

In 2005, the hospital conducted educational forums and answered staff questions. Poland spoke to physicians at grand rounds.

Education has been a key part of the program to combat common myths about the vaccine. In the first year of implementation, as part of an education blitz, employees could answer flu quiz questions to enter a drawing for prizes. Meanwhile, those who delayed getting their flu shot were required to view a computer training module.

This year, educational materials remain on the hospital's web site, and new employees are informed of the policy and its purpose. "It's becoming part of the hospital culture," says Hagar. "It flows right into our culture of safety." ■

## CNE objectives

After reading each issue of *Hospital Employee Health*, the nurse will be able to do the following:

- **identify** particular clinical, administrative, or regulatory issues related to the care of hospital employees;
- **describe** how those issues affect health care workers, hospitals, or the health care industry in general;
- **cite** practical solutions to problems associated with the issue, based on overall expert guidelines from the Centers for Disease Control and Prevention, the National Institute for Occupational Safety and Health, the U.S. Occupational Safety and Health Administration, or other authorities, or based on independent recommendations from clinicians at individual institutions. ■