

# Hospital Employee Health®

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## Aging of RN work force raises concerns of injury, future nursing shortages

*By 2010, 40% of nurses will be over 50*

**T**he work force of registered nurses is aging rapidly, a demographic shift that raises the stakes for occupational injuries. Older nurses are more prone to back injuries and chemical sensitivities, nursing experts say. Moreover, they will face the usual effects of aging, including reduced muscle strength, changes in vision, and possible worsening of chronic conditions.

Within 10 years, the average age of registered nurses will rise to 45.4, with 40% of the work force older than 50, according to an extensive review of population data that was published recently in the *Journal of the American Medical Association*.<sup>1</sup> The gradual aging of the work force won't reverse until about 2020, when older RNs begin to retire — at which time hospitals may encounter significant shortages, researchers found.

"There's been a big shift in a short period of time," says lead author **Peter Buerhaus**, PhD, RN, associate dean for research at the Vanderbilt University School of Nursing in Nashville, TN. "The proportion of RNs under the age of 30 has declined from roughly a third of the work force to about 10%. The number has dropped by 41%, while for all other occupations in the country, the number of workers under 30 has dropped by just 1%."

The reason for the shortage, says Buerhaus, is that younger women are opting for other careers and are not entering nursing programs. Expanded associate-degree nursing programs largely have attracted women in their 30s who were starting

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The results of the *Hospital Employee Health* annual salary survey will be published in the November issue. Find out how your facility compares with others and what new career trends are appearing in the field of employee health.

**COMING IN FUTURE ISSUES**

- Why one hospital joined OSHA's Voluntary Protection Program
- Million-dollar latex cases meet success, while hundreds more await trial
- What would be in the safe hospital room of the future?
- Advice on selecting occupational health software
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second careers, says Buerhaus. He notes that although more men are entering nursing, the field remains more than 90% female. Therefore, the analysis of the changes in the work force largely focuses on women.

Those patterns were apparent in a study of the Minnesota Nurses Association (MNA) Pension Plan, which covers about 7,000 nurses in Minneapolis and St. Paul. In 1977, two-thirds of RNs in the pension plan were under the age of 35. By 1998, 79% were older than 35, and almost 40% were 45 or older. (See charts, pp. 111 and 112.)

"We were pretty startled when we saw those numbers," says **Andrew Calkins**, a data analyst with the MNA. "It was only five years ago that most of the hospitals in the twin cities were telling new grads not to bother applying [due to restructuring and downsizing]."

***Muscle mass, strength decline with age***

Older nurses are likely to be highly experienced and skilled in specialties. They are mentors and leaders. Yet they also may be more vulnerable to the occupational hazards in health care.

After age 40, muscle mass and strength begin to decrease, with a significant decrease in the 50s. One study found marked decreases in the strength of knee and hip joints, making it virtually impossible for half of older women in the study to lift any weight from certain postures. A change in posture increased the weight limit, but their lifting capacity remained much lower than for younger women.<sup>2</sup>

Such findings highlight the importance of ergonomic programs, including lift teams and special equipment, says **Guy Fragala**, PhD, PE, CSP, director of environmental health and safety at the University of Massachusetts Medical Center in Worcester and a leading ergonomics expert. "It's been well-documented that low back pain and injury prevalence rates increase as people get older," says Fragala. But there are other consequences of reduced physical capacity, as well, he says.

"The same population is going to fatigue much more rapidly, which can result in additional stress in the workplace," he says. "As we consider ergonomics and the redesigning of patient handling and lifting tasks, this will become more important as the work force ages."

Injuries caused by patient handling already present a tremendous burden, notes Fragala. In 1998, according to data from the Bureau of Labor

Statistics, 10.5% of all occupational back injuries were associated with patient handling.

“We know we have a major problem right now,” he says. “We can project that, with an aging work force, if we continue to do things as we’re doing them now, the problem is going to get worse.”

Improved posture only increases the potential lifting strength modestly. The better answer lies with new devices that in many cases make lifting unnecessary, Fragala says.

For example, special beds allow patients to move to a sitting position without manual assistance. Standing is also easier from this sitting position. “We can reduce the risk to the worker, and we can improve the situation in the future for this aging work force,” he says.

While muscle strain and back injury are the most obvious hazards that rise with aging, they are certainly not the only ones. A host of bodily changes that begin in the 40s and 50s can cause subtle or more substantial impairments.

Time itself has an impact. The longer an individual is exposed to chemical substances, such as latex, the greater the likelihood that she will develop a sensitivity, says **Marie Mangino**, MSN, CRNP, CS, a gerontological nurse practitioner and president of Vincent Healthcare, a clinical education specialty firm based in Erdenheim, PA. “Some people build up an

allergy to latex over time due to prolonged exposure to a variety of latex-containing products in health care.”

At the same time, other chemicals, such as cleaning solutions, can become more irritating. “Many people develop multisensitivities,” says **Susan Wilburn**, RN, MPH, senior specialist for occupation safety and health with the American Nurses Association in Washington, DC. “The older you are, the more exposures you will have had.”

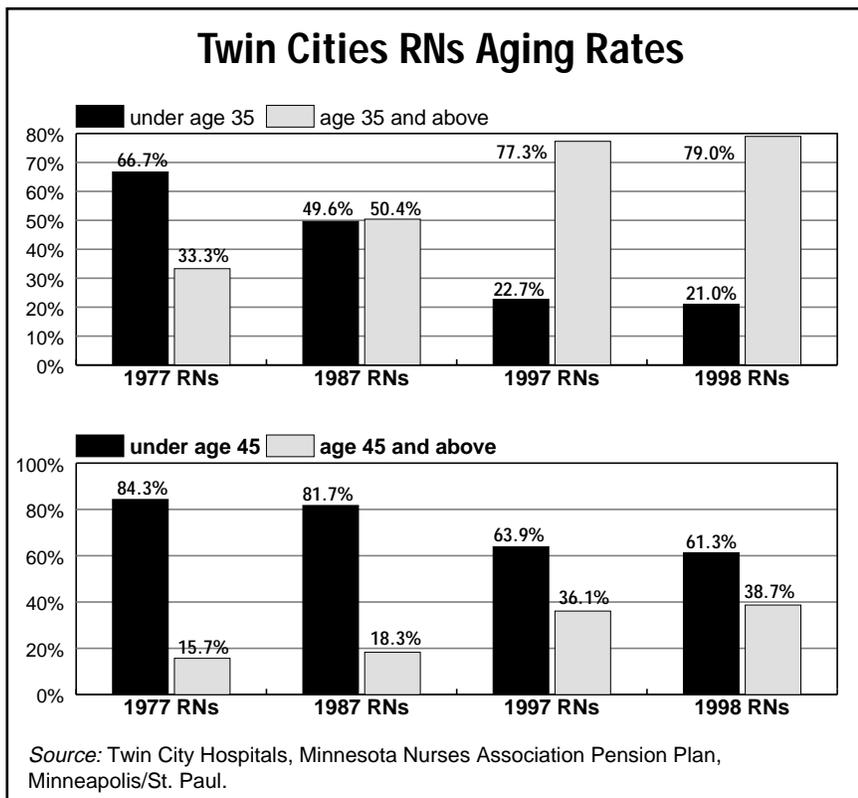
Meanwhile, physical changes gradually make day-to-day tasks more difficult.<sup>3</sup> For example, with changes in vision, bright fluorescent lights can cause a lot of glare, and the tiny print on medication labels may be more difficult to read. “It would be a very good idea to have a lamp on the cart to provide a light” as nurses read labels, says Mangino. “The light shines down but doesn’t shine on her face, producing glare. It’s a simple solution.” Better lighting along with larger print on forms and labels could cut down on the risk of errors, she says.

After years of long hours on their feet, older nurses may suffer leg or feet pain and may fatigue more easily. Then there is a host of other health problems that can emerge, from high blood pressure to stress incontinence — or an urgency to urinate frequently.

While those may not be specifically work-related, employee health services can provide education and wellness programs that will improve the health and productivity of older workers. For example, blood pressure can be controlled through frequent monitoring, diet, and medication; stress incontinence can be managed with biofeedback and medication.

Exercise, whether it’s in a gym in the hospital or a simple lunch-hour walking program, can improve stamina and promote other health benefits, says Mangino. “It’s a fallacy to think that because we’re older we can’t rebuild that muscle. Even into the old, old years you can regain muscle.”

Keeping older workers healthy ultimately will be cost-effective for hospitals, nursing experts say. These experienced, committed workers will become even more valuable amid a looming nursing shortage. The nursing work



## Aging of TC Registered Nurses

RN Age Shift, Twin Cities Hospitals, 1977-1997

RN Age	1977 RNs	1987 RNs	1997 RNs	Change 1977-1997
>20-24	1067	321	68	(94%)
25-29	1707	1662	586	(66%)
30-34	928	2139	1014	9%
35-44	976	2665	3025	210%
45-54	639	1084	1986	211%
55+	231	433	670	190%

Source: Twin City Hospitals, Minnesota Nurses Association Pension Plan, Minneapolis/St. Paul.

force is not projected to be large enough to meet the increased health care needs of an overall aging population, says Buerhaus.

"In the future, we're actually seeing a reduction

## Many hospitals lack policies on flu detection

*Basic precautions can halt nosocomial spread*

Many hospitals are unprepared to detect influenza among patients and staff, despite the availability of rapid diagnostic tests, according to two national surveys.

A questionnaire sent by the Infectious Diseases Society of America (IDSA) in Alexandria, VA, to members of the Emerging Infections Network represents one of the first efforts to determine how prepared hospitals are to prevent nosocomial influenza outbreaks.

Only 10% of 474 infectious disease clinicians responding said their hospital had a policy in place to screen patients for flu-like symptoms in the winter months, and 7% had a policy on the screening of health care workers. Less than half (49%) had access to rapid diagnostic tests to allow a swift detection of influenza.

A survey of 34 hospitals that belong to the National Surveillance System for Health Care Workers (NaSH) — part of the Hospital Infections Program at the Centers for Disease Control and Prevention — produced similar results, with about half having access to rapid diagnostic tests for influenza and only 27% conducting routine

in the supply of nurses at the same time that demand will be increasing," he says. "This hasn't happened before."

Staffing concerns can't be separated from the issues of employee health and patient safety, asserts **Cheryl Peterson**, RN, ANA senior policy analyst. "We need a culture change in our hospitals. We need a whole new culture of care — one that values nurses, values their occupational safety and health, and values patient care."

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2. Chaffin DB, Woolley CB, Buhr T, Verbrugge L. "Age effects in biomechanical modeling of static lifting strengths." In: Rogers WA, ed. *Designing for an Aging Population*. Santa Monica, CA: Human Factors and Ergonomics Society; 1997, pp. 61-64.
3. Mangino M. The aging employee: Impact on occupational health. *AAOHN Journal* 2000; 48:349-357. ■

exposure investigations when flu is suspected.

"Hospitals don't think about influenza as a very severe disease," says **Matthew J. Kuehnert**, MD, a medical epidemiologist with the CDC's hospital infections program. "There's not a lot of effort to try to detect it."

**Larry Strausbaugh**, MD, project director of the IDSA Emerging Infections Network, says he hopes the findings will spark a national discussion about prevention of nosocomial influenza outbreaks. The CDC recently released a draft report urging hospitals and other health care facilities to develop a plan for responding to pandemic influenza. (See *Hospital Employee Health*, July 2000, p. 73.) Strausbaugh is a hospital epidemiologist and staff physician at Portland (OR) Veterans Affairs Medical Center and professor of medicine at the Oregon Health Sciences University School of Medicine, also in Portland.

"You could argue if you're not prepared to deal with the annual expected influenza prevention issues, how on earth are you going to be prepared for the pandemic?" he says.

The lack of hospital policies on influenza diagnosis and outbreak prevention stems in part from an absence of guidance.

Each year, the Advisory Committee on Immunization Practice, a federal panel of experts, issues detailed recommendations on immunization. Yet guidelines have not been developed on other

issues, such as when to use chemoprophylaxis, or antiviral drugs, and when to administer rapid diagnostic tests.

Should every unvaccinated health care worker with respiratory symptoms be screened for influenza? Should all admitted patients be screened during the peak of influenza season? Are those policies cost-effective? When should employees use droplet precautions (i.e. masks) to prevent nosocomial spread of possible influenza?

The CDC is considering recommendations on these and other issues, but the supporting research is limited, says **Carolyn Buxton Bridges**, MD, a medical epidemiologist in the influenza branch of the CDC. "The best ways to implement surveillance are going to vary from setting to setting," she says. "Those [screening and surveillance issues] are questions we need to look at, and we are going to attempt to do that to provide more specific guidance."

CDC's Hospital Infections Program recently set up a Web site with questions and answers about preventing nosocomial influenza outbreaks. ([www.cdc.gov/ncidod/hip/infect/flu\\_acute.htm](http://www.cdc.gov/ncidod/hip/infect/flu_acute.htm)). Printed educational materials also are being developed, says Kuehnert.

"We thought it would be important to get something out there, a suggested approach. This came from a perceived need that the hospitals had to have some direction," he adds.

The NaSH survey found that some employee health and infection control professionals didn't recognize influenza as a significant nosocomial risk. They also cited difficulties in conducting outbreak investigations. "They just didn't have the time or resources to do the investigations," says Kuehnert.

### ***Hospitals need plan for outbreaks***

CDC officials want hospitals to focus primarily on vaccination of health care workers to prevent spread of influenza. (See related article, p. 114.) But they also want hospitals to consider other issues of surveillance and outbreak control.

Hospitals may need to individualize these policies based on a variety of factors, including the prevalence of influenza in the community during a particular flu season, Bridges notes.

Influenza experts need to address what the influenza prevention goals would be for different kinds of facilities, says Strausbaugh. "I don't think it's a situation where one size fits all," he says.

## **Basic ways to prevent nosocomial influenza**

Hospitals may take different approaches to surveillance and control of influenza. But here are some basic points that experts agree on:

- **Vaccination is the primary way to prevent nosocomial spread of influenza.**

Despite this well-established fact, immunization rates of health care workers remain low. The 1997 National Health Interview Surveys found that 34% of health care workers received the influenza vaccine. While that represents a rise from a rate of just 10% in 1989, it is still well below levels that could prevent nosocomial spread.

"Every year, we need to focus on getting maximal vaccination rates of staff members," says **Larry Strausbaugh**, MD, project director of the Infectious Diseases Society of America (IDSA) Emerging Infections Network in Alexandria, VA.

- **Hospitals should have a policy for responding to nosocomial outbreaks.**

The IDSA survey found that only 35% of hospitals had a written policy for controlling outbreaks. What was contained in those policies varied greatly, but they addressed droplet precautions, the cohorting of patients, and the use of chemoprophylaxis.

For example, in some institutions, unvaccinated health care workers exposed to influenza cannot work outside the "outbreak" unit.

Cohorting of patients — or grouping together patients with respiratory illness or confirmed influenza — is an established way of reducing spread, as is the use of masks and other basic hygiene techniques, says **Carolyn Buxton Bridges**, MD, a medical epidemiologist in the influenza branch of the Centers for Disease Control and Prevention.

- **Rapid diagnostic tests should be available to diagnose influenza.**

These tests, which provide results within hours, greatly enhance the ability to detect and respond to nosocomial influenza. They can be used to screen health care workers who come to work with flu-like respiratory symptoms. "If you have a screening policy, you would like to get the result within a day or so to ensure that the patient is adequately segregated or that health care workers are using protective equipment," says Strausbaugh, hospital epidemiologist and staff physician at Portland (OR) Veterans Affairs Medical Center. "If you have to wait a week or so for a viral culture to come back, clearly you are greatly delayed." ■

For example, in long-term care facilities, administering chemoprophylactic drugs to residents can stop an outbreak of influenza. But a hospital has a much more mobile population, including volunteers and visitors who may spread community-acquired virus.

These issues of screening, vaccination, and prophylaxis came into sharp focus at a New York hospital that suffered an influenza outbreak in the 1998-99 flu season. CDC flu experts visited the hospital and identified 10 cases of nosocomial influenza and 38 cases of flu-like illness that could not be confirmed by culture. Only 11.5% of health care workers had been vaccinated before the outbreak, and unvaccinated workers may have initiated the spread of the illness, says Bridges. The hospital suffered high absenteeism rates due to influenza among staff.

“Even after the outbreak, it was hard to get high rates of vaccination among the health care workers,” say Bridges, noting that the rate rose to about 40%. “There was a lot of misunderstanding regarding the benefits and risks of the vaccine.”

When CDC officials surveyed staff to find out why they declined the vaccine, they uncovered a significant amount of misinformation. Some employees thought they would get influenza from the vaccine; others thought it was not effective. (The vaccine is 70% to 90% effective.) Pregnant and breast-feeding women didn’t want it, even though the vaccine is not contraindicated for that population.

The hospital offered the vaccine to health care workers during the outbreak, and placed employees on amantadine, an antiviral, for the two weeks it takes to develop immunity after the vaccine. Some 40% of employees on amantadine stopped taking it due to side effects.

Amantadine can cause insomnia, dizziness, and nervousness. Rimantadine, another antiviral, is more expensive but is less likely to cause those side effects, says Bridges.

Meanwhile, with cohorting of patients, the use of droplet precautions, and other standard infection control measures, the hospital was able to halt the nosocomial outbreak. The following year, an education campaign helped the hospital improve vaccination rates among health care workers.

“We can’t take for granted that health care workers, because they’re in the health care field, know about influenza vaccine,” says Bridges. “We have to do a better job of letting them know what the true impact of influenza is, that it can be a very serious illness.” ■

## ‘Flu deputies,’ mobile carts boost vaccine rates

Nationally, only about a third of health care workers receive influenza vaccinations, even though this is a simple way to protect vulnerable patients and prevent nosocomial outbreaks.

Why don’t health care workers get vaccines? They may be misinformed, believing the vaccine will give them the flu or serious side effects, or they may just be too busy. Here are the strategies that two hospitals used to significantly boost their vaccination rates among staff:

At Memorial Sloan Kettering Cancer Center in New York City, getting a flu vaccine once required a visit to the off-site employee health service. But as the cancer center made the vaccines more accessible, the rate of immunization skyrocketed.

First, infection control nurses visited units at scheduled times and made appearances at meetings. For example, by taking the vaccine to grand rounds and to new house staff orientation meetings, infection control nurses greatly increased the vaccination of physicians.

Meanwhile, two nurse managers piloted a program of serving as “flu vaccine deputies,” providing vaccines to all employees on their units.

“One nurse manager, [working on her unit] improved the staff vaccination rate from 12% to about 50%,” says **Janet Eagan**, RN, MPH, CIC, infection control manager. “One person can do this.” Eagan gave the nurse managers packets with information about the flu and flu vaccine, including consent forms. The next year, she expanded the program to all units and asked nurse managers to either provide the vaccines or to designate a “flu deputy.”

With the extra efforts, flu vaccination rose from about 1,400 employees in the 1997-98 season to 1,956 in 1998-99 and then to 2,450 in 1999-00. “It got to be a friendly competitiveness” between units about raising vaccination rates, says Eagan.

The cancer center has about 6,000 employees. The vaccine is offered to all staff, and figures were not available on the percentage of those involved in patient care who were vaccinated. Eagan also doesn’t know how many additional employees received a vaccine in another setting, such as a doctor’s office.

It took a lot of legwork to get the new program started, Eagan says. “When you want people to do extra, you really have to spoon-feed them in

the beginning. I was ordering the vaccine and bringing it up to the units [from the pharmacy]. You have to make it easy. That's what makes [the program] effective."

Employees have seen the impact of making the vaccines more accessible, and they are growing accustomed to the new system. Cases of nosocomial influenza have declined at the cancer center, and during the last flu season, no cases were detected. No employees had documented cases of influenza.

Eagan is concerned that the delay and possible shortage of flu vaccine this fall could derail her efforts to further improve vaccination rates. If not enough vaccine is available, she plans to begin with the units that treat the center's most vulnerable, such as bone marrow transplant, pediatric, and leukemia patients.

"We're all set to go," says Eagan. "Every year, we've tried to top the year before, but if we can do the same as last year, I'll be happy."

### ***86% vaccine rate creates a 'flu-free zone'***

St. Mary's Hospital in Kitchener, Ontario, Canada, is a "flu-free zone." With a staff vaccination rate of 86%, including physicians and volunteers, that assertion is no exaggeration. Flu experts say a vaccination rate of 80% or more provides "herd immunity" that prevents the spread of the virus. The hospital's success story emerged not just from an effective flu vaccine campaign, but also from an awareness of the seriousness of nosocomial outbreaks.

Two years ago, a nursing home in the region had a well-publicized influenza outbreak that led to several deaths. Television reports noted the low vaccination rates of staff. Meanwhile, the ministry of health became even more vigilant, recommending strict measures if nosocomial cases were identified.

St. Mary's adopted a new policy that could potentially restrict unvaccinated employees who had been exposed to known cases of influenza. "If there was an outbreak and you were exposed and not vaccinated, you could only work in the outbreak area," says **Brenda Klochnyk**, MLT, ART, CIC, infection control practitioner. With employees routinely floating among units, that restriction is difficult for both staff and the hospital, she notes.

If you needed to work elsewhere, the hospital could ask you to get a flu shot, take amantadine — a chemoprophylaxis — and go on leave without

pay for up to three days until the antiviral took effect, she says.

With that policy as a backdrop, Klochnyk organized a flu campaign that began like a celebration. "Whenever we celebrate anything here in our hospital, we always have cake and coffee. For some reason our staff will flock anywhere for cake and coffee. I figured, this works for everything else. Why not try it?"

In October, she invited the staff to come to the cafeteria for cake, coffee — and a flu shot. Shots came at the end of the line, after employees picked up their piece of cake.

Local businesses donated prizes, and one lucky employee received a day off with pay. Everyone who received a shot that day was entered into the raffle. A reporter from the local television station came and featured the hospital's flu vaccine campaign on the evening news.

She supplemented that campaign launch with educational sessions to dispel myths about the vaccine, hospitalwide e-mails with influenza fact sheets, and a mobile vaccination cart. Staff who received the vaccine also got a "flu-free zone" sticker.

Klochnyk was delighted when she discovered that the hospital's vaccination rate had risen from 30% to 40% in prior years to a record 86%.

This year, St. Mary's will repeat the campaign with just a few enhancements, including a costumed character dressed like the "flu-free zone" sticker. And she will have lots of extra support. The Ontario government is offering free flu vaccines to everyone 1 year of age and older in a major push to immunize the entire population. ■

## **OSHA chief vows final ergonomics rule in 2000**

### *Political opposition remains intense*

**C**onfirming his agency's commitment to ergonomics, **Charles Jeffress**, assistant secretary of labor for the Occupational Safety and Health Administration (OSHA), vowed the ergonomics standard would become final by the end of the year. "I want to make it very clear: We [will] complete an ergonomics standard this year," Jeffress said at the Frontline Healthcare Workers Safety Conference in Washington, DC, in August. **(For more on the conference, see special four-page**

supplement, inserted in this issue.)

"Our team is committed to that. The president, the vice president, and the secretary of labor are committed to that. We will develop a standard to protect workers from MSDs [musculoskeletal disorders]," he stated.

OSHA completed its hearings on the ergonomics standard in July. Political opposition to a standard has been intense since OSHA first announced proposed rulemaking in 1992. A rider on a federal appropriations bill in 1995 delayed the regulation by prohibiting OSHA from developing a rule before Sept. 30, 1998.

Since OSHA released its proposed standard last fall, industry groups have charged it is too costly and is not based on firm science. "The language is so vague, employers can never know when they're in full compliance," says **John Eisen**, spokesman for the National Coalition on Ergonomics in Washington, DC.

Ergonomics critics have powerful allies in the Republican-led Congress. President Clinton has vowed to veto the most recent efforts in Congress to block completion of the regulation. Both the House and Senate approved language in an appropriations bill to bar OSHA from spending funds to complete or implement any ergonomics standard.

With the presidential race looming and the possible change to a Republican administration, OSHA's actions have a sense of urgency.

Jeffress defended the ergonomics standard as a critical effort to protect workers and decrease workers' compensation costs. "The ergonomics proposal we have out there is sensible. It's like the exposure control plan in the bloodborne pathogen standard. We have a plan that you have to design to fit your workplace. You analyze what works in your workplace. The proposal, we believe, will eliminate 200,000 serious injuries every year and will save more than \$10 billion for the American economy."

Supporters of ergonomics are urging OSHA to finish its work.

"I think it's unfortunate that the ergonomics [standard] has become such a political hotbed," says **Guy Fragala**, PhD, PE, CSP, director of environmental health and safety at the University of Massachusetts Medical Center in Worcester and a leading ergonomics expert. "If most people look at the needs and benefits of an ergonomic management program, they realize it does make sense," he says. "The issues that are controversial are only a small part of what the entire standard is."

Fragala says he understands that employers prefer to act without the restrictions of regulation, but ergonomics simply won't get as much attention and resources without a standard. "Health care has so many issues it needs to deal with. By making this a regulation, it's going to push it up on the list of priorities." ■

## Smoking cessation comes to the fore as EHS issue

*What one hospital does to help employees quit*

**D**oes "employee health" just mean providing protection against potential occupational hazards? Or does it include a broader scope of prevention and health promotion?

The second view took center stage recently as the National Institute on Occupational Safety and Health (NIOSH) sponsored a workshop on smoking in the workplace. The conclusion: Smoking cessation and wellness programs are integral parts of a comprehensive employee health service.

"If you are concerned about the health of employees you can't ignore smoking [just as] you can't ignore the hazards in the environment," says **Edward Lee Petsonk**, MD, senior medical officer in the division of respiratory disease studies at NIOSH in Morgantown, WV.

Smoking is, in fact, directly related to hazards at work. Since smoking weakens the lungs, smokers may be more sensitive to airborne irritants, more likely to develop asthma or bronchitis, and more susceptible to respiratory illnesses, he says.

"Tobacco is clearly a health hazard. But there are also a lot of health hazards from work. Sometimes these work together to add or in some cases multiply the risks to the individual," Petsonk says.

At the same time, stress at work may be one of the triggers that influences some employees to smoke. These interactions between work and smoking make the work site an appropriate place for smoking cessation programs, he says.

"The comprehensive approach is the logical approach and the one that has the greatest opportunity for impact," says Petsonk.

Almost two years ago, HealthEast Care System in St. Paul, MN, made a commitment to that greater definition of employee health. Creating a "smoke-free workplace" became more than a slogan. It's a mission.

In August, HealthEast opened a new hospital with a completely smoke-free campus. Employees who want to smoke during lunch have to drive across the street from the wooded campus.

"Hospitals generally have a place on their campus for visitors and patients to smoke. Our new hospital is not even going to have a designated area for that," says **Ashlee Murray**, community health manager at HealthEast, which has four hospitals, as well as clinics, long-term care facilities, and a managed care plan.

The community and employees have been supportive of the smoke-free environment and of HealthEast's commitment to the overall health of employees, says Murray. But the health system also recognizes the need to provide smoking cessation programs for employees at all sites.

Employees in the HealthEast health plan already pay lower premiums if they are non-smokers. Now, HealthEast is providing a \$150 lifetime benefit for smoking cessation. Employees not in the health plan can get referrals, but must pay the entire program cost out of pocket.

### **Smokers need choices to quit**

Quitting smoking is difficult, and even with incentives and work-based programs, success may be slow.

"We really have learned that anyone who is a smoker needs more than one choice of options," says Murray. "They may have tried things in the past."

The HealthEast choices range from discounts on educational materials to referral to a week-long, intensive residential program. Smokers can sign up for an American Lung Association support group. Or they can receive phone-based counseling through a program called "Free & Clear."

Free & Clear, developed by Group Health Cooperative in Seattle, involves five intensive telephone-based counseling sessions. In the first call, a counselor assesses the smoker's needs and helps him or her set a quit date. Using a "Quit Kit," they calculate how many cigarettes they are smoking, and begin to wean off the nicotine. Pre-set calls provide follow-up and support. Free & Clear members also have a lifetime access to the "Quit Line," a special smoking cessation hotline.

"It is a very structured process, and it's scientifically based," says **Sara Tifft**, MBA, marketing and sales manager for Free & Clear. "It really walks people through a number of steps that are

tried and true. Specialists try to work with each person to see what will work for him or her."

Free & Clear has a success rate of about 30% after one year. That is impressive considering that the program doesn't count someone as a non-smoker if they had even one puff of a cigarette in the last 30 days — or if they missed their fifth and final telephone counseling session, says Tifft.

Hard as it is for hard-core smokers to change their habits and kick the nicotine addiction, the greatest step may simply be signing up for a smoking cessation program.

Murray has been disappointed by the lack of response to the smoking cessation programs. Many casual smokers may be able to quit easily on their own, leaving the heavy smokers who may have tried and failed. Or they may not yet be ready to quit.

"We're going to continue to do different promotions throughout the year to get them involved," she says. "I think smoking cessation is a struggle, but it can't be something we ever give up on."

*[Editor's note: For more information on Free & Clear, visit the Web site, [www.freeandclear.org](http://www.freeandclear.org), or call Sara Tifft at (206) 287-4318.] ■*



Bratcher DF, Stover BH, Lane NE, Paul RI.  
**Compliance with national recommendations for tuberculosis screening and immunization of healthcare workers in a children's hospital.**  
*Infect Control Hosp Epidemiol* 2000; 21:338-340.

Hospital-based, nonemployee physicians should be included in mandatory immunizations and tuberculosis (TB) screening, researchers at Kosair Children's Hospital in Louisville, KY, concluded.

A survey of 55 physicians and 351 hospital employees found very different patterns of compliance with national immunization and TB guidelines. Only 40% of physicians reported having an annual TB screening compared to 93% of employees.

"Many states require annual TB screening for health care facility employees, and there are published recommendations and guidelines for TB screening programs to include all health care personnel," the authors note. "Despite these recommendations, physicians have not

been included in many hospitals' employee-health programs, and they fail to have annual TB screening."

The disparity was not as great for immunizations, but lack of compliance was still significant. Eighteen percent of physicians and 14% of employees indicated they had incomplete hepatitis B virus (HBV) status. "One half (five of 10) of physicians reporting an incomplete HBV vaccine series were specialists who regularly performed invasive procedures," the authors noted.

Most physicians indicated they were aware of the national immunization recommendations for health care workers. Why are there gaps in immunization and screening for TB? A moderate to high factor, according to 94% of physicians, is the lack of mandatory participation in an employee health program. Lack of availability of an employee health program was cited as of moderate to high importance by 74% of the physicians.

"We recommend that mandatory immunization and TB screening policies encompass all HCWs, including physicians," the authors concluded. "Compliance with these policies may require enforcement through the credentialing process or through other innovative strategies that circumvent time-constraint issues."

Interestingly, the study found one area in which physicians had a significantly higher rate of immunization than hospital staff: influenza. Some 57% of physicians reported having an influenza immunization compared to 31% of employees. The authors noted that both rates are "alarmingly low," and speculated that the higher rate among physicians may be due to greater awareness of recommendations or less concern about potential side effects or complications from the vaccine. ▼

Page EH, Esswein EJ, Petersen MR, et al. **Natural rubber latex: Glove use, sensitization, and airborne and latent dust concentrations at a Denver hospital.** *J Occup Environmental Med* 2000; 42:613-620.

In response to a confidential employee request, researchers from the National Institute for Occupational Safety and Health investigated natural rubber latex allergy among health care workers at a Denver hospital. They tested latex glove users and nonusers for sensitivity, provided questionnaires on common symptoms, and collected air, surface, and air-filter dust samples.

Their finding: "[N]either current nor past occupational use of latex gloves was associated with latex sensitization in this study population."

The study attracted an unusually high level of participation, with 80% participation in nonclinical areas and 86% in the clinical areas. The nonuser group included employees in human resources, finance, marketing, and other administrative areas. The latex users worked in labor and delivery, the emergency department, and the laboratory service. In all, 532 employees participated.

The prevalence of sensitization did not differ significantly among the latex users (6.1%) and nonusers (6.3%). Furthermore, there was no association between the number of gloves worn daily and sensitization — those who wore more than 18 pairs of gloves daily and those who wore no gloves did not have a significantly different risk.

"There was no significant difference in the prevalence of sensitization between those who reported wearing powdered latex gloves and those who reported wearing powder-free latex gloves," the authors wrote.

### ***Link between glove use and other symptoms***

However, researchers did find an association between glove use and certain symptoms. Latex glove users were more likely to report rhinoconjunctivitis, hand urticaria, and hand dermatitis. They speculated that glove use may be a "proxy for other workplace exposures that cause allergic or irritant symptoms." They also noted that with only 32 sensitized individuals in the study, there may not have been a large enough sample to associate sensitization with certain health effects. (A significant proportion of those sensitized to latex did not report any symptoms.)

Interestingly, the researchers found greater airborne concentrations of natural rubber latex proteins in the work areas of nonsensitized employees than of sensitized employees. They speculated that the awareness of latex-allergic co-workers could lead to less powdered-glove use and greater house-keeping vigilance in those areas.

The researchers noted that the powder, protein, and allergen levels in gloves have been declining with greater awareness of latex allergy, which could have led to lower airborne concentrations.

While stating that it's possible that sensitized workers left the workplace, impacting the results, researchers reported that there was no difference in years worked in the department or hospital by latex exposure or latex sensitization status. ■

# NEWS BRIEFS

## Self-audits can win you good faith with OSHA

If you conduct a self-audit of your health and safety program, the findings won't be held against you and may, in fact, win you "good faith" with the Occupational Safety and Health Administration (OSHA). "We're formalizing this policy because we want employers to find and fix hazards and not fear that we'll use this information against them," OSHA administrator **Charles N. Jeffress** said in a statement.

"Self-audits" include an evaluation by an outside consultant or by management-employee safety teams. A self-audit and subsequent corrective measures can provide evidence of "good faith" in an OSHA inspection, allowing for a reduction of penalties of up to 25% in an OSHA inspection.

OSHA also assured employers that self-audits would not be used to trigger citations. Inspectors will not routinely ask for self-audit reports and won't issue a citation for a hazard uncovered in a self-audit if it has been corrected and steps were taken to prevent its recurrence. ▼

## IOM panel hears debate on the need for TB rule

The heated debate over proposed tuberculosis (TB) regulations reached the Institute of Medicine (IOM) in August, as a committee considering the occupational risks of TB heard from critics and supporters as well as TB experts.

In 1997, the Occupational Safety and Health Administration (OSHA) issued a proposed standard on tuberculosis that includes annual fit-testing of respirators, as well as other screening and surveillance measures. Congress requested a study by IOM to determine the need for a standard.

Among the most vocal opponents of the standard is the Association for Professionals in Infection Control and Epidemiology (APIC) in Washington, DC, which argues that the standard

is costly, burdensome, and unnecessary.

"OSHA proposes minimizing employee exposures by combining tasks and limiting the number of employees entering an isolated patient's room," said **Rachel Stricof**, MT(ASCP), MPH, who testified for APIC recently before a panel from the IOM in Washington, DC. "This proposal is in direct conflict with the mission to care for patients.

"The risks to health care workers have clearly been demonstrated to be associated with the unidentified, unisolated, and untreated case; not with patients placed in appropriate [acid-fast bacilli] isolation," she said. "In addition, the majority of patients in isolation are suspect cases that are ultimately found to have another etiology for their symptoms."

Stricof also noted that TB cases nationwide

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### Editorial Questions

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

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declined by 31% between 1993 and 1999.

Yet representatives of health care workers told the IOM panel that hospitals won't provide resources to protect workers against occupationally acquired TB without the weight of a regulation.

"Without an OSHA standard and the threat of inspection, they are unable, in this era of cost containment in the health care industry, to justify adequate staffing to provide the needed training and testing of workers to prevent exposure and analyze trends — let alone to provide adequate engineering controls and personal protective equipment to comply with the CDC [Centers for Disease Control and Prevention] guidelines," said **Karen Worthington**, MS, RN, COHN-S, senior occupational safety and health specialist for the American Nurses Association in Washington, DC.

Worthington also countered the argument that occupational exposure to TB is only a problem in hospitals in certain urban centers. "In this era of globalization, all health care workers are at risk for exposure to an active TB patient," she said.

The IOM panel is investigating the risk of TB to health care workers and how the recommendations of the CDC and proposed OSHA standard would impact that occupational risk. ■



**Capitalizing on the Challenge to Infection Control** — Oct. 11-13, Richmond, VA. This is the 25th annual education conference of the Association for Professionals in Infection Control and Epidemiology-Virginia. For more information, contact: Janis Ober, Medical College of Virginia Hospitals, Epidemiology and Infection Control Unit, 1200 E. Broad St., West Hospital — 6th Floor, East Wing, Richmond, VA 23223. Telephone: (804) 828-2121.

**Association of Occupational Health Professionals in Healthcare (AOHP) Annual Conference** — October 18-21, Albuquerque, NM. For more information, call AOHP at (800) 362-4347.

**Strategies for the New Century** — Oct. 28-Nov. 1, Nashville, TN. American College of Occupational and Environmental Medicine's state-of-the-art conference. For more information, contact ACOEM at (847) 818-1800. Web site: [www.acoem.org](http://www.acoem.org). ■

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## 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. ■



# Hospital Employee Health<sup>®</sup>

## FRONTLINE HEALTHCARE WORKERS SAFETY CONFERENCE

### Hepatitis C cure rates top 40%, but CDC balks at recommending post-exposure prophylaxis policy

*Infected worker: 'Let mine be the last horror story'*

Citing dramatic advances in cure rates with combination drug therapy for hepatitis C virus (HCV) infections, some clinicians at the recent Frontline Healthcare Workers Safety Conference in Washington, DC, called on public health officials to recommend post-exposure prophylaxis (PEP) for needlesticks involving HCV-positive blood.

Once considered virtually untreatable, HCV now is the subject of a new sense of urgency to “use current therapies as primary prophylaxis to [protect] the 500 to 700 health care workers a year in this country who otherwise would be doomed to occupationally acquired hep C,” said **Robert Ball**, MD, an infectious disease physician at the University of South Carolina in Columbia and an epidemiologist at the state department of health.

The Centers for Disease Control and Prevention (CDC) is in the process of revising its post-exposure guidelines for bloodborne pathogens, but it is not expected to officially recommend a PEP protocol for HCV due to data limitations and concerns about side effects with the available drugs, *Hospital Employee Health* learned at the Aug. 6-8 conference.

“At this point, I don’t think we are going to add post-exposure prophylaxis for hepatitis C yet,” explained **Denise Cardo**, MD, chief of the HIV infections branch in the CDC’s hospital infections program, “because we don’t have enough information. With the drugs available, the risk of getting a huge side effect is much higher than getting the infection. Early treatment [after seroconversion] is a good option, but we still need to learn a little bit more. If you look at the [HCV] guideline right now, it doesn’t say

don’t do [early treatment]. It says ‘consider.’ That is what many institutions are doing. We encourage them to do PCR [testing] four to six weeks after the exposure, and if they detect infection, then treat.”

Nevertheless, the CDC’s hesitancy to endorse PEP with HCV drugs immediately after an exposure does not sit well with Ball. “If institutional memory serves me correctly, we had no data in the late ’80s when we as health care professionals were putting workers on AZT monotherapy early on — indeed same-day stat — post-exposure prophylaxis,” he told meeting attendees. “The [CDC] hospital infections program collected that data for a number of years until we actually had proof that what we were doing intuitively worked. I suggest that the same approach now will save lives from this point on.”

#### *A silent epidemic finds its voice*

In an interview at the conference, Ball cited data indicating a 41% cure rate — two of five patients — for HCV with a combination of interferon and ribavirin.<sup>1</sup> “We no longer have the luxury of waiting until hepatitis C declares itself as chronic liver disease or cirrhosis, because by then, the return on investment — the cure rates — are much lower,” he said. “We must intervene early, and as early as possible for the exposed health care worker means same-day response. This is exactly what we were doing with AZT for HIV in the late ’80s. Why aren’t we doing the same thing for hepatitis C? I think there ought to be a more aggressive recommendation from the CDC.”

Of the roughly 400,000 U.S. health care worker needlestick exposures annually, 20,000 to 30,000 are

to HCV, Ball said. (See *HEH*, February 2000, pp. 19-20.) Of those exposed health care workers, 500 to 700 will acquire the disease, though symptoms may not appear for years. When they do, the effect can be devastating, as evidenced by the case of **Diane Mawyer**, RN, who received a standing ovation after describing her grim odyssey from HCV blood exposures in the 1980s to liver and kidney transplants in the 1990s. (See story, below right.)

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“I beg you, do not underestimate the risk to health care workers. Do everything in your power to develop, provide, and utilize the best safety devices.”

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“If I had access to the safety devices and treatments available today, perhaps my transplants could have been avoided, and I wouldn’t be here telling this horrible story,” she told conference attendees. “No matter what your role in the health care system — caregiver, administrator, researcher, government regulator, or manufacturer of medical devices — I beg you, do not underestimate the risk to health care workers. Do everything in your power to develop, provide, and utilize the best safety devices. And provide the best possible post-exposure treatment. . . . Please, let mine be the last horror story you hear.”

Unfortunately, there are “most certainly” other health care workers like Mawyer who will begin experiencing symptoms related to an HCV exposure in the past, said **John Wong**, MD, a physician at Tufts University Medical Center in Medford, MA, who spoke on HCV at the conference. Those who have concerns (such as a history of documented needlesticks) may want to be tested and seek the benefits of early treatment, he told *HEH*.

“[Approximately] 85% who are acutely infected go on to develop progressive, chronic liver disease,” Wong said. “But for the most part, the disease is asymptomatic — up to 20 years and even longer. There are 5% of patients who are rapid progressors, 90% average progressors, and another 5% who are slow progressors. Health care workers might have acquired infection during the ’80s who were asymptomatic when they got it acutely and have remained pretty much asymptomatic over the next 10 or 20 years. And unless they have had blood tests to look at liver enzymes, which is not necessarily routinely done, or [they] identified a

needlestick injury, they won’t be aware.”

Noting that HCV already is responsible for 8,000 to 10,000 deaths per year, Wong said some computer projection models suggest that HCV deaths and cases of cirrhosis will continue to increase until 2010 to 2020. “We have an opportunity now to potentially treat some of those cases earlier, when they are more likely to respond to therapy,” he said. “If you progress to the point where you have very advanced liver disease, there is no treatment except liver transplant, and there is a tremendous shortage of liver donor organs.”

Indeed, hepatitis C has taken an insidious toll as the leading cause of chronic liver disease and liver transplants in the United States. A highly mutable virus for which there is no vaccine, HCV infection far exceeds the estimated 1 million U.S. infections with HIV. Some 4 million Americans have HCV antibodies, and 2.7 million of those people are chronically infected with the virus.<sup>2</sup>

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1. Liang JT, Rhermann, Seeff, et al. NIH conference: Pathogenesis, natural history, treatment, and prevention of hepatitis C. *Ann Intern Med* 2000; 132:296-305.

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## Nurse with HCV tells of hardship and triumph

*‘I didn’t know you could be that sick and still live’*

**O**n her third liver and having come about as close to death as one would care to brush, **Diane Mawyer**, RN, is a survivor with a mission: to increase awareness of the threat of hepatitis C virus (HCV) to the nation’s health care workers.

The 46-year-old former nurse said she was occupationally infected with HCV after a history of blood exposures and needlesticks in the 1980s, when HCV testing was a relatively crude attempt to identify “non-A, non-B” hepatitis, and needle safety devices were in their infancy. One of the principal speakers at the Frontline Healthcare Workers Safety Conference in Washington, DC, Mawyer described her ordeal in an interview with *Hospital Employee Health*.

Mawyer said one of her primary roles at the conference was to put a human face on the statistics. "People say, 'Oh, hepatitis C. It can be bad but often isn't.' But to think that one needlestick or one exposure could lead to these kind of medical problems for eight years is a surprise to a lot of people." She recounted many blood exposures over a career that included 14 years of drawing blood and supervising phlebotomists with the American Red Cross in Charlottesville, VA. "From 1981 to 1987, I was directly involved in drawing blood from donors every day," she said. "Prior to 1985, when [CDC] universal precautions were issued, blood drawing was done with bare [ungloved] hands. There was a lot of exposure to blood."

### ***Six documented needlestick injuries***

In addition to skin exposures that left blood under her fingernails after a day's work, she had six documented needlestick injuries over the course of her career. "I had a couple of occasions when I punctured my finger with a large-bore needle that was used to draw the donor blood," she said. "And on one occasion, a capillary tube broke in my hand and cut me. On another occasion, I was stuck disposing of a butterfly needle filled with blood."

All the injuries occurred before a there was a specific test for hepatitis C, however, and she wasn't diagnosed with HCV until a liver specialist tested her with polymerase chain reaction in 1993. Although she began feeling bad in 1989 — with recurrent symptoms of fatigue and nausea — after the 1993 diagnosis, the disease began taking a rapid course.

"I just got sick really quickly at that point," she said. "My liver enzymes were sky-high. I became jaundiced." She quit work in January 1994 and that May received her first liver transplant after interferon treatment failed. "I had a lot of complications and almost died," she said. "I was in the hospital for six weeks but eventually started to get better and came home. I was relatively well for about a year and a half. Unfortunately, the hepatitis C came back really fast, and with a vengeance. Within three years I had cirrhosis again."

The two-year wait for her second liver transplant, which she received along with a kidney in June of 1999, was a period of unebbing illness. "It was two years of living hell," she said. "I didn't know you could be that sick and still live." The results this time, however, bordered on the divine. "It was almost like a miracle," she said. "I started

to get better right away. Even though I still show the virus in my blood, it is at a low level. I've had biopsies every three months since my transplant, and so far I don't have any damage to my liver."

Living daily with the knowledge that the HCV could recur, Mawyer is taking her case public, carrying a message of hope and a call to action to the podium. Though she had to fight initially to get her workers' compensation claim accepted, she has reached a settlement with her former employer, and her considerable medical expenses are being covered, she said.

"I would really like to see legislation passed, both at the federal and state level, requiring needle safety," she said. "Having been a manager, I understand the cost constraints. But I can tell you, my medical bills have exceeded over a half a million dollars. It doesn't take too many cases like that to make safety devices cost-efficient." ■

## **Safety devices do not eliminate all injuries**

### ***Comprehensive prevention approach needed***

Nearly lost amid the surging legislative movement to mandate needle safety devices in the nation's hospitals is the message that injuries and occupational bloodborne infections still can occur after the devices are implemented. Indeed, needle safety devices were involved in 9.2% of needlesticks and sharps injuries in 1998 surveillance data from the EPINet system at the International Health Care Workers Safety Center at the University of Virginia in Charlottesville.

"As we integrate more safety devices into the workplace, we are going to have more and more injuries associated with safety devices. This is a fact of life," **Janine Jagger**, PhD, director of the center, said recently in Washington, DC, at the Frontline Healthcare Workers Safety Conference. "Hopefully, there will be fewer injuries per number of devices used, but I think we need to keep that in perspective. The best safety devices prevent as many injuries as possible, but if they have a needle on them, there will be a fraction of injuries that continue to occur." (See *Hospital Employee Health*, April 2000, pp. 45-46.)

The EPINet surveillance system has collected some 1,500 reports of injuries with needle safety

devices, but conventional needles, many of which could be replaced by existing safety designs, are still the source of the lion's share of injuries. "We need to look at the information to make sure that the [safety] device is not causing a new type of risk," she said. "This information shouldn't be used to condemn devices that actually have reduced the numbers [of injuries]."

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Overall, the findings reinforce the need for ongoing collection of epidemiological data as needle safety devices continue to be implemented to protect health care workers.

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Shedding more light on such findings, data collected by the Centers for Disease Control and Prevention (CDC) reveal workers are being injured when they inappropriately add a needle to a "needleless" system; a safety device is withdrawn by sudden patient movement; or the worker fails to activate the protective feature after use, **Linda Chiarello, MS**, told *HEH* in an interview before the conference.

"Sharps injury prevention is comprehensive," said Chiarello, an epidemiologist in the CDC's hospital infections program. "An engineering control is a very important prevention strategy, but it is not the whole solution. We want to promote a culture of safety, where people are aware of the risks when they have an exposed sharp in the work environment."

To determine the proportion of potentially preventable needlesticks, the CDC analyzed data from 33 hospitals in its National Surveillance System for Healthcare Workers. In data collected for 3,772 needlesticks that occurred in the hospitals from June 1995 to December 1999, the CDC found that 270 (7%) of the injuries involved an engineered sharps protection device. In 24 (9%) of those 270 injuries, use of a needle was considered unnecessary. For example, health care workers may have been injured while using needles to access tubing, draw blood, or give medication in a "needleless" intravenous system, she said.

"Needleless devices for the most part do not preclude the use of a needle with the system," Chiarello said. "They are designed to be used without needles, but they are not necessarily needle-free. This terminology has been promoted

even in legislation [that states] 'use a needleless system.' When you use the term, one assumes that no needle is going to be used, and the worker is going to be completely protected. That's not true."

Of the remaining 246 needlesticks involving safety devices, 43% (106) occurred before activation was appropriate because, for example, the patient moved suddenly and the needle came out. Though some devices activate to cover or blunt the needle as it is withdrawn, sudden patient movement may leave the needle withdrawn and exposed, she notes. In addition, another 25% (61) of the injuries occurred because the worker failed to activate the safety device.

"After the needle has been used and the health care worker is applying pressure to the injection site, the device has to be activated," she said. "As long as the needle is exposed, there is opportunity for injury."

### ***'Truly passive' devices are best***

The more "truly passive" the device the better, she emphasized. "Some devices are advertised as being passive, but indeed, the worker still has to do something to activate it," she added. On the other hand, some workers may decide not to activate safety devices for reasons that are not completely understood. One possibility, for example, is if the procedure is done next to a sharps container, the worker might perceive the lowest-risk maneuver is simply to dispose of the needle immediately rather than handle it further to activate the safety measure.

"But we also know that injuries occur because of overfilled sharps containers, and if devices with safety features are activated, they are protected in the container and it is less likely that another worker will be exposed," Chiarello said. "It is an area we need to better understand — why a worker who has a device with a safety feature doesn't activate it."

Another five (2%) of the injuries were due to some failure of the safety device mechanism; such cases should be reported to the Food and Drug Administration, she stressed. Overall, the findings reinforce the need for ongoing collection of epidemiological data as needle safety devices continue to be implemented to protect health care workers. Injury data are critical to determine what devices are involved and when and how needlesticks are occurring. Target interventions and use engineering controls based on such surveillance, she emphasized. ■