AMERICAN HEALTH CONSULTANTS®

FOR MORE THAN 17 YEARS

Hospital Employee Health®

IN THIS ISSUE

■ **Varicella savings:** Vaccine program saves $53,000 in first year 110

■ **Risky business:** Despite vaccine, varicella still a major threat for adults 113

■ **CDC guidelines:** Revised varicella vaccine guidelines restate need to vaccinate health care workers. 114

■ **Safety concerns:** Hospital employees still hate to get flu vaccinations. How can you turn them around? 115

■ **It's flu time again:** Hospital employees still hate to get flu vaccinations. How can you turn them around? 117

■ **Exposure prevention:** Checklist emphasizes blood-drawing devices, IV catheters 120

■ **Inserted in this issue:** Exposure Prevention Checklist

OCTOBER 1999

VOL. 18, NO. 10 (pages 109-120)

American Health Consultants® is A Medical Economics Company

Hospital savings aren't chicken feed for vaccinating workers for varicella

Some hospitals make chickenpox vaccination a condition of employment

All health care workers in hospitals should be vaccinated for varicella (chickenpox) to control possible outbreaks and avoid costly furloughs of exposed employees, experts say. The financial savings that can be achieved through a universal vaccination program can run as high as $50,000 in the first year alone. **(See related story, p. 110.)**

Recently, the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention in Atlanta updated its varicella vaccination recommendations, calling for greater use of the vaccine to limit the extent of outbreaks. The CDC reinforces its admonition for postexposure vaccination and outbreak control at hospitals and other health care facilities, according to **Jane Seward**, MD, chief of varicella activity for the National Immunization Program at the CDC. A small proportion of adults — those who didn't get varicella as children and haven't been vaccinated — are not immune to the disease.

"The original recommendation stated that all hospital workers get the varicella vaccine, and we repeat that in the new recommendation," says Seward. She adds that serum titers for employees who are not certain of their varicella history, followed by a concerted effort to vaccinate varicella-susceptible employees, is a far more cost-effective strategy than furloughing at-risk workers for 10 to 21 days following an exposure.

Hospitals appear to have taken the CDC recommendations seriously. However, strategies at individual institutions to control varicella exposures and limit outbreaks among patients and health care workers differ markedly.

At the Santa Clara Valley Medical Center, a 600-bed teaching facility affiliated with Stanford University Medical School in San Jose, CA, Employee Health Services (EHS) tests all hospital employees for varicella antibodies before they begin their jobs, says **Donna J. Haiduven**, BSN, MSN, CIC, PhD-C, infection control supervisor. Varicella-susceptible

employees are encouraged to receive the vaccination series of two injections, but compliance is not mandatory.

Employees with negative antibody titers are required to notify the Infection Control Department in the event of a varicella exposure, whether it occurs at the hospital or elsewhere. While many institutions might send these individuals home, Santa Clara allows exposed, non-immune employees to continue working as long as they wear masks for 10 to 21 days after the exposure and screen themselves daily for symptoms of varicella. If symptoms appear, the Infection Control Department sends them home until all lesions are dried and crusted.

For those who question the wisdom of allowing varicella-susceptible employees to continue working after an exposure, Haiduven offers some impressive statistics: During the 12 years since the policy took effect (eight years before the varicella vaccine became available), more than 200 exposures to varicella have been reported at the hospital. Among these, approximately 200 health care workers have been required to wear a mask

Study finds lower-than-expected conversion rates

Universal vaccination reaps savings of $53,000

In a study conducted at Memorial Sloan-Kettering Cancer Center in New York City, researchers found a considerably lower rate of varicella vaccine-induced seroconversion compared with most other reports in published literature. Despite these findings, universal varicella vaccination is a cost-effective alternative to furloughing exposed health care workers.[1]

David M. Weinstock, MD, lead author of the study, reported that seropositivity rates among test subjects were only 81.6%, compared to rates of 94% to 99% commonly reported in the literature.

Of 263 seronegative health care workers at Sloan-Kettering, 96 began the vaccine program. Of the 57 who ultimately received two doses, 38 returned for follow-up serology. Thirty-one (81.6%) of those subjects were seropositive for varicella-zoster virus antibodies, and seven remained seronegative. The total cost of vaccinating all 263 seronegative health care workers was estimated and compared with the cost of varicella-related furloughs at the facility.

Weinstock and his colleagues estimated that savings at Sloan-Kettering from a program of universal varicella vaccinations exceeded $53,000 in the first year alone, with expenses totaling $47,514 for universal vaccination and projected expenses of $101,000 in furloughs without vaccination. He writes that "universal vaccination remains a cost-effective proposition as long as the average salary of furloughed health care workers is above $21,000."

Weinstock proposes that the relatively low seroconversion rates were due to the fact that his research team used a latex agglutination (LA) assay to measure serum antibodies. The test is not as sensitive as the gpELISA assay, which was used during FDA clinical trials of the vaccine (Varivax).

According to Weinstock, the vaccine manufacturer, Merck & Company of Whitehouse Station, NJ, and independent authors recommend the LA assay as a "prompt, sensitive, specific and cost-effective alternative to the gpELISA." The gpELISA test is neither "commercially available nor optimal for single-sample testing or rapid turnaround time, as is often necessary after potential exposure," writes Weinstock.

He adds that even though most subjects who receive the vaccine may have a positive gpELISA, if commercially available assays cannot verify the presence of a predetermined level of immunity immediately following an exposure, the potential savings from a vaccination program are reduced. Weinstock also cautions that the study sample was small, that women outnumbered men 1.7 to 1, and that the relatively young age of the subjects (mean of 33 years) may have skewed the seroconversion rate higher than might have been expected with a sample more representative of the general population.

Reference

1. Weinstock DM, Rogers M, Lim S, et al. Seroconversion rates in healthcare workers using a latex agglutination assay after varicella virus vaccination. *Infect Control Hosp Epidemiol* 1999; 20:504-507. ■

after exposure, yet no more than six employees came down with varicella, and no secondary cases were reported.

Haiduven speculates that her institution's conservative definition of what constitutes an exposure may partially explain why Santa Clara has had so few cases of varicella among non-immune employees.

"There is no standard definition of a varicella exposure in the literature," Haiduven explains. "When an exposure to varicella occurs, it's very hard to determine how long that exposure lasted. Some people will say an exposure has occurred after face-to-face contact with a patient in a room for an hour; some will say five minutes. Our definition of an exposure is when a health care worker has any direct or face-to-face contact with a person with chickenpox for any length of time. Hospitals really need to have a definition of what they consider to be an exposure in their varicella policies. Our approach gets to the root of the problem, and we believe a mask is protection enough."

Haiduven also conservatively calculates the beginning of the potential exposure period by counting back three full days from the time a rash develops, effectively adding three days to the typical 10- to 21-day period during which a person with varicella is considered contagious.

If an employee develops a rash during the period from the first dose of the vaccine to a month after the second dose, the health care worker is required to report to EHS for an evaluation. If the rash appears only at the injection site, the employee will probably be allowed to continue working. If the rash becomes more widespread, he or she goes home.

Enacting 'consistent and conservative' policy

Haiduven's caution arose in large part because the vaccine is effective in 70% to 90% of cases (though it protects against the development of serious disease 95% of the time).

"We have to consider the 10% to 30% who are not protected, so we treat all employees who have been vaccinated as if they are susceptible to varicella. The policy is consistent and conservative," Haiduven says. "We need to protect our patients, other employees, and visitors from those who may be vaccinated but not immune."

Santa Clara doesn't require post-vaccination serology to confirm seroconversion, though the test is occasionally used for research purposes. The reason, Haiduven explains, is based on the statement in the ACIP Guidelines for Varicella Prevention that "seroconversion does not always result in full protection against disease."

The vaccination policy is far sterner at the University of North Carolina Hospital in Chapel Hill, a 650-bed tertiary care facility that employs approximately 4,500 health care workers. Varicella vaccinations are mandatory, even though the word "mandatory" is not mentioned in the CDC's recommendations, according to **David Jay Weber**, MD, MPH, medical director, hospital epidemiology and occupational health.

"If you want to work at our hospital or any other University of North Carolina hospital, you must be vaccinated for mumps, measles, rubella, and varicella, unless you have a medical contraindication to receiving a vaccination. That goes for medical and nonmedical staff, students, volunteers, and contract workers who work in clinical areas," explains Weber. The policy went into effect about six months after the varicella vaccine became available in 1995.

"This is a win-win-win situation," Weber adds. "It's good health for the public, it's good for employees, and it's good for patients. If you look at any standard immunization guideline, it will tell you there is no age at which childhood immunization should not be provided. Now that varicella vaccine is a universal vaccine, the American Academy of Pediatrics, the American College of Physicians, and other organizations would argue that everybody should be immunized. This is just part of good health care."

Hospital employees are at high risk for exposure to and contracting varicella, and solid, peer-reviewed research shows that more than 1.5% of adults with varicella require hospitalization, Weber continues. An outbreak can cost tens of thousands of dollars.

"We believe we're protecting our employees, and published studies suggest a cost benefit from providing the vaccine over sending infected employees home," he says.

Well before the vaccine went on the market, one-third to one-half of the hospital's varicella-susceptible employees signed up to be vaccinated. Many did so because they didn't want to bring varicella home to their children, according to Weber. "This is not a hard sell," he adds. "Many of our employees were appreciative that we did this."

That's not to say there isn't an occasional employee who dislikes the fact that vaccination is mandatory. But the overwhelming majority of

hospital employees has expressed positive opinions about the program, Weber reports.

"The libertarian argument that vaccinations should not be mandatory doesn't hold at this institution. Our view is that as a condition of employment, there are lots of things we tell people: They have to wear gloves when they touch blood; they have to wear hard hats in construction areas. This is a condition of employment. People are free to not work at our hospital if they don't want to," says Weber.

Since the mandatory vaccination program went into effect, Weber says no staff members have developed varicella from workplace exposures. The number of exposure evaluations are "way down," as are the costs of managing the disease. "I don't know if we've had any full-blown breakthrough cases or home exposures," he says, adding that 2% to 4% of vaccinations result in a generalized rash, but such breakthrough disease is far milder than a typical case of varicella.

An employee who states definitively that he or she had varicella is enough evidence for Weber. Those who are uncertain undergo serology. About two-thirds of those tested do not have anti-varicella antibodies and require vaccination. The direct cost of the serology is $12, which doesn't take into consideration labor costs and indirect expenses.

"We were spending $50,000 a year on chickenpox control, and I think our whole vaccine campaign was on the order of about $15,000. I'm sure that we're still saving more than the cost of our entire vaccine campaign costs each year," Weber says.

Vaccinations encouraged, but not mandated

At Washington Hospital Center in Washington, DC, all employees undergo routine screening for varicella resistance during a preplacement physical examination. The Occupational Health Department takes the word of an employee who says he or she already had varicella. Individuals with negative varicella titers are counseled to get vaccinated, but vaccinations are not mandatory. Susceptible employees are instructed to avoid rooms housing patients with varicella or herpes zoster, and they must report any suspected exposure to their supervisors and to the Occupational Health Department, regardless of where the exposure occurred.

If an employee receives the vaccination and develops a rash at the injection site, the rash is covered and the worker is removed from patient care duty until the rash resolves, usually in two to three days. Employees who develop a generalized rash are removed from duty until the rash resolves.

"There is no need to remove or test other employees who have contact with a colleague who develops a vaccine-related rash, because the likelihood of transmission is very low," says **Ann Marie Gordon**, MD/MPH, director of occupational health at Washington Hospital Center.

When a patient is known to have varicella, the Infection Control Department is notified, which in turn provides the Occupational Health Department with a list of all employees who had contact with that patient and all employees who were exposed 48 hours prior to the onset of the patient's symptoms.

Exposed employees tested for antibodies

"We will identify employees from all departments who may have been exposed to the patient," says Gordon. "Once we have that list, we can determine which employees might be susceptible to varicella and require them to receive varicella titers."

Negative titers result in removal from duty. But if varicella antibodies are present, no restrictions are placed on the worker. Antibody testing is repeated five days after an exposure. "We also will notify the appropriate department heads of susceptible employees, who are considered communicable from the 10th to the 21st day from exposure. They are not to work during this period," Gordon adds.

Susceptible employees who choose not to be vaccinated must sign a declination form. Should they become exposed to varicella or herpes zoster on or off the job, they are sent home and must use any available vacation time or sick days to cover their absence. An employee who develops varicella must immediately contact his or her department head and the Occupational Health Department, which confirms the diagnosis and compiles a list of employees and patients who were exposed to the individual. The sick employee is not allowed to return to work until cleared by Occupational Health, and any susceptible employees on the contact list are removed from duty, as in any postexposure situation, says Gordon.

At Dartmouth-Hitchcock Medical Center in Lebanon, NH, immunized workers who are exposed to varicella virus are told to report to Occupational/Employee Health for evaluation

and a review of work responsibilities. If they remain asymptomatic, they may continue to work but should not care for immunocompromised patients who are susceptible to varicella for 10 to 21 days postexposure. Employees who develop skin lesions should discontinue patient care and are evaluated by Occupational/Employee Health.

An employee who received both doses of varicella vaccine may decide if he or she will provide direct care to patients who have been isolated for varicella, varicella exposure, or herpes zoster. Unvaccinated employees who develop varicella are furloughed until their lesions are dry and crusted and they have been cleared by Occupational/Employee Health to return to work.

According to **Carolyn Murray**, MD, MPH, in the Section of Occupational Medicine, the hospital's varicella guidelines are undergoing minor revisions in light of the recent CDC update. **(See varicella vaccine consent form, inserted in this issue.)**

Vaccination is optional but strongly recommended at St. Joseph Hospital in Chicago, according to **Caroline Guenette**, MS, RNC, occupational health nurse practitioner and manager of Employee Health Services. When the vaccine was first offered at the hospital in 1996, Guenette's department searched for employees with negative or borderline immunity as determined by serology. The quest identified about 60 potentially susceptible workers out of an employee population of 1,800. More than half opted to receive the vaccine. Post-vaccination titers are not conducted because the serology test typically used by health care institutions is somewhat unreliable, and vaccine experts state that 99% of recipients will be seropositive following the second dose of the vaccine **(though a recent study sheds some doubt on that assertion; see story, p. 110)**. Volunteers are not vaccinated.

The hospital's original varicella policy stated that unvaccinated employees exposed to varicella had to leave work for the duration of the contagious period. That policy changed briefly.

"Someone at one of our other hospitals [in the Catholic Health Partners system] suggested removing exposed employees from patient care duties instead of putting them on furlough," recalls Guenette. "But in our first attempt to do that, the employee got varicella. After that, the infection control physician insisted we go back to the furlough program." Furloughed employees are paid through workers' compensation and are not required to use vacation or sick days.

As at other facilities, a list of all employees who had contact with a susceptible, exposed employee is compiled to identify at-risk employees, who are also furloughed.

Vaccinations are not mandatory, explains Guenette, because it is not part of the recommendations of the Chicago Board of Health, the CDC, or the Occupational Safety and Health Administration. Guenette estimates that two varicella exposures occur each year, and only two or three individuals have been furloughed since the vaccine came out. Only one employee who was vaccinated during employment developed a mild rash, but there have been no breakthrough cases of varicella. ■

Varicella poses serious risk for unvaccinated adults

Each varicella case could cost hospital $2,000

Varicella poses a serious health threat to some adults who have not had the disease and have not been vaccinated. The Centers for Disease Control and Prevention urges health care facilities to vaccinate as many employees as possible against the disease, says **Jane Seward**, MD, chief of varicella activity for the National Immunization Program at the Centers for Disease Control and Prevention in Atlanta.

"The risk of transmission is more than outweighed by the great benefits provided by vaccine."

A recent CDC report described five fatal cases of adult varicella in Florida. Complications of varicella (which occur primarily among adults) include soft-tissue infections, necrotizing fasciitis, pneumonia, cerebellar ataxia, and encephalitis, according to the Immunization Action Coalition. Mortality rates in adults are estimated to be 30.9 per 100,000 infected adults, almost 30 times the rate for healthy children. Approximately 1.6% of infected adults require hospitalization.[1] The disease can be particularly dangerous for immunocompromised adults and women in their third trimester of pregnancy.

CDC revises varicella vaccine recommendations

In February 1999, the Advisory Committee on Immunization Practices (ACIP) expanded its recommendations for varicella vaccinations in an effort to promote wider use of the vaccine for susceptible children and adults.[1] The following are excerpts from the updated recommendations that relate to health care facilities:

INTRODUCTION

Varicella (i.e., chickenpox) is a highly contagious disease caused by the varicella zoster virus. Varicella is usually a self-limited disease that lasts four to five days and is characterized by fever, malaise, and a generalized vesicular rash typically consisting of 250 to 500 lesions. Infants, adolescents, adults, and immunocompromised persons are at higher risk for complications. Before the availability of varicella vaccine, varicella disease was responsible for an estimated 4 million cases, 11,000 hospitalizations, and 100 deaths each year in the United States (CDC, unpublished data, 1999). Approximately 90% of cases occurred in children. A vaccine was licensed in the United States in 1995, and the Advisory Committee on Immunization Practices (ACIP) issued recommendations for prevention of varicella in July 1996.[2]

RECOMMENDATIONS

Postexposure Vaccination and Outbreak Control

Data from the United States and Japan from household, hospital, and community settings indicate that varicella vaccine is effective in preventing illness or modifying varicella severity if used within three days, and possibly up to five days, of exposure. ACIP now recommends the vaccine for use in susceptible persons following exposure to varicella.

If exposure to varicella does not cause infection, postexposure vaccination should induce protection against subsequent exposure. If the exposure results in infection, no evidence indicates that administration of varicella vaccine during the presymptomatic or prodromal stage of illness increases the risk for vaccine-associated adverse events.

Although postexposure use of varicella vaccine has potential applications in hospital settings, vaccination is routinely recommended for all health care workers and is the preferred method for preventing varicella in health care settings.[3]

References

1. Centers for Disease Control and Prevention. Prevention of varicella: Updated recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1999; 48(No. RR-06).
2. Centers for Disease Control and Prevention. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1996; 45(No. RR-11).
3. Centers for Disease Control and Prevention. Immunization of health-care workers: Recommendations of the Advisory Committee on Immunization Practices (ACIP) and the Hospital Infection Control Practices Advisory Committee (HICPAC). *MMWR* 1997; 46(No. RR-18). ■

The financial burden of varicella outbreaks in health care facilities can be daunting. One case can cost a hospital more than $2,000 when factors such as outpatient care, time lost from work, and hospitalization are considered. The investigation and containment of one 1984 hospital outbreak of varicella cost $19,000.[2] The cost of one year of varicella control, including work furloughs, serology, patient isolation, epidemiological investigation, and varicella zoster immune globulin can easily reach $41,500, according to another report, and $56,000 according to a third.[3]

The vaccine, however, does not guarantee immunity, providing protection to 70% to 90% of recipients against a typical case of varicella. It is 95% effective against severe illness. Researchers have determined that use of the varicella vaccine (Varivax, Merck & Co., West Point, PA) "substantially" cuts the cost of varicella control in hospitals.[4] A second study found that varicella vaccination of susceptible health care workers can reduce costs and decrease morbidity.[5] More recent anecdotal evidence supports such claims. **(See cover story on varicella, p. 109.)**

Walter A. Orenstein, MD, assistant surgeon general and director of the National Immunization Program at the CDC, states that "most persons who develop varicella who have previously been vaccinated tend to have very mild illness, with fewer than 50 skin lesions, compared to 200

to 500 skin lesions in a typical unvaccinated case. Despite the proven efficacy of varicella vaccine, vaccination rates have been low."

He adds that the rate of herpes zoster (shingles) cases secondary to varicella vaccination is lower than expected, and that the vaccine will "probably reduce the incidence of shingles." Also, transmission of the virus from vaccinated adults to people who have not been vaccinated occurs very rarely, and only when a rash occurs after the injection. Of an estimated 11 million doses of vaccine distributed, only one case of post-vaccination transmission of full-blown varicella has been published, according to Orenstein. "The risk of transmission is more than outweighed by the great benefits provided by vaccine," he says.

90% of pre-vaccine cases occurred in children

Varicella is most serious when it strikes adults, though children serve as the primary source of transmission to groups at higher risk for severe disease. CDC data show that that only 34% of three-year-old children received varicella vaccinations last year. According to Seward, that proportion is certainly higher now, yet the CDC's goal is to vaccinate 90% to 95% of children by the time they enter the school system.

Before the availability of varicella vaccine, four million varicella cases were reported each year in the United States, 90% of which occurred in children, according to the CDC. The disease has been responsible for 11,000 hospitalizations and 100 deaths annually in this country. The CDC soon will publish amended data gathered after the varicella vaccine became available in 1995.

References

1. Preblud SR. Varicella: Complications and costs. *Pediatrics* 1986; 78(Suppl):728-735.
2. Hyams PJ, Stuewe MCS, Heitzer V. Herpes zoster causing varicella in hospital employees: Cost of a casual attitude. *Am J Infect Control* 1984; 12-25.
3. Krasinski K, Holzman RS, LaCouture R, et al. Hospital experience with varicella-zoster virus. *Infect Control* 1986; 7:312-316.
4. Tennenberg AM, Brassard JE, Van Lieu J, et al. Varicella vaccination for healthcare workers at a university hospital: An analysis of costs and benefits. *Infect Control Hosp Epidemiol* 1997; 18:405-411.
5. Nettleman MD, Schmid M. Controlling varicella in the healthcare setting: The cost effectiveness of using varicella vaccine in healthcare workers. *Infect Control Hosp Epidemiol* 1997; 18:504-508. ■

GUEST COLUMN

JCAHO to add examples to existing health standards

By **Geoff Kelafant**, MD, MSPH, FACOEM

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has decided not to create separate health standards for hospital employees. **(See *Hospital Employee Health*, June 1999, pp. 70-71.)** However, it does plan to add specific employee health examples to existing standards in its 2000 accreditation manuals.

Though not a regulatory agency, the Joint Commission, which tries to mirror standards of various regulatory agencies and professional organizations, has been working closely with the Occupational Safety and Health Administration (OSHA) in an effort to enhance employee health and safety. The Joint Commission devotes a section of its standards to the "environment of care" that exists in health care facilities, which states, "the goal of this function is to provide a safe, functional and effective environment for patients, staff members and other individuals in the hospital."

When the standards were reformulated several years ago, they were intended to be all-inclusive. There is general consensus within the Joint Commission that employee health and safety is important in any health care organization and that existing standards already apply.

Although various health and safety standards have long applied to health care, the health care industry has until recently been spared the same level of scrutiny as other industries. As HIV/AIDS focused attention on health care workers, OSHA's bloodborne pathogen standard marked a radical change, with the health care industry finally being targeted for hazards associated with significant morbidity and mortality. An OSHA tuberculosis standard is pending, and latex allergy recently has attracted a great deal of regulatory attention.

Many of the challenges currently in the spotlight involve biologic hazards. The Joint Commission devotes an entire section of its guidelines to

(Continued on page 117)

Joint Commission Standards that Relate to Hospital Employee Health

infection control standards. How those standards should be implemented, however, is left up to the individual organization. There are examples in the accreditation manuals, but there is an overall dearth of specific recommendations regarding infrastructure and essential activities for infection control and epidemiology programs.

An article that appeared in a recent issue of *Infection Control and Hospital Epidemiology* (1998; 19:114-24) and the *American Journal of Infection Control* (1998; 26:47-60) addresses infection control and epidemiology in detail, with specific cross-referencing to pertinent JCAHO standards. Numerous anecdotal reports indicate that at least some surveyors are familiar with the information discussed in the article. Although the article provides an instructive example of how to comply with some JCAHO standards effectively, it deals only with a subset of employee health issues. The infection control standards do not deal with physical, chemical, or psychological hazards, or any of the multiple challenges that confront hospital employee health professionals on a daily basis.

Despite the lack of a Joint Commission standard written specifically to address employee health, there are numerous standards and parts of standards that directly or indirectly indicate the need for a coordinated, comprehensive, and active employee health program. The table accompanying this article **(see table, p. 116)** lists key concepts and existing standards that may already apply. As examples are added and surveyors are trained, it is reasonable to expect that questions regarding employee health will surface in many parts of the survey process, especially with regard to the environment of care.

[Editor's note: Kelafant is medical director of Occupational Health Services at Sarah Bush Lincoln Health Center in Mattoon, IL. He serves as vice-chairman of the Medical Center Occupational Health Section of the American College of Occupational and Environmental Medicine, edits the Guidelines for Employee Health Services in Health Care Facilities listed above, and serves as a consultant to the JCAHO Committee on Healthcare Safety. He can be contacted at 1000 Health Center Drive, Mattoon, IL 61938. Telephone: (800) 500-2178. E-mail: kelafant@occenvmed.net. More information regarding medical center occupational health can be found at www.occenvmed.net.

The material presented in Kelefant's article is the opinion of the author and does not necessarily represent the views of either JCAHO or ACOEM.] ■

Hospital employees still reluctant to get flu shots

Only 27% of HCWs report getting shots

As flu season approaches, employee health services at hospitals across the United States face the perennial challenge of convincing their employees to get vaccinated against the onslaught of the disease. Yet compliance rates at many hospitals remain dismally low — a situation that baffles infection control experts, who each year stress the fact that hospital employees and patients are prime vectors for spreading influenza.

Whether health care workers don't get vaccinated because they aren't aware of their risk for contracting influenza or whether they avoid vaccinations for other reasons, the results are the same. Nationally, only 27% of health care workers report having gotten a flu shot the previous year, according to **Raymond Strikas**, MD, medical epidemiologist with the National Immunization Program at the Centers for Disease Control and Prevention.

"It seems difficult to get more than a 30% compliance rate [among hospital employees]," he says, even when hospitals make special efforts to promote the need for and benefits of vaccination. Unpublished reports suggest that under the best of circumstances, flu vaccination rates among health care workers rarely climb above 50%.

Contracting flu should not be a concern

Why is there such reluctance among hospital employees to get a flu shot? Many are worried that the vaccine, which contains live, attenuated influenza virus, will generate a case of the flu, explains Strikas. The concern is legitimate among older people and those who are immunocompromised, but healthy adults have little to worry about. At least one large, double-blind, placebo-controlled, randomized study confirmed that flu-like side effects caused by the vaccine are rare. Influenza vaccination of healthy working adults was not associated with higher rates of systemic symptoms when compared with placebo injection.[1]

Many health care workers just don't consider the flu a serious issue or believe that youth and relative health will protect them, says Strikas. Though flu poses little more threat than lost work time, disruption of daily life, and discomfort for most adults, younger people are no less likely to

contract the disease than anybody else is. A few workers may just want to avoid a needlestick.

"It's very important to try and increase use of the vaccine among health care workers, because they can easily transmit the flu to people at high risk for complications, such as older adults," says **Lynnette Brammer**, MPH, an epidemiologist with the Influenza Branch of the CDC. "We definitely see this as a very important and high priority."

The CDC recommends that physicians and health care institutions begin flu vaccinations in September and schedule major vaccine campaigns for October through mid-November, though vaccinations up to and after influenza activity begins are also endorsed.

"You want to vaccinate early enough for people to develop antibodies, but not so early that antibody levels decline to unprotective levels when the flu arrives," Brammer explains.

To increase compliance among health care workers, the CDC suggests that health care facilities develop policies and programs to persuade employees that flu vaccinations have a direct impact on their own health and on their jobs, and to make vaccinations accessible.

"Reminders and education are necessary, but not sufficient alone," says Strikas. "A multifactorial approach seems to make a difference in the more successful programs." Some health care professionals have proposed that the Joint Commission on Accreditation of Health Care Organizations institute guidance for flu vaccinations of hospital employees, but no such action has been taken.

Recently, the CDC published recommendations to help improve vaccination rates in children, adolescents, and adults.[2] The report states that "A starting point for addressing vaccine-preventable disease problems in communities and health care systems is to assess activities currently being performed, current levels of vaccination coverage, and information regarding vaccine-preventable disease rates. In addition to assessing overall progress towards vaccination goals, health planners should also consider whether special attention is warranted for population groups at high risk."

Last year, one children's hospital in New Orleans increased vaccination rates among employees by more than 50% by using a combination of education, reminder letters mailed to employees, notices posted in common areas, and vaccination carts wheeled to all nursing units and other locations in the facility.[3]

Self-interest motivated employee vaccinations

A survey mailed to employees who had been vaccinated the previous year found that nearly 80% of vaccinated workers received the injection because they were concerned for their personal health, not for the well-being of hospitalized patients. That finding guided the hospital's future vaccination promotion efforts.

The main reason given for not being vaccinated was concern about being infected by the vaccine itself, even though flu-like symptoms were reported at similar rates among vaccinated and non-vaccinated workers and symptoms tended to be much milder among vaccinated individuals. Administrators also found that pregnant women avoided flu shots because their physicians told them to, though many experts believe such advice is wrong.

Even vigorous, well-coordinated efforts to boost vaccine compliance may fall short. At Emory University Hospital in Atlanta, annual compliance rates among employees hover at 30% to 35%. The hospital's Occupational Health Service set out to determine why so many employees didn't get vaccinated and to increase compliance.

"For a long time, we've taken the vaccine around the hospital and clinic on rolling carts. We visit every nursing unit at least twice during each flu season and make ourselves very visible in high-traffic areas, such as the cafeteria at meal times," says **Jeanne Culver**, RN, COHN-S, clinical manager of Emory Hospital's Occupational Health Services. Her department also distributes

brightly colored flyers at least twice yearly to all hospital departments — once prior to flu season and again after the season has begun.

"The vaccinations are available until we run out, which is usually at the end of December, but there's no time limit. We'll give it to people who are late deciding that they want it. Employees can also get vaccinated at Employee Health Services on a drop-in basis, but we still have many people who remain unvaccinated," says Culver.

Culver even offered gift certificates from major retailers for units that logged the highest compliance rates. Parties were thrown for the winners, as well.

"We made it a competition and found that it had absolutely no impact on individual decisions. People either ignored it, didn't read our literature, or dismissed it. We found that some employees were surprised when our clinical staff reminded them they were eligible for gift certificates," Culver says.

Inexplicably, compliance rates dropped by 3% to 4% from the previous year, during which no monetary incentives were offered.

The reasons most often articulated by workers for not getting the vaccine included the fear of side effects such as getting the flu, a sore arm, and muscle aches. Many believe they aren't susceptible to the virus, adds Culver.

This year, Culver will use a survey to determine why compliance rates are so low. She also intends to publicize the incentives even more aggressively. Once again, rolling carts will prowl the hospital's halls and visit all units. In the past, use of the roaming carts meant that a staff nurse had to be removed from patient-care duty. This year, Culver has arranged for students from the school of nursing to take on the job under the supervision of a preceptor.

"The nursing students will get lots of experience giving intramuscular injections, and they'll be supervised by a nurse. The idea has been well-received by the school, and the initial anxiety of the staff was alleviated when they learned that an occupational health nurse would be present."

The pending release of an intranasal flu vaccine may raise national compliance rates. Researchers found that subjects who received the new vaccine, which contains live, attenuated influenza virus, were "as likely to experience one or more febrile illnesses as placebo recipients during peak outbreak periods. However, the vaccine significantly reduced the numbers of severe febrile illnesses and febrile upper respiratory tract illnesses."[4]

The vaccination also reduced the duration of all flu-related symptoms, reduced the number of lost work days, and resulted in fewer visits to health care providers.

Reference

1. Nichol KL, Margolis KL, Lin A, et al. Side effects associated with influenza vaccination in healthy working adults. *Arch Int Med* 1996; 156:1,546-1,550.
2. Centers for Disease Control and Prevention. Vaccine-preventable diseases: Improving vaccination coverage in children, adolescents, and adults. A report on recommendations for the Task Force on Community Preventive Services. *MMWR* 1999; 48(RR-8):1-15.
3. Begue RE, Gee SQ. Improving influenza immunization among health care workers. *Infect Control Hosp Epidemiol* 1998; 19:518-520.
4. Nichol KL, Mendelman PM, Mallon KP, et al. Effectiveness of live, attenuated intranasal influenza virus vaccine in healthy, working adults. *JAMA* 1999; 282:137-144. ■

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

Subscriber Information

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

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

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

Editor: **Barrie S. Rissman**, (770) 664-5409.
Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@medec.com).
Executive Editor: **Susan Hasty**, (404) 262-5456, (susan.hasty@medec.com).
Managing Editor: **Coles McKagen**, (404) 262-5420, (coles.mckagen@medec.com).
Senior Production Editor: **Brent Winter,** (404) 262-5401.

Editorial Questions

For questions or comments call **Barrie Rissman** at (770) 664-5409.

Checklist helps HCWs avoid pathogen exposures

Emphasis is on blood-drawing devices, IV catheters

The Checklist for Exposure Prevention inserted in this month's issue of *Hospital Employee Health* is designed to help health care professionals develop guidelines and priorities for preventing exposures to bloodborne pathogens and to make the best use of available resources for purchasing safety devices. **(See checklist, inserted in this issue.)**

"It can be a very complicated process," according to **Jane Perry**, director of communications at the International Health Care Worker Safety Center (IHCWSC) at the University of Virginia in Charlottesville, which formulated the checklist. "We placed particular emphasis on blood-drawing devices and IV catheters, because they are among the devices that present the highest risk for infecting employees with bloodborne pathogens."

Perry compiled the checklist under the guidance of Janine Jagger, MPH, PhD, director of the IHCWSC and a leading expert in the field of preventing occupational exposures to bloodborne pathogens. Jagger also is a member of *Hospital Employee Health's* editorial advisory board.

"The guidelines are based on information gathered from the EPINet database, research in medical literature, and government recommendations from agencies such as OSHA [Occupational Safety and Health Administration], the FDA [Food and Drug Administration], and the CDC [Centers for Disease Control and Prevention]," Perry adds.

EPINet is a computerized surveillance program, developed by Jagger, for tracking percutaneous injuries and blood and body fluid exposures. More than 1,500 hospitals nationwide use EPINet. The Center, which collects and analyzes data from 70 hospitals that participate in a voluntary data-sharing network, publishes the findings in its journal, *Advances in Exposure Prevention*. The version of the checklist that appears here recently was updated.

"One of the most frequent requests we get is for reprints of the checklist," says Perry. "It's clear to us that infection control and employee health professionals are looking for this type of information. It fills an important need." ■

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. ■