



AMERICAN HEALTH CONSULTANTS®

FOR MORE THAN 18 YEARS

# Hospital Employee Health

2000 HEH Reader Survey Form  
Included in this Issue

April 2000 • Volume 19, Number 4 • Pages 37-48

## IN THIS ISSUE

### OSHA will issue technical guides on evacuating surgical smoke

Hospitals may face growing pressure to address the issue of surgical smoke, as the U.S. Occupational Safety and Health Administration prepares a technical bulletin with smoke evacuation guidelines. Experts say smoke from lasers and electrosurgical units contains dangerous chemicals as well as potentially viable viral particles . . . . . Cover

### Just take a whiff of what's in surgical smoke

The chemical compounds that have been identified in surgical smoke from laser and electrocautery procedures include acetylene, benzene, carbon monoxide, formaldehyde, methane, and toluene . . . . . 39

### Consider overall cost, ease when choosing evacuators

Advances in smoke evacuation technology have brought improved design of hand-held nozzles, better filtration and airflow, and less noise. Hospitals may now consider smoke evacuation wands, which incorporate evacuation into an electrosurgery unit pencil. . . . . 40

### Hospitals oppose new OSHA rules on ergonomics

Calling proposed ergonomics rules too broad and unscientific, the American Hospital Association has joined in opposition with the National Coalition on Ergonomics, a broad-based industry group that has been fighting regulatory efforts by the U.S. Occupational Safety and Health Administration. OSHA estimates that the standard would reduce work-related musculoskeletal disorders by at least 26%, with an annual cost to the hospital industry of \$740 million or \$735 per worker . . . . . 41

Continued on next page

NOW AVAILABLE ON-LINE!

[www.ahcpub.com/online.html](http://www.ahcpub.com/online.html)

American Health Consultants® is A Medical Economics Company

## OSHA's next assignment: Protecting operating room staff from surgical smoke

*Surgical plume contains toxic chemicals, viral matter*

For hours every day, nurses, surgeons, and technicians hover around patients in the operating room while electrosurgical devices release plumes of smoke. Tiny particles invade their masks and reach their lungs. Their eyes sting, their hair and clothes reek, and they may even feel a wave of nausea or abdominal cramping.

Proper smoke evacuation can greatly reduce the discomfort and potential hazards of surgical smoke, but the use of evacuation devices isn't required by federal regulations. Even so, hospitals may face growing pressure to address the issue of surgical smoke.

In a move that operating room nurses say is long overdue, the U.S. Occupational Safety and Health Administration (OSHA) is drafting a technical bulletin with guidelines for evacuation of surgical smoke. The National Institute for Occupational Safety and Health issued a hazard alert in 1997, recommending the use of surgical smoke evacuators.<sup>1</sup>

"There are hundreds of chemical by-products that have been identified in surgical smoke," says Kay Ball, RN, MSA, CNOR, FAAN, a perioperative educator and consultant based in Columbus, OH. "That's the odor we smell. Some of these chemicals are gases that are known carcinogens."

Researchers have identified benzene, formaldehyde, carbon monoxide, and even human papilloma virus in surgical smoke.<sup>2</sup> In one case, a surgeon contracted laryngeal papillomatosis with human papillomavirus DNA types identical to those of patients

**Why drug testing won't give you a drug-free workplace**

About 8% of your employees may have substance abuse problems, but you won't find them through drug-testing alone. Hospitals need a comprehensive program that includes supervisor and employee training and an employee assistance program. A good work fitness evaluation looks for medical problems, including substance abuse, that could be causing a problem with performance. . . . . 42

**Components of a drug-free workplace program**

The Substance Abuse and Mental Health Services Administration recommends that a drug-free workplace program include a written substance abuse policy; training of supervisors; education of employees; an employee assistance program; and drug and alcohol testing. . . . . 43

**Are you getting the most out of safer needles?**

Even safety devices aren't foolproof, but your training programs and safety policies can help you get the most out of your investment in safer devices, needle safety experts say. For example, well-designed disposal containers and monitoring of needlestick injuries are key. . . . . 45

**Why states continue to pass laws on safer needles**

OSHA's new bloodborne pathogens directive isn't leading hospitals to implement sharps injury prevention, a Maryland task force concluded. State laws are the most effective way to promote the safer technology, the task force says. . . . . 46

**AHA opposes proposed cautions on latex gloves**

The American Hospital Association is urging the Food and Drug Administration to reconsider its proposed cautionary labels for powdered latex gloves, which are part of a pending glove-labeling rule. The proposed label would state: 'Caution: Glove powder is associated with adverse reactions' . . . . .

he had treated with laser therapy. "These findings suggest that the papillomas in our patient [the surgeon] may have been caused by inhaled virus particles present in the laser plume," the treating otorhinolaryngologists concluded.<sup>3</sup>

But so far, the health effects of surgical smoke are largely anecdotal. Most research focuses on the contents of the smoke. Controlled studies of exposed workers are virtually impossible to conduct, says Ball.

"Just think of it practically and logically," she says. "You don't want to be in a room filled with cigarette smoke, and this plume is worse than cigarette smoke."

***ESUs may be worse than lasers***

When surgeons first began using lasers, safety guidelines included provisions for evacuating the smoke produced by the burning of human tissue. But for decades, surgeons had already been routinely using electrosurgical devices that burned tissue and produced smoke in much the same way lasers do — but without any special smoke evacuation.

In fact, electrosurgery units (ESUs) are used in 75% to 80% of all surgical procedures, says **Ken Ross**, senior project engineer at ECRI, a technology assessment firm in Plymouth Meeting, PA.

"There's research that shows that ESUs make nastier smoke than lasers," says Ross. "It has to do with how the smoke is created. With lasers, the energy is sent to such a fine location that the cells are vaporized completely. With the ESU, the power is more dissipated. There's a circular gradient where cells are damaged but not completely destroyed," Ross explains. "The ESU or laser heats up the fluid that's in the cell. It bursts the cell. With the ESU, it's not focused. There are portions of cells that are aerosolized, but they're not completely burned."

The plume from electrosurgery can contain viral material, including hepatitis B, hepatitis C, and HIV, although the likelihood of transmission through surgical smoke is remote, Ross says. Operating room personnel are much more likely to breathe in various gases that pass through surgical masks.

Smoke also creates practical problems in the operating room, as it can momentarily cloud a surgeon's visual field. It can be particularly troublesome for nurses, who remain in the operating room for long periods, while surgeons may perform several cases and then leave.

## **COMING IN FUTURE ISSUES**

- **No smoking:** Will tobacco settlement money fund work site smoking cessation programs?
- **The price is right:** Making a switch to safer needles more affordable
- **Claims oversight:** Controlling workers' compensation costs
- **Ergonomics prevention:** Tips on eliminating risk factors for musculoskeletal disorders
- **Risky business:** Outbreaks of antibiotic-resistant pathogens may put HCWs at risk

"Nurses are sometimes in the operating room 12 hours a day," notes **Candace Romig**, MS, director of governmental affairs at the Association of periOperative Registered Nurses (AORN) in Denver. "Smoke is circulating, and sometimes they are very close to the patient and are affected by it. They're developing respiratory problems, eye irritation, and general overall malaise."

While AORN standards call for the use of smoke evacuators, the association has been pressing for stronger federal action on surgical smoke. But the efforts have been somewhat hampered by the lack of research data on the health effects in the OR environment.

Most studies have focused on measuring the content of the smoke. For example, a 1989 study showed that the plume from vaporizing 1 g of tissue with an ESU was equivalent to smoking six unfiltered cigarettes.<sup>4</sup> Other studies showed that bacteria and viral material in the plume remain viable.<sup>5</sup>

But when NIOSH reviewed literature on surgical smoke, there was only anecdotal evidence of actual health effects. "There are some real issues there, but I don't know if anyone has conclusively shown that there's a major health hazard," says **Gene Moss**, a NIOSH health physicist. "We're trying to minimize a hazard by using control measures."

Surgical smoke itself varies considerably depending on the type of tissue involved, notes Moss. "In certain types of procedures, certain smokes are very heavy," he says. "Brain tissue is much heavier than gut tissue. Depending on the amount of fat, muscle, bone — the compounds are different."

To remove any potential hazard, "you should use a smoke evacuator," he says. "You should try to capture the smoke where it's being produced."

General ventilation of the room won't adequately remove the smoke, says Moss. Currently, there are three basic types of smoke evacuators, with varying price levels. (**For information on purchasing smoke evacuators, see related article on p. 40.**)

Ball says hospitals have begun to recognize the potential hazards and are purchasing evacuators for every operating room. Of course, they also have to be activated in each case.

"We just want people to use the smoke evacuation technology we have to get rid of this hazard," she says. "We need to educate them. The nurses are an easy sell. It's the doctors who are a little bit harder [to convince]."

## References

1. National Institute for Occupational Safety and Health. *NIOSH Hazard/Controls: Control of Smoke from Laser/Electrical Surgical Procedures*. 1998; DHHS (NIOSH) Publication No. 96-128.
2. Hoglan M. Potential hazards from electrosurgical plume. *Canadian Operating Room Nursing Journal* 1995; 13:10-16.
3. Hallmo P, Naess O. Laryngeal papillomatosis with human papillomavirus DNA contracted by a laser surgeon. *Eur Arch Otorhinolaryngol* 1991; 248:425-427.
4. Tomita Y, Mihashi S, Nagata K, et al. Mutagenicity of smoke condensates induced by CO<sub>2</sub> laser irradiation and electrocautery. *Mutat Res* 1989;145-189.
5. Garden J, O'Banion M, Shelnitz L, et al. Papillomavirus in the vapor of carbon dioxide laser-treated verrucae. *JAMA* 1988; 259:1,199-1,202. ■

## Just take a whiff of what's in surgical smoke

What's in surgical smoke? The following compounds have been identified in the plumes of electrocautery or laser procedures:

Acrolein  
Acetonitrile  
Acrylonitrile  
Acetylene  
Alkyl benzenes  
Benzene  
Butadiene  
Butene  
Carbon monoxide  
Creosols  
Ethane  
Ethylene  
Formaldehyde  
Free radicals  
Hydrogen cyanide  
Isobutene  
Methane  
Phenol  
Polycyclic aromatic hydrocarbons  
Propene  
Propylene  
Pyridene  
Pyrrole  
Styrene  
Toluene  
Xylene

# Consider overall cost, ease when choosing evacuators

## Disposables drive up costs of portable units

Clearing smoke in the OR has never been easier, thanks to new smoke evacuation technology. But hospital employee health professionals will need to consider overall cost, convenience, and effectiveness when choosing an evacuator, advises **Ken Ross**, senior project engineer at ECRI, a technology assessment firm in Plymouth Meeting, PA.

Early smoke evacuators were noisy and cumbersome, not unlike a nozzle attachment on a vacuum cleaner. "People are reluctant to use smoke evacuators because they think they're like those older ones," says **Kay Ball**, RN, MSA, CNOR, FAAN, a perioperative educator and consultant based in Columbus, OH. "They're really not that loud now."

Advances in technology have brought improved design of hand-held nozzles, better filtration and airflow, and less noise. Hospitals may now consider smoke evacuation wands, which incorporate the evacuation into an electrosurgery unit (ESU) pencil.

The newest technology involves stationary units that are built into the OR's mechanical space and activated through a control switch or foot pedal. "In essence, you plug your hose or handpiece into the wall or surgical column," says Ross. The unit doesn't take up floor space, and noise is shielded by the insulation of the wall or ceiling.

## Consider all costs of each system

Each type of system has a host of advantages and disadvantages that must be carefully weighed, says Ross. For example, the basic portable units with hand-held nozzles may seem the most economical, but Ross cautions that you must consider all costs.

"Portable systems are very inexpensive to purchase. In some cases, manufacturers will practically give them to you for free," he says. "But you also buy the disposables — the filters, the handpieces, the hoses. That adds up considerably. We estimate that it could cost you \$10,000 to \$13,000 per year for an active hospital per unit [with very busy ORs]."

In contrast, a stationary system can cost as much as \$120,000 to install and requires construction. However, stationary systems may not require disposable filters, or they may have filters with a much longer life.

"Even though the installation costs for a stationary system are very high, your cost per use becomes lower because your disposable cost is low," says Ross. "We estimate a cost per use of the stationary system of \$4 to \$5 per case, whereas a portable system can be anywhere from \$6 to \$10 per use."

The stationary systems may be particularly appealing for hospitals that are planning renovation, he notes.

The ESU pencil-based evacuation wands offer the advantage of capturing smoke close to the point of origin, which means the airflow can be lower and the noise is reduced.

## Does system compromise surgeons' dexterity?

While some surgeons may appreciate the convenience of an evacuator connected to the ESU pencil, others may balk, says Ross. "The hose puts a strain on the wrist of the surgeon," he says. "He's trying to do this delicate operation, but his dexterity is compromised. I've heard stories that some surgeons will actually ask the scrub nurse for a pair of scissors and will proceed to cut the hose. There are other surgeons who love these things."

After selecting the overall type of evacuator, hospital employee health professionals should consider performance features such as air movement, filtration, noise, mobility, maintenance, and the overall cost of different models, notes Ball.

The most important message, says Ball, is that hospitals should use some type of evacuator in their ORs. The hospital's HVAC system mixes the air with clean air but doesn't get rid of the smoke. Surgical masks only filter particles of 5 microns or higher, while 77% of surgical plume is composed of particles 1.1 microns or smaller, she says.

"This stuff is real small, and where does it go? It goes right into your lungs, where it can cause respiratory conditions," Ball says.

*[Editor's note: Detailed evaluations of surgical smoke evacuation systems are available in Health Devices, September 1999 and April 1997 issues, from ECRI, 5200 Butler Pike, Plymouth Meeting, PA 19462-1298. Telephone: (610) 825-6000, ext. 5888. Fax: (620) 834-1275. Web site: www.ecri.org.]* ■

# Hospital group opposes OSHA ergonomics standard

*Occupational health groups also raise concerns*

The American Hospital Association has joined with the National Coalition on Ergonomics to oppose the new ergonomics standard proposed by the U.S. Occupational Safety and Health Administration.

In printed comments to OSHA, the Association of Occupational Health Professionals in Healthcare (AOHP) in Reston, VA, and the American Association of Occupational Health Nurses (AAOHN) in Atlanta also expressed concerns about several aspects of the proposed standard.

The draft ergonomics standard, released in October, requires employers to respond to each work-related musculoskeletal disorder (MSD) with an ergonomic solution. Isolated problems could be addressed with a "quick fix," but OSHA would require most injuries to trigger a full-scale program of analysis, training, and medical management.

OSHA estimates that the standard would reduce work-related MSDs by at least 26%, with an annual cost to the hospital industry of \$740 million or \$735 per worker.

While AOHP and AAOHN support creation of a standard, they say the proposed version doesn't require that a qualified health professional conduct the evaluation of the worker's injury. They also oppose the work-restriction protections that give injured employees 90% of their wages while off duty for a MSD, a provision that means these injuries would be treated differently from other worker's compensation claims.

## ***With coalition, AHA takes strong stand***

By joining with the National Coalition on Ergonomics, the AHA takes an even tougher stand. The coalition, an industry group that includes manufacturers, trucking companies, grocers, and major business organizations, represents the most organized opposition to the ergonomics standard. The coalition contends that not enough scientific information is available to determine what causes lifting or repetitive trauma injuries and what can prevent them.

"We think employers and employees ought to share what they believe has been a successful solution in their industries," says coalition spokesman Al Lundeen. "We're not at a stage where we should regulate. A regulation needs some absolute science behind it."

The AHA likewise says the proposed standard is too broad in scope and that more research is needed, says spokeswoman Carol Schadelbauer. Rather than submitting its own comments to OSHA, the AHA will sign onto the coalition's comments, she says.

Those were the arguments that led Congress to prohibit OSHA from promulgating a proposed standard before Sept. 30, 1998. A 1999 report by the National Academy of Sciences (NAS) stated that workplace interventions can decrease the risk of occupational musculoskeletal disorders, thus bolstering OSHA's efforts.

## ***AOHP cites need for more information***

Congress requested another NAS study to review the link between repetitive tasks in the workplace and repetitive stress injuries, but efforts to postpone OSHA's proposed ergonomics standard until the release of that report failed. The NAS study is expected later this year.

AOHP supports a delay to include the new NAS information. "Our position is that although there is evidence to support OSHA promulgating an ergonomic standard at this time, we would recommend that the results of the current National Academy of Science study be utilized to determine the triggers as well as other components in the final OSHA standard," the AOHP executive board stated in comments to OSHA.

"The standard would then be based on the most currently available scientific data," the AOHP stated. "During the interim, the general duty clause has been and could continue to be invoked to address ergonomic issues in the workplace."

OSHA extended its comment period on the standard to March 2 and postponed several hearings in response to a request from industry representatives that they needed more time. Hearings originally scheduled to begin on Feb. 22 in Washington, DC, are now set for March 13. A hearing in Chicago will begin on April 11 as planned. A third hearing, originally scheduled for March 21 in Portland, OR, will be rescheduled.

"It's a positive sign that OSHA has recognized that more time is needed to give people a chance to read the proposal thoroughly," says Lundeen.

The extended comment period and delayed hearings aren't likely to derail OSHA's efforts. "The ergonomics program we proposed provides a practical, flexible approach to preventing musculoskeletal disorders," OSHA Assistant Secretary **Charles Jeffress** said in a statement. "It reflects industry's best practices by focusing on jobs where problems are severe and solutions are well understood. America's workers have waited a long time for this standard." ■

## Why drug testing won't ensure drug-free workplace

### *Hospitals should have a comprehensive program*

**C**hances are, one out of every 12 of your hospital's employees abuses drugs or alcohol. A recent national survey found that 70% of illegal drug users are employed, and that about 7.7% of employees use illicit drugs.<sup>1</sup>

Even if you screen potential employees before you hire them, you probably don't have a drug-free workplace. Hospitals need comprehensive policies, procedures, and education programs to identify and respond to substance abuse among employees, says **Kathleen Golden McAndrew**, MSN, ARNP, COHN-S, CCM, department director and nurse practitioner in the section of occupational medicine at the Dartmouth Hitchcock Medical Center in Lebanon, NH.

The bottom line, says McAndrew, is fitness for duty. While a drug test may be helpful, it is just one component of the work fitness evaluation of employees, she stresses.

"I think so many people rely on drug testing, and it's got its limitations," McAndrew says. "Instead of sending an employee to a health care provider for evaluation, they jump into drug screening. First, they need to sit down and talk to him or her and ask what's going on."

A work fitness evaluation looks for medical problems, including substance abuse, that could be causing a problem with performance.

"The majority of work fitness evaluations I do are not substance abuse problems, but I do go through the process" of looking for signs and symptoms of drug use, says McAndrew. Sometimes, no medical problem or substance abuse is

found, and the matter becomes purely a job performance issue.

Health care workers may have a higher risk of abusing prescription drugs, if only because of their access to them. Some employees may try to counteract the effects of job stress and the physical demands of working night shifts with prescription drugs.

A survey of 4,438 registered nurses found that 32% had used marijuana, cocaine, or prescription-type drugs or engaged in binge drinking or smoked at least half a pack of cigarettes per day during the last year.<sup>2</sup> (The study asked about any use, not just ongoing use or addiction.) Nurses in emergency care, critical care, oncology, and psychiatry had the highest rates of substance use.

(For more information on the study, see *Hospital Employee Health*, July 1998, pp. 86-88.)

At Baystate Health System, a three-hospital system in Springfield, MA, employees receive monthly safety training, including an annual module on substance abuse. Employees who disclose a substance abuse problem receive treatment and retain their jobs. Even employees whose substance abuse problem was detected after suspicions by a supervisor or co-worker could receive rehabilitation, along with a two-year period of random drug testing.

"Policies should be oriented toward rehabilitation rather than being punitive," says **James Garb**, MD, Baystate director of occupational health and safety. He adds, "You have to have a threshold that you've reached and can't just keep enabling."

Policies are much stricter if the employee negatively affected patient care, perhaps by diverting drugs that were meant for patients. State laws and licensing board rules also vary in what must be reported and what punitive action is taken.

An employee's substance abuse problem is confidential, even from a supervisor who reported suspicions. McAndrew notes that she simply discusses the person's fitness for work.

"We want people here who can safely perform their job duties," she says. "We consider this a medical reason. When they come back, they come back under a contractual arrangement that the supervisor knows about. We don't have to tell them the details."

Employee health policies need to address specifically the roles of hospital administration, supervisors, employees, occupational health and safety employees, and the employee assistance program. Stipulations about the circumstances in which

# Components of a drug-free workplace program

According to the Substance Abuse and Mental Health Services Administration in Washington, DC, a drug-free workplace program should contain the following components:

**1. A written substance abuse policy.** The policy explains why the program is being implemented and describes what behaviors and activities are prohibited and what the consequences are. It includes information about an employee assistance program and what services it provides.

**2. Training of supervisors.** Supervisors should be able to identify behaviors and performance problems that could be linked to substance abuse. They should be fully aware of the substance abuse policy and how to refer employees for evaluation. However, a diagnosis of a substance abuse problem can only be

employees are allowed to return to work should be clearly stated, McAndrew advises.

McAndrew teaches supervisors about signs in behavior, appearance, and work performance that could indicate drug abuse.<sup>3</sup> But it is still a challenge to determine whether unusual behavior is linked to drug use.

Garb recalls one four-month period in which three employees were referred for possible substance abuse problems, but all three had serious medical conditions instead. For instance, a physician was losing weight, had hand tremors, and was making errors. Tests showed he had an overactive thyroid.

In another case, a young nurse was coming in late, looking disheveled, and making mistakes. When Garb took her history, he learned that she was falling out of bed at night and was unable to get back in. "That's not the story of a drug user," he says. "There was clearly something else going on."

It turned out she had a brain tumor, as did a secretary who had previously been treated for breast cancer.

"One potential hazard for employee health practitioners is forgetting to look for some of these other medical problems," says Garb. "You don't want to forget to consider the more unusual types of problems."

made by a qualified health professional.

**3. Education of employees.** Employees need to know the impact substance abuse can have on safety and quality of work. They need to be familiar with the hospital's policy, including drug or alcohol testing, and with help that is available from the employee assistance program (EAP).

**4. Employee assistance program.** An effective EAP offers help in a confidential and non-punitive environment. However, employees who are referred to an EAP due to work-related problems are not protected from other consequences, including suspension of a license or termination due to poor performance.

**5. Drug and alcohol testing.** Determine who will be tested and how the tests will occur. For example, your hospital may test all new hires or may conduct tests based on suspicion of substance abuse. Some state and federal laws or regulations may require drug testing. You also must determine what drugs will be included in routine tests. ■

A work fitness impairment evaluation should take into account the clinical signs, symptoms, and behaviors related to the seven categories of psychoactive drugs: narcotic analgesics, central nervous system (CNS) stimulants, CNS depressants, hallucinogens, phencyclidine, cannabis, and inhalants.

An eye examination can be an important part of the physical evaluation, notes McAndrew. For example, certain drugs may cause nystagmus, an involuntary jerking of the eyes, or changes in the eyes' response to light.

After a careful consideration of the supervisor's concerns, the patient's history, and the physical evaluation, McAndrew may move on to drug testing. "It's a toxicological confirmation of what your findings are," she says.

Employees may have a longtime substance abuse problem before the symptoms become obvious. Co-workers also may feel uncomfortable reporting someone, particularly if they don't feel patient care has been compromised. But a confrontation and subsequent treatment may help someone turn his or her life around.

"People can go on for years and put up a pretty good front," says Garb. "Usually it's one of two things that forces people into treatment: a crisis at home or a crisis at work."

# Occupational and Environmental Medicine Work Fitness Evaluation Guidelines

1. Interview of the employee's supervisor
2. Interview of the employee
3. Allergies
4. Current medication(s)
  - Prescribed
  - OTC
  - Natural remedies
  - Other people's
5. Inquiry of what has been eaten today
  - When and what
6. Inquiry of amount of sleep
  - When and how much
7. Past medical history
8. Social history
  - Drugs, ETOH, other
  - Social support and living conditions
  - Hobbies or home activities
9. Occupational history
  - How long
  - Hours, schedule, shift
  - Concurrent employment
10. Review of systems
  - If condition reported, when and reason for last visit with treating health care provider
11. Physical examination
  - Height, weight, oral temperature, blood pressure
  - General demeanor and appearance
    - Eyes (sclera, conjunctiva, fundoscopy exam, horizontal and vertical gaze nystagmus, optional pupillary response dark room examination)
    - Ears (auditory canal, tympanic membranes)
- Nose (septum, erythema, hair)
- Throat/Mouth (pharynx, teeth, gums, burns, injection sites, debris, lips)
- Neck (thyroid, lymphadenopathy, bruits, range of motion, tenderness)
- Lungs (effort, auscultation)
- Cardiovascular (rhythm, rate, heart sounds, peripheral pulses)
- Abdomen (bowel sounds, tenderness, masses, etc.)
- Upper extremities (range of motion, muscle strength, tone, grips)
- Lower extremities (range of motion, muscle strength, tone)
- Back (deformities, tenderness, range of motion)
- Neurological (CN II-XII, station and gait, reflexes, romberg, heel and toe walking, divided attention tests such as finger-to-nose, heel to shin, rapid alternating movements)
- Integumentary (color, texture, temperature, lesions, eccymosis/edema, needle marks/tracks)
12. Differential diagnosis
13. Order appropriate testing including alcohol and drug screening as appropriate
14. Disposition
  - Referral to Employee Assistance Program
  - Other healthcare providers
  - Home (arranged ride)
  - Return to work
15. Return to work
  - Medical clearance
  - Contract with human resources and supervisor
  - Random drug and alcohol screening as appropriate

*Source:* Kathleen Golden McAndrew, Dartmouth Hitchcock Medical Center, Lebanon, NH. Reprinted with permission.

"There are some stories of people who have gone into treatment and done quite well," he says. "You don't win them all, but there are some really nice saves."

*(Editor's note: More information on creating drug-free workplace policies and programs is available on-line from the Substance Abuse and Mental Health Services Administration at [www.health.org/workpl.htm](http://www.health.org/workpl.htm).)*

## References

1. Substance Abuse and Mental Health Services Administration. *Worker Drug Use and Workplace Policies and Programs: Results from the National Household Survey on Drug Abuse*. Washington, DC, 1999.
2. Trinkoff AM, Storr CL. Substance abuse among nurses: Differences between specialties. *Am J Public Health* 1998; 88:581-585.
3. McAndrew KG, McAndrew SJ. Workplace substance abuse impairment. *AAOHN Journal* 2000; 48:32-45. ■

# Are you getting the most out of safer needles?

## Training, good disposal help reduce injuries

**S**witching to safer needle devices can reduce needlestick injuries by 75% or more. But what causes the remaining injuries? Can they be prevented?

Even safety devices aren't foolproof. But your training programs and safety policies can help you get the most out of your investment in safer devices, needle safety experts say.

"If there's a needle on a device, there are going to be some needlesticks," says **Janine Jagger**, PhD, MPH, director of the International Health Care Worker Safety Center at the University of Virginia in Charlottesville. "The question is, how much is a device going to reduce needlesticks? An 85% or 90% reduction is fantastic. We shouldn't consider those [remaining] events evidence that the device doesn't work."

Needles with safety devices accounted for only 6.3% of all needlestick injuries from 1993 to 1997, according to EPINet, a data-sharing network with information from 84 hospitals. About one-quarter of the injuries from safer devices occurred during use, and 11% during or after disposal.<sup>1</sup>

## Safety products have proven effective

As safety designs improve, the risk of injury will decline further, says Jagger. Still, the products on the market have proven to be quite effective, she says.

"I haven't seen a safety device that didn't to some degree reduce injury," she says. "Some of them have a higher fraction of injury prevention than others. If you pick out a device that's on the market that's within your cost parameters and that your staff feels comfortable with, you can expect that you will experience injury reduction."

Recent state laws, such as those in California and New Jersey, are placing pressure on hospitals to switch swiftly to alternative devices. But if the choice is made too rashly, hospitals may end up buying costly devices that aren't readily accepted by staff or that actually increase patient discomfort, cautions **Robyn Gershon**, DrPH, associate scientist in the department of environmental health sciences at the Johns Hopkins School of Public Health in Baltimore.

"It's still a very, very new market," she says. "As you might suspect, it's not an easy technology to undo. It's complicated to get a device that will be sharp and get into the patient's vein or muscle and tissue and not be a danger to the health care worker."

Here are some steps that hospital employee health professionals can take to make the most of safer sharps technology:

- **Choose devices based on how they perform in a clinical setting.**

You need to know how the device performs in the workplace, not just in a simulation, advises Jagger. "A product evaluation that is based solely on experts providing their opinion or experts or health care workers sitting around a table and discussing the device and doing simulations of the device are absolutely inadequate and should not be relied upon to provide accurate information," she says.

Evaluations also should include various clinical settings, Jagger recommends. "The same device can be given a high evaluation in one clinical setting [but] a very poor evaluation in another setting."

## Evaluate everything from setting to hand size

A wide range of factors can influence the acceptance of new needle devices, notes **Gina Pugliese**, RN, MS, director of the Premier Safety Institute, a health care alliance based in Chicago. For example, an evaluation might take into account the experience level of the staff, how adaptable they are to change, how compatible the device is to others already in use, and even the size of the users' hands. Patients also differ greatly; a device that works well in one unit might not be feasible for pediatric care or elderly patients.

"The consensus among sharps injury prevention experts is that there isn't a single device that you can use across categories that everyone in the institution will like," says Pugliese, who is senior associate editor of the *Journal of Infection Control and Hospital Epidemiology*.

- **Conduct thorough training programs in the context of an overall safe workplace.**

It can be very time-consuming to pull staff away for extensive training. But without adequate training, you may be wasting your money on the new devices.

"They're only safer if you're using them properly," says Gershon. "There are very few devices

that are truly completely passive. There is usually something you have to do to make it happen."

Jagger recalls a hospital in the EPINet database that had injury rates from a safety device that were about the same as a conventional device. "Every single one of those injuries was during needle access to an IV port, [yet] it was a needleless IV system," she says. "They should have been using a needless syringe. If they had appropriately used the IV system, they would not have had a single injury."

### **'There isn't a cookbook approach to this'**

Each hospital will need to decide how to implement the new devices, notes Pugliese. If training occurs unit by unit, how will you handle employees who transfer from one unit to another? What about a patient with a needleless IV system who is transferred to a unit with staff who don't know how to use the device?

There is no simple answer to those questions, she says. "There isn't a cookbook approach to this," she says. "What works for one facility is not going to work for another."

- **Provide well-designed disposal containers.**

A comprehensive sharps injury prevention program includes a review of the location and selection of disposal containers, says Gershon.

In a study at a 450-bed community hospital in Washington, DC, Gershon and other researchers found that a new sharps disposal system contributed to a significant decline in needlestick injuries.<sup>2</sup> The new containers had a more convenient design and location and were changed regularly by a sharps disposal firm.

From 1990 to 1998, sharps injuries related to intravenous lines declined by 93%, and hollow-bore needlesticks decreased by 75%. Better disposal systems may have contributed to the decline in injuries among ancillary workers (such as maintenance and housekeeping staff) and the reduction in recapping injuries.

"We feel very strongly that safety devices should be part of an overall safety strategy," says Gershon.

- **Monitor the success of your safety program and provide feedback to employees.**

Where are needlestick injuries occurring and why? To answer that question, you need to track sharps injury data.

Providing feedback to employees and supervisors can help make them feel accountable to safety in their departments, says Gershon. Compliance

with safe practices and the use of safety devices can become a part of employee and manager job performance evaluation, she says.

There are other ways to get the safety message out as well, including newsletters, safety committees with employee involvement, and training programs.

"There's a tremendous psychological component," says Gershon. "Employees have to perceive that it's a safe work environment, and then they act safer."

*[Editor's note: More detailed information about implementing safer devices can be found in Sharps Injury Prevention Program: A Step-by-step Guide, a publication of the American Hospital Association (catalog no. 196311, \$25 members, \$75 nonmembers). For more information, contact AHA, One North Franklin, Chicago, IL 60606. Telephone: (800) AHA-2626.]*

## **References**

1. Jagger J, Bentley M. Safe disposal of safety devices. *Advances in Exposure Prevention* 1999; 4:16-17.
2. Gershon RRM, Pearse L, Grimes M, et al. The impact of multifocused interventions on sharps injury rates at an acute-care hospital. *Infect Control Hosp Epidemiol* 1999; 20: 806-811. ■

## **Why states continue to pass laws for safer needles**

*One-quarter of HC facilities used no safe needles*

**A**re state laws necessary to promote the use of safer needle devices? A Maryland task force studied that question and concluded that they are.

A survey of 91 health care facilities conducted in October 1999 by the Study Group on Health Care Worker Safety showed that 24% did not use any "engineered sharps injury protection devices." Two-thirds of those not using safer devices were long-term care facilities.

Yet the use of safer technology often didn't target the greatest risks to health care workers. Facilities often limited their implementation of safer devices to IV systems, while data from the Centers for Disease Control and Prevention in Atlanta show that 62% of needlesticks occur with hollow-bore needles.<sup>1</sup>

"The needless IV tubing is the easiest to implement, but it's not where most of the risks are," says **Liza Solomon**, MHS, DrPH, chair of the study group and director of AIDS Administration. "I think people [on the task force] were disturbed at how few safety engineered needles were being used."

### **Report says regulations aren't enough**

The task force also took into account the new directive of the U.S. Occupational Safety and Health Administration and the regulatory activities of Maryland's occupational safety agency. Again, the members concluded that current regulations aren't strong enough to prompt a shift to safer devices.

"One of the problems with the compliance directive is that it is open to interpretation and litigation," says Solomon, noting that the OSHA directive guides inspectors when they issue citations. "[With a tougher directive,] we're changing the threshold, but it's not as black-and-white as legislation is."

Finally, the task force determined that the overall cost of safer needle devices wouldn't be prohibitive because the devices would decrease other costs associated with needlestick injuries.

After the report was presented to the Legislature in January, bills modeled on California's landmark safe needle law were introduced. Solomon says she expects broad support for the legislation because various "stakeholders" in the safe needle issue, such as the Maryland Hospital Association, were included in the study group.

Although the study group focused only on Maryland, the state's experience is likely mirrored in other parts of the country, notes Solomon.

"I would have no reasons to think Maryland would be different from [similar] states. Maryland is a state with good health and safety laws," she says. "If we haven't been able to implement it, I'd be surprised if anyone else has."

*(Editor's note: A copy of the Study Group on Health Care Worker Safety report is available on-line at [www.dhmh.state.md.us/html/reptk10.htm](http://www.dhmh.state.md.us/html/reptk10.htm).)*

### **Reference**

1. National Institute for Occupational Safety and Health. *NIOSH Alert: Preventing Needlestick Injuries in Healthcare Settings*. DHHS (NIOSH) Pub. No. 2000-108. Washington, DC: NIOSH; 1999. ■

## **AHA opposes proposed cautions on latex gloves**

*Labels could be confusing, AHA says*

The American Hospital Association (AHA) is urging the Food and Drug Administration to reconsider its proposed cautionary labels for powdered latex gloves, which are part of a pending glove-labeling rule.

The proposed label would state: "Caution: Glove powder is associated with adverse reactions."

In written comments to the FDA, the AHA noted that the caution on powdered latex gloves could be "confusing, misleading and may discourage the use of medical gloves. AHA urges FDA not to mandate cautionary labels about

Hospital Employee Health® (ISSN 0744-6470) is published monthly by American Health Consultants®, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodical postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to Hospital Employee Health®, P.O. Box 740059, Atlanta, GA 30374.

### **Subscriber Information**

Customer Service: (800) 688-2421 or fax (800) 284-3291. Hours of operation: 8:30 a.m.-6:00 p.m. Monday-Thursday, 8:30 a.m.-4:30 p.m. Friday EST. E-mail: [customerservice@ahcpub.com](mailto:customerservice@ahcpub.com). World Wide Web: [www.ahcpub.com](http://www.ahcpub.com).

Subscription rates: U.S.A., one year (12 issues), \$399. With approximately 18 nursing contact hours, \$449. Outside U.S., add \$30 per year, total prepaid in U.S. funds. One to nine additional copies, \$319 per year; 10 or more additional copies, \$239 per year. Missing issues will be fulfilled by customer service free of charge when contacted within 1 month of the missing issue date. Back issues, when available, are \$67 each. (GST registration number R128870672.)

Photocopying: No part of this newsletter may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner. For reprint permission, please contact American Health Consultants®. Address: P.O. Box 740056, Atlanta, GA 30374. Telephone: (800) 688-2421.

This continuing education offering is sponsored by American Health Consultants®, which is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. Provider approved by the California Board of Registered Nursing, provider number CEP 10864.

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

Editor: Michele Marill, (404) 636-6021, [marill@mindspring.com](mailto:marill@mindspring.com).

Group Publisher: Brenda Mooney, (404) 262-5403, [brenda.mooney@medec.com](mailto:brenda.mooney@medec.com).

Executive Editor: Susan Hasty, (404) 262-5456, [susan.hasty@medec.com](mailto:susan.hasty@medec.com).

Managing Editor: Coles McKagen, (404) 262-5420, [coles.mckagen@medec.com](mailto:coles.mckagen@medec.com).

Senior Production Editor: Brent Winter, (404) 262-5401.

### **Editorial Questions**

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

Copyright © 2000 by American Health Consultants®. Hospital Employee Health® is a trademark of American Health Consultants®. The trademark Hospital Employee Health® is used herein under license. All rights reserved.

glove powder on either synthetic or NRL [natural rubber latex] medical gloves." The AHA notes that skin reactions are linked to glove proteins or chemical additives but that "there is no evidence that they are attributable to glove powder."

The AHA also opposes any future move to restrict or ban powdered latex gloves. "While we acknowledge that powder may play a role in aerosolizing NRL proteins, it is important to consider, and maintain the availability of, the qualities that are unique to powdered NRL gloves," the AHA stated. "We urge the FDA to continue to balance the known risks of deadly bloodborne pathogens with the relative risk of developing an allergy to chemicals or NRL proteins when making decisions about what types of medical gloves may be marketed in the U.S." ■

## CALENDAR



**Public Hearing, U.S. Occupational Safety and Health Administration's Proposed Ergonomics Standard** — March 13- April 7, U.S. Department of Labor, Frances Perkins Building Auditorium, 200 Constitution Ave., N.W., Washington, DC; April 11-21, Chicago. For more information, contact OSHA at (202) 693-1888.

**Safety & Infection Control 1999** — April 8, Rosemont, IL; May 12, King of Prussia, PA; May 25, Boxborough, MA; June 9, Secaucus, NJ. Sponsored by the Society for Healthcare Safety, Compliance & Infection Control. For more information, contact CambridgeHealth Resources, 1037 Chestnut St., Newton, MA 02464. Telephone: (617) 630-1399. Fax: (617) 630-1325. Web site: [www.cambridgehealth.com](http://www.cambridgehealth.com).

**American Occupational Health Conference 2000** — May 12-19, Philadelphia. Co-sponsored by the American Association of Occupational Health Nurses and the American College of Occupational and Environmental Medicine. For more information, contact AAOHN, 2920 Brandywine Road, Suite 100, Atlanta, GA 30341. Telephone: (770) 455-7757. Fax: (770) 455-7271. Web site: [www.aaohn.org](http://www.aaohn.org). ■

### EDITORIAL ADVISORY BOARD

**Kay Ball**, RN, MSA, CNOR, FAAN  
Perioperative Consultant/Educator, K&D Medical  
Lewis Center, OH

**Jeanne Culver**, RN, COHN-S  
Clinical Manager, Employee Occupational Health Services  
Emory University Hospital, Atlanta

**Guy Fragala**, PhD, PE, CSP  
Director, Environmental Health and Safety  
University of Massachusetts Medical Center, Worcester, MA

**Charlene M. Gliniecki**, RN, MS, COHN-S  
Director, Employee Health and Safety  
El Camino Hospital, Mountainview, CA  
Assistant Clinical Professor  
University of California, San Francisco

**Mary Ann Gruden**, MSN, CRNP, NP-C, COHN-S  
Executive President  
Association of Occupational Health Professionals in Healthcare  
Reston, VA

Employee Health Nurse Practitioner  
Heritage Valley Health System  
Sewickley Valley Hospital, Sewickley, PA

**Janine Jagger**, PhD, MPH  
Director, International Health Care Worker Safety Center  
Becton Dickinson Professor of Health Care Worker Safety  
University of Virginia Health Sciences Center, Charlottesville, VA

**Geoff Kelafant**, MD, MSPH, FACP  
Medical Director, Occupational Health Department  
Sarah Bush Lincoln Health Center, Mattoon, IL  
Vice Chairman and Communications Chairman  
Medical Center Occupational Health Section  
American College of Occupational and Environmental Medicine  
Arlington Heights, IL

**Gabor Lantos**, MD, PEng, MBA  
President, Occupational Health Management Services  
Toronto, Ontario, Canada

**Kathleen Golden McAndrew**, MSN, ARNP, COHN-S, CCM  
Department Director and Nurse Practitioner  
Section of Occupational Medicine  
Dartmouth Hitchcock Medical Center, Lebanon, NH  
Instructor in Medicine

Departments of Medicine and Community and Family Medicine  
Dartmouth College Medical School, Hanover, NH

**Kathleen Vandoren**, RN, BSN, COHN-S  
Former Executive President  
Association of Occupational Health Professionals in Healthcare  
Reston, VA

**Sharon A. Watts**, MS, RNCS, ND  
Employee Health Nurse Practitioner  
University Hospitals of Cleveland  
Instructor, Frances Payne Bolton School of Nursing  
Case Western Reserve University, Cleveland

### CE 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. ■