FOR MORE THAN 25 YEARS

Hospital Employee Health®

AHC Media LLC

IN THIS ISSUE

Financial Disclosure:
Editor Michele Marill, Associate Publisher Coles McKagen, Consulting Editor MaryAnn Gruden, and Managing Editor Gary Evans report no consultant, stockholder, speaker's bureau, research, or other financial relationships with companies having ties to this field of study.

AUGUST 2007
VOL. 26, NO. 8 • (pages 85-96)

NIOSH to mandate better-fitting respirators, ease fit-test requirements

With new rule, more HCWs will pass fit-tests

Better-fitting respirators are on the horizon. Newly proposed criteria will require manufacturers to prove that their N95 filtering face-piece respirators meet a minimal level of fit — right out of the box.

This doesn't mean the end of fit-testing. But along with implementing these criteria, the National Institute for Occupational Safety and Health (NIOSH) is researching whether annual fit-testing could be replaced by intervals of two or three years.

The bottom line for consumers, such as hospitals: Your employees will be more likely to fit the respirators that meet tougher minimum standards, and the respirators on the market will be of more consistent quality. The draft standard would limit the total inward leakage of respirators — the amount of air that leaks around the face seal or exhalation valve or through the filter material — to 5%. To meet the criteria, an N95 model must pass 26 of 35 fit-tests.

"It does not guarantee fit on an individual, [but] it should increase the probability that a respirator they buy is likely to fit," explains **Roland Berry Ann**, deputy director of the NIOSH National Personal Protective Technology Laboratory in Pittsburgh.

A revision of the criteria for N95 respirators was long overdue, says **Bill Borwegen**, MPH, health and safety director for the Service Employees International Union (SEIU) in Washington, DC. "This will hopefully spur manufacturers to design products that fit a wider array of facial features and sizes," he says.

Currently, the quality and fit of the respirators vary greatly. A NIOSH study of 18 N95 models found that three fit well out of the box, even without fit-testing. Yet the performance of the other respirators dropped off sharply. The highest pass rate for any respirator using a qualitative fit-test method (Bitrex or saccharin) was 55%. With one respirator model, only three of 24 people tested with Bitrex passed and no one passed the saccharin test. Five respirator models failed all fit-tests using the Portacount.[1]

That means that hospitals that purchase respirators with poorer fit characteristics will spend more time and effort trying to match employees with a correct size and fit, says **Chris Coffey**, PhD, chief of the laboratory research branch of the NIOSH Division of Respiratory Disease Studies in Morgantown, WV.

"No matter what the final level is [with the new fit criteria], the quality of respirators will be improved," he says.

NIOSH has always counted on fit-testing to ensure a good fit for N95s. For the past 12 years, NIOSH focused its certification requirements on the filter material. An N95 respirator must be able to filter out at least 95% of an airborne contaminant.

Designs will match modern face of America

The new criteria put a greater emphasis on the quality of the face seal, which may differ based on respirator style. NIOSH also has updated the test panel that reflects the facial structure of the "average" respirator wearer.

Although the U.S. population has aged, become more ethnically diverse and heavier, NIOSH had not updated its test panel since the 1970s. "Our intent is to use the new test panel and then have performance criteria based upon their ability to fit the people on that test panel," says Berry Ann.

Changing the test panel represents an important advance, says Coffey. "That [outdated test panel] may be one of the reasons that even the larger manufacturers didn't do too well [on total inward leakage tests]. They were designing these respirators using outdated, obsolete panels that didn't represent the average person in the United States today."

NIOSH is accepting comments on its "total inward leakage" requirements and held a public meeting on the proposed criteria in late June. While the changes are widely lauded, there may be some debate about where to set the criteria and how to phase in the changes.

"There are respirators out there that are going to pass this test easily," says **Steve Lenhart**, a retired NIOSH industrial hygienist, who studied respirator performance. He suggests that consumers should look for specific data from manufacturers on how they performed on total inward leakage tests. "If the respirator I'm about to buy just barely passed, I want to know that," he says.

Meanwhile, it will take time before respirators will be required to meet the higher standards. Finalizing the rule will take about 18 months, estimates Berry Ann. NIOSH also will likely provide a phase-in period during which currently certified respirators will be allowed to remain on the market, perhaps with a different certification symbol.

Fit-testing will continue to be an important part of respirator programs, says Berry Ann. In fact, if your current model performs well in fit-tests of your current employees, you may choose to continue using it, since that fit-test is the ultimate determinant of individual fit, he says.

Will better-fitting respirators require less frequent fit-testing? NISOH isn't prepared to say that. But further information should come from a study of

Hospital Employee Health® (ISSN 0744-6470), including **The Joint Commission Update for Infection Control** and **Bioterrorism Watch**, is published monthly by AHC Media LLC, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to **Hospital Employee Health**®, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

Customer Service: (800) 688-2421 or fax (800) 284-3291. Hours of operation: 8:30 a.m.-6 p.m. Monday-Thursday, 8:30 a.m.-4:30 p.m. Friday EST. E-mail: customerservice@ahcmedia.com. Web site: www.ahcmedia.com.

Subscription rates: U.S.A., one year (12 issues), $469. Add $9.95 for shipping & handling. Outside U.S., add $30 per year, total prepaid in U.S. funds. Discounts are available for group subscriptions. For pricing information, Call Tria Kreutzer at (404) 262-5482. Missing issues will be fulfilled by customer service free of charge when contacted within 1 month of the missing issue date. **Back issues**, when available, are $78 each. (GST registration number R128870672.)

AHC Media LLC is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This activity has been approved for 15 nursing contact hours using a 60-minute contact hour.

Provider approved by the California Board of Registered Nursing, Provider #14749, for 15 Contact Hours.

This activity is intended for employee health nurse managers. It is in effect for 36 months from the date of publication.

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

Editor: **Michele Marill**, (404) 636-6021, (marill@mindspring.com).
Senior Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@ahcmedia.com).
Associate Publisher: **Coles McKagen**, (404) 262-5420, (coles.mckagen@ahcmedia.com).
Managing Editor: **Gary Evans**, (706) 310-1727, (gary.evans@ahcmedia.com).
Senior Production Editor: **Nancy McCreary**.

Editorial Questions

For questions or comments call **Michele Marill** at (404) 636-6021.

AHC Media LLC

respirator fit over time. Individuals will be tested every six months over a three-year period to see how their fit changes due to aging, weight gain, or other factors.

"We're going to be remeasuring their facial characteristics to try to [compare] the changes in their facial characteristics with the changes in their fitting," says Berry Ann.

The end result, hopefully, will be better-fitting respirators and a lesser fit-testing burden on employers.

(Editor's note: More information on the Total Inward Leakage requirement is available from www.cdc.gov/niosh/npptl/resources/certpgmspt/meetings/062607/lttr-062607.html.) ■

CDC issues new checklist for pandemic planning

Occ health plays a major role in preparedness

A new checklist for pandemic influenza planning emphasizes the role of occupational health to manage absenteeism, symptom surveillance, and personnel needs.

The Centers for Disease Control and Prevention in Atlanta issued a revised checklist for hospital preparedness to provide more specific guidance, says **Deborah Levy**, PhD, MPH, CDC's senior adviser for health care preparedness and a captain in the U.S. Public Health Service.

The checklist provides a roadmap for hospitals as they struggle to prepare for a pandemic amid a multitude of day-to-day challenges, says Levy. "Most facilities can't do everything at once, but they should work through [the checklist] and try to address all the issues in there," she says. "It does represent what they should be doing to get prepared for a pandemic."

Occupational health professionals are listed among those who should be included as members of a pandemic planning committee. The checklist also calls for hospitals to conduct tabletop simulation exercises and full-scale drills, and to update the plan regularly. **(For an excerpt of the checklist, see box on right.)**

The CDC is urging hospitals to coordinate their plans with public health, local emergency management agencies, and other health care facilities in the community. That coordination is one of the major gaps in pandemic planning, says Levy.

"For single events, shorter-term [emergencies], you can't survive doing [without joint planning]. You can't with a pandemic," she cautions.

In fact, hospitals may not be able to survive more

Can you manage employee absences during a pandemic?

This is an excerpt from the Hospital Pandemic Influenza Planning Checklist, *prepared by the Centers for Disease Control and Prevention.*

The facility's human resource and payment policies should be reviewed to identify and eliminate language that may encourage staff to work when ill or even when they are symptomatic with influenza-like illness and especially when they are within the period of communicability. An occupational health plan for addressing staff absences and other related occupational issues has been developed that includes the following:

A liberal/nonpunitive sick leave policy that addresses the needs of ill and symptomatic personnel and facility staffing needs during various levels of a pandemic health crisis considers the following:

- The handling of personnel who develop symptoms while at work.
- Allowing and encouraging ill people to stay home until no longer infectious.
- When personnel may return to work after having pandemic influenza.
- Personnel who need to care for family members who become ill or affected by closed care centers.
- Personnel who must stay home to care for children if schools and child care centers close.
- A plan to educate staff and volunteers to self-assess and report symptoms of pandemic influenza before reporting for duty; consider a phone triage system similar to that used for patients.
- A list of mental/behavioral health, community, and faith-based resources that will be available to provide counseling to personnel during a pandemic.
- A system to track annual influenza vaccination of personnel. (Having a system in place to track annual vaccination will facilitate documentation and tracking of pandemic influenza vaccine in personnel.)
- A plan for managing personnel who at the time of a pandemic are at increased risk for influenza complications (e.g., pregnant women, immunocompromised workers, employees 65 years of age and older). A plan might include, for example, placing them on administrative leave, altering their work location, or other appropriate alternative. ■

than a week on their own during a pandemic, based on the results of a survey by Novation, a group purchasing organization based in Irving, TX. About half (54%) said they could last one to three days without "external resources," and another 25% said they could last up to seven days without "external resources," Novation reported. The results were based on responses from 68 hospitals.

"Our survey provides some real insight into the supply crisis hospitals would face during a global flu pandemic," **Christine Miller**, senior clinical manager at Novation, said in a statement.

Hospitals have made plans to obtain additional supplies, including respirators, in the event of a pandemic, the survey found. Two-thirds reported working collaboratively with other hospitals and distributors.

Ensuring adequate staffing and monitoring the health of employees will be a crucial component of pandemic response. The checklist encompasses a number of issues that would require employee health input or coordination, including:

• **Education:** Employees need education on influenza and control measures as well as on the hospital's pandemic influenza plan. They need to know what policies will be in place and what operational changes may take place during a pandemic. The education portion of the plan will include credentialing and training of additional staff that may be brought in "to provide patient care when the hospital reaches a staffing crisis."

• **Symptom surveillance:** Hospitals should test a method of symptom surveillance during the regular influenza season. "Hospital sites for syndromic surveillance should include the emergency department, hospital clinics, and occupational health. Surveillance reports are sent to hospital epidemiology/infection control personnel and to the local health authority," the checklist states. Hospitals also should have a system for monitoring seasonal influenza transmission among staff and patients as a precursor to the monitoring that would be necessary during a pandemic.

• **Antivirals and vaccine:** As part of the plan, hospitals should consider how to allocate limited resources of vaccine or antivirals. They also should develop a list of key personnel "who are essential for maintaining hospital operations during an influenza pandemic who would be the first priority for influenza vaccination." Also, employee health will need a method for monitoring adverse reactions to the antiviral medications, the checklist says.

• **Personal protective equipment:** Although the CDC has said that it would be "prudent" to use an N95 respirator for direct patient care activities during a pandemic, the checklist leaves open the possibility that hospitals will use surgical masks. It states that the hospital's infection control policy should require "at a minimum" Standard Precautions and Droplet Precautions with symptomatic patients. "If supplies of N95 or higher-rated respirators are not available, surgical masks can provide benefits against large droplet exposures," the checklist states. It also advises hospitals to estimate their PPE supply needs for an eight-week pandemic and "subsequent eight-week waves." Hospitals should have a list of alternative vendors and a plan for addressing supply shortages.

• **Other staff needs:** Hospitals should have a plan to assist and support employees "whose family and/or personal responsibilities or other barriers prevent them from coming to work." That includes child care, elder care, transportation, and other issues. The plan also raises the possibility of quarantine: "A contingency plan has been developed in the event of hospital quarantine in conjunction with local jurisdictions to ensure quarantine is enforced and necessary supplies, equipment, and basic necessities can be delivered and maintained." **(For more information on quarantine, see related article, below.)**

(Editor's note: The Hospital Pandemic Influenza Planning Checklist *is available at www.pandemicflu.gov/plan/healthcare/hospitalchecklist.html.)* ■

XDR-TB incident raises specter of quarantine

Do you have a plan for HCW quarantine?

Andrew Speaker causes an international incident by getting on an airplane although he has been diagnosed with active XDR-TB (extensively drug-resistant tuberculosis) — and asked not to travel. Meanwhile, in Arizona, Robert Daniels sits in a jail ward of Maricopa Medical Center where he was confined after breaking his quarantine.

Although public health officials have broad quarantine authority, a federal quarantine hadn't been used in the past 40 years. Yet these recent incidents, along with the quarantine experience during the SARS epidemic in Toronto, raise an important question: Are hospitals — and health care workers — prepared to respond to an infectious disease outbreak that could include a form of quarantine?

The Hospital Pandemic Planning Checklist, developed by the Centers for Disease Control and Prevention (CDC), states simply, "A contingency plan has been developed in the event of hospital quarantine in conjunction with local jurisdictions to ensure quarantine is enforced and necessary supplies, equipment, and basic necessities can be delivered and maintained." **(For more information on the checklist, see related article on p. 87.)**

The agency's *Community Strategy for Pandemic Influenza Mitigation* provides for the use of a voluntary quarantine. During a pandemic influenza, the CDC will request that household contacts of ill patients stay home for seven to 10 days after the first onset of the person's symptoms.

"We're counting on voluntary compliance with these types of measures in the situation of a pandemic," says **Francisco Averhoff**, MD, MPH, a captain in the U.S. Public Health Service and chief of the Quarantine and Border Health Services Branch of the Division of Global Migration and Quarantine.

The quarantine guidance is intended as a tool for community preparedness, but hospitals also should consider the possible impact, says Averhoff. For example, some health care workers might face quarantine if pandemic influenza spread in other countries but only isolated cases had occurred in the United States, he says.

But clearly, health care workers will need support if they are expected to work while under quarantine — separated from family members or unable to travel freely. The U.S. Occupational Safety and Health Administration advises employers to plan for support services such as housing, meals, a place to rest, and child care services.

Lessons from SARS

Beyond the logistical nightmare of being restricted to home and/or work, health care workers who are quarantined face stigma, fear, and anxiety for their health and that of their family members.

The spread of SARS in Toronto occurred predominantly in hospitals, and 45% of those diagnosed with SARS were health care workers. In an effort to prevent community transmission, public health authorities used quarantine for the first time in Ontario in 50 years.

During SARS, one hospital considered renting space in a hotel to house staff who were on quarantine, but that idea was abandoned, according to the SARS Commission report. Instead, hospitals developed a "work quarantine."

"[W]e realized that if we sent all of the staff home, the patients were going to suffer and that we aren't going to be able to bring people in from elsewhere," **Bonny Henry**, MD, associate medical officer of health with Toronto Public Health, told the SARS Commission.

Nurses were prohibited from riding public transportation and going to public places such as a grocery store or school. While at home, they slept and ate in a separate room and wore a respirator while they were near family members. Some nurses literally slept at the hospital. "You can just imagine what kinds of pressures that puts on people," says **Nancy Johnson,** occupational health and safety specialist at the Ontario Nurses Association. "You're wondering about your family and if everything is being taken care of."

The SARS experience demonstrates the need to think through the potential for quarantine restrictions on staff during an influenza pandemic or outbreak of a newly emerging infectious disease, says Johnson. Hospitals must plan now to help employees with their personal responsibilities if they have been confined at work during an influenza pandemic or other severe infectious disease outbreak, she says.

"If you have a working quarantine for nurses, what happens to all the things they're responsible for at home if they can't get home? What happens to their child care or their parent care or their pet care if they're quarantined at work?" she says. "So we're urging that they look at those things. What are the measures that are going to be taken to take care of all those aspects of people's lives?"

The recent quarantine of patients with XDR-TB points out that quarantine remains a public health method for preventing community spread of potentially fatal infectious diseases. Health care workers have a higher likelihood of being affected by a quarantine because of their potential exposure. "It happened once and we have to be prepared for the possibility of it happening again," says Johnson. ■

Blood test shifts HCWs from TB-positive to negative

Employees have more faith in TB blood test

Switching from the skin test to the blood test can completely change the profile of your tuberculosis screening program, as many TB-positive

employees suddenly learn that they are not infected.

Although that change may be unsettling to employees, they ultimately gain greater confidence in their TB test results and appreciate the swifter screening process, says **Jackie Kinard**, RN, APN, COHN-S, occupational health specialist at Sierra Health Services in Las Vegas.

Sierra Health began using the QuantiFERON-TB Gold test, manufactured by Cellestis, among its 1,600 employees in 2005. The health system, which includes a same-day surgery center, hospice, home health, and clinics, retested 218 employees who had previous positive skin tests. Only 44 of those employees (19.7%) tested positive on the blood test. Many of the previously positive employees were foreign-born and had a history of BCG vaccination.

It was hard for some of those employees to accept the change in status. "People questioned the results," acknowledged Kinard. But after educational sessions on QuantiFERON, they understood the difference between the blood test and the skin test, she says.

QuantiFERON is a whole blood assay test that measures the amount of interferon-gamma produced after the blood is incubated for six to 13 hours with TB antigens. The blood test is more specific than the skin test and does not react to BCG or other mycobacteria.

Those who tested positive with QuantiFERON at Sierra Health were more likely to accept treatment for latent TB infection. Of 121 employees who tested positive and received follow-up evaluation from the Clark County Health District in the first full year of QuantiFERON testing, 28 opted to take the treatment. Previously, only one or two employees a year would accept treatment for latent TB infection, says Kinard.

Meanwhile, the new screening protocol is much easier to administer and saves hundreds of hours of employee time, says Kinard. Employees no longer have to return for their skin test to be read, and employee health doesn't have to keep track of the "two-step" tests that require two placements and two readings for new employees.

"We're saving a tremendous amount of money [in employee time and productivity], and we feel more comfortable with the results," she says.

TST costly in employee time

Although the blood test represents a significant advance in TB screening, there still are obstacles for hospitals to overcome as they adapt to the new technology.

Sierra Health contracts with a private lab that runs the tests. "We had to find a lab that was willing to do the test. I tried unsuccessfully for several months," says Kinard. Finally, the medical director of occupational health convinced a lab to purchase the necessary equipment and training. Kinard also contacted the office of the state TB controller, which changed the wording in the state regulations to allow the use of blood tests as well as tuberculin skin tests for screening.

The cost per test, including the lab fees, runs about $50. By contrast, the purified protein derivative for the skin test costs only about $10. Yet the true cost of the tuberculin skin test includes the training of test placers and readers, employee time away from work to have the test placed and read, and administrative time coordinating the program.

The cost per health care worker tested can range from $41 to $362 with the skin test, according to a Centers for Disease Control and Prevention study of TST programs at four hospitals.[1] The largest portion of that cost was for personnel, including the program coordinator, the test placers and readers, and data entry. The study also accounted for lost work time as employees left their posts for the skin test.

Kinard conducted her own cost-benefit analysis, including the personnel costs and the time spent following up with people who had not returned to have the test read. She estimated that the skin test cost about $70 per health care worker tested.

Some employees were squeamish about the blood draw, says Kinard. But they overcame that, and were pleased with the convenience, she says. "You're still getting a needlestick when you plant the derivative [in the skin test]," she says. "Certainly there's a needle involved. If you need a two-step, it's twice. If you fail to come back, it has to be redone. This is a one-time test."

What do reversions mean?

Health care workers may have more confidence in a positive result from the blood test, but what does a negative mean? Could it revert back to a positive?

More research is needed on the cutoff values that signify a positive result on the blood tests, says **Madhukar Pai**, MD, PhD, assistant professor of biostatistics and occupational health at McGill University in Montreal. He advises employee

health professionals to look at the actual values.

"Be careful in looking at the negative to positive change and calling that a conversion," he says. "If someone went just above the cutoff, you would call that a conversion."

There also are unresolved questions about conversions from positive to negative with the blood tests, he says. Research is needed on the reproducibility of interferon gamma release assays in multiple tests and how the levels may change over time.[2]

"Maybe the body has successfully cleared the organism or maybe the drugs [for latent TB infection] have worked," suggests Pai. "Maybe it's just nonspecific changes in the test over time. We don't really know how to approach the problem of reversions."

The CDC advises labs to report the actual values on the QuantiFERON test. If the level is near the cutoff, you may want to repeat the test, says **Jerry Mazurek**, MD, a commander in the U.S. Public Health Service and medical officer and epidemiologist in the CDC's Division of TB Elimination.

The CDC is studying conversions with QuantiFERON and the stability of the test. "It's not a perfect test. Unexplained revisions occur," says Mazurek "Sometimes, you can explain the conversion from negative to positive by the fact that the test is near the cut point and it could represent a false-positive."

The QuantiFERON test was designed to maximize specificity, says **Mark Boyle**, senior vice president of sales and marketing with Cellestis. But it also has good sensitivity, and only about 8% of people screened with QuantiFERON have values near the cutoff, he says.

As long as someone still has latent TB infection — and has not cleared the disease — their values should still be positive, Boyle says. "If you've been treated, your skin test will more than likely stay positive forever. But most people would be QuantiFERON-negative," he says.

Meanwhile, Sierra Health plans to retest its positive employees to gain information about the consistency of the results, says Kinard. "Once we have two full years of testing completed, then we can look at [the results] more clearly," she says.

References

1. Lambert L, Rajbhandary S, Qualls N, et al. Costs of implementing and maintaining a tuberculin skin test program in hospitals and health departments. *Infect Control Hosp Epidemiol* 2003; 24:814-820.

2. Pai M, O'Brien R. Serial testing for tuberculosis: Can we make sense of T cell assay conversions and reversions? *PLoS Medicine* 2007; 4:e208. Available at: www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1891321. ■

NIOSH being marginalized? GAO study called for

OH leaders express concern

Concerned that occupational health and safety research is getting short shrift from the Bush administration, professional organizations are calling for a study of the National Institute for Occupational Safety and Health (NIOSH) and a commitment to boosting its financial resources.

In letters to key Congressional leaders, the American College of Occupational and Environmental Medicine (ACOEM), the American Industrial Hygiene Association, and the American Society of Safety Engineers have asked for a General Accounting Office study of NIOSH, which is a part of the Centers for Disease Control and Prevention (CDC) in Atlanta. Such a study would consider whether moving NIOSH out of the CDC would increase its effectiveness.

"The key issue isn't as much where NIOSH is placed, but that NIOSH is appropriately supported to do its work," says **Robert McLellan**, MD, MPH, FACOEM, president of ACOEM, chief of the section of occupational and environmental medicine at Dartmouth Medical School, and medical director of employee health and safety at Dartmouth-Hitchcock Medical Center.

Since FY 2006, after the CDC reorganization, the CDC has taken $34.8 million from the NIOSH budget to fund administrative overhead costs. Since then, NIOSH's budget has remained flat. For FY 2008, the president has requested $253 million for NIOSH, the same as last year.

That flat-lined budget — a reduction from FY 2005 due to the payments to the CDC — means there is less money to fund research conducted by external researchers. The success rate of applications has declined by almost 50% since FY 2005, McLellan says. This year, NIOSH is expected to fund fewer than 8% of grant applications submitted, he says.

"Their extramural research program is key to advancing science with respect to occupational health and safety," McLelland says. "NIOSH is the only federal agency responsible for research in

occupational health and safety. Their research program has historically been an important venue for prompting that research. It serves as a lifeblood for academics in occupational medicine."

The research also is a vital contribution to improving worker health and safety, he says.

"This is the only agency in the federal government that conducts occupational health and safety research, so it's very, very important," agrees **Aaron Trippler**, American Industrial Hygiene Association (AIHA) director of governmental affairs.

Congress created NIOSH in 1970 as a research counterpart to the Occupational Safety and Health Administration, through the Occupational Safety and Health Act. Although it is a part of the CDC, it has maintained some autonomy.

When CDC director **Julie L. Gerberding**, MD, MPH, announced that NIOSH would become part of one of the new coordinating centers as part of the CDC reorganization, NIOSH's advocates went into high gear. Industry, union, and academic stakeholders complained that NIOSH would be weakened.

That change was halted when Congress included in the FY 2005 omnibus budget bill directing CDC to "maintain the status quo with respect to the direct reporting relationship of the NIOSH director to the CDC director" and "make no changes to NIOSH's current operating procedures and organizational structure."

Now NIOSH advocates are once again raising the alarm about its status. The industrial hygienists have suggested that NIOSH might fare better as a part of the National Institutes of Health. The safety engineers suggested a move to the Department of Labor.

The occupational health physicians expressed caution in their letter to Congress: "ACOEM fully supports NIOSH and we want to emphasize that any decision about NIOSH becoming an independent agency within the Department of Health and Human Services or moving to the National Institutes of Health or the Department of Labor must very closely evaluate the upheaval of such a move."

McLellan also noted: "A GAO study should look at whether NIOSH has the necessary resources to undertake a robust research agenda, and whether it is permitted under the current structure to exercise the authority intended by the Occupational Safety and Health Act."

AIHA supports a GAO study as well. "It's time to take a look at the organizational structure of CDC and whether NIOSH fits within that," says Trippler.

Not all of NIOSH's supporters think that an organizational move would enhance its mission. As a part of the CDC, NIOSH has balanced the infection control perspective and played an important role in agency guidance, says **Bill Borwegen**, MPH, safety and health director of the Service Employees International Union (SEIU).

For example, NIOSH was successful in modifying the personal protective equipment guidance related to pandemic influenza, which now states that it would be "prudent" to use N95 respirators with direct patient care activities. NIOSH also has been involved in respiratory protection guidance for other diseases, such as tuberculosis.

"If we left CDC to their own devices, those products would be quite inferior to what was eventually produced," he says.

"By cleaving NIOSH from CDC, it's not clear if it's going to be an improvement," he says. "Then we just leave it to the infection control people to dictate occupational health and safety policy in CDC documents, and I don't think that's going to be helpful."

Borwegen also notes that a National Academy of Sciences panel has been reviewing NIOSH's research programs.

A GAO study would consider more broadly what NIOSH needs to carry out its mission, says **Patrick O'Connor**, ACOEM director of governmental affairs. For example, the CDC has taken over much of the NIOSH communications activities, limiting NIOSH's ability to publicize and promote its research findings, he says.

"The ACOEM position has always been that NIOSH should be placed where it can be most effective," he says. ■

Patient safety suffers with poor work conditions

Overtime, organizational climate linked to infections

A new study provides the most compelling evidence yet for improving staffing and working conditions of nurses: Patients in intensive care units are more likely to develop serious and possibly deadly infections if units were understaffed and nurses worked more overtime.

Managerial support and physician-nurse collaboration also have an impact on patient outcomes and employee injuries, the researchers say.

The study of 1,095 nurses in 51 ICU units at 31 hospitals found that patients were more likely to develop a catheter-associated urinary tract infection (CAUTI) and decubitus ulcer (or bed sore) if the nurses worked high rates of overtime. ICU's with more RN staffing per patient had significantly lower levels of central line-associated bloodstream infections, ventilator-associated pneumonia, 30-day mortality, and decubitus ulcer.

Patients in units in which nurses perceived a better organizational climate were 39% less likely to develop a CAUTI.[1]

In a related study, the researchers found a link between working conditions and needlesticks and other work-related injuries.[2]

"When you look at the body of research, [it appears] that the same things that impact employee safety also affect patient safety, as well as employee turnover," says lead author **Pat Stone**, PhD, assistant professor of nursing at the Columbia University School of Nursing in New York City. "They're not mutually independent in any way. They're actually synergistic."

National patient safety measures do not incorporate working conditions, such as overtime, notes Stone. "I think people should be measuring these variables more frequently in their operations," she says. "I think a lot of them have not looked at overtime."

Yet Stone acknowledges that resolving staffing issues may be challenging. For example, while you want nurses to understand the repercussions of unplanned absences on their colleagues, you don't want nurses to come to work sick — and expose co-workers and vulnerable patients to an infectious disease. Cross-training of staff to cover in other units may help balance staffing and avoid overtime, suggests Stone.

"We need a flexible, qualified work force," she says. "It's not as simple as nurse-patient ratios. You don't want to just keep putting tired nurses out there. You need fresh, qualified nurses."

The payoff of better staffing is not only better patient outcomes but improved worker safety. You'll have better retention of nurses, too, Stone says.

Steps toward a better climate

By hiring new nurses or cross-training current employees, perhaps you can reduce your overtime and boost your staffing. But how can you improve your "organizational climate"?

That may seem like an elusive goal. But there are steps that can make nurses — and other employees — feel that they are part of a collaborative work environment.

For example, some hospitals have a written policy that sets an expectation for employees, managers, and administrators to treat each other respectfully, says Stone. Administrators may make rounds and ask employees for input. Nurses and other frontline workers join managers, administrators, and physicians on committees that set policies.

Career ladders, which give nurses points — and extra pay — for taking on other duties, such as committee assignments, can play a role in improving organizational climate, she says.

New patient safety tool

A new patient safety tool published by the Agency for Healthcare Research and Quality (www.ahrq.gov) includes questions about managerial support and communication.

Yet as you evaluate working conditions, don't just look at the hospital as a whole. Individual units may function much differently and may have a different organizational climate.

A study of four ICUs in a single hospital showed that employee perceptions varied widely among units. The study measured teamwork climate, perceptions of management, safety climate, stress recognition, job satisfaction, and work environment.[3]

Nurses assessed their working conditions significantly more poorly than did physicians, and they had lower perceptions of management. Nursing directors overestimated the sense of teamwork among ICU staff.

When you seek to improve working conditions, start with units that have higher injury rates or patient safety problems, advises Stone. "Don't go where everything is running right," she says. "Find the units that are having problems and see what you can do to help those."

References

1. Stone PW, Mooney-Kane C, Larson EL, et al. Nurse working conditions and patient safety outcomes. *Med Care* 2007; 45:571-578.

2. Stone PW, Gershon RR. Nurse work environments and occupational safety in intensive care units. *Policy Polit Nurs Pract* 2006; 7:240-247.

3. Huang DT, Clermont G, Sexton JB, et al. Perceptions of safety culture vary across the intensive care units of a single institution. *Crit Care Med* 2007; 35:165-176. ■

Hospital battles depression in the workplace

Depression is widespread cause of absenteeism

Listless, fatigued, emotionally drained. Employees are dragging themselves to work despite a bout of depression. And while they may not see much hope that they will feel better, you should.

About 17% of Americans will experience a major depressive episode in their lifetimes[1] and depression is a significant cause of absenteeism and low productivity. By addressing depression, Vanderbilt University in Nashville, TN, hopes not only to help employees in their personal lives, but to boost their performance at work as well.

"So many [wellness] programs focus on things like tobacco cessation, blood pressure, and so on, when in fact targeting depression and stress would have the greatest impact on your health care claims," says **Jim Kendall**, LCSW, CEAP, manager of Work/Life Connections-EAP, the employee assistance program at Vanderbilt.

"You hear people say, 'I've been functioning like I'm in a fog.' Lack of clarity and concentration and memory problems are first symptoms. Those things really do have a direct impact in the workplace," he says.

Once employees receive treatment for their depression, their mood and productivity improves, he says. In a follow-up just four weeks after treatment, employees show improvement on depression inventories of 50%-70%, Kendall says.

A study of 46,000 employees at six large companies over a three-year period found that, as a group, people with the highest risk factors for depression also had the higher health care costs.[2] In 2002, the American College of Occupational and Environmental Medicine issued a position statement advocating depression screening as "an appropriate part of the practice of clinical occupational medicine."

"Depression is probably the greatest problem that we as employers have right now," says **Mary Yarbrough**, MD, MPH, director of health and wellness at Vanderbilt.

Depression is a health risk

Wellness programs often begin with a health risk appraisal, completed confidentially by the

CNE *questions*

5. The National Institute of Occupational Safety and Health is proposing a limit on total inward leakage for N95 filtering facepiece respirators. What level of total inward leakage did the agency set?
A. 2%
B. 5%
C. 7%
D. 10%

6. According to the Hospital Pandemic Influenza Planning Checklist developed by the Centers for Disease Control and Prevention, what are the minimum infection control precautions that hospitals should use with symptomatic patients?
A. Airborne precautions
B. Droplet precautions
C. Contact precautions
D. Standard and droplet precautions

7. When Sierra Health Services of Las Vegas switched to QuantiFERON-TB Gold for its annual tuberculosis screening, about what proportion of the previously positive health care workers were negative?
A. 90%
B. 80%
C. 60%
D. 15%

8. The American College of Occupational and Environmental Medicine, the American Industrial Hygiene Association, and the American Society of Safety Engineers are concerned that:
A. NIOSH has more power than OSHA.
B. NIOSH has been reorganized within CDC.
C. NIOSH does not have enough resources.
D. NIOSH should be a part of OSHA.

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

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 **December** issue, you must complete the evaluation form provided in that issue and return it in the reply envelope provided to receive a credit letter. ■

employee. Commonly, they look for obvious health risks, such as high blood pressure or smoking.

"If you're not attending to people's emotional issues and you're just dealing with physical issues, then you're missing the boat on an opportunity to really impact your employees," says Kendall.

But then what? If the health risk appraisal includes questions related to mental health, then you need a plan to address the answers. "Asking the question is fine," he says. "But what happens if you find somebody who says, 'I've been thinking that life might not be worth living.' You need to be able in some way to respond when people are in the greater danger zones."

Vanderbilt asks employees who complete a health risk appraisal whether they would like to be contacted about follow-up. A "Healthy Steps" coach then calls and talks to the employee about stress and depression, providing follow-up services.

Meanwhile, many employees contact the Work-Life Connections-EAP directly, seeking help. Within 48 hours of their call, an EAP counselor meets with the employee and provides referrals to therapists or physicians. They also provide some initial support to help the employee with day-to-day coping skills.

"The action plan might include some ways to focus on relationships, socialization, and exercise. We'll gear our suggestions to practical, step-by-step actions to feel better. We'll give them a realistic timeline of how long it's going to take based on their current situation," says Kendall.

Meanwhile, Kendall and his colleagues provide educational seminars throughout the campus, focusing on such topics as stress management and depression. They are trying to raise awareness of depression as well as of the EAP services.

"A lot of times, people will tell you what's going on in their lives and they won't label it depression," he says.

The U.S. Preventive Services Task Force identified two simple questions that can serve as a depression screen: "Over the past two weeks, have you felt down, depressed, or hopeless?" and "Over the past two weeks, have you felt little interest or pleasure in doing things?"[3]

Trust is a huge factor when it comes to helping employees with their mental health problems. Vanderbilt maintains separate programs for faculty and physicians and for nurses.

"Next to child care, this service is recognized as being the most valuable to our faculty and physicians," says Yarbrough. "They have different needs. People who have to maintain a license have special considerations. You have to design your program to support that."

For example, EAP programs also deal with alcohol and drug abuse problems, and state licensing bodies have guidelines and reporting requirements related to those issues, she notes.

In-house EAP program

While many hospitals outsource their EAP programs to emphasize confidentiality and privacy, Vanderbilt has been able to create that environment with an in-house program.

"There has to be a place where they feel safe and it's confidential," says Yarbrough. "There has to be a trust between the employer and the employee to have that kind of service in your institution."

Ultimately, a strong program that addresses depression and other mental health needs can help employees remain focused on their work — and patient safety. And it can help with retention of valuable employees, says Yarbrough.

"These are human resources that are not replaceable," she says. "It's worth investing in those people."

References

1. Kessler, Ronald, et al. The epidemiology of major depressive disorder: Results from the National Comorbidity Survey Replication (NCS-R). *JAMA* 2003; 289(23):3,095-3,105.

2. Goetzel RZ, Anderson DR, Whitmer RW, et al, and the HERO Research Committee. The relationship between modifiable health risks and health care expenditures: An analysis of the multi-employer HERO health risk and cost database. *J Occup Environ Med* 1998; 40:843-854.

3. U.S. Preventive Services Task Force: Screening for Depression: Recommendations and Rationale. *Ann Intern Med* 2002; 136(10):760-764. ■

COMING IN FUTURE MONTHS

- PAPRs instead of N95s: Should you ramp up the protection?
- Update on ionizing radiation
- Are you prepared for after-hours care?
- Improve safety culture to combat MRSA
- Momentum grows for safe patient handling

OSHA, AAOHN renew their alliance

The U.S. Occupational Safety and Health Administration renewed its alliance with the American Association of Occupational Health Nurses, based in Atlanta. The alliance has worked on issues such as musculoskeletal disorders, workplace violence, and promoting the use of automated external defibrillators in the workplace. AAOHN and OSHA first signed an alliance agreement. This is the second renewal. ■

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. ■