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Computer-based training not up to OSHA bloodborne pathogen standard

Program must allow for real-time Q&A

Technology has opened new avenues for health and safety training, but it comes with a caveat: Computer-based modules may not meet the requirements of the bloodborne pathogen standard.

The U.S. Occupational Safety and Health Administration (OSHA) requires employers provide "direct access to a qualified trainer during training," which can include e-mail only if the trainer is available to respond to the e-mail immediately.

"We don't want the person to have lost their answer or not have their questions answered," says **Dionne Williams**, MPH, industrial hygienist and team leader in the OSHA Office of Health Enforcement. "It has to be done in a way that employees still have the same opportunities they would if they were sitting in a classroom."

OSHA cites about 10 employers each year for failing to have real-time access to a trainer who can answer questions related to computer-based training, she reports.

"What we require is that at the time they're doing the computer-based training that there is the opportunity to contact someone," Williams says. "Telephone contact would be fine. What we would consider inappropriate would be someone doing training off-hours and the person who would be the appropriate trainer is not on shift and has to get back to the person."

Despite that issue, computer-based training remains appealing because it adds an element of flexibility and accountability, says **William G. Buchta**, MD, MPH, medical director of the employee occupational health service at the Mayo Clinic in Rochester, MN, which has about 20,000 employees who need bloodborne pathogen training.

"It forces [employees] to go slide by slide. They have to be actively involved. There are questions they have to answer and show a level of competence or understanding," he says. "In a lecture-based environment, you could sit in the back row, check off the roster when it goes by, and you're done."

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The training is separate from hands-on competency exams that supervisors conduct on individual units, he notes.

Switching off the computers

Hospitals have altered their training methods to conform to OSHA's restrictions on computer-based training.

Central Maine Healthcare, a three-hospital system based in Lewiston, revamped its training as a part of a broader effort to reduce bloodborne pathogen exposures. It updated its devices to

newer technologies, emphasized the use of straight needles as opposed to butterfly needles for blood draws when appropriate, and focused on changes in work practices — such as neutral passing zones in the operating room — says **Clark Phinney**, employee health and workers' compensation manager.

As they realized the existing computer-based training didn't meet the OSHA standard, Phinney and his colleagues considered how they could conform. Who would be available to answer questions for employees taking the class at 2 in the morning on the night shift?

"For us, after we debated it over the course of multiple meetings, a live class really is the immediate best alternative," he says. "It is a live class and everyone is required to take it annually."

Phinney used a template from the American Nurses Association to develop a PowerPoint presentation. He tailored the program for different segments of employees; for example, environmental services and food service workers viewed presentations that focused on the unique hazards in their workplaces. He added site-specific information, such as where and how to report, and other related safety information, such as how to don or doff personal protective equipment.

That meets an important OSHA requirement. According to an OSHA compliance directive, "a generic computer program, even an interactive one, is not considered appropriate unless the employer supplements such training with the site-specific information required [e.g., the location of the exposure control plan and the procedures to be followed if an exposure incident occurs] and a person is accessible for interaction."

"If you're using someone else's program, it's important to make it site-specific," explains Williams. "Some of the hazards at one facility may not be the same at another facility."

It may seem daunting to conduct annual training sessions for more than 2,000 employees and keep track of who missed the training. Central Maine Healthcare is using a "train-the-trainer" approach, with designated clinical staff who have agreed to serve as trainers. Most sessions are held during regularly scheduled staff meetings.

Others are held at 6:30 a.m. or at 6 p.m. to be convenient for either the day or night shifts.

Tailor the medium to your needs

For many hospitals, a well-orchestrated, computer-based system still may be the way to go.

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Access to an on-call infection control specialist through a hotline number could satisfy the OSHA requirements, Buchta notes.

"I think a little tweaking is all most people need to be compliant with the regulation," he says. "But I think the regulation needs to be looked at to bring it up to reality."

Training has come a long way

The quality of computer-based training has improved significantly, and facilities can embed videos in the presentations to demonstrate techniques, notes Buchta. When employees complete computer-based training at Mayo, human resources automatically receives the information, which provides instant accountability.

"It's easy to run reports of who hasn't completed the training by a certain date," he says.

Meanwhile, Mayo also has targeted specific units with hands-on, one-on-one training to reduce technique-related needlesticks. In some cases, those focused efforts have led to changes in the device selection in favor of newer technology, he says.

It's important to address your training needs with the right kind of training, notes needle safety expert **June M. Fisher, MD**, director of the TDICT Project at San Francisco General Hospital.

Computer-based training can require employees to be engaged by responding to questions. But it can never substitute the experience of actually demonstrating use of a device. "Each time a new device is used, you have to have hands-on training," she says. ■

OSHA bloodborne pathogen standard requirements

OSHA's bloodborne pathogen standard sets the following training requirements:

- Annual training for all employees shall be provided within one year of their previous training.
- Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.
- Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.
- The training program shall contain, at a minimum, the following elements:
 - an accessible copy of the regulatory text of this standard and an explanation of its contents;
 - a general explanation of the epidemiology and symptoms of bloodborne diseases;
 - an explanation of the modes of transmission of bloodborne pathogens;
 - an explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;
 - an explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;
 - an explanation of the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices, and personal protective equipment;

- information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment;

- an explanation of the basis for selection of personal protective equipment;

- information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;

- information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;

- an explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;

- information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;

- an explanation of the signs and labels and/or color coding required (warning labels on containers of regulated waste, containers of blood, blood components or blood products or other potentially infectious materials, or contaminated equipment and for HIV and HBV research laboratories and production facilities);

- an opportunity for interactive questions and answers with the person conducting the training session.

- The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as they relate to the workplace that the training will address.

(Editor's note: The complete OSHA standard is available at www.osha.gov/SLTC/bloodborne-pathogens/index.html.) ■

NIOSH offers solutions for sonographers

Adjustable workspace reduces injury

Sonographers at St. Peter's University Hospital in Piscataway, NJ, were reaching as far as 24 inches, pressing with a force of 4 to 8.5 pounds to

perform imaging on pregnant women. Some of their shoulder abduction angles were as high as 70 or 80 degrees. Not surprisingly, they suffered neck, shoulder, and arm pain.

"We noticed that many of the classical biomechanical stress factors associated with heavy industry jobs were part of what they do," says **Daniel Habes**, MSE, CPE, an industrial engineer with the Hazard Evaluations and Technical Assistance Branch of the National Institute for

Preventing work-related MSDs in sonography

NIOSH recommends the following controls to reduce the risk of musculoskeletal injury for sonographers:

Equipment

- Provide adequate workspace for personnel, sonography equipment, the patient table, and other equipment.
- Ensure that sonography equipment is fitted with a high-resolution screen that has a high refresh rate (85 Hz or higher), a noninterlaced monitor, and an easily adjustable "brightness control" to reduce eye strain. Position the equipment monitor directly in front of the sonographer.
- Position the keyboard to allow the arm to be in a relaxed position, with the upper arm close to the body (minimal flexion and abduction), and the elbow at a 90-degree angle. A laptop computer may enable the sonographer to achieve a favorable position with respect to the patient. However, be aware that laptops can present other problems because the keyboard and monitor cannot be positioned separately, which makes them difficult to handle at the bedside.
- Use a posture-enhancing adjustable chair to accommodate the sonographer through adjustable footrests, seat heights, and lock and release casters. Casters should allow for rolling between patients and the ultrasound machine when necessary, yet prevent rolling backwards when performing necessary procedures.
- Use motorized adjustable tables (including those equipped with drop-down side rails) to optimize the positions of the patient and the sonographer. The table should be as narrow as possible (preferably 24 to 27 inches wide) to allow for proximity to the patient and to reduce the amount of shoulder abduction needed to reach the patient's far side.

Work Practices

- Decrease the duration of static posturing:
 - Vary postures throughout the day.

- Sit or stand, depending on the exam.
- Decrease hand-grip pressure:
 - Alternate the scanning hand and vary the grip used.
 - Take short breaks.
 - Loosen grip on the transducer.
- Minimize awkward and extreme postures.
- Increase tissue tolerances through exercise and adequate rest.

Scheduling

- Schedule different types of exams for each sonographer in a workday to decrease strain on musculoskeletal tissues specific to one type of exam.
- Limit the number of portable exams to help minimize those tasks with a higher number of pinch grips and increased static or awkward postures.
- Consider a maximum number of scheduled exams for sonographers. Take into account existing ergonomic conditions and equipment, the type of exams performed, experience of the sonographer, and the duration of the individual exams. Because of the complexity of each diagnostic situation, it is difficult to specify an allowable limit to the number of exams per day. Until better information is obtained, take into account the total examination time per day (more exams of shorter duration or fewer exams of longer duration).

Training

Periodic training and reassessment regarding the above ergonomic interventions should include the following:

- Setting up the equipment, bed, and chair.
- Modifying the equipment positioning during scanning.
- Positioning patients.
- Using adaptive equipment or devices, such as cushions and wedges, and the patient's limbs for resting the elbows during scans.
- Taking rest breaks during the procedures.
- Maintaining good physical fitness and conditioning.
- Optimal handling of specialized tests such as transvaginal examinations.
- Having symptoms promptly evaluated by a licensed health care provider.

Source: National Institute for Occupational Health and Safety, Publication No. 2006-148; September 2006. www.cdc.gov/niosh/docs/wp-solutions/2006-148/.

Occupational Safety and Health (NIOSH) in Cincinnati.

The health hazard evaluation, conducted in 1999, led to specific recommendations to reduce those stresses. Now all hospitals can follow some basic parameters offered in a new NIOSH document on "workplace solutions" for reducing musculoskeletal disorders among sonographers. (See p. 28.)

"Hopefully, this will get out to even more people than ever before," says Habes. After all, she adds, it's not like meatpackers, who may simply change jobs if they begin to feel pain. Sonographers "were educated to perform these procedures for a long period of time, much like any other career," he says. Even perinatologists, who do some hands-on imaging after the sonographers complete their exam, have suffered injuries from the awkward postures and forces, he says.

Thanks to changes in design, the tools now are available to modify the work environment for sonographers and reduce the risk of injury, notes **Joan Baker**, MSR, RDMS, RDCS, FSDMS, a former sonographer and director of global marketing for Sound Ergonomics, a consulting firm based in Kenmore, WA. Manufacturers have created user-friendly equipment, but "it takes another decade to get that equipment integrated into the workplace," she says.

When hospitals purchase new sonography equipment or chairs or beds for sonography exam rooms, they should consider the impact on the sonographers and physicians, she says.

Sonographers need short breaks

In 1999, Habes and NIOSH colleague **Sherry Baron**, MD, MPH, responded to a request for a health hazard evaluation at St. Peter's University Hospital, which is affiliated with the University of Medicine and Dentistry of New Jersey. They videotaped several procedures and gave the sonographers symptom surveys that asked about pain or discomfort.

The sonographers performed about 10 extensive high-resolution ultrasound exams each day, which lasted an average of 18.5 minutes. They allowed themselves little release from the exertion during the exams.

"[E]rgonomics guidelines suggest that a rest period equal to the length of the sustained muscle exertion should take place before the exertion is repeated," Habes and Baron found, but video analysis revealed that "recovery times were never

more than just a few seconds."

Meanwhile, the exam rooms had different configurations, with beds that were not height-adjustable. "Many of the factors associated with physical stress to the workers were related to the design and lack of adjustability of work station components and equipment," Habes and Baron wrote.

The sonographers could reduce some stresses by reconfiguring their workspace or posture, but they were reluctant to ask the patients to move, the evaluation showed. "Many of the technologists performed the procedures with total regard for the patient and little for themselves. They rarely asked the patient to move up or down or to lower her leg to improve their own postures or to rest their arm on the patient's leg or the edge of the bed," Habes and Baron found.

They recommended adjustable chairs and beds, elbow supports, sit/stand stools, changes in the position of the monitors, and short rest breaks during an exam.

Some education is in order, as well: The sonographers may not realize how their awkward positions cause musculoskeletal discomfort, says Habes. "I was surprised that the workers themselves could not relate the specific things they were doing to their problems," he says. ■

Solve these common ergonomics problems

Get your money's worth from devices

Suppose you spent thousands of dollars on new patient handling equipment and your injuries hardly declined. It would be tempting to conclude that the equipment was a waste of money. Why invest in more of the same?

In fact, failures in safe patient handling programs are more often the result of other problems. Fix those errors, and you can discover cost savings and injury reductions.

The "do's" and "don'ts" of ergonomics will be among the topics addressed at the upcoming Safe Patient Handling & Movement Conference organized by the VISN 8 Patient Safety Center of Inquiry at the James A. Haley Veterans' Hospital in Tampa, FL. (See editor's note for more information on the conference at the end of this article.)

"Just the fact that you purchase equipment

isn't going to make things better for you," says **Guy Fragala**, PhD, senior advisor for ergonomics for the safety center. "You need to purchase the equipment as a part of a comprehensive effort."

Avoid these common problems

Fragala shared some common problems and solutions with *Hospital Employee Health*:

- **Employees think using the equipment is too time-consuming or bothersome.**

"You want to simplify work for people, not make it more complicated," he says. "If they think it's going to make it easier and also help the patient, they're going to be more likely to want to use the equipment."

Forget about storing the equipment in a closet. No one wants to leave the patient to hunt for a lift. Fire codes require you to keep the hallways clear, but if you have wide corridors, you may be able to place the equipment along one side.

"Make a provision in your fire plan [so that] in your fire drill you move that equipment when there's a fire alarm," he says.

If you have the luxury of a renovation or new construction, create alcoves to store equipment or shift to ceiling lifts, which allow lifts to be available in individual patient rooms.

- **Employees don't know when to use the equipment.**

Obviously, you need a good training program to go with your equipment purchase.

"Training is as important, if not more important, than the equipment you select," says **Grant Montgomery**, business development manager at Sunrise Medical, a medical equipment manufacturer based in Stevens Point, WI. Fragala consults with Sunrise Medical, where he serves as "champion" of the Creating a Safer Environment program.

But beyond the training, you need to develop a protocol for assessing each patient's patient handling needs. That information should be prominent and readily accessible to caregivers, says Fragala.

Those needs must be updated if the patient's condition or mobility changes. Algorithms to help assess those needs are available from the Tampa VA at <http://www1.va.gov/visn8/patientsafetycenter/safePtHandling/default.asp>.

"People need to view equipment as new tools to help them in the work that they do," says Fragala.

- **You don't have enough equipment.**

Maybe you wanted to be economical by limiting your equipment purchases. That strategy also limits your effectiveness.

Instead, target your efforts toward units with the higher injury rates and workers' compensation costs.

Evaluate the patients' needs, such as their level of dependency, to make sure you have the right amount of the right kind of equipment, advises Fragala.

As a general rule, you should have one full lift for every 10 patients who would need one, he says. You may need stand-assist lifts for partially dependent patients, and you can buy more friction-reducing lateral transfer devices.

"Because the cost is much less [for the lateral transfer devices], you're probably going to want to have one in each room," he says.

- **Employees are excited about the equipment at first, but use drops off.**

"To make a program sustainable, you have to have a process for ongoing training," says Fragala.

You may use DVDs (often provided by vendors) combined with annual competency testing for employees to demonstrate their skill in using the equipment, he says. Montgomery recommends some type of refresher training every six to 12 months.

At the Tampa VA, trained Back Injury Resource Nurses (BIRNs) become champions of the safe patient handling program on their units. They are peer leaders who help their colleagues with equipment, patient assessment, and other issues. They also need periodic coaching, feedback, and support.

Vendors of safe patient handling equipment often offer long-term support, including refresher training. In fact, you should evaluate the vendors overall safe patient handling program before you make a purchase, advises Fragala.

"Think of the vendor as more of a partner in developing solutions, someone who's going to provide you with ongoing support to solve these problems," he says. "A lot of vendors now are developing more comprehensive lines as we understand the solution is more than just lifts."

(Editor's note: The Safe Patient Handling and Movement Conference will be held at Disney's Contemporary Resort in Lake Buena Vista, FL, March 12-16, 2007. More information is available at www.cme.hsc.usf.edu/sphm and www.visn8.med.va.gov/patient_safetycenter.) ■

Clean hands: Will HCWs swear to do it?

Pledging program raises compliance

Physicians take an oath to do no harm to their patients. That covers not just life-and-death decisions, but the routine protections against infection. To emphasize that connection, **Johanna Goldfarb, MD**, head of pediatric infectious diseases at Children's Hospital at The Cleveland Clinic, asks health care workers to take an oath to comply with hand hygiene.

It seems like a simple concept that wouldn't require a special dedication: Wash your hands or use hand sanitizer before and after every patient contact. But studies show that health care workers too often ignore this infection control principle.

In 2002, when the Centers for Disease Control and Prevention issued its *Guideline for Hand Hygiene in Health-Care Settings*, the average compliance with hand hygiene was just 40%.¹ The CDC recommended the use of alcohol-based hand gels, which reduce skin irritation and make hand hygiene more efficient.

But while hand hygiene has improved with the new gels, compliance still is lacking, says **Elaine Larson, RN, PhD, FAAN, CIC**, associate dean for research and professor of pharmaceutical and therapeutic nursing at Columbia University School of Nursing. Direct observation of hand hygiene in the ICUs of 40 hospitals found that hand hygiene compliance remains just 57%. Although alcohol-based products were readily available and staff reported that they were aware of the hand hygiene guideline, 44% of the hospitals lacked multidisciplinary programs to improve compliance, Larson and her colleagues found.²

It takes a long time to create a significant, lasting change in behavior, says Larson. "It's not that people aren't using [the gels]," she says. "It's just that they're still not using it enough."

Hospitals should seek compliance rates of about 90%, says hand hygiene expert **John Boyce, MD**, chief of the infectious diseases section at the Hospital of Saint Raphael in New Haven, CT, and an author of the CDC guidelines. The Joint Commission has created an expert panel to determine the best way to monitor hand hygiene.

Improving compliance requires awareness campaigns, including feedback to employees about their hand hygiene performance, he says. "You

How to keep your hands clean

The Centers for Disease Control and Prevention and the Hand Hygiene Resource Center at the Hospital of Saint Raphael offer this advice for health care workers to perform hand hygiene:

- When health care personnel's hands are visibly soiled, they should wash with soap and water. Employees also should wash with soap and water before eating and after using the restroom.
 - Wet hands first with water (avoid hot water);
 - apply 3 ml to 5 ml of soap to hands;
 - rub hands together for at least 15 seconds;
 - cover all surfaces of the hands and fingers;
 - rinse hands with water and dry thoroughly;
 - use paper towel to turn off water faucet.
 - When using an alcohol-based handrub, apply the product to the palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry. Note that the volume needed to reduce the number of bacteria on hands varies by product.

- Health care personnel should avoid wearing artificial nails and keep natural nails less than ¼-inch long if they care for patients at high risk of acquiring infections (such as patients in intensive care units or in transplant units).

- As part of these recommendations, the CDC is asking health care facilities to develop and implement a system for measuring improvements in adherence to the hand hygiene recommendations. Some of the suggested performance indicators include: periodic monitoring of hand hygiene adherence and providing feedback to personnel regarding their performance, monitoring the volume of alcohol-based handrub used/1,000 patient days, monitoring adherence to policies dealing with wearing artificial nails, and focused assessment of the adequacy of health care personnel's hand hygiene when outbreaks of infection occur.

(Editor's note: More information about hand hygiene is available from www.cdc.gov/handhygiene and www.handhygiene.org.) ■

can't just put out dispensers of an alcohol hand sanitizer. If that's the only thing you do, one [study] showed it didn't have any long-standing improvement," Boyce says.

Hand hygiene starts from the top

At Children's Hospital at The Cleveland Clinic, education is fundamental to improving hand hygiene. Even clinical employees need reminders about the link between hand hygiene and hospital-acquired infections, says Goldfarb.

"People may not understand how important it is," she says. "They look at their hands and they look clean. It's hard to see the impact of hand hygiene."

They also may feel that glove use makes it less necessary to wash hands or use sanitizer. "Gloves cannot be thought of as a substitute for hand hygiene," says Goldfarb. "When you take the glove off, whatever you've touched may get on your hand."

Creating a culture of safety begins at the top, she says. Goldfarb presented her firsthand hygiene awareness session to the medical executive committee.

"I always end these sessions by asking people to swear an oath to hand hygiene: 'Raise your right hand. I do solemnly swear, that I will wash my hands or use hand sanitizer before and after every patient encounter,'" she says.

Delos Cosgrove, MD, CEO of The Cleveland Clinic, was among the first to take the hand hygiene "oath." Goldfarb gives out pins to those who take the oath, a token of their pledge. (The pins can be ordered from the Centers for Disease Control and Prevention at www.cdc.gov/hand-hygiene/materials.htm; they feature the slogan "Clean hands save lives.")

"I just felt it was something that had to be personal," says Goldfarb, who has made a special effort to influence doctors in training to comply with hand hygiene. "This is one of the most important things they can do to take care of their patients. To me, this is an ethical responsibility. I see it as something worthy of an oath."

Goldfarb is monitoring hand hygiene compliance and noticed changes immediately after beginning the awareness campaign. (Compliance numbers are not yet available for the campaign, which began in November.)

Persistence is an important component, she says. "If you meet me in the hall, I'm liable to stop you and make you swear the oath and get a pin."

If that isn't enough, Goldfarb has empowered a different group of monitors: the health care consumer. A sign in each patient's room and a card given to parents will encourage the parents to speak up if their child's caregiver has not used hand hygiene. "We're trying to get them on our side," she says.

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1. Centers for Disease Control and Prevention. Guideline for Hand Hygiene in Health-Care Settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. 2002; 51(RR16):1-44.

2. Larson EL, Quiros D, Lin SX. Dissemination of CDC's hand hygiene guideline and impact on infection rates. *Am J Infect Control* 2007 (in press). ■

Myth-buster: Flu vaccine doesn't cause influenza

Awareness needed to raise immunization rates

Can you bust the biggest myth of influenza vaccination? Finding a way to may make the difference in your immunization rates.

The myth: Influenza vaccine can give you influenza. The fact: The vaccine is not a live virus.

"Injectable vaccine is made up of parts of the virus," says **William Schaffner**, MD, chair of the department of preventive medicine at Vanderbilt University in Nashville and vice chair of the National Foundation for Infectious Diseases. "It can't reconstitute itself and become a virus.

"That is the most persistent myth. It is particularly well embedded among nurses."

FluMist, the nasal spray vaccine, uses a weakened live virus that is cold-adapted so that it cannot replicate in the warmer region of the lungs. It also cannot lead to influenza illness, although it can cause side effects that include headache, sore throat, runny nose, and cough.

The National Foundation for Infectious Diseases conducted an opinion survey among the general public and found that 46% believed that they could get influenza from the influenza vaccine.

An e-mail survey of health care workers who did not receive the vaccine found similar concerns among those who believed "it will give me side effects or a 'cold.'" Nurses were less likely to receive the vaccine than physicians, and outpatient nurses

had higher acceptance rates than inpatient nurses, Schaffner says.

People tend to assume any symptoms they have around the time of the vaccine came from the flu shot, he says. After all, they're receiving the vaccine just as respiratory viruses are beginning to circulate.

"You get your inoculation or nasal spray, and three days later you get a respiratory illness," he says. "People falsely attribute their cold to the influenza vaccine."

They also attribute random headaches, achiness, or sniffles to the vaccine. "The symptoms people say they get after the flu shot are the same ones they say they get after they didn't know it, but we gave them a placebo," says flu vaccine expert **Greg Poland**, MD, director of the Mayo Vaccine Research Group at the Mayo Medical School of the Mayo Clinic and Foundation in Rochester, MN. "Yet this [myth] persists."

To make matters more confusing, flu symptoms can be quite varied. Some people remain asymptomatic and others have only a sore throat, a low fever, a dry cough, and a runny nose for a few days. Yet the flu can cause a high fever; a persistent, hacking cough; extreme tiredness; headaches; and other respiratory symptoms with the potential complication of pneumonia. About 36,000 people die each year from complications of influenza.

So how can you combat this deep-seated myth? Provide information on the flu and flu vaccine — again and again. Repetition is the key, says Schaffner. "You have to keep telling the truth over and over again," he says.

Make sure health care workers understand the difference between the cold and the flu — and that the "stomach flu" isn't influenza at all. Nausea, vomiting, and diarrhea are rare influenza symptoms in adults. "The only thing the flu shot protects against is influenza, not the hundreds of other organisms that circulate in the winter," says Poland.

Present data about the effectiveness of the flu vaccine. If the vaccine is a good match with circulating strains, the effectiveness is about 70% to 90% among healthy adults, according to the Centers for Disease Control and Prevention. Even with a match that is not optimal, the effectiveness may be 50% to 60%. Vaccination also may reduce hospitalizations from complications of influenza.

Hospital leadership can play a key role by prominently promoting the flu vaccine, says Schaffner. Even if you think you've gotten the word out about the importance of the flu vaccine, keep up your awareness campaign. Myths die hard.

"One hopes, in due course, we will wear it

down," says Schaffner. "I suspect we will never eliminate it completely, unfortunately." ■

Twisting, bending add to HCW ergo risk

Reduce hazards by changing environment

Heavy lifting isn't the only strain causing musculoskeletal injuries in health care workers. Hospital employees are often twisting and bending sideways with trunk flexions and rotations that contribute to their risk of injury, according to a large observational study conducted by researchers at the University of Massachusetts Lowell.

The study suggests that lift equipment only is one aspect of reducing ergonomic hazards in hospitals. "It's not going to eliminate all of the stress in the back because it's not all from lifting," says **Laura Punnett**, ScD, professor in the university's department of work environment.

The study, funded by the National Institute for Occupational Safety and Health (NIOSH), involved 23,071 direct observations in 94 observation periods in two hospitals and two nursing homes. The hospitals and nursing homes varied in their use of patient lift equipment.

Six trained observers looked for "ergonomic exposures to sagittal trunk flexion greater than 45 degrees, axial rotation and lateral bending greater than 20 degrees, manual load handling greater than 10 pounds," as well as other characteristics of work.

There were some differences between the nursing home and hospital activities. "Nursing home employees, mostly nurses and aides, are spending a lot of time bent over taking care of residents in beds and chairs," says Punnett. Height-adjustable beds could help reduce that ergonomic hazard, she adds.

The many varied jobs in hospitals produced a wide range of risks. For example, staff nurses, along with rehabilitation therapists and nurses' aides and orderlies had the highest exposures to trunk bending, while nurses' aides and orderlies faced the greater manual load handling from their tasks in patient transfers.

Laboratory workers, diagnostic technicians, and dialysis technicians were often twisting and had the highest rank for axial rotation and lateral bending.

Some of the awkward postures related to equipment layout, and the researchers provided suggestions to the hospital after the observations to improve the work environment, Punnett says.

For example, equipment that is used most often should be positioned close to the employee, so he or she doesn't have to reach. "Heavy items should be stored as close to waist height as possible as opposed to on the floor or above chest height," Punnett advises.

A trained ergonomist can identify potential hazards and suggest workplace changes, she says.

Jobs that had ergonomic hazards included:

- Food service employees who had repetitive upper-extremity work and prolonged standing.
- Laundry and custodial workers who had dynamic pushing and pulling of carts and lifting of heavy bags of laundry, trash, and biohazard waste.
- Maintenance and repair staff, with a wide variety of tasks that involved awkward postures, heavy lifting, and vibrations from powered tools.

The study also showed that direct observations can provide a unique view of job hazards. Asking workers about their daily activities simply cannot capture all the potential concerns, says Punnett.

"A lot of questions have been raised about how accurately people can report their own exposures," she says. "You can't see your own back position, you're not counting how much time you spend doing one thing vs. another."

Punnett and her colleagues developed the observational technique while observing the construction trades. It is based on an industrial engineering technique called work sampling, in which observations are used to determine how often a machine is in use.

The observational method was successful, and provides information that can be used along with workers' compensation and injury data and employee surveys to gain a better understanding of ergonomic hazards, she says. The study was part of the five-year PHASE (Promoting Healthy and Safe Employment in Healthcare) study, sponsored by NIOSH and conducted by the University of Massachusetts Lowell.¹

Reference

1. Boyer J, Tessler J, Park J, et al. Development of a group-based ergonomic assessment strategy for characterizing physical workload in healthcare workers. *Proceedings of the Human Factors and Ergonomics Society 50th Annual Meeting* 2006; 1,107-1,111. ■

CNE questions

9. According to an OSHA compliance directive, which of the following would comply with annual training requirements for the blood-borne pathogen standard:
 - A. A list of frequently asked questions
 - B. An opportunity to e-mail questions
 - C. A telephone hotline with a real-time response
 - D. Only a live trainer would comply
10. According to a NIOSH health hazard evaluation, what is one important method that sonographers should use to reduce awkward postures?
 - A. Adjust the height of chairs and beds
 - B. Purchase new sonography equipment
 - C. Use more than one sonographer for an exam
 - D. Stand during a sonography exam
11. According to Guy Fragala, PhD, senior advisor for ergonomics at the VISN 8 Patient Safety Center of Inquiry at the James A. Haley Veterans' Hospital in Tampa, FL, what is a good ratio of mechanical lifts to patients?
 - A. One lift for every 20 patients
 - B. Two lifts per unit
 - C. One lift for every 10 dependent patients
 - D. One lift per patient room
12. A study by Elaine Larson, RN, PhD, FAAN, CIC, of the Columbia University School of Nursing found what level of compliance with hand hygiene?
 - A. 40%
 - B. 57%
 - C. 63%
 - D. 91%

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

CNE instructions

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

IOM panels consider standards for PPE

Gowns, face shields vary in quality

Is your safety equipment safe enough? Two Institute of Medicine panels are considering whether personal protective equipment (PPE) should be required to meet certification standards.

The Committee on Personal Protective Equipment for Workplace Safety and Health is considering certification issues as well as guidance and training. The Committee on Personal Protective Equipment for Healthcare Workers During an Influenza Pandemic also is addressing wearability, training, certification, and the need for further research related to PPE.

Currently, respirators are certified by the National Institute for Occupational Safety and Health. The Food and Drug Administration checks samples of medical gloves for water leaks and visible defects.

But other types of PPE, including goggles and face shields, do not need to meet federal quality standards. It's up to consumers to look for products that have been certified that they meet voluntary standards, such as those of the American National Standards Institute (ANSI).

"If the product is certified, it demonstrates that a product complies with a standard," says **Reinaldo Figueiredo**, MS, program director for the accreditation of product certification at ANSI in Washington, DC. "You have more confidence in the performance of the product."

For example, protective eyewear should perform well in splash tests and should meet minimum standards for impact resistance and flame resistance, says **Patricia Gleason**, president of the Safety Equipment Institute in McLean, VA, which certifies protective eyewear and protective clothing, among other items.

It's important for consumers to know that quality may vary in personal protective equipment, she says. "We've had manufacturers who wanted

their product certified and we found that it did not pass testing. They had to go back and redesign," she says.

(Editor's note: The Institute of Medicine Committee on Personal Protective Equipment for Healthcare Workers During an Influenza Pandemic planned to hold a scientific workshop on Feb. 22 in the lecture room of the National Academy of Sciences at 2100 C Street N.W., Washington, DC. More information on the committee's activities is available at www.iom.edu/CMS/3740/39644.aspx.) ■

AOHP, occ health gain recognition in alliance

JCAHO council gets EH perspective

Occupational health nursing now has a seat at the table when health care quality and pandemic preparedness are being discussed.

The Joint Commission invited the Association of

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COMING IN FUTURE MONTHS

■ Extensively drug-resistant TB: A new reason for vigilance

■ Use of pertussis vaccine among health care workers

■ Has the time come for a national Safe Patient Handling law?

■ Needlestick prevention loses its momentum

■ JCAHO seeks a better way for hospitals to monitor hand hygiene

Occupational Health Professionals in Healthcare (AOHP) to join the Nursing Advisory Council. The action came swiftly after AOHP petitioned The Joint Commission in August, asking for the recognition.

AOHP members have noted that Joint Commission surveyors often overlook employee health, although a number of Joint Commission standards affect that area.

Membership on the Nursing Advisory Council will give a new voice to employee health, says **Denise Knoblauch**, RN, BSN, COHN-S/CM, executive president of AOHP and clinical case manager at the OSF SFMC Center for Occupational Health of Saint Francis Medical Center in Peoria, IL. ■

CNE objectives

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

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

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