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THE PRACTICAL GUIDE TO KEEPING HEALTH CARE WORKERS HEALTHY

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IN THIS ISSUE

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The Dollars and Sense of Employee Health

(Editor's note: Are you feeling the pinch of a tough economy? Too often, hospital administrators fail to see the cost-savings that employee health provides. In the next two issues of Hospital Employee Health, *we will address the value of employee health.)*

Money matters: Your employees' health directly affects hospital's bottom line

Absenteeism, 'presenteeism' drain the bottom line

In these tough economic times, it may seem like a luxury to go beyond the basics in employee health. But addressing the health needs of your workers — from injury prevention to chronic disease management — may be the smartest way to save money.

When a nurse is absent, it costs the employer 1.4 times his or her salary in direct and indirect costs,[1] says **Sean Nicholson**, PhD, associate professor in the Department of Policy Analysis and Management at Cornell University in Ithaca, NY.

Nicholson's model takes into account how difficult it is to replace the worker with an "equally productive substitute" and how the absence affects the work of other employees in the unit.

"[Employers] are likely to underestimate the benefits of making workers healthier," he says. "You've got to measure accurately the benefits of making workers healthier, or the costs of them not being healthy."

In fact, worker health and productivity are inextricably linked. That was the key message from the Workplace Health and Productivity Summit held last fall. The summit, co-sponsored by the American College of Occupational and Environmental Medicine (ACOEM) and the Integrated Benefits Institute, a San Francisco-based nonprofit that provides research, measurement tools, and analysis to employers, produced a set of recommendations that urge employers to adopt a "culture of health" and to

implement interventions that address both health and productivity.

"Health is really an investment that needs to be leveraged rather than just a cost that has to be justified," says **Ron Loeppke**, MD, MPH, executive vice president of Alere, a Brentwood, TN-based company that specializes in health care management. Loeppke also is the co-chair of the ACOEM Section on Health and Productivity and a coordinator of the summit.

If you look at health costs broadly, safe patient handling produces benefits far beyond the realm of workers' compensation.

Based on medical and drug costs alone, the most costly conditions are cancer, back and neck pain, and coronary heart disease. But when the impact on productivity is taken into account, back and neck pain becomes the most expensive condition, followed by depression and fatigue.[2]

When they calculate the health-related costs of workers, most employers just look at the obvious numbers: workers' compensation payments and premiums and medical costs. But research into work force health revealed a wide impact, says Loeppke.

"On average, across corporate America regardless of employer type, for every one dollar that employer spends on medical/pharmaceutical cost they're spending two to three dollars on health-related productivity loss," he says.

Loeppke and colleagues analyzed more than 15,000 employee responses to the Health and Work Performance Questionnaire, which encompassed four companies. They found that "presenteeism," or productive time lost even when the worker was on the job, was about as costly among those with chronic back and neck pain as their medical/pharmaceutical costs and lost work time.

"The employer community is realizing that they have to look beyond medical-pharmacy cost impact and look at this whole iceberg of costs [to understand] the total cost of poor health," says Loeppke. "They're actually looking at the business value of health."

Seeking a 'culture of health'

What can you do to improve productivity and create "a culture of health"? First, you need to understand more about your employees' health status, says **Tom Parry**, PhD, president of the Integrated Benefits Institute.

IBI uses the Health and Work Performance Questionnaire, which was developed by Ronald Kessler, PhD, at Harvard University, to gain information on absenteeism, "presenteeism," and the impact of health on productivity. *(Editor's note: More information is available at www.ibiweb.org.)*

If you analyze medical claims data to learn about your employees' health, you may get a skewed picture, Parry cautions. The medical benefits shape employee decisions about seeking treatment. And some conditions, such as sleep disorders, may take a toll on productivity but may not show up in medical claims data, he says.

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"Depression is a major problem for many employees, yet often it is underreported, isn't treated, and has an impact on the bottom line," he says. Employee assistance programs can address the gap by providing services and counseling to employees struggling with depression, he notes.

Some employers develop health promotion programs that include health risk assessments and targeted interventions. Some even offer an employee health clinic that offers monitoring of chronic conditions, such as high blood pressure or diabetes.

But the interventions don't have to be elaborate or expensive. Offering healthy food choices in the cafeteria — and pricing them lower than unhealthy items — sends a message. You can add better lighting and brighter paint to your stairwells to make them more attractive for employees to use, suggests Parry.

At the same time, you need to actively promote injury prevention and provide equipment and education to make the workplace safer, he says.

"You can't have a 'culture of health' and have an unsafe workplace," Parry says. "I would communicate very clearly to my employees that 'we're in this together. Your health matters not only to you, but to us.'"

Employees will benefit if they develop a healthier lifestyle. And so will your bottom line.

References

1. Nicholson S, Pauly MV, Polsky D, et al. Measuring the effects of work loss on productivity with team production. *Health Econ* 2006; 15:111-123.

2 Loeppke R, Taitel M, Richling D, et al. Health and productivity as a business strategy. *J Occup Environ Med* 2007; 49:712–721. ■

Flu antiviral resistance forces new strategies

Feds expect hospitals to stockpile millions of doses

Antiviral resistance of one strain of influenza has altered this year's strategies for seasonal influenza. It also highlights mutability of the virus — and the need for careful pandemic planning, federal health officials say.

But it does *not* change the recent guidance from the U.S. Department of Health and Human Services that calls for employers — including hospitals — to stockpile millions of doses of antiviral medication for use during a pandemic, says **Ben Schwartz**, MD, former senior science adviser with the National Vaccine Program Office in Washington, DC, who coordinated the guidance development.

HHS has called for health care employers to stockpile almost 103 million doses of antiviral medication for pandemic preparedness (www.pandemicflu.gov/vaccine/antiviral_use.pdf.)

"It's important to note that this resistance is limited only to this one particular type of influenza. As such, it doesn't have any implications really for whether a new influenza virus that might cause a pandemic would be susceptible to oseltamivir (Tamiflu)," says Schwartz. "Our recommendations are to continue to plan and prepare for an influenza pandemic [with stockpiling of antiviral medications]."

In a health advisory issued on Dec. 19, 2008, the Centers for Disease Control and Prevention reported a high prevalence of H1N1 influenza A strains that are resistant to oseltamavir. If there is infection or exposure to influenza A (H1N1), zanamivir (Relenza) or a combination of oseltamivir and rimantadine should be used for treatment or prophylaxis, the CDC said.

Influenza A (H3N2) and influenza B remain susceptible to Tamiflu. CDC is recommending the use of rapid tests that can distinguish between types A and B. Tamiflu can still be used with influenza B strains. If a patient tests positive with influenza A, zanamivir (Relenza) or a combination of Tamiflu and rimantadine can be used.

Clinicians also can contact the local public health department to determine whether the prevailing A strain is H1N1 or H3N2, says **Tony Fiore**, MD, MPH, medical epidemiologist with CDC's influenza division.

The influenza resistance occurred through a mutation and not due to overuse of antiviral medication, Fiore says. The strain could once again become resistant, he says.

"There's not any difference in the viruses whether they're resistant or not, in terms of the types of syndromes they cause or the severity of symptoms or transmissibility," he says.

Antiviral medications remain a crucial part of pandemic preparedness, though health officials stress that hospitals should stockpile more than just Tamiflu.

"It points out . . . the need for diversifying the number of drugs we have," says Fiore. "What if the virus showed up and it was resistant already? We can't turn to a single drug, even a drug that has been as useful as Tamiflu, and expect that to

An antiviral insurance plan for pandemics

Have you stockpiled enough antiviral medication to provide doses for several hundred (or thousand) employees for about 80 days? Does your stockpile include more than one antiviral medication? Can you rotate it so it never expires?

That is a daunting task for the nation's hospitals — and an expensive one. To help address that challenge, Roche Pharmaceuticals of Nutley, NJ, maker of Tamiflu, and GlaxoSmithKline of Philadelphia and Research Triangle Park, NC, maker of Relenza, offer special "reservation" and stockpiling programs for employers.

In the Roche Antiviral Protection Program, employers can reserve Tamiflu for about $6 per 10-day regimen per year. (The annual fee may rise after the third year of the program.) In the event of a pandemic, Roche provides the doses to the employer at the prevailing wholesale price. The pharmaceutical giant says the doses will be delivered within 48 hours "under most circumstances."

Employers can opt out of the program at any time without penalty, the company says.

The Relenza Pandemic Readiness for Employers Program (PREP) offers two options. Employers may purchase Relenza doses at a discounted price and store them at the pharmaceutical company's facilities. Or they may reserve 10-day regimens for an annual fee of $6 and lock in a future purchase price.

The reservation programs are similar to a pandemic insurance plan for hospitals, says **Ben Schwartz**, MD, former senior science adviser with the National Vaccine Program Office in Washington, DC, who coordinated the development of the HHS *Guidance on Antiviral Drug Use During an Influenza Pandemic*.

They help hospitals avoid concerns about drugs becoming outdated, he notes. "If a new drug came out or resistance occurred, [employers] could simply let the stockpile lapse," he says. **(See related article on antiviral resistance on p. 27.)**

If a hospital chooses to maintain its own stockpile, it can save money by working through the public health department, Schwartz says. "If a state would combine all of the orders from the health care sector and then submit those under the federal contract [for antivirals], the cost would be far less than if each hospital were to individually purchase the drug through the private sector," he says.

For both companies, release of the stockpile is triggered when the World Health Organization declares a Phase Four pandemic alert (human-to-human transmission) or upon request of the employer.

(Editor's note: More information on the Roche stockpiling program is available at www.pandemictoolkit.com/tamiflu-supplyordering/stockpiling-dilemma.aspx. Information on the GlaxoSmithKline program is available at http://us.gsk.com/html/media-news/pressreleases/2008/2008_us_pressrelease_10131.htm.) ■

be the answer."

Antivirals are useful in ameliorating the symptoms of influenza and are more effective if given within the first two days of illness. Yet they are not commonly used, says Fiore. "There's a general lack of awareness of the benefits of treatments with antivirals," he says.

In the initial stages of a pandemic, when there is no vaccine yet available for a newly emerging strain, antiviral medications play a crucial role in protecting health care workers and first responders, public health officials say.

Employers are expected to provide those doses through their own stockpiles, according to HHS guidance. The national stockpile will be used to contain the spread of the virus and for treatment of patients, the guidance states.

Community outbreaks are expected to last 12 weeks, and no pandemic vaccine will be available for the first wave of infection, according to public health officials. Post-exposure prophylaxis requires a single dose daily for 10 days, and prophylaxis would require 8 of those 10-day regimens to cover the 12-week period, the guidance states.

Two-thirds of health care workers will have high-risk exposures to pandemic influenza, requiring 102.8 million regimens (10-day doses), HHS estimated. **(See article, above.)** About 80% of the stockpile is in oseltamavir (Tamiflu) and 20% in zanamivir (Relenza), supplemented with a few million doses of rimantadine. Stockpiling even more Relenza might be warranted, says Schwartz.

Relenza, administered through inhalation, is not recommended for people with severe asthma or other chronic lung disorders and is approved for children 5 years old and older. Tamiflu is approved from the age of 1 year and older.

"If a hospital is planning to use antiviral drugs for prophylaxis, there are data published that show the effectiveness of Tamiflu and Relenza to be equal," Schwartz says. "Resistance is less likely to develop to Relenza. Therefore, if a hospital is planning to use a drug for prophylaxis and

(Continued on page 30)

HHS: Hospitals should stockpile antivirals for HCWs

Fed stockpile is for containment, treatment

In its *Guidance on Antiviral Drug Use During an Influenza Pandemic,* the U.S. Department of Health and Human Services places the responsibility for stockpiling for worker protection on employers. This is an excerpt that specifically addresses health care employers:

• Prophylaxis of critical healthcare workers and emergency service providers

Maintaining effective healthcare and emergency response services (includes Emergency Medical Services, fire, and law enforcement personnel) will be essential in preventing adverse health outcomes and protecting public safety in a pandemic. The healthcare sector will face a massively increased burden while coping with a work force diminished by illness and possibly other causes of absenteeism — for example, caring for an ill family member or due to fear of becoming infected in the workplace. In a survey of public health personnel in three Maryland county health departments, only 54% of respondents indicated that they would likely report to work during a pandemic.

In a multivariable analysis, one factor significantly associated with the likelihood of reporting was confidence in one's personal safety. Respondents were not directly asked about antiviral drug treatment or prophylaxis and responses to a hypothetical scenario must be interpreted with caution. Limited information from the 1918 pandemic and experience in Toronto, Canada, during the recent SARS outbreak suggest much lower rates of absenteeism among healthcare workers. Nevertheless, the Maryland findings raise the possibility that absenteeism could be substantial, and that antiviral prophylaxis may reduce absenteeism both by preventing illness and by improving perceptions of safety in the workplace.

Several potential strategies for prophylaxis in healthcare and emergency service settings could be considered. Because exposure to ill persons during a pandemic outbreak will be frequent for healthcare workers and emergency service personnel with direct patient contact, post-exposure prophylaxis would be essentially equivalent to outbreak prophylaxis — as soon as one 10-day course of PEP ended, another would likely begin.

A modification of the PEP strategy may be to dispense PEP only when "unprotected" exposure occurred. Potential concerns with this approach for those with frequent high-risk exposures include whether it would be sufficient to reduce absenteeism that may occur due to fear of occupational infection, whether unprotected exposures could be accurately identified and how frequently they would occur in a heavily exposed population. In addition, there is a lack of data on the effectiveness of personal protective equipment measures in preventing influenza transmission.

A hybrid strategy that includes outbreak prophylaxis for workers with frequent high-risk exposures and post-exposure prophylaxis when unprotected exposure occurs for those who have less frequent or intensive patient contact tailors the intervention to the level of risk and is the preference of the working group. Although data on the effectiveness of outbreak prophylaxis are limited, two studies of zanamivir report protective efficacies in adolescents, healthy and high-risk adults in the same range as seen for post-exposure prophylaxis.

Estimating the number of antiviral drug regimens needed to support prophylaxis for healthcare and emergency service workers using this strategy requires defining populations of workers with more frequent higher-risk exposures and those at lower risk. Of the approximate 13 million workers in the healthcare sector as defined by the Bureau of Labor Statistics, we estimate that two-thirds of healthcare workers, or about 8.7 million including those in hospital-based, outpatient, home health and long-term care positions may have frequent high-risk exposures along with 2 million persons in emergency services sectors, encompassing Emergency Medical Services, fire service and law enforcement personnel.

The remaining 4.3 million healthcare sector workers would receive post-exposure prophylaxis when unprotected exposure occurs, estimated as four times during a 12-week community outbreak. Based on these estimates, a total of 102.8 million antiviral regimens would be needed. Additional work to define specific groups at higher and lower risk and their respective numbers is needed.

The health benefits of this prophylactic strategy cannot be easily quantified. Several studies suggest that healthcare workers who have patient exposure have increased rates of seasonal influenza infections. In addition to the direct effect of reducing pandemic influenza illness and its consequences, prophylaxis also would reduce the risk of transmission to family members, co-workers, and to patients. Influenza prevention by vaccination of healthcare workers has been shown to reduce nosocomial infection in acute care hospitals and mortality in long-term care facilities for the elderly. An additional impact would be to reduce absenteeism among workers in these critical sectors, improving the quality of healthcare and public safety. Many studies have shown improved health outcomes with a greater staff-to-patient ratio. During an influenza pandemic when healthcare burden is markedly increased, this effect may be even greater.

(Editor's note: For the complete document, go to: www.pandemicflu.gov/vaccine/antiviral_use.html.) ■

not for treatment, it wouldn't be unreasonable to stockpile a larger proportion of Relenza."

Hospitals will not be able to rely solely on rotating its stock of antiviral medications with ongoing use, he says. However, the pharmaceutical companies offer stockpiling programs for an annual fee that promise the delivery of regimens within 48 hours. **(See related article on p. 29.)**

"It's an investment in preparedness. It's an investment in work force safety," says Schwartz. "And it's an investment in assuring that the hospital can protect the health of the public at the time a pandemic occurs."

Rethinking the stockpile

For some hospitals that already have invested in a stockpile, the news about antiviral resistance has spurred a reconsideration of strategy.

At Vanderbilt Medical Center in Nashville, TN, infectious disease expert **William Schaffner**, MD, has asked the laboratory to provide periodic updates on the prevailing subtype of influenza. "You need to know the predominant strain circulating in your community" to treat seasonal influenza, says Schaffner, who is chair of preventive medicine at the Vanderbilt University School of Medicine.

The hospital system also may expand its stockpile, he says. "I think people will want to very deliberately review all the data and will want to look again at what information we have regarding the current bird flu strain and its susceptibility to Relenza," he says.

The issue of resistance also underscores the need for better vaccine development, both for seasonal and pandemic influenza. "That serves to remind us that the research that's ongoing to develop better influenza vaccines is absolutely critical," he says. ■

Questions arise about pandemic use of respirators

Current models difficult to use, studies show

In an influenza pandemic, health care workers may find their respirators difficult to tolerate for long hours.[1] Without additional training, they also are likely to forget how to don the respirator properly or even which respirator model they should wear.

Those are the findings of two recent studies that raise questions about the state of respiratory protection for health care workers. They underscore the need for respirators that are designed specifically for health care, researchers say.

"We expected to find one or two of the models we were using to be reasonably well tolerated so we could have health care workers wearing them for most of their work shift," says **Lewis J. Radonovich**, MD, director of the Center for Occupational Safety and Infection Control in the Veterans Health Administration and director of Biosecurity Programs at the Malcolm Randall Veterans Affairs Medical Center in Gainesville, FL.

"It doesn't matter what type of respirator you're wearing," he says. "Health care workers don't seem to tolerate them for long periods."

Health care worker confidence in their respiratory protection not only affects their safety on the job, but it could impact their willingness to work during a pandemic, Radonovich notes. "We would want to pick a respirator that is as comfortable as possible — and effective," he says.

Meanwhile, Canadian researchers questioned large-scale efforts to fit-test health care workers. Employees who are fit-tested but then don't wear a respirator for six months or longer often forget how to wear them with the best fit.[2]

"Fit-testing large groups of people who then don't use the respirator might not be a good strategy," says **A. Mark Joffe**, MD, FRCPC, medical director of infection prevention services at Royal Alexandra Hospital in Edmonton.

"We looked at whether our employees could take a respirator out of the box, put it on and achieve an adequate fit," he says. "About half of them did. For employees who don't use the respirator very often, they don't do much better by fit-testing and training them than by just taking it out of the box."

Even surgical masks are uncomfortable

Being able to tolerate a respirator is vital to maintaining protection. In the epidemic of severe acute respiratory syndrome (SARS), health care workers found it difficult to wear N95 respirators continuously throughout their work shifts. Later reports speculated that some health care workers may have been contaminated through improper donning and doffing of the respirators.[3]

At the VA medical center, Radonovich and his colleagues asked 27 health care workers to wear respirators for eight hours, with breaks of 15 or 30 minutes every two hours. On different days,

they wore a total of eight respirators or face masks, including a half-face elastomeric respirator, a powered air-purifying respirator (PAPR), an N95 filtering facepiece respirator with an exhalation valve, an N95 covered with a surgical mask, other common models of N95s, and a surgical mask. They were asked to imagine that they were in the midst of a pandemic.

"Approximately half of all the health care workers we studied were unable to tolerate the respirators they were asked to wear for the duration of eight hours," says Radonovich. Respirators also interfered with communication, he says.

Even the surgical mask was not well tolerated, even though it does not have a tight face seal and doesn't qualify as respiratory protection, he says. "Most of the health care workers weren't willing to wear the surgical mask for the whole work shift."

"We think that's in part because the people who participated in our trial were not accustomed to wearing any facial or respiratory protection for long periods," Radonovich says. Typically, health care workers will wear the respirators only when they enter a patient's room and then remove it after their encounter.

Health care workers might become accustomed to the respirators over time, he says.

In all, the PAPRs and N95s with an exhalation valve had the greatest tolerability. Yet the decision about pandemic preparedness takes into account cost and availability. The VA may decide to stockpile elastomeric respirators in addition to N95s, says Radonovich.

"In the event of a national or international crisis, when there is a shortage of disposable models, the reusable model has obvious advantages, even though the data from our work suggest there are tolerability problems with the reusable models as well," he says.

HCWs fail without additional training

Infrequent use of respirators also has implications for respirator fit, another study suggests. Canadian researchers question the practice of fit-testing thousands of health care workers as a part of pandemic preparedness.

"The assumption is that you fit-test the employees and they'll all be protected. We wanted to examine that," says Joffe.

Of 43 health care workers completing a fit-test study at Royal Alexandra Hospital, 19 (44%) achieved an adequate fit by simply donning a 3M 8210 out of the box without training. Others were able to pass a fit-test after training, but 11 (25.6%) needed a different respirator model in order to achieve an adequate fit.

Three months later, only 27 (46.5%) could still pass a fit-test without additional training on donning and properly securing the respirator. At 14 months, 33 (65%) passed without additional training. Neither was a statistically significant

New respirator aims for a truly universal fit

FaceSeal uses medical-grade adhesive

A newly approved respirator may be the closest thing yet to a "universal fit." The new FaceSeal respirator (www.facesealtechnologies.com) uses a medical-grade adhesive to attach the mask to the face. The National Institute for Occupational Safety and Health (NIOSH) certified the mask in late 2008.

With its duckbill shape, it has more surface area than other masks, says **Gabor Lantos**, MD, PEng, MBA, president of Occupational Health Management Services in Toronto and director of PPE Development at FaceSeal Technologies, which also is based in Toronto. Lantos is a member of the *Hospital Employee Health* Editorial Advisory Board.

"Ours is easy enough to breathe through. Even at an N99 or N100, it does not require an exhalation valve to ease breathing," he says.

Because it has no straps and fits securely with the adhesive, the mask conforms to the contours of the face. The U.S. Occupational Safety and Health Administration still mandates initial and annual fit-testing, but Lantos is discussing a waiver of fit-test rules in two provinces in Canada.

The FaceSeal is designed for single use, but if necessary, it can be readhered, Lantos says.

Wearability is part of the NIOSH certification testing, and the testers didn't object to the adhesive, says **Heinz Ahlers**, JD, MS, chief of the Technology Evaluation Branch of NIOSH's National Personal Protective Technology Laboratory in Pittsburgh.

One advantage of the adhesive mask: It can't be put on upside down. It is actually common for workers to put their respirators on incorrectly, Ahlers says. "The right way to put a respirator on is not necessarily intuitive," he says. "Some respirator manufacturers require the upper strap to go very high up on your head to get the proper fit, others require it just to go above your ears."

Ahlers says the new technology offers a promising alternative to masks currently on the market. "It is a fundamentally new [design]," Ahlers says. ■

better rate than the 50% who passed after pulling a respirator out of the box.

Researchers then looked at 11 nurses who work on a tuberculosis unit and regularly wear respirators. It turned out that four of them were using the wrong respirator. Six of seven of the other nurses passed a fit-test and all passed follow-up fit-tests. (In the province of Alberta, fit-testing is required every two years for health care workers who have potential exposure to airborne infectious diseases.)

Regular use — or frequent training help ensure an adequate fit, says lead author **M.C. Lee**, MD, FRCPC, MSc, medical microbiologist in infectious diseases at DynaLIFEDx Laboratories in Edmonton.

"The adjustment of the bridge around the nose and the correct strapping are the most important [donning and fit-checking] steps that correlate with those people who pass," says Lee. "Even when people do the positive and negative pressure fit-check, they don't necessarily know how to interpret that and adjust accordingly."

Better-fitting respirators that are designed for health care would be an ideal solution, Joffe and Lee say. But the efficacy of current fit-testing protocols needs further study, they say.

"We spend a lot of money and for what gain? There must be better ways of doing it," says Joffe. "This opens up all kinds of questions. We're naive if we think that if we fit-test somebody today, they're actually going to be protected [in a future pandemic]."

References

1. Radonovich LJ, Cheng J, Shenal BV, et al. Respirator tolerance in health care workers. *JAMA* 2009; 301:36-38.
2. Lee MC, Takaya S, Long R, et al. Respirator fit-testing: Does it ensure the protection of healthcare workers against respirable particles carrying pathogens? *Infect Control Hosp Epidemiol* 2008; 29:1,149-1,156.
3. Ofner M, Lem M, Sarwal S, et al. Cluster of Severe Acute Respiratory Syndrome Cases Among Protected Health-Care Workers — Toronto, Canada, April 2003. *MMWR* 2003; 52:433-436. ■

Even children pose hazard of lift injury

Ped hospitals set weight limits for lifts

With the youngest and tiniest patients, pediatrics hardly seems like a hot zone for patient handling injuries. Yet that assumption of safety is itself a hazard. Pediatric caregivers treating children, adolescents, and young adults may be at significant risk of injury.

"We do have injuries — back injuries and shoulder injuries," says **Lyn Sapp**, RN, MN, CRRN, clinical nurse specialist and clinical practice manager of the inpatient rehab unit at Seattle Children's. "They are the same injuries as with adults, just probably not as frequent.

"If you use the 35-pound mark as a maximum lifting weight [of patients, as recommended by the National Institute for Occupational Safety and Health], you can have a toddler 18 months of age in the 90th percentile who would weigh 35 pounds," she says. "It's kind of silly to think that just because they're kids, they aren't heavy."

"[Nurses] think, 'Well, they're just kids. I lift my kids at home.' But it's not the same and there still is potential for injury there," adds **Diane Anderson**, RN, MN, MPH, COHN-S, supervisor of Occupational Health Services at Seattle Children's.

In a survey of pediatric clinicians about their perception about safe patient handling, Sapp found that most reported a low to moderate level of daily pain or discomfort. "They attributed it to daily movement of patients," she says, which is evidence of the need for a safe patient handling program in pediatrics.

Constant lifting and repositioning also creates the problem of cumulative trauma, notes **Kristi Haglund**, MEHS, safety specialist at Children's Hospitals and Clinics of Minnesota in Minneapolis and St. Paul.

A safe patient handling program reduced injuries by 69% in 2006 and 2007 at the Minnesota children's hospitals. "Even if you're lifting what has been traditionally considered light in health care, you're still going to be hurting yourself over the long run," she says.

Use tools designed for adult care

Pediatric programs should use the same tools as in adult health care to prevent patient handling injuries, says **Kathleen Motacki**, MSN, RN, BC, lecturer at the Henry P. Becton School of Nursing and Allied Health at Fairleigh Dickinson University in Teaneck, NJ.

"Although patient assessment criteria and algorithms exist for patients in medical, surgical, and orthopedics, there are no specific algorithms for pediatric patients," she says. "Those health

care workers working in the pediatric setting must rely on the established evidence-based approaches to safe patient handling. The generic algorithms and patient assessment tool should be utilized when the child is greater than 35 lbs."

Algorithms for safe patient handling are available from the VISN 8 Patient Safety Center at the James A. Haley VA Medical Center in Tampa, FL (www.visn8.med.va.gov/patientsafetycenter/safePtHandling/SPHMAlgorithms.pdf). Motacki was scheduled to speak on pediatric patient handling at the Safe Patient Handling & Movement Conference in Tampa in March. She also is a co-editor, along with ergonomics experts Audrey Nelson and Nancy Menzel, of *An Illustrated Guide to Safe Patient Handling and Movement* (Springer Publishing; 2009).

Ceiling lifts are the preferred tool to reduce injuries because they're convenient and easy to use, says Haglund. As Children's Hospitals and Clinics expands and remodels, it is adding more ceiling lifts.

"The nurses who have used the ceiling lifts in the actual patient rooms have really liked them and found them easier to use [than other lifts]," she says.

"We would [need] the same basic lift equipment as an adult hospital would. We have patients who are up to 300 pounds," she says. "You have to have a wide range of equipment in the pediatric population."

Seattle Children's also installed ceiling lifts, starting in the rehab unit. "I have seen personally the decrease in injuries to staff in my tenure here," says Sapp. "Those who are injured keep doing things without equipment to support them."

It's important to establish a clear policy. "If [the patients] are not able to help with at least 50% of their body weight or if that weight is more than the recommended limit of 35 pounds, they use a lift," says Anderson.

The Minnesota hospitals set the limit at 30 pounds based on recommendations of Liberty Mutual Insurance Co. The policy was set by a safe patient handling task force, which included frontline nurses. "If [the patients weigh] 30 pounds and they can't move, transfer, or ambulate on their own, then we're going to be using safe patient handling equipment," says Haglund.

Children's Hospitals and Clinics of Minnesota also requires nurses to take a competency test on safe patient handling equipment every year and provides "ergo coaches" on units to help co-workers with the equipment.

Still, there are special issues that arise in the pediatric setting that must be addressed by the safe patient handling program.

Some children may have disabilities that cause contractures or stiff muscles, and other children may be squirmy. Caregivers need the assistance of co-workers, even when they're using lift equipment, says Motacki. "We have a less helpful population in some respects. Kids are more likely to move in unpredictable ways and not be participatory in transfers and lifts," says Anderson.

Nurses working with infants may not be performing heavy lifts, but the stretching and reaching and bending over incubators create a strain that should be addressed, she says.

Of course, pediatric units and hospitals need a range of slings. The extra small sling can accommodate a patient who weighs just 20 pounds.

Nurses may worry that their young patients will be fearful of the mechanical lifts. But there's plenty of opportunity for hands-on care while placing the child in the sling and even while moving them, says Haglund.

Some children love it. "They think it's like a ride," she says. "There are definitely some who have been afraid of it as well. That's where the caregiver comes in, they have to walk the patient through it and make them feel comfortable.

"They can focus more closely on the child rather than just on the lift itself. They can keep that eye contact with the patient, and they can still touch the patient," she says.

Meanwhile, with fewer injuries, Haglund hopes to retain nurses at the bedside. "Hopefully, we'll see our nurses are staying at Children's because they're not leaving the program after having a back injury," she says.

(Editor's note: The 10th Annual Safe Patient Handling & Movement Conference is being held in Lake Buena Vista, FL, March 31-April 2, 2009. More information is available at www.cme.hsc.usf.edu/sphm/.) ■

Seeking the upside of an aging work force

Conference sets agenda for research

Aging doesn't have to mean a time of decline for the nursing work force. But it will take proactive measures to keep experienced nurses at the bedside — and to keep them safe, says **Kate McPhaul**, PhD, MPH, RN, assistant professor

with the Work and Health Research Center at the University of Maryland School of Nursing in Baltimore.

Trends show that older workers actually have fewer injuries, but those injuries tend to be more severe, she says. Still, there's little research about the age that nurses retire or why they retire, McPhaul says.

While it's important to boost the enrollment of nursing programs to encourage more young people to enter the field, it's also important to retain the older nurse, she says. "I think it's in everyone's best interest to think about what it would take to keep nurse safe and comfortable and working as long as they can," says McPhaul, a speaker at the conference on "Healthy Aging: Anticipating the Occupational Safety and Health Needs of an Increasingly Aging Workforce."

The February conference was sponsored by the Society for Occupational and Environmental Health and the Association of Occupational and Environmental Health Clinics, with funding from the National Institute for Occupational Safety and Health.

New research could help employers shape the workplace to make it more amenable to older workers, says McPhaul.

"You can't change a person's age, but you can change the way a person's work is organized," she says. "[That includes] working hours, length of shift, management style, team style, and relationships with supervisors."

For example, older workers could be teamed with younger workers to share their experience and skills, she says.

Retention program woos nurses to stay

Clearly aging brings physical limitations, such as arthritis and poorer vision. But older workers may benefit from strong support networks and a greater sense of control in the workplace, says McPhaul. "What we see in some of our data is that the older nurses do have more autonomy than younger nurses, as well as improved relationships," she says.

Employers can enhance those positive aspects of the work environment as they seek to retain older workers, says McPhaul.

Sinai Hospital of Baltimore created a Senior RN Retention Committee and brainstormed about rewards and recognitions that older nurses would appreciate. That effort resulted in an initiative that provides extra vacation and scheduling perks.

"We're providing people with a lot of benefit after 20 or 25 years of practice at Sinai," says **Bonnie Faust**, MS, RN, MBA, CRRN, director of patient care for the departments of rehabilitation

CNE *questions*

9. According to research on workplace health and productivity, what is the most costly health condition?
A. Cancer
B. Heart disease
C. Depression
D. Back and neck pain

10. The U.S. Department of Health and Human Services says employers should stockpile more than one type of antiviral medication in pandemic influenza preparedness because of concerns about antiviral resistance. What is the ratio of oseltamavir (Tamiflu) to zanamivir (Relenza) in the federal stockpile?
A. 50% Tamiflu, 50% Relenza
B. 60% Tamiflu, 40% Relenza
C. 80% Tamiflu, 20% Relenza
D. 90% Tamiflu, 10% Relenza

11. According to Lewis J. Radonovich, MD, director of the Center for Occupational Safety and Infection Control in the Veterans Health Administration, which of the following is well tolerated by health care workers for their entire shift?
A. N95 respirators
B. elastomeric respirators
C. surgical masks
D. None of the above

12. The Children's Hospitals and Clinics of Minnesota in Minneapolis and St. Paul reduced patient handling injuries in 2006 and 2007 by how much through an ergonomics program?
A. 33%
B. 47%
C. 69%
D. 82%

Answer Key: 9. D; 10. C. 11. D; 12. C.

CNE instructions

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

and psychiatry and chair of the Senior RN Retention Committee. "It was a big boost for the nurses to see how appreciated they truly are."

The hospital also has lift teams to assist nurses and considers the needs of older workers when buying new technology or renovating space, Faust says. For example, the hospital has special computer screens for employees with low vision, she says.

The retention program provides tiered benefits at milestone anniversary years — 10, 15, 20, 25, and 30 years with Sinai. For example, at 10 years of service at Sinai, nurses receive an extra week of vacation during that year, which they can take as a payout. At 30 years of service, nurses receive the maximum benefits: five weeks of extra vacation in that year (or the paid equivalent) as well as priority scheduling for two weeks of vacation. Those with 30 years of service also are relieved of any commitment for working on holidays or weekends.

Sinai hopes that its experienced nurses will stay and share their knowledge with new, younger workers.

"The older nurses with a lot of experience in very specialized areas are the ones we ask to assist in the orientation of new nurses," says Faust. "They have the knowledge and skill that years and years of practice can afford you."

(Editor's note: More information about the conference on the aging work force is available at www.soeh.org/meeting/meeting.html.) ■

OSHA proposes new fit-test protocols

Streamlined protocols proposed by the U.S. Occupational Safety and Health Administration could make quantitative fit-testing more efficient.

One protocol would reduce the duration of the eight fit-testing exercises from 60 second to 30 seconds. A second protocol would eliminate two of the eight fit-testing exercises. The remaining six exercises would have a duration of 40 seconds. The second protocol also would increase the current minimum pass-fail fit-testing criterion from a fit factor of 100 to 200 for half masks and from 500 to 1,000 for full facepieces.

"If adopted, the protocols would not replace existing fit-testing protocols, but instead would be alternatives to them," OSHA said in the *Federal Register* notice.

(Editor's note: The OSHA Federal Register *notice is available at www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGISTER&p_id=21394. Comments are being accepted through March 23.)* ■

Israeli HIV+ surgeon cleared to continue work

Reconsider policies for HIV-infected providers?

In a case that recalls the national turmoil during the Florida HIV dental outbreak in the early 1990s, investigators have determined that HIV provider-to-patient infections remain exceedingly rare.

The case in point occurred in Israel, but was jointly investigated and recently reported by the Centers for Disease Control and Prevention.[1] A cardiothoracic surgeon in Israel specializing in open-heart procedures was found to be HIV-positive in January 2007 during evaluation for fever of recent onset. The duration of infection was unknown. A look-back investigation of patients operated on by the infected surgeon during the preceding 10 years was conducted under the auspices of the Israel Ministry of Health to determine whether any surgeon-to-patient HIV transmission had occurred. Of 1,669 patients identified, 545 (33%) underwent serologic testing for HIV antibody. All results were negative. "The results of this investigation add to previously published data indicating a low risk for provider-to-patient HIV transmission," the CDC reported.

The surgeon was allowed to return to work if he agreed to rigorous compliance with infection

control, routine health care follow-up and adherence to an antiviral regimen. The panel did not require notification of prospective patients of the surgeon's HIV status because of the extremely low likelihood of transmission to patients if the conditions for resuming surgery were met, the CDC concluded.

Reference

1. Centers for Disease Control and Prevention. Investigation of patients treated by an HIV-infected cardiothoracic surgeon — Israel, 2007. *MMWR* 2009; 57(53):1,413-1,415. ■

CNE objectives

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

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

The Joint Commission Update for Infection Control

News you can use to stay in compliance

Bye, bye UTIs: Joint Commission and CMS putting heat on, but this mission is possible

How one hospital slashed infection rates and saved a cool $115,000

The Joint Commission and other national infection prevention groups made a point to include catheter-related urinary tract infections (CA-UTIs) — traditionally considered a relatively benign adverse event — in a recently issued compendium targeting the major health care-associated infections (HAIs).[1] Moreover, The Joint Commission announced that the condensed, actionable recommendations on UTIs and the other infections may become required as accreditation standards by 2010. **(See *Hospital Infection Control & Prevention*, November 2008, cover.)**

But the real game changer on UTI prevention came a bit earlier when the Centers for Medicare & Medicaid Services (CMS) announced effective October 2008 that it would halt payment on additional costs generated by UTIs and two other infections (mediastinitis, catheter-related vascular infections). With both The Joint Commission and CMS now focusing on prevention of UTIs — an infection once considered such a low priority that it has been dubbed the "Rodney Dangerfield" of HAIs — what type of approach does the infection preventionist need to accomplish this task?

First, dare we say, give the UTI the respect it warrants in terms of patient safety. If nothing else, for sheer numbers. UTIs are the most common hospital-acquired infection, and 80% of those infections are attributable to an indwelling urethral catheter.[2] Twelve to 16% of hospital inpatients will have a urinary catheter at some time during their hospital stay. Urinary tract infection is the most important adverse outcome of urinary catheter use, with bacteremia and even sepsis occurring in a small proportion of infected patients. Morbidity attributable to any single episode of catheterization is limited, but the high frequency of catheter use in hospitalized patients means that the cumulative burden of CA-UTIs is immense. Complications include patient discomfort, prolonged length of stay, increased cost, and spikes in patient morbidity and even mortality.

Yet surprisingly, a study published last year found that urinary catheters — a well-established risk of infection if not removed as soon as possible — are not even monitored at a large number of hospitals.[3] In a particularly striking finding, one-third of hospitals surveyed did not even conduct any type of UTI surveillance. However, among the two-thirds of the hospitals that do UTI surveillance — a proportion expected to rise sharply under CMS and Joint Commission prodding — is the University of Pittsburgh Medical Center (UPMC) St. Margaret. Noticing an increase in CA-UTIs in 2006 — well before the CMS mandate — UPMS St. Margaret's infection prevention team began developing a comprehensive UTI prevention program that continues to produce some striking results.

"We had one [recent] month where we only had one catheter-associated UTI," says **Barbara Jordan**, RN, MSN, CCRN, clinical director of infection control and regulatory compliance. "We double-checked everything and it was true. Now, we have not maintained that level of one, but we are still doing a really good job of keeping the rates down."

It is estimated UTIs cost from $1,000 to $4,000 depending upon the symptoms, infecting pathogen (i.e., drug-resistant vs. susceptible), antibiotic therapy, and additional length of stay.[4] The prevention program at St. Margaret decreased the number of CA-UTIs from 113 in 2006 to 67 in 2007, a decrease

(Continued on page 3)

UPMC St. Margaret
Urinary Catheter Management Observation Tool

1. **When a patient is being transported via stretcher, where is the urinary drainage bag?**
   _____ On the bed/stretcher
   _____ On patient's abdomen
   _____ Secured to stretcher below the level of the bladder
   _____ Other _____

2. **Is the catheter secured to the patient's leg?**
   _____
   If so, how is catheter secured?_____

3. **If you are able to observe an insertion, was insertion performed using aseptic technique? Any breaks in technique? Explain:**
   _____
   Insertion was performed by RN_____LPN_____PCT_____

4. **Were urine specimens collected from the sampling port of the catheter tubing using aseptic technique? _____**
_____
   Performed by RN_____ LPN_____ PCT_____

5. **Was the sample sent to the lab ASAP?_____**

6. **Were gloves used by staff emptying urinary drainage bags? Were gloves changed <u>consistently</u> between patients?_____**

7. **Were hands sanitized with foam, or washed with soap and water (must for C.Diff patients) before and after removing gloves?_____**

8. **According to your professional opinion, how many patients on your unit, today, have an unnecessary indwelling urinary catheter? _____**

Source: UMPC St. Margaret, Pittsburgh.

UPMC St. Margaret Emergency Department
Indications for Urinary (Foley) Catheter Insertion

Patient name:_____ MRN: _____
Gender: M F Age:_____
Diagnosis:_____

Please indicate the reason for inserting a urinary catheter for this patient.
All indications require a physician's order in eRecord:

_____1. Urinary retention (i.e. Obstruction, neurogenic bladder).

_____2. Alteration in blood pressure or volume status requiring continuous, accurate urine volume measurement (i.e. Critically ill patient, CHF).

_____3. Preoperative catheter insertion for patients going directly to the OR.

_____4. Continuous bladder irrigation for uncontrolled hematuria.

_____5. Other* (Please print clearly!):_____
_____

*Note: If the reason for inserting a urinary catheter is not listed above, a Foley may not be indicated for this patient. According to the CDC your patient's risk of acquiring an infection in the hospital substantially increases when a urinary catheter is inserted.

Please save all forms in the Infection Control Department file provided at each charting station.

Source: UMPC St. Margaret, Pittsburgh.

of 46 infections. That resulted in an estimated annual savings of $115,000 if you price out the average UTI at $2,500. Now that preventing UTIs is a prime directive from both the CMS and The Joint Commission, Jordan's program can certainly guide other IPs in adopting similar strategies.

The keys to the program include:

- **improving** insertion technique and catheter management through mandatory education of staff;
- **utilizing** electronic health record technology;
- **reducing** urinary (Foley) catheter usage and decreasing urinary catheter device days (dwell time);
- **implementing** improved catheter product technology (i.e., silver alloy, hydrogel-coated catheters).

But before we get to the nuts and bolts of the UTI prevention plan designed by Jordan and infection prevention colleagues such as Susan DiNucci, RN, BSN, it is worth noting the core values that drive the program and similar efforts at the medical center.

"My philosophy and the philosophy of St. Margaret, the CEO and the board are, 'Yes we do have to meet these regulatory needs but we have to do what's right for the patient," Jordan says. "Keep the patient centric and you're going to do the right thing. Of course, this really helps with CMS in reducing these infections, but I don't know that we are going to totally eliminate them. But through this initiative, we have reduced our CA-UTIs."

One of the basic tools used in the program is an observation form to assess urinary catheter management, which is used to assess both appropriate placement and handling. **(See form, p. 2.)**

"We observed how the catheters were being managed and actual insertions of catheters," she

says. "Then we tried to figure out how can we reduce the days that they're in. We attacked that first. We provided education to the staff on proper care of patients with urinary catheters, then we focused on reducing the dwell time."

Indeed, it is well established in the literature that the sooner you can get an unnecessary urinary catheter out of a patient, the less likely they are to develop an infection. "We're fortunate to have electronic health records so we were able to capture what patients had catheters in," Jordan says. "This report would print out every day on the nursing unit, and we had a report in infection control. The charge nurse would take that and talk with the physicians and see about getting the catheters out."

As part of the tracking process, daily assessment of urinary catheter necessity involves identifying one of the following criteria for insertion and assessment for insertion and retention of the catheter. "If the physician insists on keeping it in, then that's fine — it is documented," she says. If one of the following does not apply, the physician must be notified regarding a possible order to discontinue the catheter:

- bladder irrigation;
- close monitoring of urine output in critically ill patient;
- Comfort Measures Only care;
- nonurologic surgery less than 24 hours ago;
- Stage III or IV sacral/perineal pressure ulcer;
- surgical/trauma indications in perineal area;
- urinary retention;
- urologic surgery.

Hi-yo silver!

A vital component of the center's program was housewide implementation of silver-coated catheters, which have been shown to reduce UTIs. The silver coating's antimicrobial properties help prevent biofilm formation and adhesion of microbes on the catheter. However, cost analysis revealed the silver devices were roughly twice as much as a conventional catheter. The argument was successfully made that prevented infections would pay for the more expensive devices, Jordan notes.

"We opted to go housewide with those rather than restricting the specific patient populations," she explains. "For example, we know there are surgical patients that will just have a urinary catheter in overnight. We could have said they can just set up a regular catheter, but we wanted to make this as simple as possible."

With the program up and running, Jordan looked for key target areas to reduce placement of unnecessary catheters. The emergency department was a prime target. "We created insertion criteria for the emergency department because we saw that nurses were putting catheters in based on no science really. It was just a past practice." **(See ED catheter insertion form, p. 3.)** The criteria were established in consultation with the ED clinicians and then an ongoing education process began.

"We made it as easy as possible and got the ED nurses to teach this form to the urinary catheter insertion trainees," Jordan says. "The nurses use it and [we] pick them up every month and review them. Again, with a lot of staff education, we are reducing the insertion of catheters. Our next step — and we just had discussions this past week — is [to include] the OR. We have opportunities there to reduce usage of urinary catheters."

Surprisingly enough, some patients want urinary catheters — and may resist removal — to avoid the pain and hassle of moving about to urinate. "It's hard when your patients are hurting after surgery to make them get up and things like that, but again we have to look at when we can transition them to using an alternative means — a urinal or a condom cath," she says. "That's where the necessity criteria come in, but if we can avoid putting them in [in the first place] all the better. That has worked with the emergency department and we are exploring that with ambulatory surgery and our pre-op areas. "

Ongoing education and specific feedback to health care workers are necessary to keep the program effective and robust. "We break it down by inpatient unit," Jordan says. "So if they can see we had three CA-UTIs in our surgical unit, [they ask] what's going on? It's the staff that are taking care of the patients that make the difference. We have developed a culture here where we are going to seek out opportunities for improvement."

References

1. Society for Healthcare Epidemiology of America. Compendium of Strategies to Prevent Healthcare Associated Infections in Acute Care Hospitals. *Infect Control Hosp Epidemiol;* October 2008 supplement available online at: www.shea-online.org.

2. Lo E, Nicolle L, Classen D, et al. SHEA/IDSA Practice recommendation strategies to prevent catheter-associated urinary tract infections in acute care hospitals. *Infect Control Hosp Epidemiol* 2008; 29:S41-S50.

3. Saint S, Kowalski CP, Kaufman SR. Preventing hospital-acquired urinary tract infection in the United States: A national study. *Clin Infect Dis* 2008; 46:243-250.

4. Wald HL, Kramer AM. Nonpayment for harms resulting from medical care. *JAMA* 2007; 298(23):2,782-2,784. ■