

Hospital Employee Health[®]

THE PRACTICAL GUIDE TO KEEPING HEALTH CARE WORKERS HEALTHY



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Hepatitis outbreaks underscore ongoing transmission risk to health care workers

IC failures may reflect an overall lack of safety

Recent outbreaks of hepatitis C are a wake-up call to boost infection control practices, particularly in outpatient settings. But they also underscore the prevalence of HCV and the continued occupational risk to health care workers.

A review of investigations by the Centers for Disease Control and Prevention revealed that health care facilities have contacted more than 60,000 patients and asked them to be tested for hepatitis B due to the failure of health care workers to follow proper infection control practices. There were 33 outbreaks in outpatient clinics, hemodialysis centers, and long-term care facilities, resulting in transmission of HCV or hepatitis C to 450 people.¹

The outbreak scenarios included cases in which health care workers reused syringes on multiple patients or contaminated multidose vials by reusing a syringe. This spring, Veterans Affairs centers in Florida, Tennessee, and Georgia began notifying and testing thousands of patients for hepatitis

CDC rolls out pandemic plan for swine flu patients

Negative-pressure rooms, full isolation measures, N95s

Warning that continuing transmission and more severe disease are likely, the Centers for Disease Control and Prevention has issued infection control guidelines for hospitals admitting patients with an emerging swine flu strain. The guidelines are similar to those devised to combat avian influenza A (H5N1), but it appears swine influenza A (H1N1) may have

*(See **Swine flu**, continued on page 64)*

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B and C and HIV who had been exposed to endoscopy equipment that was not properly disinfected.

Infection control lapses raise concern about an overall lack of safety. "If you've got a facility that's not practicing according to basic standards of safety and infection control, in terms of patient-to-patient transmission, then the chances are probably pretty good that they're not attending to worker safety either," says **Jane Perry**, MA, associate director of the International Healthcare Worker Safety Center at the University of Virginia in Charlottesville.

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Editorial Questions

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There have been no recent prevalence studies of health care workers and hepatitis C, although past studies did not show an elevated rate. But a recent CDC analysis of death certificates indicates that health care workers have an occupational risk. Twenty years of data (1984 to 2004) from the National Occupational Mortality Surveillance System found that female health care workers have a 20% greater risk of dying from hepatitis C than women in other occupations. Male health care workers have a 50% elevated risk.²

"Our data doesn't link any of these deaths to specific occupational incidents," says **Sara Luckhaupt**, MD, medical officer in the surveillance branch of the Division of Surveillance, Hazard Evaluation and Field Studies at the National Institute for Occupational Safety and Health in Cincinnati.

But the consistency of the HCV finding was telling. "Since we found the association for both males and females [with HCV], it made us more suspicious that there was an occupational risk," she says.

'Hidden' epidemic of HCV

An estimated 4 million Americans have a chronic hepatitis C infection, but because many of them aren't aware of the infection, HCV has been called "the hidden epidemic." The National Health and Nutrition Examination Survey (NHANES), which had about 15,000 participants from 1999 to 2002, found a peak prevalence in the 40 to 49 age group. Almost two-thirds (63%) of those who tested positive for HCV RNA said they had never been told they had "any kind of liver condition."³

In some settings, the prevalence of HCV may be significantly higher than the national estimate of 1.6%. For example, a VA study of 1,288 veterans in 20 medical centers found a prevalence of 5.4%.⁴

CDC needs to do more prevalence studies of HCV, including studies of health care workers and their patients, asserts **Robert T. Ball Jr.**, MD, MPH, infectious disease epidemiologist with the South Carolina Department of Health and Environmental Control in Charleston. Health care workers also need to understand the relative risks of bloodborne pathogen exposure, he says.

Although studies show a seroconversion rate of about 0.5% after an exposure to HCV, the higher prevalence is a concern, he says. "Anytime a health care worker gets an exposure from a splash or a stick, the overall likelihood of the source having hepatitis C is five times greater than the source

having HIV," says Ball.

Because there is no vaccine (as there is for hepatitis B) and no post-exposure prophylaxis (as there is for HIV), "we really stress prevention," says **Tara MacCannell**, PhD, health care epidemiologist in the Division of Healthcare Quality and Performance at CDC.

The U.S. Occupational Safety and Health Administration requires annual training on blood-borne pathogens. Health care-related transmissions

New CDC database offers sharps benchmarking

NHSN adds modules on needlesticks, flu shots

In a major boost for employee health benchmarking, the Centers for Disease Control and Prevention is launching new modules for data collection of bloodborne pathogen exposures and health care worker influenza immunization.

The National Healthcare Safety Network (www.cdc.gov/nhsn) currently collects patient safety data from more than 2,200 hospitals. The bloodborne pathogen module will comply with U.S. Occupational Safety and Health Administration reporting requirements and will enable facilities to track their own exposures as well as compare their data to other facilities, says **Tara MacCannell**, PhD, health care epidemiologist in the Division of Healthcare Quality and Performance at CDC.

NHSN will use number of workers as a denominator for benchmarking purposes. CDC's previous database, the National Surveillance System for Healthcare Workers (NaSH) did not have a denominator. It was discontinued in December 2007.

CDC hopes to attract many of its current hospitals that use the NHSN to monitor health care-associated infections. It also will be open to other health care facilities, such as ambulatory and long-term care.

"For the first time in a long time, facilities can start to look at these rates fairly objectively and initiate prevention strategies with tailored data that is specific to their own region," says MacCannell.

The EPINet Sharps Injury Surveillance System, maintained by the International Healthcare Worker Safety Center at the University of Virginia in Charlottesville, also provides benchmarking information for hospitals. Many of its member hospitals are part of the PHTS, a risk management alliance based in Columbia, SC. EPINet data are reporting for teaching and nonteaching facilities. ■

underscore the importance of that training, which should include information about HCV.

CDC has vowed to conduct better surveillance of HBV and HCV and to support educational outreach. The Safe Injection Practices Coalition, a group that includes organizations representing nurse anesthetists, infection control professionals, ambulatory surgery centers, and patients, is promoting the One & Only Campaign to emphasize the single use of syringes and needles.

Being proactive is critical, says MacCannell. Due to the nature of HCV infection, "it may be years before you detect that there are deficiencies in training or workplace practices," she says.

At the same time, it is critical to include needle safety in the education about safe injection practices, says Ball. "Remind health care workers that their needlestick risk [of contracting HCV] is significant," he says.

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UV light zaps undiagnosed TB

NIOSH offers guide to effective use

New guidelines promote the use of ultraviolet light in hospitals as an effective way to reduce the risk of tuberculosis transmission from the undiagnosed case. The National Institute for Occupational Safety and Health (NIOSH) released its publication, *Environmental Control for Tuberculosis: Basic Upper-Room Ultraviolet Germicidal Irradiation (UVGI) Guidelines for Healthcare Settings*, to provide detailed recommendations for the use of UV germicidal irradiation (www.cdc.gov/niosh/docs/2009-105/).

"It is a promising technology to help prevent

Swine flu

(Continued from cover)

beaten “bird flu” to the pandemic punch. As this issue went to press, the situation was very much in flux.

Public health officials were confirming numerous cases in an expanding number of states and nations and were expecting more patient deaths and health care worker exposures and infections in the United States. Illness signs and symptoms include fever and respiratory problems (cough, sore throat, and runny nose), headache, muscle aches — and have had vomiting and diarrhea in some cases. The potential for exacerbation of underlying chronic medical conditions or invasive bacterial coinfection with swine influenza virus infection should be considered. The CDC infection control recommendations for patients with confirmed or suspected infection with H1N1 swine flu include:

- **Patients should be placed in a single-patient room with the door kept closed.** If available, an airborne infection isolation room with negative pressure air handling with six to 12 air changes per hour can be used. Air can be exhausted directly outside or be recirculated after filtration by a high-efficiency particulate air (HEPA) filter. For suctioning, bronchoscopy, or intubation, use a procedure room with negative pressure air handling.

- **The patient should wear a surgical mask when outside of the patient room, and should be encouraged to wash hands frequently and follow respiratory hygiene practices.** Cups and other utensils used by the patient should be washed with soap and water before use by other persons. Routine cleaning and disinfection strategies used during influenza seasons can be applied to the environmental management of swine influenza.

- **Standard, Droplet, and Contact precautions should be used for all patient care activities, and maintained for seven days after illness onset or until symptoms have resolved.** Maintain adherence to hand hygiene by washing with soap and water or using hand sanitizer immediately after removing gloves and other equipment and after any contact with respiratory secretions. Personnel providing care to or collecting clinical specimens from suspected or confirmed cases should wear disposable nonsterile gloves, gowns, and eye protection (e.g., goggles) to prevent conjunctival exposure.

Pending clarification of transmission patterns for this virus, personnel providing direct patient care for suspected or confirmed swine influenza A H1N1 cases should wear a fit-tested disposable N95 respirator when entering the patient room.

(Editor's note: For more on the CDC guidelines, go to: http://www.cdc.gov/swineflu/guidelines_infection_control.htm.) ■

transmission of TB where the source is not recognized,” such as in emergency departments or clinic waiting areas, says **Jennifer Topmiller**, MS, team leader in the Engineering and Physical Hazards Branch of NIOSH in Cincinnati. She adds that “the UVGI is intended to be a supplement to personal protective equipment.”

Not all organisms are as vulnerable to UV radiation as tuberculosis, but the technology still might provide some benefits in reducing risk of transmission of emerging infectious diseases, says **Shelly Miller**, PhD, associate professor of mechanical engineering at the University of Colorado, Boulder, and the lead researcher in UVGI studies.

“We need so many tools in our back pocket to fight infectious disease,” she says. “The more we can have, the better.”

The Centers for Disease Control and Prevention recommended UV light as an effective engineering control as part of its updated tuberculosis guidelines in 2005, noting that “using additional air-cleaning technologies (such as UVGI) should be considered to increase the equivalent air changes per hour.”

The new guidelines outline the specifications that create the best germicidal effect. For example, air mixing is essential to maximize the effectiveness of the technology, says **John Whalen**, MS, MSA, microbiologist and a contractor with the Division of Applied Research and Technology at NIOSH in Cincinnati. (See box on p. 65.)

“If you’ve got a person in the lower portion of the room coughing, you need to be able to get the TB bacteria into the upper portion of the room,” he says.

UVGI emits UVC light, which is a wave length of UV solar radiation that is blocked by the earth’s ozone layer. Its germicidal effect apparently occurs because it damages the cell’s nucleic acids, affecting its ability to replicate or causing cell death.

With a short wavelength, UVC is considered to be safer than UVA and UVB, the components of sunlight that are associated with tanning, sunburn, and skin cancer. But UVC still has the potential to cause eye and skin damage.

The NIOSH guidelines provide a recommended exposure limit for UVGI. People who are photosensitive should either avoid exposure to UVGI or

Factors Influencing Effectiveness of Upper-Room UVGI Systems

The National Institute for Occupational Safety and Health identified the following parameters for the effective use of ultraviolet germicidal irradiation to protect against tuberculosis:

• UVGI Irradiance and Dose

Factors that must be considered when evaluating the ability of an upper-room UVGI system to kill or inactivate airborne microorganisms include the sensitivity of the microorganisms to UVGI and the dose of UVGI received by a microorganism or population of microorganisms. UVGI dose is the ultraviolet (UV) irradiance multiplied by the time of exposure and is usually expressed as $\mu\text{W}\cdot\text{s}/\text{cm}^2$.

A well-designed upper-room UVGI system may be effective in killing or inactivating most airborne droplet nuclei containing mycobacteria if designed to provide an average UV fluence rate in the upper room in the range of $30 \mu\text{W}/\text{cm}^2$ to $50 \mu\text{W}/\text{cm}^2$, provided the other elements stipulated in the guidelines are met. In addition, the fixtures should be installed to provide as uniform a UVGI distribution in the upper room as possible.

• Upper-Room UVGI Systems and Mechanical Ventilation

As the mechanical ventilation rate in a room is increased, the total number of microorganisms removed from the room via this system is increased. However, when mechanical ventilation is increased in a room where an upper-room UVGI system has been deployed, the effectiveness of the UVGI system may be reduced because the residence time of the bacteria in the irradiated zone decreases.

Under experimental laboratory conditions with mechanical ventilation rates up to six air changes per hour (ACH), the rate that microorganisms are killed or inactivated by UVGI systems appears to be additive with mechanical ventilation systems in well-mixed rooms.

• Air Mixing

Upper-room UVGI systems rely on air movement between the lower portion of the room where droplet nuclei are generated and the upper irradiated portion of the room. Once in the upper portion, droplet nuclei containing *M. tuberculosis* may be exposed to a sufficient dose of UVGI to kill or inactivate them.

When upper-room UVGI systems are installed,

general ventilation systems should be designed to provide optimal airflow patterns within rooms and prevent air stagnation or short-circuiting of air from the supply diffusers to the exhaust grills. Also, heating and cooling seasons should be considered and the system designed to provide for optimal convective air movement.

Most rooms or areas with properly installed supply diffusers and exhaust grills should have adequate mixing. If areas of air stagnation are present, air mixing should be improved by adding a fan or repositioning the supply diffusers and/or exhaust grills. If there is any question about vertical air mixing between the lower and upper portions of the room due to environmental or other factors, a fan or fans should be used to continually mix the air. In a room without adequate air mixing under experimental laboratory conditions, the UVGI system effectiveness increased from 12% to 89% when a mixing fan was used.

• Humidity

A number of studies have indicated that the effectiveness of upper-room UVGI systems decreases as humidity increases. The reason for the decrease in UVGI effectiveness is not clearly understood. However, the effect needs to be considered in the general context of upper-room UVGI systems.

For optimal efficiency, relative humidity (RH) should be controlled to 60% or less if upper-room UVGI systems are installed. This is consistent with American Institute of Architects (AIA) and the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) recommendations that the RH affecting patient care areas in hospitals and outpatient facilities range from 30% RH to 60% RH. If high-humidity conditions are normal, it may be necessary to install a system with greater-than-normal upper-room irradiance levels.

• Temperature

Recommendations developed by ASHRAE and AIA stipulate that the design temperature for most areas affecting patient care in hospitals and outpatient facilities range from 68°F to 75°F (20°C to 24°C). This temperature range is consistent with the optimal use of low-pressure mercury lamps that are used in upper-room UVGI systems. ■

use personal protective equipment, NIOSH states.

Proper maintenance of the lamps will help reduce the risk of overexposure, says Whalen. "You've got to keep your lamps clean. You've got to keep your fixtures clean," he says. "You should measure in the lower portion of the room to make sure you're not getting too much radiation in the lower portion.

Proper location and maintenance of UVGI also are essential, says Miller. The Colorado research team assessed the use of UVGI at three hospitals in Denver and found that only one was using it effectively, she says. The other two did not have strong enough lamps or did not place the fixtures in the optimal location, she says.

NIOSH also recommends education of health

care workers who are exposed to UVGI and warning signs on the fixtures or on the door of rooms with unshielded fixtures. ■

Privacy law limits release of EH records

Getting a HIPAA release may be necessary

HIPAA alert: If you think the massive privacy law doesn't apply to employee health, take another look. The exceptions to HIPAA are very specific ones, says **Karl Auerbach**, MD, MS, MBA, FACOEM, associate professor of occupational and environmental medicine at the University of Rochester (NY).

"Many in occupational medicine have felt that because there were certain areas carved out that they could pretty much ignore HIPAA," says Auerbach, who was scheduled to speak on the topic at the recent American Occupational Health Conference in San Diego, sponsored by the American College of Occupational and Environmental Medicine (ACOEM).

"The corridor is a very narrow one that really acts only in situations where there is a mandate to provide information, such as in workers' compensation," he says. "Everything else appears to fall under HIPAA. They do need to pay attention to it."

The Health Information Portability and Privacy Act was designed to streamline the sharing of health information, but at the same time to make it more secure. Patients must be made aware of the health care provider's privacy policy and must sign a release allowing the provider to share information for insurance coverage or discussions with other medical professionals.

According to the Department of U.S. Health and Human Services, employee health records are exempted from the HIPAA requirements if all of three conditions apply:

- The health care service was provided at the request of the individual's employer as a member of the employer's work force;
- The health care service relates to medical surveillance of the workplace or an evaluation to determine whether there has been a work-related injury or illness;
- The employer has a duty under U.S. Occupational Safety and Health Administration

regulations or state law to keep records or act on such information.

When an employee reports an injury, such as back strain related to patient handling, no release is necessary to share information with a workers' compensation provider or to place information on an OSHA injury log.

But pre-placement exams, drug tests and fitness-for-duty exams are not required by OSHA and therefore don't fall under the HIPAA exemption. Needless to say, personal medical services provided in employee health, such as blood pressure or cholesterol screenings, would be covered by HIPAA as well.

The simplest policy — and the one adopted by the Occupational and Environmental Health Program at the University of Rochester — is to ask all employees to sign a HIPAA release when they seek services from employee health. "It's really not that onerous to get a release on everybody when they come through the door," he says.

Conversely, getting a HIPAA release doesn't enable a broad sharing of an employee's medical information. In fact, employee health professionals are bound by both ethical considerations and privacy laws to reveal only the information that's necessary in a given circumstance. ACOEM's Code of Conduct states that occupational health physicians should "keep confidential all individual medical information, releasing such information only when required by law or overriding public health considerations, or to other physicians according to accepted medical practice, or to others at the request of the individual."

"HIPAA exists in the framework of other ethical responsibilities," says Auerbach. "It doesn't stand alone; it just makes [the requirements] a little more defined.

"In general, as little clinical information should be transmitted to the employer as possible," he says. For example, if a pre-placement exam indicates that an employee has a physical limitation, the EH professional should just report the limitation. "The employer is really not entitled to the diagnostic information," he says.

Even revealing duty status to a supervisor requires a HIPAA release at the University of Rochester. "We don't share information with anybody, including duty status," Auerbach says. "Just that very existence of a duty status limitation might be construed as falling under HIPAA."

There are some ambiguities and exceptions. Some states have "second-injury" laws that require the transmission of information about

prior, similar injuries.

HIPAA also may not interfere with needed emergency care. If a patient is unable to sign a HIPAA release in an emergency situation, but information about the patient's prior medical history is necessary for his or her care, the provider isn't required to obtain one, Auerbach notes. ■

Turnaround in EH produces cost-savings

In-house programs reduce injuries, claims

Workers' compensation claims were painfully high when **Bonnie Johnson** took over as director of employee health at Citrus Valley Health Partners in West Covina, CA, a system of three acute-care hospitals, a hospice facility, and about 3,200 employees that is 25 miles east of Los Angeles.

She knew it would take an investment in injury prevention, a change in mindset, and persistence to turn around the losses. But Johnson never doubted that it would happen. Now, about eight years later, the health system has reduced its ergonomic-related claims from about \$500,000 to just more than \$100,000. In 2005, the health system had 184 lost workdays due to injury; in 2008, there were just 67.

The key, says Johnson, was the recognition by hospital administration that employee health could be a valuable service. "We're not a money-maker, but you can be a money-saver — which equates to a moneymaker," she says. "An injury, and the costs associated with it, impacts the whole organization."

Johnson's first step was to gain control over costs. She ended the outsourcing of pre-placement exams and hired a nurse practitioner. The health system was paying about \$75,000 for the outsourced exams — enough money to cover the nurse practitioner's salary. In fact, the health system would get more for its money, including exams that were more complete and other tasks such as exposure control and first-aid treatment for work-related injuries.

The nurse practitioner was able to develop relationships and respond to employees' needs. "No one is going to care about the staff that you hire more than you do," Johnson says.

Johnson, who has a background in risk management, also learned that the health system didn't

really know much about the injuries that led to the workers' compensation claims. She gathered data on sprains and strains and analyzed it by hand. She found that the hospital was spending \$230,000 on patient handling injuries a year.

In 2004, Johnson hired a part-time ergonomist (whose job has since expanded to a full-time position). She and ergonomics coordinator **Dora Shaieb**, MPT, CEAS, meet monthly to review injuries and look for trends. They seek opportunities to avoid claims by correcting problems before they cause injury.

With help from a consultant from the hospital's worker's compensation carrier, Traveler's Insurance, Shaieb went from floor to floor, assessed ergonomic needs, and sought input from staff. It took a year and a half just for the evaluation.

"If you don't get input from staff and they don't have buy-in, you're not going to be as successful," Johnson says.

The health system invested \$180,000 in patient handling equipment. Meanwhile, Johnson and Shaieb discovered that many of the patient handling injuries occurred among employees who had less than a year's experience. They beefed up the new employee orientation to spend more time with the lift equipment.

Citrus Valley Health Partners doesn't have a lot of resources. The health system buys equipment incrementally. When necessary, the system makes an investment in safety because it pays off. For example, the health system purchased slip-resistant shoes for dietary and housekeeping employees for \$10,000. Claims for injuries related to slips and falls declined from about \$200,000 in 2005 to just \$1,600 in 2008.

A multidisciplinary team conducts safety rounds, including Shaieb and representatives from engineering, safety, infection control, environmental services, and security. Johnson and Shaieb try to emphasize the positive as they visit hospital departments to observe safety behaviors, but they also want to identify problem areas. "We're out in the trenches. We don't just sit into our offices," Johnson says.

For example, Shaieb analyzed the office workstations and spoke to employees about wrist or shoulder pain. In a five-year period, strains, sprains, carpal tunnel syndrome and similar injuries among health care and office workers cost the health system more than \$10 million. The health system purchased new keyboards and chairs to accommodate workers. A \$200 keyboard is far cheaper than a claim for carpal tunnel

Job Safety Analysis

This is a sample of forms to be used at Citrus Valley Health Partners in West Covina, CA, to educate nurses about patient handling tasks and structure peer-to-peer observation of safety behaviors.

JOB SAFETY ANALYSIS		Task: Repositioning	JSA #: 1	Page 1 of 1	JSA Date: 07-03-08
Citrus Valley Health Partners		Job Title:	Approved By:		Observed By:
Facility:		Department:	Approval Date:		Observation Date:
POTENTIAL HAZARDS/ACCIDENTS Knee, shoulder and low back disorders from: <ul style="list-style-type: none"> - Lifting, pulling, and twisting while moving patients - Extended reaching for patients - Twisting legs while feet are planted 		REQUIRED EQUIPMENT - Slider sheets		PATIENT STATUS Should not be used with combative or agitated patients MUST BE USED WITH THE FOLLOWING PATIENTS: <ul style="list-style-type: none"> <input type="checkbox"/> Max assist <input type="checkbox"/> Mod assist and > 80kg (175 pounds) 	
Step One		Step Two		Step Three	
					
Procedure: <ol style="list-style-type: none"> (1) Assess patient to determine if using slider sheets is appropriate. <ul style="list-style-type: none"> - Patient's acuity - Patient's weight - If patient is combative or cooperative. (2) Ask second staff member to assist you. Depending on the patient weight and acuity, you may need additional assistance. (3) Obtain slider sheet from storage area (clean core or linen area). (4) Raise bed to comfortable working height (approximately mid thigh to hip level). 		Procedure: <ol style="list-style-type: none"> (5) Turn the patient onto his or her side: <ul style="list-style-type: none"> - Bend patient's knee (the opposite knee for the direction of the turn). (6) Place slider sheet under patient: <ul style="list-style-type: none"> - Open the slider sheet along the length of the patient. - Roll the edge of the slider sheet nearest the patient. (7) Turn the patient back onto the slider sheet. (8) Quarter turn the patient's opposite side and unfold the remaining portion of the slider sheet. (9) Position hands with palms down using the handles near the patient's hip and shoulder area. 		Procedure: <ol style="list-style-type: none"> (10) Gently slide the patient on a count of three. <ul style="list-style-type: none"> - Consider, if tolerated, placing the bed in a slight Trendelenburg position to take advantage of gravity when moving the patient. - Encourage the patient to bend their legs with their body on the slide and feet off of the slide and then to straighten their legs thereby easily boosting themselves up in bed. (11) Remove the slider sheet from under the patient. You do not have to turn the patient. <ul style="list-style-type: none"> - Pull a corner closest to the patient's legs on a diagonal towards the patient's opposite shoulder. - Pull the corner underneath the sheet. - Repeat for the second sheet. 	
<input type="checkbox"/> 1 = Safe <input type="checkbox"/> 2 = At-Risk (Comment) <input type="checkbox"/> 3 = Not Observed		<input type="checkbox"/> 1 = Safe <input type="checkbox"/> 2 = At-Risk (Comment) <input type="checkbox"/> 3 = Not Observed		<input type="checkbox"/> 1 = Safe <input type="checkbox"/> 2 = At-Risk (Comment) <input type="checkbox"/> 3 = Not Observed	
Comments/Feedback Tips:		Comments/Feedback Tips:		Comments/Feedback Tips:	

syndrome, which can cost \$6,000 to \$20,000, says Johnson.

In a new initiative, they plan to ask nurses to observe each other as they perform repositioning and lifting tasks. Johnson is developing tip sheets to educate nurses and structure these observations. (See sample, above.) Both the one conducting the observation and the employee who is correctly using patient handling equipment can receive a ticket for a raffle of small prizes.

This is a program of "behavior-based safety," which relies not just on new equipment but on the active participation of employees in working toward safety goals. "We want peers to watch peers do their jobs and give them [feedback]," says Shaieb. "We think that will help improve the [compliance with] safe patient handling and help with every aspect of safety."

The hands-on approach in employee health has created a new culture of safety at the three-hospital system. Johnson conducts an employee satisfaction

survey to get feedback on the employee health services. But one resounding vote of confidence came when employees selected Shaieb as "nurse of the year." She actually isn't even a nurse; she's a physical therapist/ergonomist.

"It all equates to good customer service, good procedures, and good policies," says Johnson. "If you have those things in place, people will do what they need to do."

"One of our goals is just to let them know we care, that we want them to be healthy," adds Shaieb.

There's isn't money to spend on a fancy wellness program, but the hospital began offering healthy options in the cafeteria and classes for yoga, smoking cessation, and weight loss. Johnson has even brought free chair massages to their annual wellness fairs.

In the end, better employee health will produce more effective and productive employees, says Johnson. "Hopefully, the care we give to our customers, they will give to our patients," she says. ■

Build your case for investment in HCW health

'Do your homework' for EH business plan

Why should your hospital invest in employee health and wellness? Answer that question in a detailed business plan and you may win support for your programs from hospital leadership.

At Tampa (FL) General Hospital, **JoAnn Shea**, MSN, ARNP, director of employee health and wellness, presented a business plan for an expanded wellness program and fitness gym that gained favor from the hospital's administration. She demonstrated the return on investment and impact on health care claims information that justified the additional expense.

"You have to do your homework and take the time to write [the plan]," says Shea. "You can't just go in and say, 'This is what we need.'"

Physical space turned out to be Shea's most challenging issue. The current gym is too small to meet employees' needs, and she identified a former rehab gym that already has a shower facility and required minimal renovation. But the hospital also needed space for additional meetings rooms and to house an electronic medical record system.

Shea's plan includes the square footage needed, the equipment, and design. She offered three options — a bare-bones proposal, a midrange, and a premium version. New equipment would cost from \$26,000 to \$57,000, not including the \$16,000 grant expected from the hospitals' foundation. "If you give options, they're more likely to give the middle of the road than nothing," says Shea.

At least some additional equipment is essential to attract the members, she told management. "Option 3 [with the most new equipment] would be great, but Option 2 is what we're looking for," she says. Renovation would cost \$51,500. To help fund ongoing operating costs, including additional fitness staff, she proposed raising fitness center membership fees for employees from \$35 per year to \$130, or \$5 per pay period.

Shea presents her case using the SBAR approach: Situation, Background, Assessment and Recommendation. Here are some steps she took in outlining a business strategy:

- **Present the facts about your current situation.** "The current fitness center membership has exceeded the capacity of the 605 square-foot facility and cannot serve potential members from the

current population of 5,800 employees," Shea told hospital leadership in her business plan.

Fewer than one in 10 employees (503) are members of the fitness center. Employees who decided not to renew their membership said the wait for equipment or showers was too long, the equipment was too crowded, and the exercise classes (held in a different location) were inconvenient. They also wanted secure storage space for their belongings.

Moving to space in an office building on the hospital campus would increase the square footage to 3,500 sq. ft. and accommodate up to 1,500 members.

- **Provide some broader perspective on your needs.** Shea gathered a variety of information that bolstered her case for improved fitness facilities and more staff. The spacing around the equipment did not meet the standards of the American College of Sports Medicine. Fitness facilities at other area (competing) hospitals range from 5,000 sq. ft. to 30,000 sq. ft.

Meanwhile, medical claims for employees reveal a gap in preventive health and a potential benefit from expanded wellness services. Information from the third-party administrator of the health plan, United HealthCare, showed that 3% of employees have heart disease and incur 16% of the medical costs. Only about 44% of employees with diabetes received their recommended blood glucose tests and only 34% received their recommended eye exams.

Hospital employees also suffered from depression and asthma at rates significantly higher than the norm, according to United HealthCare data.

Health care claims data provide valuable support for wellness, says Shea. "These are things we could bring to management and say we need to work on this," she says.

- **Give the business justification.** Shea did some research and found that employee wellness programs have a return on investment of \$3.60 to \$7 for every dollar spent. She cited studies that link poor lifestyle and personal health behaviors to absenteeism, presenteeism (lower productivity on the job) and higher medical claims. Her sources included the Work & Health Research Center at the University of Maryland School of Nursing in Baltimore (nursing.umaryland.edu/excellence/whrc/index.htm) and the Institute for Work and Health in Toronto (www.iwh.on.ca).

Shea also solicited proposals from four outside vendors who would contract to manage the fitness center. The highest bid was \$267,264 and the lowest was \$210,700. Shea's proposal totaled \$155,504 for staffing and operating costs.

Tampa (FL) General Hospital Fitness Center Expansion Summary of Initial Start-up, Annual Costs, Projected Revenue

Item	Discussion	Cost
Initial Start-Up Costs		
Renovation	Demo existing walls Remove carpet/paint Add two office areas Countertops for reception area Replace ballasts Add power cables for TV	\$45,000 Final cost not completed until March 23, 2009
Move IS employees	TBD	To Be Determined
Move Current Fitness Room and Wellness Staff;		\$5,000
Deliver and Set up New Fitness Ctr Equipment	FitREV	\$1,500
Additional Fitness Ctr Equipment: (Essential only)	See Table -\$16,000 in Foundation	\$40,321 \$24,321
Additional Fitness Center Equipment: Option 1	See Table -\$16,000 in Foundation	\$48,822 \$32,822
Additional Fitness Center Equipment: Option 2	See Table -\$16,000 in Foundation	\$59,982 \$43,982
Additional Fitness Center Equipment: Option 3	See Table -\$16,000 in Foundation	\$71,614 \$55,614
Staffing	↑ by 2.6 FTE Fitness specialist-grade 16	\$101,393
Aerobic Sports Floor	Recommended	\$5,670.00
AED	Essential	\$1,795.00
Badging System	None	\$4,300.00
Projected Initial Start-up Costs (-\$16,000 in Foundation Account) (Does not include Aerobic Floor or Staffing Costs)		
Essential:		\$81,916
Option 1		\$90,417
Option 2		\$101,577
Option 3:		\$113,209
Annual Cost		
Current Staffing: 1.6 FTE (\$85,000/yr) = 1.0 Wellness Coordinator & 0.6 Fitness Specialist	Proposed Staffing: 1 Wellness Coordinator 3.2 Fitness Specialists Total salaries=\$186,393	↑ salaries by \$101,393 ↑ FTE by 2.6 Total FTE = 4.2
Equipment Maintenance	Biomed Turnkey as needed	~\$1500/yr
Equipment Replacement	~10-\$15,000/year	\$15,000
Total Projected Fitness Center Annual Costs (not including current staff salaries): \$117,893		
Total Projected Fitness Center Annual Costs (including current staff salaries): \$202,893		
Projected Annual Revenue		
1,000 members	\$130/year	\$130,000
1,500 members	\$130/year	\$195,000
Current: ~500-550 members	\$35/year employees \$60/year non employees	~\$17,000/year

To arrive at her costs, Shea spoke to the facilities director and biomedical engineers, who maintain the equipment. She also worked with the vendor of fitness equipment to evaluate what would fit.

- **Provide information in multiple formats.** Shea needed to have all the details worked out, but she also needed to present the options in a quick and easy format. She created a comparison chart and a PowerPoint presentation.

“We present in a simple fashion and give them additional details in our printed proposal,” Shea says. “Very few people want to read through the whole thing, but they may ask a question and you have to have the information. They expect you to do a thorough job.”

- **Be willing to stick with a good idea.** Don't be discouraged if you don't get approval the first time you present your plan. After all, hospital

leadership must balance competing needs and limited resources.

Shea presented a proposal for an injury prevention program five times before she won approval. "You can't feel defeated," she says. "You need to keep being persistent, professional, and positive and eventually you get there." ■

OSHA offers guidance on respirator protection

APFs have limited application to HC workplace

How protective is the respirator that you provide your employees? The N95 designation refers to the filter only — filtering out 95% of a potential airborne contaminant. The "assigned protection factor" actually designates the overall ability of a respirator to reduce exposure. It takes into account, for example, the potential contaminant that leaks through the face seal of an N95 filtering facepiece respirator.

The U.S. Occupational Safety and Health Administration has released a new guidance document to clarify the protection levels of different types of respirators and to help employers select the appropriate ones. It shows, for example, that a powered air-purifying respirator (PAPR) with a hood or loose-fitting facepiece would allow only 4% of contaminated air to penetrate, while an N95 would allow 10% penetration (www.osha.gov/Publications/3352-APF-respirators.pdf).

The OSHA guidance also details the OSHA-accepted fit-test protocols.

While the document contains useful information for health care employers, including information on respirator cleaning and maintenance, it reveals some limitations in the current science of respirators, notes **Lewis J. Radonovich, MD**, director of Biosecurity Programs in the Office of Program Development at the North Florida/South Georgia Veterans Health System in Gainesville, FL.

Assigned protection factors are determined by measuring the level of an air contaminant inside

CNE questions

21. According to data from the National Occupational Mortality Surveillance System, female health care workers have a risk for dying from hepatitis C that is greater than the general population by ____.
 - A. 10%
 - B. 20%
 - C. 32%
 - D. 48%
22. According to says John Whalen, MS, MSA, which of the following is important to enhance the effectiveness of ultraviolet germicidal irradiation?
 - A. Negative pressure
 - B. Ventilation
 - C. Black light
 - D. Air mixing
23. Which of the following is likely to fall under a HIPAA exemption?
 - A. Employee cholesterol screening
 - B. Pre-placement exams
 - C. Random drug screens
 - D. Back injury related to patient handling
24. In a program of "behavior-based safety," employees at Citrus Valley Health Partners will be observed for what purpose?
 - A. To punish employees who don't use safety equipment.
 - B. For a research study on employee compliance with safety.
 - C. In a peer-to-peer program to encourage compliance.
 - D. To reinforce proper body mechanics.

Answer Key: 21. B; 22. D; 23. D; 24. 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. **The semester ends with this issue.** You must complete the evaluation form provided and return it in the reply envelope provided to receive a credit letter. ■

COMING IN FUTURE MONTHS

■ Protecting HCWs in a pandemic

■ Will health care reform affect the work environment?

■ Detecting the toll of depression in health care

■ Should you screen HCWs for MRSA?

■ Injury rates: Are we getting safer?

and outside the respirator. But the risk of infection is dependent on the type of pathogen and other factors, not just the concentration. "In many cases, we don't know what dose of a pathogen it takes to make someone ill," says Radonovich, who is engaged in research on respiratory protection in health care. "We often aren't able to measure accurately the concentration of that pathogen in the air."

While health care employers should be knowledgeable about the factor of respirators and the OSHA requirements, they also need to use administrative and engineering controls, such as isolation of patients and proper ventilation, experts say. ■

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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The Joint Commission Update for Infection Control

News you can use to stay in compliance

Joint Commission issues best practices report on tracking hand hygiene adherence by HCWs

Approach depends on use of the data, workplace culture

The Joint Commission has issued a major new document on the difficult issue of assessing hand hygiene compliance by health care workers. We'll put the bottom line at the top: there are many approaches to solve the Achilles "hand" of infection prevention and none of them is a panacea.

"The first thing people have to do is decide why they are monitoring hand hygiene," says leading hand washing expert **Elaine Larson, RN, PhD, FAAN, CIC**, who chaired the expert panel that produced the 262-page document. "Just doing it to be in compliance with Joint Commission isn't a good reason. What are you going to do with the information?" she says.

For example, conducting random audits to check compliance over time may be good for internal purposes, but something more rigorous may be required if you plan to feedback results to staff. "The monitoring can actually be part of an intervention to change behavior," says Larson, a professor of pharmaceutical and therapeutic nursing at Columbia University in New York City. "If that's the case, then you have to monitor each unit where you want to do the intervention and give feedback. So, the main thing is to decide how you want to use it."

The Joint Commission continues to make hand hygiene a National Patient Safety Goal, requiring compliance with the evidence-based recommendations in the hand hygiene guidelines issued by the Centers for Disease Control and Prevention (CDC) in 2002. The problem many infection preventionists have, however, is meeting this 1A recommendation in the CDC guidelines: "Monitor health care workers' adherence with recommended

hand-hygiene practices and provide personnel with information regarding their performance." To improve the situation, The Joint Commission sought out proven methods and strategies for monitoring hand hygiene compliance. The result is the rather ponderous — but no less important — report: "Measuring Hand Hygiene Adherence: Overcoming the Challenges."

No single method recommended

"It's not designed to recommend a particular approach, but it is an attempt to list the options for best practices depending on the reasons people want to monitor — either because they want to provide feedback or audit the effectiveness of strategies over time," Larson says.

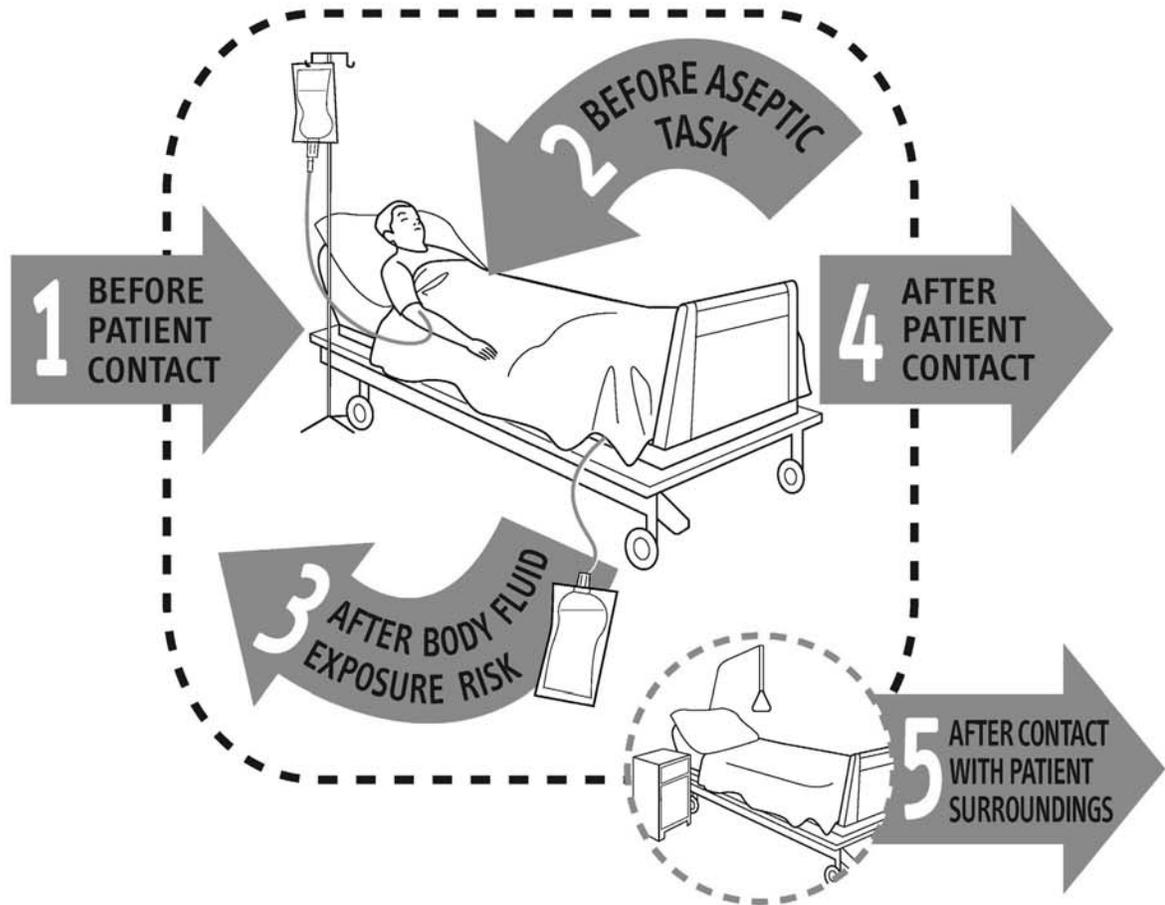
The monograph is the product of The Joint Commission collaboration with many leading infection prevention groups, including the Association for Professionals in Infection Control and Epidemiology, the Centers for Disease Control and Prevention, the Society for Healthcare Epidemiology of America, and the World Health Organization. (See WHO form, p. 2.) Submissions were confidentially reviewed by an expert panel under Larson's direction, resulting in a wealth of case studies and hand hygiene adherence research.

"We actually had a pretty stringent assessment technique," Larson says. "We had an advisory group and developed a series of criteria that would designate that something would be of

(Continued on page 3)

Your 5 moments for HAND HYGIENE

Design: mondipolis network



1 BEFORE PATIENT CONTACT	WHEN? Clean your hands before touching a patient when approaching him or her WHY? To protect the patient against harmful germs carried on your hands
2 BEFORE AN ASEPTIC TASK	WHEN? Clean your hands immediately before any aseptic task WHY? To protect the patient against harmful germs, including the patient's own germs, entering his or her body
3 AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal) WHY? To protect yourself and the health-care environment from harmful patient germs
4 AFTER PATIENT CONTACT	WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving WHY? To protect yourself and the health-care environment from harmful patient germs
5 AFTER CONTACT WITH PATIENT SURROUNDINGS	WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient WHY? To protect yourself and the health-care environment from harmful patient germs



WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.



October 2006, version 1.

quality or not — things like evidence of reliability, training of staff and a whole series of quality criteria. If the submission didn't meet those criteria it was not included."

Difficult to sustain

Following effective hand hygiene practices has long been recognized as the most important way to reduce the transmission of pathogens in health care settings. Many studies, however, have shown that adherence to hand hygiene recommendations remains low and that improvement efforts frequently lack sustainability, the report states.

"In terms of sustainability, one of the criteria that we used was whether or not there was any evidence that the data had been used to improve the quality of care," Larson says. "One of the big problems is that people try something, it works for a while, but nobody looks back a few months later to see what is happening."

There are three main methods for measuring hand hygiene performance, each of which has advantages and disadvantages:

- directly observing;
- measuring product use;
- conducting surveys.

• Direct observation

As the term implies, observation involves directly watching and recording the hand hygiene behavior of health care workers and the physical environment.

Direct observation of the hand hygiene behavior of health care workers is considered the "gold standard" of measurement methods. Observation allows you to see which hand hygiene products are used, the thoroughness of cleansing, the tools and technique used for drying, the use of gloves, in addition, whether the staff are performing hand hygiene whenever there is an opportunity to do so, the report states. Perhaps the biggest disadvantage of that method is that it can influence the behavior of those who know they are being observed — the so-called Hawthorne effect.

"It is expensive to monitor [compliance], so you want to pick the most practical way that gives you the best information without spending a huge amount of money," Larson says.

• Measuring product use

Measuring the amount of liquid soap, alcohol-based hand rub, and paper towels that health

No lack of challenges to HH adherence

Some of the issues discussed in The Joint Commission's new report, "Measuring Hand Hygiene Adherence: Overcoming the Challenges" include:

- Contact with patients or their environment takes place in many locations within organizations.
- Opportunities for hand hygiene occur 24 hours a day, seven days a week, 365 days a year, and involve both clinical and nonclinical staff.
- The frequency of hand hygiene opportunities varies by the type of care provided, the unit, and patient factors.
- Monitoring is often resource-intensive; infection preventionists, quality improvement staff, and other health care workers (such as nursing, respiratory therapy, and so on) face numerous competing demands for their time and expertise.
- Observer bias (for example, the Hawthorne effect) is difficult to eliminate.
- Staff may use improper technique even if adherent. For example, are they using the proper volume of liquid soap or alcohol-based hand rub? Are they donning and removing gloves correctly? ■

care workers use — and measuring the frequency with which they use these products — is an indirect way of estimating staff adherence to hand hygiene guidelines, the report states.

"If there's good information on product use by unit, then one of the ways to be fairly efficient and inexpensive is just to count how much soap and sanitizer is used," Larson says. "The problem is that many places don't have data by unit by month, for example, so part of it is practicality. What is feasible in your setting?"

In addition, measuring product use does not reveal whether health care workers are performing hand hygiene when it is indicated or whether they are performing it correctly. Many factors contribute to making this measurement method prone to inaccuracy, including product waste or spillage, product use by patients and family members, and the borrowing of product between units, the report notes.

• Conducting surveys

Surveys of health care workers, patients, and family members — conducted in person, over the telephone, or in focus groups — can

yield information about perceptions, attitudes, and behavior related to hand hygiene, The Joint Commission reports. Through surveys, health care workers reveal what they know and think about hand hygiene, as well as whether and why they adhere to guidelines. Surveys can reveal whether health care workers' perceptions of their own hand hygiene behavior match the perceptions of patients and family members. However, using surveys for self-reporting of hand hygiene behavior can be unreliable; health care workers tend to overestimate their adherence to guidelines when questioned and may inaccurately recall their past hand hygiene behavior, the report found.

Ultimately, no one approach fits all facilities, which have distinct institutional cultures that may determine success or failure of the various methods. Virtually all hospitals now have alcohol hand rubs in place, a product that was designed to ease compliance by hurried health care workers. There appears to be some perception of an overall improvement from the days of sinks and soaps, but the simple act of hand hygiene

remains a complex problem.

"I think the problem with adherence is still pretty pervasive," Larson says. "It has really been slow in coming. There are pockets of success, but we are not really sure over the longer term."

Patient empowerment efforts, including The Joint Commission's Speak Up signs and posters, are thought by some to be a key to increased hand hygiene compliance. "There are some places that have had success in this 'partners in your care' idea and other places where it hasn't worked so well," she says. "I think it depends on the culture of the hospital or organization. If there is a good organization climate where there is a fairly high level of trust among the staff — and it is presented as a way of partnering with patients — then I think it works. When there is any sense of suspicion about it or [concerns] about litigation, then I think it fails. It has to do with the culture of the place."

(Editor's note: The Joint Commission report, "Measuring Hand Hygiene Adherence: Overcoming the Challenges," is available on the commission's web site at: <http://www.jointcommission.org>.) ■

Organizational culture issues, key strategies

It is important to investigate the reasons for nonadherence to hand hygiene guidelines before deciding on one or more improvement strategies, according to a new report by The Joint Commission and its partners. It also is useful to examine the organizational context of health care delivery, which may facilitate or inhibit adherence. Such organizational factors include:

- The facility's physical capacity for making products available.
- The presence of written hand hygiene policies and procedures.
- The active involvement of leadership "from the top down."
- The presence of role models.
- The degree of accountability for nonadherent staff.
- The presence of a culture of safety.
- The active involvement of staff in improvement efforts.
- The awareness and involvement of patients and families.

Staff hand hygiene practices can be improved through efforts such as:

- education;
- timely feedback;
- reminders;
- structured approaches to performance improvement.

The following organizations, which collaborated with The Joint Commission on this monograph, are good resource for information on improving the measurement of hand hygiene performance:

- The Association for Professionals in Infection Control and Epidemiology Inc. (APIC) (www.apic.org).
- The Centers for Disease Control and Prevention (CDC) (www.cdc.gov).
- The Institute for Healthcare Improvement (IHI) (www.ihl.org).
- The National Foundation for Infectious Diseases (NFID) (www.nfid.org).
- The Society for Healthcare Epidemiology of America (SHEA) (www.shea-online.org).
- The World Health Organization (WHO) (www.who.int/gpsc/en/index.html).

(Editor's note: The Joint Commission report: "Measuring Hand Hygiene Adherence: Overcoming the Challenges" is available on the commission's web site at: www.jointcommission.org.) ■

Hospital Employee Health

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Please take a moment to answer the following questions to let us know your thoughts on the CNE program. Fill in the appropriate space and return this page in the envelope provided. **You must return this evaluation to receive your certificate.** Thank you.

CORRECT ● **INCORRECT** ○ ✎ ✖ ✗

1. If you are claiming nursing contact hours, please indicate your highest credential: RN NP Other _____

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
After participating in this program, I am able to:						
2. Identify particular clinical, administrative, or regulatory issues related to the care of hospital employees.	<input type="radio"/>					
3. Describe how those issues affect health care workers, hospitals, or the health care industry in general.	<input type="radio"/>					
4. 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.	<input type="radio"/>					
5. The test questions were clear and appropriate.	<input type="radio"/>					
6. I am satisfied with customer service for the CNE program.	<input type="radio"/>					
7. I detected no commercial bias in this activity.	<input type="radio"/>					
8. This activity reaffirmed my clinical practice.	<input type="radio"/>					
9. This activity has changed my clinical practice.	<input type="radio"/>					

If so, how? _____

10. How many minutes do you estimate it took you to complete this entire semester (6 issues) activity? Please include time for reading, reviewing, answering the questions, and comparing your answers to the correct ones listed. _____ minutes.
11. Do you have any general comments about the effectiveness of this CNE program?

I have completed the requirements for this activity.
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 Nursing license number (required for nurses licensed by the state of California) _____