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OSHA New Year's edict to hospitals: Fit test employee respirators annually

No TB rule — just new respirator rules for everyone

Hospitals received an unwelcome New Year's present from the U.S. Occupational Safety and Health Administration (OSHA) in the form of a new mandate: They must update their respiratory protection programs and conduct annual fit-testing of any employee wearing a respirator for TB or any other reason.

In a move that caught some by surprise, on Dec. 31, OSHA revoked its TB-specific respiratory protection standard along with the proposed tuberculosis rule. That means hospitals now are covered by the respiratory protection standard that applies to general industry (1910.134), which requires annual fit tests for filtering face-piece respirators such as the N95.

"[I]t is appropriate and necessary to ensure that employees exposed to TB have the same protections as employees exposed to other types of hazards in the workplace," the agency stated in its *Federal Register* notice.[1] "Fit-testing is necessary because a respirator that doesn't fit properly provides only the illusion of protection."

OSHA initially made the requirement effective immediately, but then delayed enforcement until July 1. The standard provides more detailed requirements for medical screening, annual training, and record keeping, in addition to the fit-testing rule. **(See box, p. 31.)**

"Requirements such as annual fit-testing and medical evaluations for covered employees may be new for some employers," said **John Henshaw,** OSHA administrator, in a statement. "We want to make sure they are aware of these new requirements and give them every opportunity to be able to successfully come into compliance."

In fact, the respiratory protection requirements already were required for the use of respirators for anything other than TB. "Many hospitals already have this program in place. If they were using respirators for SARS [severe acute respiratory syndrome], ethylene oxide, or anything else, they should have had a program in place," says an OSHA respiratory hygienist.

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Reaction to the change varied widely, as hospitals began reviewing their programs even while they questioned the need for annual fit tests. **(See related article, p. 32.)**

"There is not a scientific basis for mandatory annual fit-testing across the board," says **Jennifer Thomas**, director of government and public affairs for the Association of Professionals in Infection Control (APIC) in Washington, DC. "It will be a tremendous logistical and financial burden for health care facilities."

Established respiratory protection protocols shouldn't be altered for one industry, asserts **Roy McKay**, PhD, director of the occupational pulmonology services program at the University of Cincinnati College of Medicine and respiratory protection expert. "There may be a need to recognize differences in the types of respiratory protection, and manufacturers may need to consider developing different types of respirators to better accommodate special needs of health care workers. But to change protocols and guidelines that have been shown to be effective for respiratory protection programs doesn't make any sense to me."

Annual fit-testing related to TB has been the subject of much debate since 1998, when OSHA established its updated standard for general industry but temporarily kept the old standard for tuberculosis. OSHA had planned to include updated respiratory protection rules in its TB standard and had solicited comments on fit-testing protocols, among other issues. Fit-testing became a lightning rod for critics of the proposed TB standard, such as APIC.

Last year, OSHA announced that it was rescinding its proposed TB rule because public health efforts had reduced the hazard significantly. Dec. 31, when OSHA formally revoked the TB rule, the agency also eliminated the temporary, TB-specific respiratory protection standard.

"[I]n order to provide protection, the respirator must fit the employee well enough to prevent leakage from occurring," OSHA said in the notice. "This is particularly important for a hazard such as TB that does not have any warning properties that would allow an employee to detect that it is being inhaled, [that is], there is no odor that might indicate a breakthrough."

Employee health professionals support the need to protect employees, but they question whether the same rules should apply for the use of disposable N95 respirators with chemical and biologic hazards. Occupational-based skin-test conversions have not been linked to improper respirator fit or use despite the recognized weaknesses of such devices, says **Michael Hodgson**, MD, MPH, director of occupational health program at the Veterans Health Administration in Washington, DC.

"Most of the PPD [purified protein derivative] conversions in health care workers do not occur in the setting of exposure to known patients but occurred through unrecognized tuberculosis patients elsewhere in the hospital. We have not found conversions in individuals using respiratory protection," he explains.

The Association of Occupational Health Professionals in Healthcare (AOHP) in Warrendale, PA, and the American Association of Occupational Health Nurses (AAOHN) in Atlanta have asked OSHA to create a respiratory standard for airborne biological hazards. They have not yet received a response.

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Editorial Questions

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

"Biological issues are different from dust and gases," says **Denise Strode**, RN BSN COHN-S/CM, clinical case manager at OSF Saint Francis Medical Center, Center for Occupational Health, in Peoria, IL, and executive president of AOHP. "Health care is not a one-size-fits-all [profession]."

Hodgson worries that annual fit tests will absorb time and resources that instead could be focused on other hazards that lead to serious injury or even death, such as violent assaults or patient handling.

"There's a hierarchy of how we build programs and assign resources," he says. "It's not that respirators aren't important. The question is: Does annual fit-testing with a rigorous protocol really give us that much bang for the buck?

OSHA's requirements for respiratory protection

According to the Occupational Safety and Health Administration (OSHA), "An effective [respiratory protection] program requires a systematic approach to evaluating workplace conditions, selecting the appropriate respirator, ensuring the respirator fits, and maintaining the respirator properly." Here are some provisions of the standard (1910.139):

I. Training and Information

Employees must be trained prior to their initial use of a respirator, unless another employer has provided "acceptable" training within the past 12 months. They then must be retrained annually or when workplace conditions change, a new type of respirator is used, or inadequacies in the employees' knowledge or use indicates that they need additional training. The training must include information explaining:

A. why the respirator is necessary and how improper fit, use, or maintenance can compromise the protective effect of the respirator;
B. limitations and capabilities of the respirator;
C. use in emergency situations;
D. how to inspect, put on and remove, use, and check the seals;
E. procedures for maintenance and storage;
F. recognition of medical signs and symptoms that may limit or prevent effective use;
G. general requirements of the standard.

II. Medical Evaluation

Before the first fit-testing and use, employers must provide a medical evaluation to determine an employee's ability to use a respirator. An annual review of the employee's medical status is not required. The medication evaluation must include:

A. identifying a physician or other licensed health care professional to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire;
B. a written recommendation regarding the employee's ability to use the respirator from a physician or other licensed health care professional;
C. additional medical evaluations under certain circumstances, such as:
   1. if an employee reports medical signs or symptoms related to ability to use respirator;
   2. a physician or other licensed health care professional, program administrator, or supervisor recommends reevaluation;
   3. information from the respirator program, including observations made during fit-testing and program evaluation, indicates a need;
   4. a change occurs in workplace conditions that may increase substantially the physiological burden on an employee.

III. Fit-Testing

All employees using a negative- or positive-pressure tight-fitting face-piece respirator must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT). Fit-testing is required prior to initial use, whenever a different respirator face piece is used, and at least annually thereafter. An additional fit test is required whenever the employee reports or the employer or physician or other licensed health care professional makes visual observations of changes in the employee's physical condition that could affect respirator fit (e.g., facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight).

IV. Record Keeping

A. Records of medical evaluations must be retained and made available per 29 CFR 1910.1020.
B. A record of fit tests must be established and retained until the next fit test.
C. A written copy of the current program must be retained.

V. Program Evaluation

The employer must conduct evaluations of the workplace as necessary to ensure proper implementation of the program and consult with employees to ensure proper use.

(Editor's note: For a copy of the Respiratory Protection Standard, go to: www.osha.gov/SLTC/respiratory protection/standards.html. Additional information is available from the Small Entity Compliance Guide for Respiratory Protection *at www.osha.gov/Publications/SECG_RPS/secg_rps.html.)* ■

Hodgson notes that the rules create "a huge additional workload" yet may not contribute significantly to the prevention of nosocomial spread of TB.

Meanwhile, APIC vowed to press OSHA to modify the new edict — or at least to provide a delay in implementation. In light of a decreased occupational risk related to TB, the action "contradicts the justification that Assistant Secretary [John] Henshaw gave for withdrawing the rule in

Cost-saving question: Who should you fit test?

Hospitals are buying powered air purifying respirators (PAPRs) and trimming the ranks of employees who potentially would use respirators as a way to cut down on fit-testing.

Some had taken those steps in the wake of severe acute respiratory syndrome (SARS) and concerns about respirator fit. Other hospitals began reevaluating their programs in response to the announcement by Occupational Safety and Health Administration (OSHA) that fit-testing of N95 half-mask filtering facepiece respirators would be required every year.

The Veterans Health Administration (VHA), which has 170 facilities, is buying 30 PAPRs per facility and will beef up its training and fit-testing efforts, says **Michael Hodgson**, MD, MPH, director of the occupational health program at the VHA in Washington, DC. "We're trying to develop a far more substantial respiratory protection training program and infrastructure that will provide greater flexibility at the facility level," he says. "Still, justifying and funding the increased staffing is difficult, especially in a tight budget year."

In its *Federal Register* notice announcing the withdrawal of the TB-specific respiratory standard, OSHA estimated that annual fit-testing would cost employers a total of $10.7 million a year. Hospital-based employee health professionals say the actual costs — including personnel to conduct the fit tests — will be much higher.

"They're only estimating somewhere around 100 employees per facility that would be affected. It's more like 10 times that," says **Bruce Cunha**, RN, MS, COHN-S, manager of employee health and safety, Marshfield (WI) Clinic.

Many hospitals have a long way to go to beef up their respiratory protection programs to meet the requirements. In an informal, on-line survey through an occupational health e-mail list, Cunha collected information from 23 hospitals. Only two had done annual fit-testing. One had conducted no fit-testing at all, and 20 had performed initial but not annual fit-testing. One facility reported an employee who had worn a respirator while caring for a TB patient later had a positive tuberculin skin test on annual testing. That was considered a possible exposure, despite the use of the respirator. "I think it should be opened up for more study," Cunha says.

"I think coming up with an infectious disease standard would be a better approach," he explains. "If we're talking about the safety of employees, I think there needs to be more data."

Meanwhile, hospitals are complying by scrutinizing the number of employees who might come into contact with a TB patient — especially if the hospital is in an area of very low incidence of TB.

"When we established our TB protection program, we went as broad as we could," Cunha adds. "I think we're going to need to look long and hard, and recategorize some people based on some real science of who is at risk."

Geoff Kelafant, MD, MSPH, FACOEM, medical director for occupational health and employee health at McLeod Regional Medical Center in Florence, SC, already has reevaluated the number of employees who need annual purified protein derivative (PPD) skin tests. The hospital had conducted skin tests on all employees — almost 5,000. Kelafant and his colleagues removed those unlikely to have contact with TB patients, such as billing and clerical staff and employees in the health and fitness center. The list dropped to about 2,500. "Now that we've identified the people we think could actually get TB, those are the people who should probably actually have fit testing done. We're going to tie fit-testing, PPD, and education into one encounter," he continues, noting that the sessions will cover respirator use and care as well as SARS preparedness.

The OSF Saint Francis Medical Center in Peoria, IL, found it was difficult to cut back on the number of employees cleared for possible respirator use — even before this latest edict. Rather than designate a core group of health care workers who would care for TB patients, the units wanted everyone fit-tested, says **Denise Strode**, RN BSN COHN-S/CM, clinical case manager at the Center for Occupational Health.

The hospital bought its first PAPR for an employee who could not be cleared medically to wear an N95 filtering face piece to work in spaces that involved possible asbestos exposure. Now the hospital has 50 PAPRs, including seven for the emergency department, five in the unit that cares for TB patients, and two in every other nursing unit.

The PAPRs have been well accepted, Strode says. There have been no problems with patient reaction to health care workers in the hooded respirators or with reprocessing of the hoods, she says. And in the past two years, the hospital has had no TB conversions among staff. ■

the first place," says Thomas. "There is not a scientific basis for mandatory annual fit-testing across the board."

In the *Federal Register* notice, OSHA noted that the Respiratory Protection Standard withstood a legal challenge and was upheld by the 11th Circuit U.S. Court of Appeals.

Does it leak? Fit-testing only way to know

Yet that is not the viewpoint of experts in respiratory protection, who say that fit-testing is the only way to make sure a respirator is not allowing air to leak around the face seal.

The need to fit test large numbers of employees doesn't change that fact, McKay says. Chemical manufacturers or petrochemical companies also fit test large numbers of employees, but simply consider it a part of doing business, he notes.

"Once you make the recognition that respiratory protection is needed, then you should not arbitrarily change respiratory protection guidance simply because you don't like certain aspects of it," McKay explains. "Industry has shown these guidelines to be effective.

"The fit test provides us an opportunity to document and ensure that the respirator that's being issued continues to fit, because of changes in weight and other changes over time," he adds. "You cannot determine if a respirator fits properly by looking at it."

In fact, exempting health care workers from the requirements of the general respiratory protection standard would have been "fairly outrageous," contends **Bill Borwegen**, MPH, health and safety director of the Service Employees International Union. Without it, health care workers would be treated in a "substandard fashion" compared to other workers. "Without that standard, there is no requirement that health care workers be medically evaluated and fit-tested, before we start counting victims," he says.

The need is even greater in the wake of SARS, Borwegen says. He acknowledges that many questions remain about how TB is transmitted and what role respirators play in preventing spread. "Therefore, the prudent approach is to protect people."

Reference

1. U.S. Occupational Safety and Health Administration. Respiratory Protection for *M. Tuberculosis*. 68 *Fed Reg* 75,776-75,780 (Dec. 31, 2003). ■

Assess your risk, then choose your respirator

Expert advice on evaluating respirators

TB, severe acute respiratory syndrome (SARS), smallpox, monkeypox: Your respiratory protection program needs to take into account the different transmission characteristics of each agent.

"Each disease is different," points out **Nancy Bollinger**, MS, the deputy director of the health effects laboratory division of the National Institute for Occupational Safety and Health (NIOSH) in Morgantown, WV. "You'll have to do a risk assessment and determination of what respirator should be worn for each individual disease.

"Is it transmitted through the airborne route? Does it survive the evaporation of the droplet? You have to look at the viability of the organism," she explains. "When you cough or sneeze, you have a droplet. Just because the droplet will evaporate to a droplet nuclei doesn't necessarily mean you still have an infectious particle."

For example, SARS is transmitted through close contact and surface contamination. Most smallpox outbreaks involved close contact, although there was at least one reported case of nosocomial transmission that appeared to be airborne. TB is transmitted through the air and does not survive on surfaces.

"Smallpox can be deposited on bedclothing or a tissue or whatever else a patient is near," Bollinger says. "It gets on your hands; and if you touch your face, you can get the disease. That's not true with TB."

CDC's draft smallpox preparedness guidelines recommend using higher levels of respiratory protection, such as powered air purifying respirators (PAPRs), when performing aerosol-generating procedures with smallpox patients, such as bronchoscopy or intubation.

"When you're working with something like smallpox, you don't know the infectious dose," Bollinger adds. "You don't know the air concentration levels. There are so many unknowns; you can't base your respiratory protection on tried-and-true methods used in industry."

SARS guidelines state, "The optimal combination of PPE [personal protective equipment] for preventing SARS-CoV transmission during aerosol-generating procedures has not been

determined. It is unknown whether these higher levels of protection will further reduce transmission. Factors that should be considered in choosing respirators in this setting include availability, impact on mobility, impact on patient care, potential for exposure to higher levels of aerosolized respiratory secretions, and potential for reusable respirators to serve as fomites for transmission," the guidelines add.

CDC recommends the use of the N95 filtering face-piece respirator as minimum protection for health care workers in close contact with patients with smallpox, SARS, and TB. Health care facilities may choose higher levels of protection, including PAPRs, based on as assessment of the hazards, the CDC says.

"The person who selects the respirator needs to be knowledgeable about what is the minimum amount of respiratory protection that is necessary to protect the worker," says **Roy McKay**, PhD, director of the occupational pulmonology services program at the University of Cincinnati College of Medicine and a respiratory protection expert.

He offers this basic advice for hospital respiratory protection programs:

- **Choose a respirator with good fitting characteristics.**

From regular fit-testing, you already may have a good idea about whether your main model and brand fits most users. You also should consider the population you're fitting. Are they mostly women? You'll want a respirator that comes in small sizes to fit a smaller face. Does the model come in two or more sizes? One size may fit most of your employees, but you'll need alternatives to allow for differences in facial features, McKay says.

"Look for the experience and knowledge of their fit-tester to help in that decision-making process," he explains.

- **Avoid confusion with too many choices.**

You'll need a balance between respirator selection that will provide a good fit and too many choices that can cause problems, advises McKay. For example, an employee may grab a respirator that wasn't fit-tested on her or him rather than hunt for the correct model.

There are dozens of manufacturers, brands, and models. You might consider conducting a small pilot evaluation, fit-testing with several different respirators to see which one tends to fit best, McKay continues.

- **Buy N95 filtering face-piece respirators that have an exhalation valve.**

"It will reduce breathing resistance, make it more comfortable, and make it cooler. Therefore, it's more comfortable to wear," he says.

In fact, discomfort may lead some health care workers to inadvertently breach infection control as they try to adjust the mask with contaminated hands.

"A filtering face-piece respirator, when it's fitted properly, is not all that easy to wear. If it's not comfortable, then people tend to not wear it," McKay adds. "If you don't wear it, you're not going to be protected."

- **Follow fit-testing protocols.**

It may be tempting to cut corners, but fit-testing without following the protocol is no better than not fit-testing at all, he says.

McKay recalls one employee health professional that said her supervisor had asked her to cut back on the protocol to save time.

"You're supposed to administer the test agent a predetermined number of squeezes for each of seven exercises, while conducting head and breathing maneuvers. Her supervisor had her cut down the number of exercises as well as the number of squeezes so she could finish the protocol faster.

"It falsely increases the number of passes so you can make the statement that this respirator fits when in fact it may not," McKay adds.

Conducting invalid fit tests could have repercussions if an employee became symptomatic despite using the respirator, he says.

"One has to wonder what kind of litigation could potentially occur should the respirator not provide the proper amount of protection," says McKay.

(Editor's note: For a list of NIOSH-approved N95 filtering face-piece respirators, go to: www.cdc.gov/niosh/npptl/respirators/disp_part/n95list1.html. For a video on TB and respirator use, go to: www.cdc.gov/niosh/docs/video/tb.html. For information on SARS and respirator use, go to: www.cdc.gov/niosh/npptl/respirators/respsars.html. For information on courses on fit-testing and respiratory protection, go to Roy McKay's web site: www.drmckay.com.)

Reference

1. Centers for Disease Control and Prevention. *Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS) Version 2: Supplement I: Infection Control in Healthcare, Home, and Community Settings.* Atlanta; 2003. Web: www.cdc.gov/ncidod/sars/guidance/I/ pdf/healthcare.pdf. ■

Be prepared: SARS and avian flu tracked in Asia

Plans should cover any emerging infections

Confirmed cases of severe acute respiratory syndrome (SARS) in China and the emergence of a new strain of avian flu in Vietnam set the public health world on edge and highlighted one important message for hospitals: Be prepared to encounter newly emerging diseases.

As of late January, there was no person-to-person transmission of SARS, and hospitals remained on the lowest alert status. Yet the Centers for Disease Control and Prevention (CDC) revised its guidance for hospitals to stress some features of the disease that affected the outbreak last year.

If patients are hospitalized with pneumonia or respiratory distress, ask them about travel, the CDC advises. If they've been to the Guangdong province of China, they should be placed in isolation and tested for SARS.

If person-to-person transmission occurs anywhere in the world, the level of vigilance rises, says **Arjun Srinivasan**, MD, medical epidemiologist with the CDC's Division of Health Care Quality and Promotion and a member of the SARS task force. Anyone with fever or respiratory symptoms should then be asked about travel to areas of known or suspected transmission or contact with possible SARS patients.

Even milder symptoms — chills, myalgia, headache, and diarrhea — can be cause for concern and further evaluation if the person had close contact with a known SARS patient, the CDC says. That would include health care workers who have unprotected exposure to a SARS patient or are involved in a high-risk procedure with a SARS patient.

"We know that there are people who go on to develop SARS who present with some very nonspecific features of the illness," Srinivasan says. "There is a very early stage of the illness, which is characterized by milder symptoms. We think people in this early stage are probably less infectious to other people. But if people have a situation where they have a high-risk exposure, the presence of any of these symptoms should prompt investigation."

Should exposed health care workers continue to work? Should they be furloughed or quarantined? To answer those questions, hospitals should work closely with the public health department, the CDC advises.

"Restrictions on activities on health care workers outside the hospital really need to be coordinated with the health department," points out Srinivasan. "If we did have an outbreak in this country, we would want to make sure if the health department imposed quarantine restrictions, health care workers would have to follow those same restrictions."

Respiratory hygiene works for influenza

Meanwhile, new measures taken to prepare for a recurrence of SARS also could help hospitals avoid nosocomial outbreaks of influenza or protect against pandemic influenza.

Hospitals have begun implementing respiratory hygiene — asking patients with respiratory symptoms to cough into a tissue or to wear a surgical mask. Health care workers examining a patient with respiratory symptoms should use droplet precautions, which includes wearing a surgical mask or procedure mask when in close contact, the CDC says.

"We believe it would work across a range of respiratory pathogens, whether it's influenza, RSV [respiratory syncytial virus], or tuberculosis," says medical epidemiologist **Michele Pearson**, MD. "It takes a standard precautions approach to someone who has a potentially infectious respiratory illness."

The respiratory hygiene recommendation is included in influenza materials, upcoming guidelines for isolation precautions, and SARS preparedness, she notes. That underscores the overlap between preparedness efforts for various infectious diseases, Pearson says.

Concerns about pandemic influenza arose in January as 18 people were diagnosed with influenza A (H5N1) after contact with poultry. Six died. A suspected case of human-to-human transmission of H5N1 has been reported by the World Health Organization (WHO) in Geneva.

This strain has "a unique capacity to cause severe disease with high mortality in humans," according to WHO.

"The simultaneous occurrence in several countries of large epidemics of highly pathogenic H5N1 influenza in domestic poultry is historically unprecedented," the agency reported.

"The present situation may grow worse. In bird populations, the disease is highly contagious and rapidly fatal and spreads easily from farm to

farm." Millions of poultry were being killed to prevent spread of the disease in Asia.

Hospitals should review their preparedness plans to make sure they have information on pandemic influenza, yet they do not need a special plan for the disease, Pearson says. **(For more information on pandemic influenza, see *Hospital Employee Health*, July 2000, p. 73.)**

"There needs to be a core plan of preparedness and not a disease *du jour* preparedness," she says. "Whether you're talking about bioterrorism, influenza, or SARS, you have the same considerations in terms of staffing, surge capacity, and other issues."

For example, hospitals should have strategies for getting additional staffing or equipment in the event of a community outbreak — regardless of the agent. "You don't know the hour and day and time that it's going to happen," Pearson says. "If you wait until it's at your doorstep, then you're not likely to be ready to deal with it."

(Editor's note: The updated Public Health Guidance for Community-Level Preparedness and Response to SARS *is available at www.cdc.gov/ncidod/sars/guidance/index.htm. For more information on hospital infection control and influenza, go to: www.cdc.gov/flu/professionals/infectioncontrol/index.htm.)* ■

Does OSHA conflict with the CDC on hand rubs?

To improve hand hygiene among health care workers, the Centers for Disease Control and Prevention (CDC) recommends the use of alcohol-based hand sanitizers. Health care workers only need to use the traditional soap and water if their hands are visibly soiled, according to the CDC.

The Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogen Standard adds a caveat, however. OSHA requires employees to wash their hands with soap and water if they have had "occupational exposure to blood or other potentially infectious materials."

"OSHA interprets this to mean that when an employee is removing gloves and has had contact, meaning occupational exposure to blood or other potentially infectious materials [OPIM], hands must be washed with an appropriate soap and running water," wrote **Richard E. Fairfax**, director of the Directorate of Enforcement Programs, in an interpretation letter.

"If a sink is not readily accessible (e.g., in the field) for instances where there has been occupational exposure, hands may be decontaminated with a hand cleanser or towelette, but must be washed with soap and running water as soon as feasible. If there has been no occupational exposure to blood or OPIM, antiseptic hand cleansers may be used as an appropriate hand-washing practice," he added

Gloves are not impervious, according to an OSHA industrial hygienist. Even if no contamination is visible after removing the gloves, soap and water still should be used, Fairfax stated. ■

Fire rules put damper on use of alcohol rubs

Flammable substances prohibited in hallways

Hospitals seeking to make alcohol-based hand gels as accessible as possible have run into a firewall. Some state or local fire marshals have prohibited dispensers in corridors because of concerns about flammability.

Even if the local fire marshal gives it a thumbs up, hospitals face another barrier: The Center for Medicare & Medicaid Services (CMS) does not allow the dispensers in hallways, notes **Susan McLaughlin**, MBA, CHSP, MT(ASCP)SC, president of SBM Consulting Ltd. of Barrington, IL, which specializes in health care safety and regulatory compliance.

"If you're trying to follow the letter of the law, don't put them in the corridor right now even if your fire marshal says it's OK," adds McLaughlin, who is also first vice chair of the health care section executive board of the National Fire Protection Association (NFPA).

"If you're going to make new installations [of dispensers], put them in the [patient] rooms or the [patient] suites, not above light switches or outlets, and store in nonflammable cabinets," she advises.

Everyone agrees that alcohol-based hand gels can help prevent nosocomial infections, and deaths. Improving hand hygiene is one of the National Patient Safety Goals of the Joint Commission on Accreditation of Healthcare Organizations.

No fires, injuries, or deaths have been linked to the flammable hand gels. But the location of the dispensers has become a controversial issue. Fatal nursing home fires in Hartford, CT, and Nashville,

TN, last year highlighted the dangers posed to nonambulatory patients.

But do alcohol-based gel dispensers really provide a significant additional risk? Fire protection agencies have been studying that question and seem poised to give them a qualified endorsement.

"Very few [hospital patients or employees] die as a result of fire," says **Bob Shewbrooks**, CFPS, safety officer of Graduate Hospital in Philadelphia and president of the Hospital Fire Marshals Association in Philadelphia. "Life is the issue. If we can save lives by having [gels that reduce infections], then we felt it was a good thing. We don't see [dispensers] as an ignition source."

New hand hygiene guidelines came about after years of research into hand washing, gel use, and disease transmission. The findings, presented by the Centers for Disease Control and Prevention in 2002, are clear: Alcohol-based hand gels are effective at killing germs, they are less irritating to the skin, and they can be more convenient than soap and water.

Proponents of the gels can now add another study finding to the list. The American Society for Healthcare Engineering (ASHE) of the American Hospital Association commissioned a fire-modeling study of how the hand rubs would respond to a fire in a "typical patient care environment.

"The study results indicate that installing hand-rub dispensers is acceptable in both corridor and suite location[s]," the ASHE study concluded. "The results also showed the spacing of dispensers at or near each patient room entrance not to be a significant risk for additional ignition and involvement of more than one dispenser."

Ironically, the dispensers currently are allowed in patient rooms — where fires are more likely to start, notes Shewbrooks.

An analysis of hospital fires found that they are most likely to originate in the kitchen (20%), patient room (11%), or laundry (9%).[1]

A Healthcare Interpretation Task Force — made up of various organizations with jurisdiction, including NFPA, the Joint Commission, and CMS — is reviewing the ASHE study and considering whether to alter current recommendations. ASHE recommends that alcohol-based gel or liquid containers installed in an "egress corridor" should not be larger than 1.2 liters and should not project more than 3.5 inches from the wall. They should not be installed above electrical outlets or near any other potential source of ignition.

"ASHE submitted a tentative interim amendment to the NFPA to allow for mounting of these materials in the corridor," says McLaughlin, noting that there also will be a proposal to revise the next NFPA Life Safety Codes, which come out in 2006.

One complicating factor: Hospitals and nursing homes are covered by the same codes. Because of the nursing homes fires, there are greater concerns about flammable materials in those facilities.

Meanwhile, hospitals must try to navigate the various rules and rule-enforcing authorities. "Organizations always have to comply with the strictest authority having jurisdiction," she adds.

At William W. Backus Hospital in Norwich, CT, dispensers have been placed in patient rooms. But **Jonathan S. Mittelman**, MD, MPH, medical director of occupational medicine/employee health services, would prefer to install convenient dispensers outside the rooms in the hallways.

"We wanted to put them in hallways so that people are using them between every patient," he says. "The driving force is convenience of use."

Mittelman, who also serves as a volunteer firefighter, is well aware of the potential dangers of flammable materials. But he notes that the hospital uses many other flammable materials, such as oxygen lines, without incident. Other precautions, such as sprinklers, could reduce the risk. "We have our hazards, but we have ways of handling them."

Reference

1. Jaeger TW, Leaver CM, Glenn R. *Alcohol-Based Hand rub Solution Fire Modeling Analysis Report.* Chicago: American Society for Healthcare Engineering; Aug. 22, 2003. Web: www.ashe.org. ■

HCW study probes flu vaccine's effectiveness

Take a long-term view of vaccine, expert says

If public health authorities want to convince health care workers to get vaccinated against influenza, they won't mention a recent study at a Denver hospital. It found that this year's vaccine did not reduce the likelihood of getting influenza-like illness.

Yet that study is far from the final word on the subject. Its major weakness: It did not measure how well the vaccine protected against lab-confirmed influenza.

"If you look at other studies, in previous years where there was not an exact match between the

circulating virus and what was in the vaccine, the cruder studies that used influenzalike illness all showed much lower vaccine efficacy rates than did the studies that came along later, that took much more lab work to use laboratory confirmed influenza," says **William Schaffner**, MD, who is chair of the department of preventive medicine at Vanderbilt University in Nashville, TN.

"This is the first of many studies of vaccine efficacy that are going to be done," explains Schaffner, who is also on the board of the National Foundation for Infectious Diseases, which made flu vaccination of health care workers a priority goal this year. "This is kind of an expected result."

Furthermore, the survey had a response rate of 61%. The health care workers who failed to respond may have been the healthier ones, notes Schaffner. "You have to wonder who didn't hand back the survey," he says. "My sense is that well people didn't hand back the survey so that the survey is going to be biased in terms of survey results."

The survey was distributed in paper and e-mail form to 3,100 employees of The Children's Hospital in Denver. Of 1,818 respondents who completed the survey, 78% were vaccinated.

Overall, 289 (16%) of respondents reported having influenzalike illness; an analysis found no significant difference in the "attack rate" among those vaccinated and those not vaccinated.[1]

Future studies will look at the impact on lab-confirmed influenza and on serious complications related to influenza. Even when a vaccine is not well matched with the circulating strains, as happened this year, it may provide significant benefit in preventing influenza-related deaths and serious complications, the Centers for Disease Control and Prevention reported.

Health care workers need to take a long view of the influenza vaccine, Schaffner stresses. They receive the vaccine not just to protect themselves, but also to protect their vulnerable patients.

"Influenza vaccine is not a perfect vaccine, but it is a pretty darn good vaccine. Every once in a while — every six to 10 years — there's not going to be a perfect match between what's in the vaccine and the circulating virus," he explains.

"We should not be making decisions about whether or not to get the vaccine on an annual basis. We should get vaccinated annually," says Schaffner. "We're interested as health care workers in doing the best we can do in preventing our transmitting influenza to our patients and to remain healthy on the job when we are most needed and not to bring flu home to our families. The best way to do that is to get vaccinated every year."

CE *questions*

9. Since OSHA revoked the TB-specific respiratory protection standard, what regulations are hospitals required to follow?
   A. CDC guidelines on tuberculosis in health care facilities
   B. the respiratory protection standard for general industry
   C. a newly created respiratory protection standard for biologic hazards
   D. There are no requirements now for respiratory protection in hospitals.

10. Hospitals have responded to fit-testing rules by:
   A. using surgical masks instead of tight-fitting respirators
   B. stocking more brands of N95 filtering facepiece respirators
   C. limiting the number of employees assigned to wear respirators
   D. allowing employees to fit test themselves

11. According to CDC medical epidemiologist Michele Pearson, MD, hospitals should create what kind of preparedness plan for infectious diseases?
   A. One plan that includes some disease-specific information.
   B. Separate, disease-specific plans that cover the special circumstances for each.
   C. Regular infection control procedures can cover the preparedness needs.
   D. Hospitals can use CDC resources and don't need their own plans.

12. According to Susan McLaughlin, president of SBM Consulting, until fire safety issues are resolved, where should hospitals place dispensers of alcohol-based hand rubs?
   A. patient room and patient suites
   B. hallways and nurses stations
   C. special storage areas only
   D. The rubs cannot be used until approved by fire safety officials.

Answer Key: 9. B; 10. C; 11. A; 12. A

Reference

1. Dolan S, Nyquist SC, Ondrejka D, et al. Preliminary assessment of the effectiveness of the 2003-2004 inactivated influenza vaccine — Colorado, December 2003. *MMWR* 2004 53:8-11. ■

Intensive OSHA inspection produces citations, fines

Hospital takes positive approach to audit

A wall-to-wall, comprehensive Occupational Safety and Health Administration (OSHA) inspection resulted in 41 alleged health and safety violations and $91,500 in fines for New Britain (CT) General Hospital.

The inspection stemmed from a local emphasis program in OSHA's Region One, which targeted hospitals with more than eight lost workday injuries per 100 full-time equivalent (FTE) workers. The average lost workday rate for hospitals is four lost workday injuries per 100 FTE.

"It's one of the priorities of the agency," according to **Thomas Guilmartin**, OSHA area director, who is based in Hartford. "There are targeted industries, and health care is one of them."

In a statement, the hospital said the inspection had spanned several weeks and had involved an "intensive review of every hospital area" as a part of a regional initiative. "New Britain General Hospital is supportive of this OSHA initiative as it prospectively identifies potential areas for improvement," the hospital said.

"The hospital takes these allegations very seriously, and hospital representatives will be in consultation with OSHA to review these alleged violations and discuss each issue. The hospital is committed to a safe work environment and to correcting any concerns," it added.

Guilmartin lauded the hospital's cooperative spirit. "They took it on as a very comprehensive audit that was going to identify problems they needed to fix."

The safety inspection resulted in 20 citations for alleged serious violations and two for other-than-serious violations. They included:

- wet floors in a machine room;
- inadequate training of employees;
- pulleys and vertical or inclined belts that were not enclosed;
- confined space hazards and machine-guarding infractions.

The health inspection produced 17 alleged serious violations and two other-than-serious violations. They included:

- improper handling of blood-contaminated laundry;
- overfilled sharps containers;
- inadequate training on chemical health hazards;
- failure to require eye gear (such as goggles and face shields) to protect against splashes or splatters of blood or body fluids;
- inadequate labeling of potentially hazardous agents.

The hospital disputed some of the allegations and was negotiating with OSHA officials on the fine and the citations. ■

NEWS BRIEF

Are you using the new, updated OSHA forms?

As of Jan. 1, the Occupational Safety and Health Administration (OSHA) requires employers to use the revised OSHA 300 form, which includes a separate column for occupational hearing loss.

Hearing loss is recordable if the employee has a hearing level of 25 db or greater above audiometric zero and a work-related change of 10 db averaged over the frequencies 2,000; 3,000; and 4,000 Hz.

The rule also allows the employer to include an adjustment for hearing loss due to aging and to seek the advice of a physician or licensed health care professional to determine if the hearing loss was work-related.

The new form includes some other changes to make it more user-friendly, including more clear formulas for calculating incidence rates. For a copy of the form, go to: www.osha.gov/recordkeeping/new-osha300form1-1-04.pdf. ■

COMING IN FUTURE MONTHS

- How to build the cost-benefit case for ergonomics
- Hospitals with 'quarantine stations' prepare for the worst
- Handling concerns with indoor air quality
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CE objectives

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

- 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. ■