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JCAHO Update for Infection Control



CDC: Use of N95 respirators during pandemics is 'prudent' for HCWs

But isolation rooms aren't necessary

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Consider this scenario: Pandemic influenza has emerged in the community, there's no vaccine, and antivirals are in short supply. Your stockpile of N95 respirators needs to last as long as possible, because getting a new shipment may be difficult. What do you do?

In its revised guidance on the use of surgical masks and respirators during a pandemic, the Centers for Disease Control and Prevention (CDC) now advises that it is "prudent" for health care workers to use N95 respirators during "direct-care activities involving patients with confirmed or suspected pandemic influenza." It wants health care facilities to plan now to prioritize respirator use.

"Because the interventions available during seasonal influenza are absent during a pandemic, we're calling for this higher level of precautions," says **Max Kiefer**, MS, CIH, associate director for emergency preparedness with the National Institute for Occupational Safety and Health, which is part of the CDC.

However, the CDC doesn't recommend full airborne precautions with influenza. Isolation rooms are not required for routine patient care, but should be used "when performing high-risk aerosol-generating procedures," the guidance states.

"Strategically, [this] uncouples the use of N95 respirators with having to use a negative pressure room," says **Deborah Levy**, PhD, MPH, senior advisor for health care preparedness at the CDC in the Division of Healthcare Quality Promotion.

The CDC also recommends the use of other measures to limit staff exposed to influenza, such as segregating patients in a particular ward and designating certain entrances and passageways for influenza patients. Receptionists could be protected by a transparent barrier, notes Kiefer.

With this new guidance, the CDC acknowledges short-range airborne transmission of influenza. **(See related article on p. 134.)**

"With influenza, particularly in the near-range transmission, it's

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epidemiologically indistinguishable whether [transmission] is droplet or aerosol. The relative contributions of the different modalities are uncertain," says Kiefer.

The question of whether to use surgical masks or respirators with pandemic influenza created controversy and potential confusion. While the Department of Health and Human Services guidance previously called for surgical masks to protect against infectious droplets, some states, such as California and Minnesota, stated that respirators should be used. (See related article in *Hospital Employee Health*, November 2006, p. 121.)

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Editorial Questions

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"The lack of scientific consensus has led to conflicting recommendations by public health partners," the CDC guidance states. "Moreover, a large amount of incorrect, incomplete, and confusing information about surgical mask and respirator use has been disseminated on the Internet and by other popular media."

In their pandemic planning, hospitals should

How to use N95 respirators safely

In its *Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings During an Influenza Pandemic*, the Centers for Disease Control and Prevention advises health care workers to be medically cleared, trained, and fit-tested to use N95 filtering-facepiece respirators. They also should take steps to avoid contamination during respirator use:

- Surgical mask or respirator use should not take the place of preventive interventions, such as respiratory etiquette and hand hygiene.
- To offer protection, surgical masks and respirators must be worn correctly and consistently throughout the time they are used.
- Wearing a surgical mask or respirator incorrectly, or removing or disposing of it improperly, could allow contamination of the hands or mucous membranes of the wearer or others, possibly resulting in disease transmission.

Proper surgical mask or respirator use and removal includes the following:

- Prior to putting on a respirator or surgical mask, wash hands thoroughly with soap and water or use an alcohol-based hand sanitizer to reduce the possibility of inadvertent contact between contaminated hands and mucous membranes.
- If worn in the presence of infectious persons, a respirator or surgical mask may become contaminated with infectious material; therefore, avoid touching the outside of the device to help prevent contamination of hands.
- Once worn in the presence of a patient with pandemic influenza, the surgical mask or disposable N95 respirator should be removed and appropriately discarded.
- After the surgical mask or respirator has been removed and discarded, wash hands thoroughly with soap and water or use an alcohol-based hand sanitizer.
- Further information can be found at www.cdc.gov/ncidod/sars/respirators.htm and www.cdc.gov/niosh/npptl/topics/respirators/factsheets/respsars.html#F. ■

provide education to health care workers about when and if they will need to wear the respirators, says Levy. Widespread use of respirators among employees who have no direct contact with influenza patients may lead to a shortage — and those who need it most won't have the protection, she says.

Hospitals can include priorities for respirator use in their pandemic plans, but they will need to be flexible, she says. "Until the pandemic arrives, you really don't know what it's going to be like."

(Editor's note: The CDC's Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings is available at www.pandemicflu.gov/plan/maskguidancehc.html#recom.) ■

Study shows surgical masks aren't protection

IH tenets upheld in N95, influenza research

Surgical masks provide virtually no protection against inhalation of airborne particles. Influenza involves airborne transmission as well as other forms of transmission.

Those are strong assertions that industrial hygienists have been making for many years, in support of more rigorous respiratory protection for health care workers. Now they can point to two new scientific studies that back them up.

In a study of elastomeric and N95 filtering-facepiece respirators and surgical masks, the surgical masks fared poorly, according to scientists with the National Institute for Occupational Safety and Health (NIOSH). The wearer would breathe in 53% of contaminated air, the researchers found.¹ An N95 is designed to filter 90% of any air contaminant.

"Surgical masks don't provide much protection at all," says lead author **Brent Lawrence**, MS, an engineering technician at NIOSH in Morgantown, WV. "They don't have good fitting characteristics because they weren't designed to protect the wearer."

Elastomeric masks performed better than the N95 filtering-facepiece masks, but both were improved by fit-testing, the authors found.

Lawrence and his NIOSH colleagues tested 15 elastomeric N95 respirators, 15 N95 filtering-facepiece respirators, and six surgical masks. They found significant variation in the fit characteristics

of the respirators and their performance with fit-testing.

When tested without fit-testing, only two of the N95 filtering-facepiece respirators typically used in hospitals had good inherent fit characteristics. Seven of the elastomeric respirators had good fit characteristics, while none of the surgical masks did.

The respirators varied widely in their fit-testing performance as well. Six of the N95 filtering-facepiece respirators failed to adequately fit anyone in the 25-person panel with at least one fit-test method. One filtering facepiece respirator, the MSA FR200 Affinity, failed all fit-tests. All of the elastomeric respirators had at least some successful fit-tests.

"From this study and previous studies we've done, [we found that] not all respirators are created equal. Fit-testing is an important component of protection," says **Chris Coffey**, PhD, chief of the laboratory research branch.

In the hospital setting, that could translate into a lot of frustration over fit-testing. In fact, the authors suggest that employers might find more success with quantitative fit-testing because more respirators failed the qualitative fit-tests.

"Instead of doing one quantitative test, you're doing two or three qualitative tests," says Coffey. "You're rejecting good-fitting respirators [because of fit-test errors]."

NIOSH is developing minimum criteria for the fit characteristics of filtering-facepiece respirators, called Total Inward Leakage. That would lead to less variation in respirator performance, Coffey says.

Other findings may reflect on respirator purchasing decisions. The elastomeric respirators had adjustable head straps, while some N95 filtering-facepiece respirators had only elastic, nonadjustable straps. "Adjustable straps may allow a more customized seal (i.e., having one strap tighter than the other strap) resulting in greater protection," the authors said.

Flu particles travel by air

Meanwhile, in a review of literature, **Raymond Tellier**, MD, MSc, FRCPC, CSPQ, a medical microbiologist at the Hospital for Sick Children in Toronto and associate professor at the University of Toronto, argues that there is plenty of evidence of airborne transmission of influenza — which would indicate the need for respiratory protection against pandemic influenza. The Centers for

If you had to, could you safely reuse N95s?

NIOSH seeks data with new respirator studies

What would you do if you run out of N95 filtering-facepiece respirators during a pandemic? So far, experts are advising against reusing the respirators — unless your alternative is to be unprotected.

But with a new study on respirator decontamination, the National Institute for Occupational Safety and Health (NIOSH) hopes to provide some better guidance. “We felt that there was an information gap,” says **Les Boord**, director of the NIOSH National Personal Protective Technology Laboratory in Pittsburgh.

NIOSH will study the survivability of the influenza virus on a respirator surface and products or prototypes of respirators that incorporate

antiviral technologies.

Meanwhile, NIOSH is studying other issues that may arise during a pandemic. For example, is it feasible to wear a surgical mask on top of a respirator to protect it from contamination? What is the physiological impact?

“When you put another device, such as a surgical mask on top of that, what does that do to the breathing resistance [within the respirator] and the carbon dioxide in the breathing zone?” says Boord. “It may be that the end result is an increased breathing resistance. Whether it’s significant or not, we don’t know.”

NIOSH also will look for evidence on the optimal period between fit-tests. Currently, the respiratory protection standard of the U.S. Occupational Safety and Health Administration requires annual fit-testing for the N95 filtering-facepiece respirators.

Researchers will examine databases to see how many users needed to change respirators within a year of their prior fit-test, Boord says. ■

Disease Control and Prevention has recommended droplet and contact precautions against pandemic influenza — although that guidance is being revised. (See *Hospital Employee Health*, November 2006, p. 124.)

Tellier notes that coughing and sneezing increase the number of particles that behave as aerosols, and that both animal and human experiments have demonstrated the infectivity of aerosolized influenza.

He also cites a study during the 1957-58 flu pandemic of a tuberculosis ward with ceiling-mounted UV lights meant to kill viruses in the upper air of the room and tuberculosis units without the lights. Although the same personnel treated the two groups of patients, and 18% of those health care workers contracted pandemic influenza, only 2% of the patients in the UV-irradiated rooms became infected with influenza. UV irradiation is not effective in inactivating viruses in fomites or droplet, he notes.²

“Despite extensive searches, I have not found a study that proves the notion that large-droplet transmission is predominant and that aerosol transmission is negligible (or nonexistent),” Tellier wrote.

While infection control practitioners argue that surgical masks have effectively stopped nosocomial influenza outbreaks, Tellier asserts that the evidence is actually “inconclusive.” Lacking careful lab work, cases of influenza-like illness may be incorrectly attributed to influenza, and asymptomatic infections among health care

workers are not counted. Immunity and vaccination also may have played a role, he says.

“Given the strong evidence for aerosol transmission of influenza viruses, in general, and the high lethality of the current strains of avian influenza A [H5N1], recommending the use of N95 respirators, not surgical masks, as part of the protective equipment seems rational,” he concludes.

The CDC acknowledged that conclusion by changing its pandemic influenza guidance on respirator use. (See related article on p. 134.) In that document, it states: “In contrast to tuberculosis, measles, and varicella, the pattern of disease spread for seasonal influenza does not suggest transmission across long distances (e.g., through ventilation systems); therefore, negative-pressure rooms are not needed for patients with seasonal influenza. However, localized airborne transmission may occur over short distances (i.e., 3 to 6 feet) via droplet nuclei or particles that are small enough to be inhaled. The relative contribution of short-range airborne transmission to influenza outbreaks is unknown.”

IH position ‘vindicated’

The two papers were welcomed by those who have pressed for adequate respiratory protection for health care workers, particularly in pandemic influenza planning.

“I’m very pleased to see that a lot of these issues are coming to the fore,” says **Gabor Lantos, MD, PEng, MBA**, president of Occupational Health

Management Services in Toronto. "It's been very political."

Lantos notes that surgical masks are not respiratory protection — even if they provide partial protection. "The epidemiology [infection control practitioners] keep quoting is based on the existing influenza strains, against which most everybody has partial immunity," he says.

Bill Borwegen, MPH, occupational safety and health director for Service Employees International Union (SEIU), says health care worker advocates feel vindicated in their insistence on better protection against infectious aerosols.

"We never understood how you could justify the use of a loose-fitting surgical mask to protect people from any kind of airborne biological agent," he says. "We know from the science that there's no such thing as a pure droplet spread."

The United States should now move forward to significantly increase its stockpile of N95 respirators, he says. "This is going to be the first line of protection and this is the weakest leg of a three-legged stool, [which includes antiviral medications and vaccines]," he says.

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Can you trust the TB blood test? Questions linger

Hospitals slow to warn to switch

After years of struggling with the vagaries of the tuberculosis skin test, you might think that hospitals would embrace a new technology. But the blood test has been slow to catch on.

Cost and laboratory barriers likely will be resolved as new versions of the test obtain wider distribution. But TB experts want to know: Would you put more faith in this test than the skin test to detect seroconversions without producing false-positives?

A study is under way that may provide the convincing evidence to increase use of the TB blood

test. The Tuberculosis Epidemiologic Studies Consortium will compare two new blood tests with the skin test as tools for detecting seroconversions in health care workers. More than 3,000 health care workers will be enrolled at the Texas Department of Health, Columbia University, the Maryland Department of Health and Mental Hygiene, and the Denver Health and Hospitals Authority.

There still are many lingering questions about the blood tests and the transition from skin tests to blood tests, notes **Charles Daley**, MD, principal investigator and chief of the Division of Mycobacterial and Respiratory Infections at the National Jewish Medical and Research Center in Denver.

"This [blood] test is better than the skin test," says Daley. "When it finally gets out there, we want people to trust it. The problem with the skin test is that no one trusted it."

In fact, questions about the skin test create potential problems for the blood test. Should you retest health care workers who tested positive with the skin test in past years? How do you respond to a previous positive that now is negative? Will health care workers who have received treatment for latent tuberculosis infection become negative on a blood test?

"This is going to create a lot of controversy at every facility about how they're going to do this [transition]," says Daley. "If you decide to retest everyone with this blood test, it's going to cost money. Most places are just going to switch over [without retesting]."

New tests emerge

The study will focus on two new blood tests that are expected to be approved in the United States in 2007. FDA approval is pending on the QuantiFERON-TB Gold In-Tube, a new version of the blood test manufactured by Cellestis Ltd., of Carnegie, Australia. The blood is collected in tubes containing the antigens (as well as positive and negative control tubes).

It uses three antigens instead of two, which may improve its specificity, and after incubation, it is stable and can be refrigerated for up to 28 days, according to company information (www.cellestis.com). With the current QuantiFERON-TB Gold test, samples must be processed within 12 hours of collection, which causes logistical issues for some hospitals and laboratories.

The T-Spot TB test, produced by Oxford Immunotec, of Oxford, UK, is touted for its sensitivity and

is able to “identify a single effector T cell when it is activated by *M. tuberculosis* antigens,” according to the company literature (www.oxfordimmunotec.com/products_services/tspottb.html). That could be a benefit when testing immunosuppressed patients. The blood samples must be processed within eight hours of collection.

Both tests detect the production of interferon gamma in response to *Mycobacterium tuberculosis* antigens. The QuantiFERON test measures the

Should You Use QuantiFERON-TB Gold?

What are the advantages?

- Requires a single patient visit to draw a blood sample.
- Results can be available within 24 hours.
- Does not boost responses measured by subsequent tests, which can happen with tuberculin skin tests (TST).
- Is not subject to reader bias that can occur with TST.
- Is not affected by prior BCG (bacille Calmette-Guérin) vaccination.

What are the disadvantages and limitations?

- Blood samples must be processed within 12 hours after collection while white blood cells are still viable.
- There are limited data on the use of QFT-G in children younger than 17 years of age, among persons recently exposed to *M. tuberculosis*, and in immunocompromised persons (e.g., impaired immune function caused by HIV infection or AIDS, current treatment with immunosuppressive drugs, selected hematological disorders, specific malignancies, diabetes, silicosis, or chronic renal failure).
- Errors in collecting or transporting blood specimens or in running and interpreting the assay can decrease the accuracy of QFT-G.
- Limited data on the use of QFT-G to determine who is at risk for developing TB disease.

When should you use the test?

- QFT-G can be used in all circumstances in which the tuberculin skin test (TST) is currently used, including contact investigations, evaluation of recent immigrants who have had BCG vaccination, and TB screening of health care workers and others undergoing serial evaluation for *M. tuberculosis*. However, caution should be used when testing certain populations because of limited data on the use of QFT-G.

Source: Centers for Disease Control and Prevention, Division of Tuberculosis Elimination, Atlanta.

interferon gamma directly, while the T-Spot measures the interferon-producing T cells. Unlike the skin test, the reaction is not affected by the presence of non-TB mycobacterium or BCG vaccination.

As the blood tests begin to replace the skin tests, health care facilities will have questions about how to interpret the results, says Daley. For example, treatment for latent tuberculosis infection may cause health care workers to shift to a negative blood test result. The blood test will need clear definitions — for example, how much change in interferon represents a positive?

“We’re going to look at the variation in results over time, with the goal of defining a conversion cut point and to see how many people might go from a positive result to a negative result,” he says. “We’ll also be able to compare these two tests head to head and see which one performs better.”

Researchers also will evaluate the issue of indeterminate test results. A study conducted in U.S. Navy recruits resulted in a level of indeterminate QFT-G results of about 2%, but among immunosuppressed populations, the rates may be as high as 13% to 20%, according to the CDC. Cellestis recommended using lithium heparin tubes rather than sodium heparin tubes to address the problem, the CDC reported.

“If you test HIV-infected people, you would expect to have a greater number of people who are indeterminate, although that has not been proven,” says **Gerald Mazurek**, MD, medical officer with the CDC’s Division of TB Elimination. “There have not been many studies done in HIV-infected people.”

The CDC also noted that there have been two reports of expectedly high positive results with the QuantiFERON test. Using both the skin test and blood test could help facilities compare the information they receive, he notes.

By comparing the tests, the consortium’s study will shed light on important questions, notes Mazurek: “What percentage of people have discordant results between TST [tuberculin skin test], QuantiFERON, and Elispot [T-Spot]? What factors are associated with discordance with various tests?”

Many hospitals have taken a wait-and-see approach as the newer blood tests evolve. But some have begun incorporating the tests into their screening program.

For example, the San Francisco TB control program has been using the QuantiFERON-TB Gold test for about two years. A more accurate test means fewer unneeded diagnostic X-rays or unnecessary treatment for latent tuberculosis infection, says director **Masae Kawamura**, MD.

About two-thirds of her health care workers are foreign-born, and many of them have already tested positive to the skin test. They have an option of being retested with the blood test, says Kawamura. Some who previously were positive with the skin test have tested negative, she says.

"The results are different [than with the skin test], and that's what makes everyone feel uncomfortable," she says. "This tells me how wrong we've been with the skin test all along. In fact, the blood test may turn out to be a much better surveillance tool in the end."

The TB program uses the blood test with its high-risk patient population because it can be accomplished in one visit. Blood test results also are objective measures that can be compared from one facility to another, whereas the measurement of a skin test may depend on the test reader's training and ability, Kawamura notes.

"As a busy health care worker, would you prefer to get a one-time blood test or to have to go back twice to place and to read, and knowing it is less accurate? I would prefer the blood test," she says.

Kawamura says she would like to see more health care facilities switching to the blood test. "I think we are our own worst enemy in public health," she says. "Now that we have this new technology, we're holding on to this [old] technology we know so well. We need to embrace the new technology, study it, and operationalize it. We've needed a more accurate test all this time."

Hospitals find partial uses

The transition to the blood test has been gradual. At Tampa (FL) General Hospital, for example, employees who have received the BCG vaccine or who test positive after an exposure or in an annual screen will be retested with the blood test, says **JoAnn Shea**, MSN, ARNP, director of employee health and wellness.

The hospital also may use the blood test in pre-placement exams, she says. In fact, the training that the Centers for Disease Control and Prevention recommends as a "model" for skin test placers and readers would be time-consuming and costly — and adds to the appeal of the blood test, she says. "I think down the road we will use it more and more," she says.

The National Jewish Medical and Research Center also is converting its screening program to the blood test, says Daley. Non-BCG-vaccinated health care workers who have documented positive skin tests don't need to be tested again, he

says, but the hospital may retest those who have a history of BCG vaccine.

Daley cautions against combining the use of the two tests by using the blood test instead of a two-step baseline but then switching to annual screening with a skin test. "I don't think you can flip back and forth between these tests," he says. "They measure different things. They're not equivalent."

Meanwhile, he predicts that health care workers will request the blood test as it becomes available. "They hated the skin test. They didn't trust it," he says. "They just never believed the results. If they think there's a better test, they'll probably go with a better test." ■

State licensing rules call for safe lifts

States put teeth into safe lift laws

As safe patient handling laws gain ground in state legislatures, reducing injuries is becoming the mandate of a new enforcement power: the state licensing division.

"If there ever was a question about the importance of this particular law, there isn't any more," says **Elizabeth Sjoberg**, RN, JD, associate general counsel for the Texas Hospital Association in Austin, where the state legislature passed a safe patient handling law in 2005. It became effective Jan. 1, 2006.

Texas was the first state to require hospitals to create a safe patient handling program. Although the law doesn't require the use of equipment, hospitals have been purchasing equipment as part of their programs, she says.

Meanwhile, to keep pace with the law, the Texas Department of State Health Services has created a new licensing rule that requires hospitals to implement and enforce their safe patient handling policies.

"They want to be sure that any type of policy that hospitals develop is implemented and enforced," says Sjoberg. "It does add great strength to the law that was passed [almost] two years ago."

Washington and Rhode Island also have passed safe patient handling laws that incorporate the requirements in state licensing rules. "It becomes part of the standard of practice, just like anything else," says **Brenda Suiter**, MHA, director of rural

and public health for the Washington State Hospital Association. "It's just part of how care is provided in the facility."

Meanwhile, health care worker advocates are pressing for a national law. U.S. Rep. John Conyers (D-MI) introduced a safe patient handling bill in the late fall. No action was taken on it before Congress recessed for the November elections.

"Health care workers have more [work-related musculoskeletal disorder] injuries than anybody else in the country," says **Anne Hudson**, RN, an injured nurse from Coos Bay, OR, who formed the Work Injured Nurses' Group (WING USA) to advocate for injured nurses and support safe patient handling efforts. "There has to be a more direct and forceful effort to stop all these injuries."

TX nurses work with rural hospitals

Safe patient handling is better for patients, saves hospitals money, and is needed to preserve the nursing work force. That is the compelling argument used in states that have passed the legislation. Existing laws also avoid mandating a "no-lift" environment or the use of lift teams. (Legislation requiring "zero-lift" policies in California has been vetoed three times by Gov. Arnold Schwarzenegger, who called it "a rigid, one-size-fits-all mandate.")

In successful states, the hospital association and unions have worked together to create acceptable language. The Texas law, for example, was not proscriptive, but it established a framework and expectation, says **Claire Jordan**, RN, MSN, executive director of the Texas Nurses Association in Austin.

"While it doesn't mandate, it certainly gives [hospitals] the guidelines of what they need to have in place to be in line with their peers," she says.

For example, the Texas law requires hospitals have a safe patient handling policy that includes "an evaluation of alternative ways to reduce risks associated with patient handling, including evaluation of equipment and the environment," and a "restriction, to the extent feasible with existing equipment and aids, of manual patient handling or movement of all or most of a patient's weight to emergency, life-threatening, or otherwise exceptional circumstances." (See *Hospital Employee Health*, October 2005, p. 127.)

TNA has adapted a safe patient handling curriculum and provided it to the state's 90 nursing schools. The group also designates hospitals as "nurse-friendly" if they meet 12 requirements, including having a safe patient handling program

with lift equipment. TNA worked with 20 rural hospitals to help them attain that designation.

WA hospitals get tax credits

Washington state included a unique enticement in its law, which set aside \$10 million for hospitals to obtain tax credits for buying patient lift and transfer equipment.

The law requires hospitals to have a minimal level of lift equipment, and provides a tax credit of up to \$1,000 for every available inpatient bed, explains Suiter.

Hospitals that already had a zero-lift policy were able to take advantage of the tax credits immediately, she says.

Yet even hospitals with safe patient handling programs may need to make changes to comply with the law. By Feb. 1, 2007, they must have a safe patient handling committee that includes nonmanagerial, direct-care employees.

"Most hospitals were already working to decrease employee injuries before the law was implemented," Suiter says. "They know the importance of a healthy work force."

But for those hospitals in which safety officers and employee health professionals struggled for administrative support, the law gives safe patient handling a higher profile. "This has provided a lot more attention and resources so they're able to more effectively do their jobs," says Suiter.

Goal is a national law

Health care worker advocates seek additional safe patient handling laws in other states. But ultimately, they hope the state actions will lead to a federal law or standard, as with the Needlestick Safety and Prevention Act.

The Nurse and Patient Safety and Protection Act, introduced in Congress, would direct the U.S. Occupational Safety and Health Administration (OSHA) to create a "federal safe patient handling standard." It would require hospitals to "purchase, use, and maintain safe lift mechanical devices" and to "report, track, and analyze trends in injuries, as well as make injury data available to the public."

It also would require OSHA to conduct "unscheduled audits" to ensure compliance with the law.

Because it was introduced late in the congressional session, the prospects for this bill were unclear. But the steady movement toward tougher state standards makes national action more likely,

health care worker advocates say.

"We are moving toward a national, no-manual lift [policy] for health care," says Hudson. "We have to. The evidence is piled high in favor of safe patient handling through use of lift equipment." ■

Seeking safety from patient assaults

NY law targets public employers

Hospitals take precautions to prevent the spread of infections from patients to health care workers. But what about when the danger is physical — and the health care worker is at risk of assault?

"Everybody's facing this challenge of how to keep their staff safe," says **Jane Lipscomb**, RN, PhD, FAAN, professor at the University of Maryland Department of Family and Community Health Nursing. "We need to have a mentality of universal precautions [against workplace violence]."

Lipscomb has consulted with state agencies to implement the violence prevention guidelines of the U.S. Occupational Safety and Health Administration. (See editor's note for more information.) She sees particular concerns when units are short-staffed and are likely to encounter unstable patients, such as the mentally ill or drug- or alcohol-addicted.

The New York State Violence Prevention Act, which became effective in October, provides a framework for implementing a program, she says. It applies not only to public workplaces, but covers many public hospitals and nursing homes in the state. It requires employers to evaluate the workplace for risks, develop and implement a written workplace violence prevention program, and provide training to employees.

"The bill is probably the most sweeping antiviolence workplace bill in the country," says **Jonathan Rosen**, MS, CIH, director of the occupational safety and health department at the New York State Public Employees Federation in New York City. "It covers just about every type of public-sector workplace."

Health care workers in mental health facilities face the greatest risk of assault, says Rosen. But emergency department staff also suffer from assaults. In 2004, more than 6,700 hospital workers suffered lost-work-time injuries because of assaults, according to statistics compiled by the Bureau of Labor Statistics.

"The culture is that it's part of the job," says Rosen. "[Workers feel that] you should expect it if you work in a hospital emergency room or in a psychiatric hospital or with the mentally retarded. [They should be educated] that no one should be assaulted, yelled at, threatened, kicked, spit on. That's not part of anyone's job."

Begin with risk analysis

As with other safety and health measures, an effective violence prevention program begins with visible commitment from management, says Lipscomb.

When she works with hospitals, she begins by involving frontline staff as well as managers in a worksite risk analysis. She asks about incidents of physical and verbal abuse, what measures have been taken, and what employees and managers believe can be done to reduce the risk.

"One of the strongest predictors of whether or not someone was assaulted was how they rated the management commitment to safety," she says. "Those staff that work in clinical settings where they feel their management is committed to safety generally fare better."

While security experts can offer guidance on building design and other measures, the employees often have a keen understanding of the hazards, she says.

For example, the hospital should have a clear policy regarding the transfer of patients from police custody to emergency room care, says Rosen. They also may want to tackle the difficult problem of patients who are responsible for repeat assaults, he says.

"We've got to experiment with ways of stopping that cycle of harm," he says.

Preventing violence also may require a close look at the cause of increased tension and anxiety among some patients. For example, a staff shortage not only affects the delivery of care, but also may leave workers alone to handle difficult patients, Lipscomb says.

"If there are units that are very poorly run, you might have patients who are not normally moved to violence or assault but can be aggravated," she says.

Training is an essential component of an effective violence prevention program, she says. That includes information on how to communicate concerns about patients and the importance of reporting threats as well as assaults, she says.

Finally, it's important to continually evaluate

your violence prevention efforts, she says.

Ultimately, a good violence prevention program benefits patients as well as staff, says Lipscomb. "If you make a work environment safe for staff, you inevitably improve the environment for the client."

(Editor's note: OSHA's Guidelines for Preventing Workplace Violence for Health Care & Social Service Workers is available at www.osha.gov/Publications/OSHA3148/osha3148.html.) ■

Matching the job to the worker cuts injuries

Hospital uses functional assessment device

The first steps to prevent injury at Mercy Medical Center-North Iowa in Mason City occur even before an employee begins his or her job.

The hospital conducts a pre-employment functional assessment with an isokinetic machine — a device that measures muscle strength and endurance. As the potential employees press or pull against a bar, using their arms, legs, or trunk, the device varies the resistance to match the person's output.

The result is an objective way to determine a person's physical capabilities, says **Steve Crane**, PT, physical therapy manager. "It measures through the whole range of motion of the body. You can either perform the functions or you can't," he says. "It will demonstrate clearly what a person's output is."

Mercy Medical Center uses many measures to prevent employee injury, including lift equipment. An in-house ergonomist meets with all new hires to help them set up their work stations or to discuss their job's physical demands and ways to reduce hazards.

The functional assessment is one other important piece, says employee health nurse **Jean Wolterman**, RN, BSN, MA. "The goal is to be able to better match the right person to the job so they're not injured," she says.

The hospital identified 44 job positions that are considered physically demanding, including food service and nursing. "We've targeted principally the areas of highest risk," says Crane.

Each job has been assessed and received a designation. For example, nursing is considered "light" physical demand, due to the use of assistive devices, although flight nurses must meet the "light-medium" level. Carpenters fall under the

CNE questions

21. The Centers for Disease Control and Prevention issued updated recommendations for the use of respirators during a pandemic. How do these differ from airborne precautions that are used with diseases such as tuberculosis?
 - A. Isolation rooms are not necessary.
 - B. Surgical masks can be used instead of N95s.
 - C. N95s can be reused.
 - D. They are the same as airborne precautions.
22. According to a study by the National Institute for Occupational Safety and Health, how did surgical masks fare in a comparison with N95 filtering-facepiece respirators?
 - A. Surgical masks did not filter any contaminants.
 - B. Surgical masks filtered about half of the contaminants from the air.
 - C. Surgical masks performed as well as some N95s.
 - D. Surgical masks are equivalent to N95s.
23. According to Gerald Mazurek, MD, medical officer with CDC's Division of TB Elimination, which individuals are more likely to have an indeterminate result with the TB blood test?
 - A. Health care workers
 - B. BCG-vaccinated individuals
 - C. Foreign-born individuals
 - D. HIV-infected individuals
24. New state laws requiring safe patient handling programs at hospitals will be enforced by what authority?
 - A. The U.S. Occupational Safety and Health Administration
 - B. The Joint Commission on Accreditation of Healthcare Organizations
 - C. The National Institute for Occupational Safety and Health
 - D. State licensing divisions

Answer Key: 21. A; 22. B; 23. D; 24. D.

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. **The semester ends with this issue.** You must complete the evaluation form provided in that issue and return it in the reply envelope provided to receive a credit letter. ■

“medium” demand classification. (The lowest category is “sedentary” and the highest is “very heavy.”)

About 15% of the people who undergo the functional assessment do not pass, says Crane. “It’s difficult to have to deny someone [a job], but you also don’t want to put them into work where they’re going to get injured. The idea is to protect the employee,” he says.

The ET2000, created by two physical therapists who now run Cost Reduction Technologies, of Davenport, IA, is a method to test core body strength, says company president **Loren Arp**, PT. Annual tracking shows that when it is used as a pre-employment tool, “98.3% of the time, the person works injury-free,” he says.

Employers lease the device for a one-time fee of about \$25,000. They also pay a fee per exam, at a rate that is based on issues such as volume. It may also be used to assess fitness to return to work after an injury. “If someone is returning to work after an injury, we want to determine what their abilities are so we can match them to their work or make reasonable accommodations,” says Crane.

The functional assessments comply with the Americans with Disabilities Act requirements, he says. “If they’re offered the job, we always have to look at whether a reasonable accommodation can be made,” says Wolterman. “But if they physically aren’t strong enough, that’s got to be a first priority.”

Mercy Medical Center conducts functional assessments for outside clients, which provides revenue and helps cover the costs of the machine, says Crane.

Meanwhile, it has tracked new employees who received the functional assessments. For example, nutrition services is a physically demanding job that involves lifting heavy items. In the past year, none of the new hires has suffered from a lifting injury, Wolterman says.

(Editor’s note: More information on Cost Reduction Technologies is available at www.costreductiontech.com.) ■

NEWS BRIEFS

Hospital injury rates stay high

Injury and illness rates declined overall in 2005, but the rate at hospitals remained almost double that of general industry, according to data from the Bureau of Labor Statistics (BLS).

In 2005, the rate of injuries and illnesses at hospitals was 8.1 incidents per 100 full-time equivalent workers, while the rate for general industry was 4.6. The hospital rate declined slightly from a 2004 rate of 8.3.

Health care and social assistance represented 15.7% of all nonfatal workplace injuries, the largest sector after manufacturing, which comprised 20.2% of injuries.

Hospitals have had the largest number of cases of any industry sector for the past three years. In 2005, the BLS estimates there were 281,500 injuries and illnesses in hospitals. The BLS report is based on a survey of U.S. Occupational Safety and Health Administration logs of 182,400 employers. ▼

Go on-line for this month’s *Bioterrorism Watch*

The **November/December** issue of *Bioterrorism Watch* is available on-line at www.hospitalemployeehealth.com, exclusively for subscribers of *Hospital Employee Health*.

Copies of the issue will be available in html and PDF formats for easy reading. Just log on to print out your copy. To take the CE test on-line, go to <http://subscribers.cmeweb.com/>. Each issue will test separately. If you have questions, please call customer service at (800) 688-2421. ■

COMING IN FUTURE MONTHS

■ *Hospital Employee Health* marks its 25th anniversary

■ Why are injury rates still so high in health care?

■ Hospitals struggle to raise flu vaccine rates

■ Taking on the challenge of reducing slips and falls

■ Practical advice on pandemic planning

AOHP offers acute care resource guide for ergonomics

Developing a safe patient handling program in a hospital can raise logistical questions. How will you accommodate the needs of different units? For example, how will you handle patients recovering from surgery? How do you analyze hazards?

The Association of Occupational Health Professionals in Healthcare (AOHP) has created a manual geared toward acute care hospitals. The guide arose from the alliance between AOHP and the U.S. Occupational Safety and Health Administration, which has issued ergonomics guidelines for long-term care facilities but not for acute care.

“The goal was to try to consolidate information and provide a resource for occupational health,” says **MaryAnn Gruden**, MSN, CRNP, NP-C, COHN-S/CM, past president of AOHP in Warrendale, PA, and employee health coordinator at Western Pennsylvania Hospital in Pittsburgh.

The manual includes sample policies and templates and provides information on topics such as building a team to address safe patient handling and conducting a needs assessment. It offers suggestions for equipment that can be used to improve patient handling in different hospital units. The manual can be accessed at the AOHP web site at www.aohp.org/About/documents/GSBeyond.pdf.

Meanwhile, AOHP also announced that it has signed a “memorandum of understanding” with the National Institute for Occupational Safety and Health to further promote best practices in hospitals. ■

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. ■

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JCAHO Update for Infection Control

News you can use to stay in compliance

JCAHO pushing new age of patient empowerment

'Speak up' changes, new patient safety goal

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is emphasizing that knowledge is power when it comes to patients. Recent Joint Commission initiatives indicate a growing trend toward patient education and empowerment to enhance a culture of safety and prevent infections.

"It is very clear that issues of infection are rising high on the agenda," says **Robert Wise**, MD, vice president of the division of standards and survey methods at JCAHO. "This issue of patients taking greater responsibility for themselves is clearly a push, not only for patient safety, but also the expectation that health care workers understand that they are going to be meeting more and more informed consumers. That is something that should be embraced as a positive thing."

In the effort, the Joint Commission joins myriad cultural forces that are driving a transformation in the way the patient is viewed in the health care system. The patient safety movement has given rise to consumer advocacy groups that are demanding more transparency in health care. As a result, there is an increasing pressure to bring patients into the process and educate them about preventing infections and other adverse outcomes. Indeed, there is the perception that patients — with growing knowledge about the risk of infections and patient safety hazards, such as medication errors — could become health care's much-needed new partners in prevention.

But what about liability concerns? Does informing and educating patients somehow make hospitals more liable if treatment fails, for whatever reason? "There is that added awareness of the risk, which could lead to some additional litigation by the mere fact that there is an increased [knowledge]," says **Julie Savoy**, BSN, RN, JD, an

attorney at Gachassin Law Firm in Lafayette, LA. "But the trade-off is very beneficial in that if it gets more people to wash their hands, that's a good thing. The more the consumer knows, the better partner they are going to be in their own health care and the better advocate they are going to be for themselves and the better outcomes they will have."

Time to 'Speak Up'

Indeed, the Joint Commission is urging patients to "Speak Up" in a campaign that emphasizes the importance of taking care of your own health and avoiding transmission of infections to others. The brochure highlights four easy things everyone can do to prevent infection and help avoid contagious diseases such as the common cold, strep throat, and the flu. (**See brochure excerpt, p. 2.**)

"One [emphasis] is keeping yourself healthy and the other one is making sure other people are healthy," Wise says. "So it's making sure you don't get sick but also not spreading it. It's respectful of family members, colleagues; so that if there is an infectious illness, there is a greater chance of containing it."

Moving from public health to hospitals, the brochure was recently updated to include a recommendation that patients "gently remind" health care workers to clean their hands and wear gloves. The Speak Up brochure states: "Doctors, nurses, dentists and other health care providers come into contact with lots of bacteria and viruses. So before they treat you, ask them if they've cleaned their hands. Health care providers should wear clean gloves when they perform tasks such as taking throat cultures, pulling teeth, taking blood,

(Continued on page 3)

4 Four Things You Can Do To Prevent Infection

Avoiding contagious diseases like the common cold, strep throat, and the flu is important to everyone. Here are four easy things you can do to fight the spread of infection.

1.



Clean your hands.

- Use soap and warm water. Rub your hands really well for at least 15 seconds.
- Or, if your hands do not look dirty, clean them with alcohol-based hand sanitizers. Rub the sanitizer all over your hands, especially under your nails and between your fingers, until your hands are dry.
- Clean your hands before touching or eating food. Clean them after you use the bathroom, take out the trash, change a diaper, visit someone who is ill, or play with a pet.

2.



Make sure health care providers clean their hands and wear gloves.

- Doctors, nurses, dentists and other health care providers come into contact with lots of bacteria and viruses. So before they treat you, ask them if they've cleaned their hands.
- Health care providers should wear clean gloves when they perform tasks such as taking throat cultures, pulling teeth, taking blood, touching wounds or body fluids, and examining your private parts. Don't be afraid to gently remind them to wear gloves.

3.



Cover your mouth and nose.

Many diseases are spread through sneezes and coughs. When you sneeze or cough, the germs can travel 3 feet or more! Cover your mouth and nose to prevent the spread of infection to others.

- Use a tissue! Keep tissues handy at home, at work and in your pocket. Be sure to throw away used tissues and then clean your hands.
- If you don't have a tissue, cover your mouth and nose with the bend of your elbow or hands. If you use your hands, wash them right away.

4.



If you are sick, avoid close contact.

- If you are sick, stay away from other people. Stay home if you have a fever. Call work or school and tell them you are sick.
- When you go for medical treatment, call ahead and ask if there's anything you can do to avoid infecting people in the waiting room.

These steps can help prevent the spread of colds, the flu*, and diseases like:

- Pneumonia* • Whooping cough*
- SARS • Chicken pox*
- Tuberculosis • Strep throat
- Mumps • Measles*
- Rubella* (also known as German measles)

Source: Joint Commission on Accreditation of Healthcare Organizations.

*Remember to get a shot to prevent this disease or infection.

touching wounds or body fluids, and examining your private parts. Don't be afraid to gently remind them to wear gloves."

In issuing such warnings, the Joint Commission wants to alert patients without alarming them, Wise explains.

"Patients need to be involved with their care, but it is not a statement that hospitals are unsafe," he explains. "Hospitals are extremely busy places and we know that a health care worker can forget something. It can have something to do with infection control, like washing hands, moving quickly, and [the health care worker] not realizing they should be putting gloves on. As the informed consumer, these are two important things that a patient can take responsibility for; it could have a significant impact on their health getting better."

The Joint Commission reports that health care organizations are printing out the Speak Up materials for patient rooms, sponsoring local public service announcements using their own physicians and nurses, and including the brochure content in patient information materials, web sites, and community newsletters. (See editor's note at the end of the article.)

New goal calls for 'active involvement'

Moreover, the Joint Commission has announced a major change for its 2007 Patient Safety Goals. A new goal for hospitals is a requirement that accredited organizations encourage patients' active involvement in their own care as a patient safety strategy. The requirement — first applied to the home care, laboratory, assisted living, and disease-specific care programs in 2006 — will apply to all hospitals in 2007. The complete goal reads: "Encourage patients' active involvement in their own care as a patient safety strategy. Define and communicate the means for patients and their families to report concerns about safety and encourage them to do so."

The accompanying rationale reads: "Communication with patients and families about all aspects of their care, treatment or services is an important characteristic of a culture of safety. When patients know what to expect, they are more aware of possible errors and choices. Patients can be an important source of information about potential adverse events and hazardous conditions." The implementation expectation for the goal is that "Patients and families are educated on methods available to report concerns related to care, treatment, services, and patient safety issues."

That development follows publication this year of the book, *You: The Smart Patient*, which calls for consumers to become informed about infections and other risks they face in the hospitals. The Joint Commission is listed as a co-authoring agency on the book, which urges that patients demand that health care workers wash their hands. "The importance of hand washing to prevent infection is such a big deal that the Joint Commission came up with buttons for nurses, doctors, and other health care staff to wear that read 'Ask Me If I've Washed My Hands,'" the book states. "So, if you see those on your health caregivers' lab coats (or even if you don't), ask away. Don't be shy about it."¹

The Joint Commission is not acting unilaterally here, but joins a variety of organizations urging similar measures. For example, the Association for Professionals in Infection Control and Epidemiology (APIC) has launched a web site designed as an educational source for consumers and health care professionals (www.preventinfection.org). APIC bills the web site as a one-stop educational source that provides information on infectious diseases and prevention measures from leading experts in the field. "When it comes to infection, the old adage, 'An ounce of prevention is worth a pound of cure' is more appropriate now than ever," says Kathleen Meehan Arias, MS, CIC, 2006 APIC president "This site is designed to convert consumers to informed patients."

(Editor's note: All materials for Speak Up initiatives do not require reprint permission and are available on the Joint Commission web site at www.jointcommission.org.)

Reference

1. Roizen MF, Oz MC, with the Joint Commission and Joint Commission Resources. *You: The Smart Patient*. New York City: Free Press; 2006. ■

Hand washing: You must measure compliance

Best practices will be identified

Lack of consensus on how to measure hand hygiene compliance has made this a daunting challenge for quality professionals. To address this, the Joint Commission has partnered with infection control organizations to identify how to

measure compliance with hand hygiene guidelines. The final product of the 18-month project will be an educational monograph that recommends best practices for measuring hand hygiene compliance.

Effective measurement will help health care organizations target interventions, which in turn should improve hand hygiene practices by health care workers and ultimately result in fewer health care-associated infections, says **Jerod M. Loeb**, PhD, executive vice president of the Joint Commission's division of research.

Measuring compliance with hand hygiene practices during the delivery of care is difficult, mainly because of the resources needed to monitor the practices of many different care providers in numerous locations for meaningful periods of time. Since there is no unified approach to measuring hand hygiene performance, it's impossible to determine whether overall performance is improving, deteriorating, or staying unchanged as new strategic interventions are introduced.

The Joint Commission's National Patient Safety Goals require accredited organizations to follow the Centers for Disease Control and Prevention's hand hygiene guidelines, but many studies have shown poor compliance. In addition, the Joint Commission's infection control standards require continuous strategic surveillance for infection and infection-related risks, and this is a key focus during surveys.

Hospitals using observation, patient education

At Covenant HealthCare in Saginaw, MI, a hospitalwide hand hygiene committee has improved compliance by using daily rounding by infection control nurses to observe compliance, using a unit-based data retrieval form to monitor universal precautions. "We will be using a tracking monitor that can be installed on a soap or alcohol dispenser," says **BJ Helton**, MPH, CIC, infection prevention and control program administrator.

The nurse manager or a designee from each nursing unit is required to monitor at least 30 staff members every year, and the completed observation is sent to infection control. The information is shared at individual unit conferences and also will be presented at quarterly outcomes report meetings.

At these meetings, all of the clinical nurse specialists report what accomplishments have taken place, and the nursing dashboard and regulatory dashboard are presented. "By presenting the

hand washing and universal precautions data, there will be more room for housewide discussion," says **Ann D. Law**, RN, Covenant's outcomes specialist.

In addition, a patient education brochure on hand hygiene is placed on patient tray place mats. "A collaborative effort with organizational development led to a computer program with our new infection prevention logo, SqWash Leo the Bug," adds Helton. "The VP of nursing made it a mandatory requirement for everyone to participate in seeing this program."

At OSF St. Joseph Medical Center in Bloomington, IL, patients are educated about hand hygiene via the hospital's Get Well Network, which is accessible on every TV. The program includes a segment on hand hygiene and how it can reduce the spread of infection. The hospital's patient satisfaction survey includes a question to get the patient's viewpoint on whether hospital staff and physicians are practicing good hand hygiene.

To obtain additional data, an observation program is being implemented. "Of course, this brings about its own measurement problems," says **Kathy Haig**, director of quality resource management. "Human resources in most health care settings is a limited and valuable commodity, so is it the best use of our resources to have them observe?"

Without observing, though, there is no valid way to determine compliance, says Haig. Another concern with the observation methodology is the validity of the data, since they can be very subjective. "For example, if the door to the patient's room is closed, how do you know if the staff member practiced hand hygiene?" she says.

The observer must be kept secret to prevent a "Hawthorne effect," people doing what they are supposed to because they know they are being watched, says Haig. "It is also important to prevent the observer from being perceived negatively by peers," she adds.

The aggregate data will be shared with the various unit managers as improvement opportunities. "I expect that we will, at some point, compare our results to the infection rate, although our infection rate currently is very low," says Haig.

The fact that different departments in the hospital have different opportunities for hand washing presents another challenge. "When you measure by observation, how do you watch for all of the opportunities specific to the area?" she asks. "Admittedly, our process is not perfect, as we cannot measure all the times when hand hygiene should be done, but we feel it is a start." ■