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Hidden treasure: Turn your employee health service into a moneymaker

Outside clients have needs for screening, vaccination

If your employee health service is viewed as costly but necessary overhead for the hospital, consider this: You could bring in revenue by providing the same services to outside clients.

Hospitals around the country are expanding their employee health services or merging them with the facility's occupational medicine department to create a stronger and financially successful program.

While there may be some logistical issues to tackle in providing drug testing, vaccinations, and other services to outside clients, "at some levels, it defrays the hospital's cost of doing business to provide employee health services," says **Caroline Murray**, MD, MPH, medical director of occupational medicine at Dartmouth Hitchcock Medical Center in Lebanon, NH. "Now there are other people paying for those same services. You become a revenue-producing area and not just a revenue-consuming one."

Additional occupational medicine resources also may enable you to boost the services you offer to employees and improve access to physicians with that specialty, says **Geoff Kelafant**, MD, MSPH, FACOEM, medical director of the Occupational Health Department at Sarah Bush Lincoln Health Center in Mattoon, IL.

If you already have an occupational medicine clinic that serves outside clients, employees should have access to that expertise, says Kelafant. "For them not to provide the same level of service — in

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Latest data show drop in needlestick injuries

In the clearest picture yet of the national problem of needlesticks, researchers from the Centers for Disease Control and Prevention in Atlanta estimated that 384,000 such injuries occurred last year. For the first time, researchers combined data from the National Surveillance System for Healthcare Workers with data from the EPINet system run by the International Health Care Worker Safety Center at the University of Virginia in Charlottesville. Together, the two databases provide a representative sample of hospitals around the country, officials say. CDC also is preparing to release a workbook to help employee health professionals develop a comprehensive sharps safety program. 67

Making sure they don't forget to wash their hands

Patients notice when their doctors or nurses walk from one bed to another without washing their hands. But they aren't the ones responsible for reminding caregivers about hand hygiene. Instead, hospitals should create a culture that emphasizes the importance of hand hygiene, starting from top clinical and administrative leaders. Also, alcohol-based gels may improve compliance, as they cause less dryness and can be more convenient, research shows 68

A safe workplace requires safe workers

Health care workers underestimate the risk of HIV or hepatitis C seroconversion after needlestick injuries and often don't use protective gear that is provided to them, according to research at Barnes-Jewish Hospital in St. Louis. Educational interventions and other improvements, such as making gear more accessible, can lead to better compliance, researchers found 70

Is there a better way to screen for TB?

Researchers evaluated a Western blot test as a potential screening tool for occupational exposure to *Mycobacterium tuberculosis* in health care workers. Their conclusion: The test could be an earlier marker for TB contact and is more sensitive than the traditional purified protein derivative test. However, the Western blot has limitations; it can't be used on BCG-vaccinated employees 71

COMING IN FUTURE ISSUES

- Update on guidelines for pregnant health care workers
- How to determine if you have the right staffing ratio
- Measuring outcomes in hospital employee health
- New PEP agents on the horizon: Are they a step toward greater protection?
- Surveillance of HIV in health care workers

fact, a better level of service — for their own employees is unethical," he says. "You should take at least as good care of your own employees as you do external employees."

Yet how that service is structured can vary considerably. For example, at Baystate Health System in Springfield, MA, the system's three hospitals have used three different models of providing employee health care. "A lot of what makes sense for a given organization is going to depend on the size of that organization," says **James Garb**, MD, director of occupational health and safety for Baystate.

For some hospitals, the employee health focus broadens gradually, in response to requests from community organizations.

> "I didn't go into this thinking I would make money. I just wanted to keep our budget on target and do something for other people."

At University Hospitals of Cleveland, expansion from a hospital to a health system meant the addition of ambulatory sites, community hospitals, and other affiliates. The facilities began asking for physicals, preplacement drug testing, and other services, recalls **Carol C. Grove**, MSN, RN-C, PNP, manager of employee health services.

Soon, a skilled nursing center with a loose affiliation to University Hospitals asked for help with employee health physicals, and the fire department needed hepatitis B vaccinations. Because Grove doesn't have a budget to provide services to all affiliates of the health system, she passes along lab charges and other costs. She brings in additional staff on an as-needed basis. Grove doesn't bill with profit in mind, but tries to recoup her costs.

"I didn't go into this thinking I would make money," she says. "I just wanted to keep our budget on target and do something for other people."

Grove expects that the employee health services will eventually expand to formally serve all entities within the health system, as well as the loosely affiliated organizations. "We've had to grow as the system has had to grow," she says.

Those who decide to expand must first make sure there is enough demand in the market, advises Murray. That "needs assessment" may be as simple as determining who else is providing

expertise in occupational medicine and surveying employers to find out if they need better access to testing, physicals, and other services.

Serving other industries may mean adding new equipment and providing new types of care. For example, Dartmouth Hitchcock purchased breath alcohol machines to conduct screenings for the Federal Highway Administration's commercial driver medical examination. The hospital now can use the machines for internal testing if there is "reasonable suspicion" that someone is working while under the influence of alcohol. However, the equipment is used mostly for external clients.

In other situations, the care needs are quite similar. "We provide the same services to a policeman who has a bloodborne pathogen exposure as we do to a nurse who has an exposure," says Murray.

Once you decide to offer your services to others, you face another possible obstacle: How do you bill them? An employee health service doesn't bill its own employees. Its care often doesn't fall into an ICD-9 diagnostic code. Moreover, you aren't billing the patient; you're billing the employer.

Murray advises working with financial officers at the hospital to determine how to contract for the employee health services, how to charge for screening, surveillance, and exams, and how to set up the billing system.

Could a merger be for you?

For hospitals with co-existing occupational medicine and employee health departments, the idea of a merger may be controversial. Employee health often reports to human resources, while occupational medicine may be part of a multispecialty clinic.

Some occupational medicine experts believe strongly that the two departments should blend together, and that employees should be able to visit the hospital's occupational medicine physicians.

When Kelafant came to Sarah Bush Lincoln Health Center, he merged "employee health" with "occupational health." Even the use of the two terms seemed a bit awkward. "Technically, it's all occupational health," says Kelafant, who also is vice chairman and communications chairman of the Medical Center Occupational Health Section of the American College of Occupational and Environmental Medicine in Arlington Heights, IL.

He gave one nurse the part-time duty of keeping up with the hospital's needs for surveillance. For example, she makes sure the health care workers are up to date with their TB tests and vaccinations.

Meanwhile, "the employees can come down any time they need to be seen," he says.

Merging the two departments is cost-effective, but Kelafant cautions that employee health / occupational medicine may not necessarily become a profit center. That will depend on such issues as how competitive your market is, how you price your services, and how great your internal need is for those services.

At Sarah Bush Lincoln Health Center, Kelafant discovered that aspects of employee health were actually parceled out to different areas of the hospital. By consolidating, the goal was to provide better care, not to add revenue or save money, he notes.

Different models meet different needs

At Baystate Health System, the model of care is based upon employee needs and feasibility. The smallest hospital, with just 350 beds, was able to boost its employee health care by offering the service to outside employers. About 85% of the clinic's time is devoted to outside clients, and just 15% is spent on employees, says Garb. "If they didn't provide those external services, it would be hard to staff an employee health service for such a small number of employees," he says.

Meanwhile, the system's mid-sized hospital, with about 1,100 employees, recently started an in-house service with a nurse practitioner and an LPN. Previously, an occupational medicine clinic that was not affiliated with the hospital provided the service.

"The response has been overwhelmingly positive," says Garb. "They have so much more accessibility, they can get questions answered quickly, and they are getting a higher level of service. [The doctors] were all fine practitioners but they weren't dedicated to the hospital. The hospital is our only client, and we have to provide them with first-class service."

The system's largest hospital, with about 6,600 employees, has both a freestanding occupational medicine clinic and a large employee health service. It is simply too large to consider merging the two, Garb says.

Furthermore, it can be an advantage for a distinct employee health service to report to human resources, says Garb. Employee health may do

more than just handle health and surveillance needs.

"We devote time to meeting with managers, [and] with EAP [employee assistance program] human resources. We spend time coming up with options and a creative solution to the [employee's] problem," he says. "I don't think you'd find that level of service so readily in a department primarily focused on outside clients."

Kelafant agrees that there are some situations in which separate occupational medicine and employee health departments might be advisable, or even necessary. For example, some health systems have campuses that are geographically distant. A research facility may have labs or other specialized areas that have unique surveillance needs.

"There are cases that can be made for keeping them separate," he says. But he adds, "For the majority of people, especially if you already have an occupational health clinic, you might want to explore whether there might be some advantages in merging some of the functions." ■

34 hospitals warned about high injury rates

OSHA urges hiring consultant to improve safety

As part of its program of targeted inspections, the U.S. Occupational Safety and Health Administration (OSHA) has advised 34 hospitals with high injury rates to beef up their safety programs.

Hospitals that have a rate of more than 14 lost workday injuries per 100 full-time workers will receive an unannounced "wall-to-wall" inspection. Hospitals with more than eight such injuries or illnesses per 100 full-time workers received letters urging them to hire safety and health consultants to assist them in making improvements.

This is the first year that hospitals have been included in OSHA's comprehensive, targeted inspections, which focus on high-hazard industries. Hospitals were added because, as one of the nation's largest employment categories, they are responsible for a large number of work-related injuries. OSHA did not reveal how many, if any, of the hospitals have the highest rate of injuries and will be subject to inspections.

The primary purpose of the notification was to inform employers of their high injury rates, says **Rich Fairfax**, CIH, OSHA's director of compliance programs. The average injury rate for hospitals is 3.8 per 100 full-time workers, so only employers with a rate that is more than twice the average received a letter. OSHA randomly surveyed 400 to 500 hospitals, asking for their OSHA 200 injury data. Overall, OSHA surveyed 80,000 work sites and sent letters to 13,000 employers. As many as 4,200 work sites nationwide will be subject to "wall-to-wall" inspections.

"We essentially stay out of their hair while they're working on the program. Our bottom line is, we want employers to identify and correct hazards."

"We're looking at this [warning letter] as compliance assistance to employers, notifying them that they've had a high rate and encouraging them [to make corrections] without threats of inspection," says Fairfax. "If you have a high rate, there are things you can do about it."

In fact, OSHA is offering a free, on-site consultation program for smaller employers (those with 250 or fewer employees). It is run by the state, and OSHA inspectors are not involved, says Fairfax.

"This is a confidential service for the employer," he says. "Even though OSHA funds it, we do not get the report. The hospital has to commit to correct any safety and health hazards that are identified as serious."

Once a hospital or other employer becomes part of the consultation program, the employer is exempt from a targeted inspection for one year unless there is a fatality or complaint. "We essentially stay out of their hair while they're working on the program," says Fairfax. "Our bottom line is, we want employers to identify and correct hazards."

Some employers on the list already were working on improving their health and safety program. At Provena St. Joseph Hospital in Elgin, IL, **Al Jensen**, CSM, director of facilities, says OSHA

made a mistake by putting the hospital on the list. The number of injuries may have mistakenly been tallied together for the Provena system's eight hospitals but attributed to Provena St. Joseph, he says.

Nonetheless, Jensen had been working with a consultant from the company that administers the hospital's workers' compensation program.

The safety committee first looked at aggregate numbers showing where injuries are occurring. Then the consultant, **Karen Gbur**, CHSP, with CCMSI in Oakbrook, IL, helped draft an action plan.

"We set up benchmarks from facility to facility [within the system]," says Jensen. For example, the safety committee may analyze tasks in housekeeping and food handling to reduce back injuries, he says.

What's causing your workers' comp claims?

Sometimes, an analysis may show an unexpected pattern of injuries that contribute to a significant number of workers' compensation claims. "At one particular facility, we had identified that slips, trips, and falls were a major contributor to their workers' compensation cost," recalls Gbur. "We realized we need to create a policy and make sure all employees are aware of that policy to protect themselves in the work environment."

Wearing proper footwear, marking hazardous areas, and immediately wiping up spills can reduce falls, says Gbur. But employees sometimes need reminding about the importance of those tasks.

"It's something very simple — but so simple that I think it was overlooked," says Gbur.

When OSHA sent out its letters to employers that had higher-than-average injury rates, it detailed the most frequent types of injuries. Some employers were grateful for that information, says Fairfax.

"We've gotten hundreds of responses from employers, many of them thanking [Assistant Secretary Charles] Jeffress [who signed the letter]," he says. "They've been doing things on their own, hiring consultants [to make improvements]. Many of them had no idea they even had a high rate."

(Editor's note: For a state-by-state list of consultation program contacts, see OSHA's Web site at www.osha.gov/oshdir/consult.html.) ■

Drug-siphoning HCW raises alarm about drug testing

Experts say test is deterrent, but not cure-all

Consider this a cautionary tale about pre-placement drug testing: In February, a nurse at Georgetown University Medical Center in Washington, DC, reported that she had walked in on a radiation technician who was siphoning the painkiller fentanyl from a patient's infusion pump. The technician was immediately fired and was later arrested on felony charges of tampering with consumer products.

Soon after the discovery, the hospital sent letters to some 500 patients who had undergone interventional radiology procedures, advising them to have their blood tested for possible exposure to infectious diseases. (The technician may have used discarded needles when he replaced the drug with saline.) The hospital termed the risk of infection "extremely low," but told patients, "Georgetown is committed to the health and well-being of its patients, and we believe you should receive these tests and the reassurance they can provide."

Georgetown University Medical Center was not conducting pre-employment drug testing at the time. While experts say drug testing cannot prevent such incidents from occurring, Georgetown's policy quickly came under fire. Some patients have filed suit against the hospital. Meanwhile, the Georgetown incident may prompt other hospitals to review their policies on substance abuse and drug testing. **(For information on substance abuse programs in hospitals, see *Hospital Employee Health*, April 2000, p. 42.)**

"Pre-employment drug testing does not always detect drug use, as drug users are very adept at finding ways to successfully 'pass' such tests," said Georgetown spokeswoman **Amy DeMaria** in a written response to questions from *HEH*. "Nevertheless, Georgetown is committed to looking for ways to improve patient care, and, as such, a committee of senior Medical Center leaders is now examining our policies."

Employee health experts agree that drug testing has limited usefulness as a way of "catching" substance abusers. But they say hospitals should conduct pre-placement drug testing simply as a deterrent.

"A hospital has a very special set of expectations in the minds of the public, and they have a very special set of obligations as an employer," says **Rick Wade**, senior vice president at the American Hospital Association in Washington, DC. In its "Substance Abuse Policies for Healthcare Institutions," the AHA "strongly encourages" health care facilities to include drug and alcohol testing in a broader substance abuse program.

"Our impression is that the vast majority of hospitals do this, for public trust and confidence, liability, and patient safety," says Wade. "In the environment we're in today, you simply can't afford to do anything else."

Drug tests have limitations

If drug testing is effective, it isn't because the tests themselves are foolproof. Most health care facilities test for the major categories of abused and illegal drugs. But a potential or current employee could be abusing a drug that isn't a part of the standard testing regimen, or could stay clean long enough for the drug to fully metabolize, making it undetectable.

Nonetheless, knowing that a drug test will be conducted may be enough to keep some abusers from applying. **Michael Wald**, MD, medical director of occupational medical services at Long Beach (CA) Memorial Medical Center, recalls when he was medical director at an aerospace company that was trying to find workers in a tight labor market. He put up a sign in the human resources department that the company would drug-test. "There were 50 people waiting to apply, and the room cleaned out," he says. "The entire room got up and left."

According to reports in the *Washington Post*, the radiation technician had worked at a hospital in suburban Maryland, but left when administrators asked him to take a drug test. He began working at Georgetown about a year later.

The AHA recommends pre-employment testing, for-cause testing, and post-accident testing. Policies should clearly spell out the standard for for-cause and post-accident testing, AHA says.

Even so, employee health professionals should understand the limitations of testing, advises **Kathleen McAndrews**, MSN, ARNP, COHN-S, CCM, department director and nurse practitioner in occupational medicine at Dartmouth Hitchcock Medical Center in Lebanon, NH.

"It's my belief that the way to detect [substance abuse] is through prevention and increased awareness and education in behaviors and signs and symptoms," McAndrews says.

In the Georgetown case, "he would have been caught if someone worked around him who had more awareness about what the signs and symptoms are," McAndrews says.

Beware of false-positive tests

There's a flip side of drug testing that presents its own set of liabilities. If you accuse someone of abusing drugs, you should be sure of your conclusions, cautions Wald.

"Drug-testing programs are designed to deter people from abusing hard drugs such as heroin, marijuana, cocaine, methamphetamines, and things like that," he says. "The purpose of drug testing is not to do a 'gotcha' on some guy who took his wife's Tylenol with codeine because he banged himself with a hammer. It's much better to err on the side of calling somebody a negative who's really a positive than to call someone a user who's really not," says Wald.

The poppy seeds on a bagel can metabolize as morphine and show up at the highly sensitive levels used in drug testing. Hemp oil, which can be purchased at health food stores for cooking, can make someone test positive for marijuana.

Instead of just relying on a single test, employee health professionals should look at the results as part of a medical evaluation.

"Drug testing is a program of deterrence," says Wald. "Unfortunately, most people don't get it. They think they're supposed to be rooting out drug users. Some people want to approach drug testing from almost a Wild West perspective. All drug testing is rife with abuse and the potential for abuse."

Wade agrees that the detection of substance abuse should be part of a broader focus on patient safety and employee health. "This is not about finding people and punishing people. This is about protecting patients," he says. "We don't want to destroy careers. We want to keep people healthy."

Meanwhile, Wade points out a silver lining in the Georgetown incident: Security in the pharmacy was apparently tight and access to drugs was limited. "The only way this employee could get it was to be right there next to the bedside taking it away," he says. But he adds, "[That] demonstrates that if someone wants to get their hands on something, they can find a way to do it." ■

Latest data show drop in needlestick injuries

Combining NaSH, EPINet provides best picture yet

The most comprehensive analysis of national needlestick data ever conducted has revealed an encouraging sign: The injury estimate of about 384,000 is considerably less than the 600,000-plus previously cited.[1] That may indicate that needlestick prevention programs and safety devices are having an impact, says **Adelisa Panlilio**, MD, MPH, medical epidemiologist in the Hospital Infections Program at the Centers for Disease Control and Prevention in Atlanta.

"There may be reason to believe [needlesticks] might really have dropped," Panlilio says. "There has been a lot more attention paid to injuries. There are devices which may reduce the risk of injury which are in more widespread use, although some would argue they aren't as widely used as we would like."

Panlilio acknowledges that it's difficult to compare the current data with estimates developed by researchers using a different base of sample hospitals. For the first time, the CDC combined its National Surveillance System for Healthcare Workers (NaSH) data with that of the EPINet system run by the International Health Care Worker Safety Center at the University of Virginia in Charlottesville.

"For the first time we have accurate data," says **Jane Perry**, MA, editor of *Advances in Exposure Prevention*, a publication of the center. Perry notes that the most recent EPINet estimates placed in-hospital percutaneous injuries at 295,082, a figure close to the combined NaSH/EPINet figure.

Information on the effect of safer devices on injury rates is still anecdotal or based on focused studies, Perry says. "The signs of optimism are in individual hospitals that see a decrease in their sharps injury rate after they implement devices," she says.

The two surveillance systems contain data from varying types of hospitals. Hospitals involved in the NaSH system tend to be larger than average and located in the Northeast, while EPINet hospitals are smaller and mostly on the West Coast and in southeastern states. The injury data were weighted based on hospital size to reflect admissions. Panlilio and her colleagues also adjusted the figures based on under-reporting that has been estimated for different health care professions.

"We're hoping that by combining the two data sets and our different hospitals that participate in them, we may get a more representative picture [of needlesticks nationally]," she says.

The estimate also provides a starting point for the CDC to track needlestick injuries, using a consistent statistical methodology, she says. "It's useful to have a benchmark figure to follow a trend," she says. "We're going to promote prevention. We would like to know as we look over time, as these prevention measures are adopted, if we see an effect."

While the number of injuries may be dropping, the estimate of almost 400,000 per year is still staggering, says Panlilio. "Needlestick injuries remain a concern," she says. "The prevention of injuries needs to be addressed."

CDC to offer advice on prevention

Prevention of needlestick injuries means more than evaluating and implementing safer devices, Panlilio notes. The CDC is encouraging hospitals to use data to track their own needlesticks and focus their prevention efforts. By the end of this year, the agency plans to release a workbook that will assist employee health professionals in developing a comprehensive sharps safety program.

The workbook will include information on how to collect and use injury data to set priorities, how to establish an action plan, and how to evaluate the outcomes of prevention efforts.

"It's important that a prevention program be comprehensive, not just the implementation of engineering controls," says **Linda Chiarello**, RN, MS, epidemiologist in CDC's hospital infections program.

For example, employee health professionals may look at policies and procedures, work practices, education, enforcement of educational directives, and how to encourage a safety culture, she says.

Data are central to any prevention plan, Chiarello notes. "With the [current] regulatory environment, people are going to have to show accountability for their prevention programs," she says. "We're trying to provide them the tools to do that in an effective way. To be able to show that impact, you have to have a level of detail with the data that provides information on all the factors that are contributing to injury, looking not

only at the type of device or procedure but why those injuries are occurring," she says.

For example, at one hospital, 80% of injuries during blood collection were associated with winged-steel needles. At another hospital, due to a preference for different devices, the injuries might be associated with vacuum tube needles.

The data might prompt a discussion about why that needle was selected and what alternative the staff might accept.

21% of needlesticks are 'unpreventable'

Of course, you should focus your efforts and resources on those areas that will produce the greatest level of prevention. In analyzing the national data, the CDC determined that 21% of needlesticks are "unpreventable." In another 19%, the information wasn't complete enough to determine preventability.

"Theoretically, every injury is preventable," says **Scott Campbell**, RN, MSPH, a CDC epidemiologist. "But the most difficult ones to prevent are procedures that necessitate the use of a sharp object and the injury occurs when the device is in use. Let's say I'm drawing blood and during the procedure, while I'm still in the vein, the patient moves. It's very difficult to protect the worker from injury during the blood-draw procedure itself."

Analysis of the data may show some surprises. "There are needle injuries that still occur where needles aren't even necessary," says Campbell. For example, a nurse may use a syringe in a needleless IV system — perhaps out of habit, in time pressure, or out of confusion over the difference between the needleless and standard systems.

The NaSH software doesn't currently include analysis of injuries by preventability, but the reports can easily be customized to include variabilities relating to that, says Campbell. Future versions of the software may contain the preventability factor, he says.

Based on the national data, employee health professionals will find that the great majority of needlesticks are preventable — and their challenge will be to find out how to prevent them, notes Campbell.

[Editor's note: CDC is accepting applications for future enrollment in NaSH. Software and technical support are free of charge. For more information about NaSH, please contact the Hospital Infections Program by telephone at (800) 893-0485 or by e-mail at Nash@cdc.gov. EPINet is no longer accepting new members into its database, but hospitals may use the Windows-based EPINet software free of charge, which can be downloaded from the Becton-Dickinson Web site at www.bd.com. For technical support or help with EPINet, contact Ginger Parker at (804) 982-0702.]

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'Why did I have to tell my doctor to wash his hands?'

Gels, leadership support can improve hand hygiene

"Dear Abby: The doctor examined the person next to me and I heard him say, 'Boy! That's some rash you have.' When he was finished with him, he parted the curtain, came to me and said, 'You need stitches.' I said, 'Would you please wash your hands before you touch me?' He did. Abby, why did I have to tell him?"

Patients used one of the nation's most widely read advice columns to vent their concerns about hand hygiene in hospitals just weeks after infection control experts gathered in Atlanta this spring to discuss hand hygiene improvements. The experts' conclusion: While patients might improve compliance by asking about hand washing, a better solution involves both new hygienic agents and a change in workplace culture.

"My approach to this whole problem would be to stop trying to focus on individual nurses and doctors [and asking,] 'Why aren't you doing this?'" says **Elaine Larson**, RN, PhD, professor of pharmaceutical and therapeutic research at the Columbia University School of Nursing in New York City. Larson spoke at the 4th Decennial International Conference on Nosocomial and Healthcare-Associated Infections in Atlanta in March.

"We need to focus on a system that makes it very, very difficult not to do the right thing and has a culture that that's what everybody's expected to do," she says. "That's what happens

in the OR. No one walks into the OR and starts doing surgery without doing a surgical scrub. And everybody feels empowered to say something [if someone fails to scrub]."

Observational studies show that physicians, nurses, and other staff follow appropriate hand-washing procedures in only 25% to 75% of all patient encounters.[1,2] Yet the convenience of new alcohol-based gels may increase that percentage.[3] The gel containers can be placed outside each patient's room or in patient cubicles in the Intensive Care Unit. Formulated with emollients, the gels also may be gentler on the skin than soap.[4]

"If nurses and physicians washed their hands as often as they are supposed to, they might experience considerable skin irritation and dryness, which is a deterrent to continued hand washing," says **John Boyce**, MD, chief of the division of infectious diseases at the Hospital of Saint Raphael in New Haven, CT.

In a study presented at last year's Society for Healthcare Epidemiology of America meeting, Boyce, a hospital epidemiologist, used a test of electrical capacitance, an indicator of skin dryness, to determine the impact of soap-and-water hand-washing and alcohol gels on nurses' hands. "When nurses were using this alcohol gel, they had significantly less skin irritation and dryness than when they were washing their hands using the soaps that were available at the hospital on a routine basis," he says.

Hygiene message comes from the top

Making hand washing easier and gentler is just one part of an overall effort to improve hand hygiene, says Larson. "They would be even more [effective] if there are some efforts to work on the behavioral climate," she says.

Larson is convinced that behavior change has to start from the highest levels of the hospital. And a recent unpublished study backs her up.

"In the past, we've done a lot of studies to try to change behavior at the unit level, talking to doctors and nurses," says Larson. "It works for a little while and then goes away."

Then she designed an intervention to attempt to change the organizational culture by sending a message from top administrators about the importance of hand washing. Twenty administrators and clinical leaders met in focus groups to brainstorm about strategies to improve hand hygiene. Those leaders then took charge of implementation.

Although some of those strategies had been attempted before, the support of top leadership made a difference, Larson says. Counters installed in soap dispensers showed a marked increase in hand washing within six months, while the hospital's nosocomial infection rates dropped. Similar changes did not occur in a control hospital, where Larson monitored hand washing but didn't implement an intervention.

Larson is continuing to collect data on the effectiveness of the effort to change organizational culture, and has added the element of alcohol-based gels.

Boyce agrees that switching to an alcohol gel should occur in a larger context of hand hygiene. "Changing the institutional culture is every bit as important as the alcohol," he says.

Feedback promotes compliance

Health care workers aren't necessarily aware of the gaps in their hand hygiene. Researchers at the Naval Medical Center in San Diego found that feedback from unannounced observations — along with a little competition — led to improvements in hand washing among surgeons on their rounds.[5]

In 1998, a nurse observed hand washing compliance during preoperative and postoperative contact with patients for three general surgery teams. The results — from 0% to 16% — were reported to each team. Teams were also told future audits were planned.

Just three months later, observation showed a dramatic improvement: 44% to 89% compliance.

"After general discussions with some of the surgeons before the first audit, we surmise that most surgeons think they wash their hands more than they actually do," comments **Jean Thompson-Bowers**, CIC, supervisor of the Infection Control Section.

A third audit showed some decline in compliance, and additional audits are planned. "Periodic feedback on compliance may be one tool in the arsenal to improve hand hygiene," says Thompson-Bowers.

Encouraging patients to ask their providers about hand washing also can be "extremely effective," notes Larson. But she questions whether it is fair to put that burden on sick and vulnerable patients and their families.

"The last thing they want to do is compromise their relationship with their health care provider," she says.

Instead, Larson and others say the strong message should come from higher levels at the hospital. "I think the most effective effort to improve hand hygiene compliance would be good role modeling by peers and those in leadership positions," says Thompson-Bowers.

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Safety zone: How to get HCWs to use precautions

Education boosts eye protection, double-gloving

Are your employees using the protective gear and safety devices you provide them? Too often they're not. Faced with data that showed lackluster adherence to safety precautions, Barnes-Jewish Hospital in St. Louis focused on education to bring about safer work practices.

Posters, cards, and educational sessions emphasized the importance of universal precautions, such as wearing protective eyewear and double-gloving in the operating room. Adherence increased from 54% to 66% for eyewear and from 28% to 52% for double-gloving, while needlesticks and body fluid exposure declined.[1]

Generally, the problem isn't that health care workers lack knowledge about universal precautions, says **Lynn Kim**, MPH, research coordinator in the division of infectious diseases at Washington University School of Medicine in St. Louis. "They just were too busy, especially in the ER. A case would come in and they would just go in. They said [the eyewear] wasn't easily accessible to them. We made some changes and tried to reduce those barriers."

Health care workers also may become complacent. Barnes-Jewish Hospital used a 50-item questionnaire to assess how much emergency department personnel knew about the transmission of bloodborne pathogens, their risk of infection after a needlestick, and the effectiveness of postexposure prophylaxis.

Only 20% of the 103 ED staff members surveyed could correctly identify the risk of transmission of a bloodborne pathogen after a needlestick injury from an HIV-positive, hepatitis B-positive, or hepatitis C-positive patient.[2]

More than one-third of respondents considered their lifetime occupational risk of HIV infection to be "insignificant," and 15% said they "only reported needlestick injuries if they knew the patient was HIV-positive."

"There haven't been any conversions at our hospital for HIV," says Kim. "So then they may think they're not really at risk. But we did provide them with data of blood that was tested for patients in the ER and let them know there is HIV among patients they're seeing."

When infection control staff observed behaviors in the emergency department and operating room, they likewise found a loose attitude among many health care workers.

Only 38% of 57 nurses and 121 surgeons surveyed reported using double gloves most of the time. Yet their actual behavior was even less protective. In an observation of 76 surgical cases totaling 200 hours, only 16% of the nurses and physicians used double gloves.

"I think they intend to be [compliant with universal precautions], but they get into their daily routine and don't think about it," says Kim.

The hospital made some changes to make it easier for employees to comply with the precautions. For example, the gloves were moved to a shelf closer to the entrance to the ED trauma room where staff could grab them as they walked in. Trauma rooms were redesigned to reduce crowding, and limits were placed on the number of observers.

Yellow signs remind ED personnel to observe universal precautions, and a hands-on training program for medical students and interns helps

them brush up on procedures associated with needlesticks, such as phlebotomy and arterial blood gases. Small reference cards remind personnel about what to do immediately after exposure to possible bloodborne pathogens, including the risks of acquiring HBV, HCV, and HIV and the phone number for reporting.

"We just kept focusing attention on [the precautions]," Kim says. "It helped people become more aware."

References

1. Kim L, Freeman B, Jeffe D, et al. Educational intervention improves compliance with Universal Precautions in the operating room for two years after training. Presented at the 10th annual meeting of the Society for Healthcare Epidemiology of America. Atlanta; March 5-9, 2000.
2. Kim LE, Evanoff BA, Parks RL, et al. Compliance with Universal Precautions among emergency department personnel: Implications for prevention programs. *Am J Infect Control* 1999; 27:453-455. ■

Literature Review

Franchi A, Amicosante M, Rovatti E, et al. **Evaluation of a Western blot test as a potential screening tool for occupational exposure to *Mycobacterium tuberculosis* in health care workers.** *J Occup Environ Med* 2000; 42:64-68.

Is there a better way to test health care workers for occupational exposure to tuberculosis? Researchers at the University of Modena in Italy say there is: using a Western blot test to detect an antibody as a marker of exposure to TB.

Currently, skin tests measure the reaction to tuberculin purified protein derivative (PPD) to screen health care workers for risk of TB infection. The researchers developed an *M. bovis* serological Western blot test as an earlier marker of TB contact.

The antibody test could not be used with BCG-vaccinated workers due to their high reactivity. But among non-vaccinated health care workers, the Western blot test did, in fact, detect exposure earlier than the PPD skin test and with greater sensitivity. For example, the Western blot test identified 95% of workers in the tuberculosis and respiratory diseases division as being sensitized to *Mycobacterium tuberculosis*, as compared to 73% identified by PPD. In the infectious disease division, Western blot identified 59% of workers as sensitized, compared to 41% identified by PPD.

On the downside, the authors noted that the Western blot methodology "would give more limited information about the level or intensity of MTB-exposure than the PPD skin test."

"Overall, this study suggests that the WB test antibody market, as a sensitive indicator of MTB contact among exposed HCWs, might provide, in association with the PPD skin testing, new tools to assess the TB risk in health care facilities with higher accuracy, thus allowing a more timely and appropriate implementation of the environmental and health surveillance measures for the primary prevention and control of TB infection in the workplace," the authors stated. ■

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CALENDAR

Application deadline for certification examinations — Deadline for occupational health nursing (COHN and COHN-S) is July 31; deadline for case management (CCM) is Aug. 31. For more information, contact the American Board of Occupational Health Nurses, 201 East Ogden, Suite 114, Hinsdale, IL 60521-3652. Telephone: (630) 789-5799. Fax: (630) 789-8901. Web site: www.abohn.org.

Frontline Healthcare Workers Safety Conference — Aug. 6-8, Washington, DC. For more information, contact the Frontline Healthcare Workers Safety Foundation, Three Dunwoody Park, Suite 103, Atlanta, GA 30338. Phone: (678) 781-5241. Fax: (678) 781-5242. Web site: www.frontlinefoundation.org.

Certification Review for Occupational Health Nurses — Sept. 11-13, Boston. For more information, contact the Harvard School of Public Health at (617) 432-1171. E-mail. contedu@hsph.harvard.edu. Web site: www.hsph.harvard.edu/ccpe. ■

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• 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. ■