30th ANNIVERSARY

Hospital Employee Health®

THE PRACTICAL GUIDE TO KEEPING HEALTH CARE WORKERS HEALTHY

June 2012: Vol. 31, No. 6
Pages 61-72

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Financial Disclosure:
Editor **Michele Marill**, Executive Editor **Gary Evans**, and Consulting Editor **MaryAnn Gruden** report no consultant, stockholder, speaker's bureau, research, or other financial relationships with companies having ties to this field of study.

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OSHA cracks down on ergo hazards in health care

Nursing homes face targeted inspections

Eleven years after Congress rescinded the ergonomics standard, the U.S. Occupational Safety and Health Administration is preparing to wield its "general duty clause" powers to identify ergonomic hazards in health care.

OSHA compliance officers will evaluate how nursing homes are addressing the hazards of resident handling as part of a three-year National Emphasis Program on long-term care. Inspectors will ask about specific program elements, including hazard assessment, adequacy of lift equipment, training and monitoring of compliance. Employers could receive a hazard alert letter or citation based on injury rates, severity of injuries, and the scope of the resident handling program.

Although the enforcement action doesn't include hospitals, inspectors around the country will receive training on recognizing hazards in health care.

"I think every health care employer would benefit from reviewing the NEP and seeing where their own programs match up or stack up against those things the compliance officers will look at," says **Brad Hammock**, an attorney with Jackson Lewis in Reston, VA, who specializes in occupational health law and was counsel for safety standards at OSHA from 2005 to 2008.

The increased scrutiny of nursing homes comes in response to high rates of musculoskeletal disorders and other injuries. "One in every five workers injured in the private sector is a health care worker, and for some groups of these health care workers, the annual injury rate is rising," an OSHA spokesman told *HEH* in a written response to questions. "This new NEP increases our effort to address the high injury rates in Nursing Home (NH) settings."

OSHA also directed its inspectors to evaluate the hazards of bloodborne pathogens, tuberculosis, workplace violence and slips, trips and falls at nursing homes. The inspectors also can cite for other hazards, such as methicillin-resistant *Staphylococcus aureus* (MRSA) infection or hazard communication, the compliance directive said. But it is the ergonomics section that has drawn the most attention.

"They're really grappling with this epidemic of injuries and illnesses in the health care sector," says **Bill Borwegen**, MPH, occupational health and safety

director of the Service Employees International Union (SEIU) in Washington, DC, who notes that OSHA has had previous NEPs that included ergonomics in nursing homes.

"These are recognized hazards, and under the general duty clause [of the Occupational Safety and Health Act] you need to address recognized hazards," he says.

OSHA states that it will not enforce voluntary guidance as part of the NEP. But the compliance document lists questions about program components that mirror the guidance, says **Eric J. Conn**, an attorney who heads the OSHA group at Epstein Becker and Green in Washington, DC. OSHA issued voluntary ergonomics guidelines for nursing homes in 2003. *(http://1.usa.gov/1nbakv)*

"The real heart of this NEP is ergonomics," says Conn. "I really think OSHA was wandering around in the woods for years since their ergonomics standard was struck down, searching for a coherent enforcement policy. I think this NEP reflects what they think their [strategy] is going to be. And this is a test case."

High rate of MSDs, few citations

Patient and resident handling has been the single greatest hazard for work-related injury in hospitals and nursing homes. Nursing aides and orderlies have the highest rate of work-related MSDs of all occupations, seven times higher than for injuries in all industries.

Yet in the past 11 years, OSHA has issued only 13 ergonomics-related citations in nursing homes and intermediate care facilities, which amounts to 30% of ergonomics-related citations in all industries. *(There were no ergonomics-related citations in hospitals.)*

Most of those nursing home citations occurred in 2002-2003 during the last nursing home NEP.

OSHA may cite a greater number of employers through this NEP, says Hammock. OSHA is targeting nursing homes with injuries resulting in a DART rate (days away from work or restricted duty) of 10 or more. Currently, a rate of 16 or higher triggers comprehensive inspections of nursing homes under site-specific targeting.

At least 700 nursing homes have injury rates high enough to make them eligible for an NEP inspection, OSHA says. The NEP requires each OSHA area office to conduct at least three NEP inspections per year.

The enforcement action also may give OSHA detailed information on ergonomic hazards in health care, notes Conn. "It's very possible OSHA intends to use the results and the data from this national emphasis program to support a new, more tailored ergonomics rule," he says.

Take a closer look at safety

While OSHA trains its inspectors how to look for health care hazards, employers should take the time to review their own practices, says **Pamela Dembski Hart**, CHSP, BS, MT (ASCP), principal with Healthcare Accreditation Resources in Boston.

Hospital Employee Health® (ISSN 0744-6470), including The Joint Commission Update for Infection Control, is published monthly by AHC Media, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

POSTMASTER: Send address changes to Hospital Employee Health®, P.O. Box 105109, Atlanta, GA 30348.

Subscriber Information

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

Subscription rates: U.S.A., one year (12 issues), $499. Add $17.95 for shipping & handling. Outside U.S., add $30 per year, total prepaid in U.S. funds. Discounts are available for group subscriptions, multiple copies, site-licenses or electronic distribution. For pricing information, call Tria Kreutzer at 404-262-5482. 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 $78 each. (GST registration number R128870672.)

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This activity has been approved for 15 nursing contact hours using a 60-minute contact hour.

Provider approved by the California Board of Registered Nursing, Provider #14749, for 15 Contact Hours.

This activity is intended for employee health nurse managers. It is in effect for 36 months from the date of publication.

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OSHA's expectations for heath care ergo

In a directive for compliance officers, the U.S. Occupational Safety and Health Administration lays out the key areas of an ergonomics program for health care employers. This is what inspectors will look for:

Program Management.

Whether there is a system for hazard identification and analysis.

Who has the responsibility and authority for compliance with this system?

Whether employees have provided input in the development of the establishment's lifting, transferring, or repositioning procedures.

Whether there is a system for monitoring compliance with the establishment's policies and procedures and following up on deficiencies.

If there have been recent changes in policies/procedures and an evaluation of the effect they have had (positive or negative) on resident handling injuries and illnesses.

Program Implementation.

How resident mobility is determined.

The decision logic for using lift, transfer, or repositioning devices, and how often and under what circumstances manual lift, transfer, or reposition occurs.

Who decides how to lift, transfer, or reposition residents?

Whether there is an adequate quantity and variety of appropriate lift, transfer, or reposition assistive devices available and operational. Note that no single lift assist device is appropriate in all circumstances. Manual pump or crank devices may create additional hazards.

Whether there are adequate numbers of slings for lifting devices, appropriate types and sizes of slings specific for all residents, and appropriate quantities and types of the assistive devices (such as but not limited to slip sheets, transfer devices, repositioning devices) available within close proximity and maintained in a usable and sanitary condition.

Whether the policies and procedures are appropriate to eliminate or reduce exposure to the manual lifting, transferring, or repositioning hazards at the establishment.

Employee Training.

Whether employees (nursing and therapy) have been trained in the recognition of hazards associated with manual resident lifting, transferring, or repositioning, the early reporting of injuries, and the establishment's process for abating those hazards.

Whether the employees (nursing and therapy) can demonstrate competency in performing the lift, transfer, or repositioning using the assistive device.

Occupational Health Management.

Whether there is a process to ensure that work-related disorders are identified and treated early to prevent the occurrence of more serious problems and whether this process includes restricted or accommodated work assignments.

[Editor's note: The OSHA directive for compliance officers for the nursing home National Emphasis Program is available at http://1.usa.gov/IaZMjA] ■

A program of unannounced inspections has a way of getting employers' attention. "It's like troopers patrolling the roads are [enforcing] the speed limit. All of the sudden people pull back on the accelerator."

Health and safety training is often a weak spot — and an area targeted by OSHA, says Hart. The training should occur at hire and annually, and it should be conducted by someone knowledgeable in the safety and health issues, she says. Your employees' compliance will depend upon the quality of the training, she says.

Documentation is another potential problem area. Your manuals and policies need to be up to date and accessible, Hart says. Your hazardous materials should be properly labeled and safety data sheets should be readily available. Employees also should know how to report an incident or exposure, she says.

If employers don't have the resources to do their own self-evaluation, Hart suggests hiring a consultant who can assess your program and make recommendations. This isn't just an exercise to impress an OSHA inspector. Self-audits — and even the inspections — help employers reduce workplace hazards and avoid injuries, Hart says.

"Employers often look at compliance as costing them money. Well, injuries and accidents cost a lot more," she says.

Employers should read the NEP and use it as a framework to review their program, says Conn. But it is also important for employers to be prepared to respond to an OSHA inspection, he says. He provides a checklist that guides employers on their rights and obligations. *(For an excerpt of the checklist, see box on this page.)* ■

Preparing for an OSHA inspection

'Plain view' rule allows expanded scope of visit

Reducing hazards is the key to a safe workplace. It means fewer injuries, workers' compensation claims, and absenteeism and a culture of safety. But with OSHA's emphasis on health care, it is also important to ask: How would OSHA view the health and safety program? Are you ready for an OSHA inspection?

Eric J. Conn, an attorney who heads the OSHA group at Epstein Becker and Green in Washington, DC, offers this advice for employers to be prepared for an OSHA inspection:

Develop and implement a comprehensive safety and health program.

• Ensure written safety programs are current, accurate, compliant, and implemented.

• Develop a formal program for reporting and resolving employee safety concerns.

• Establish a Safety Committee that includes employee representatives to:

— evaluate safety programs as written and implemented;

— audit the workplace for potential hazards; and

— review and discuss workplace incidents and near misses.

Conduct internal or external safety and health audits.

• Whenever possible, audits, whether conducted by your Safety Committee, safety or operational supervisors, or third-party safety and health consultants or counsel, should be conducted at the direction of in-house or outside legal counsel to protect the audit findings under the attorney-client privilege.

• Review recommendations from prior health and safety audits to ensure specific recommendations were addressed and problem areas are not ongoing concerns.

• Ensure that new health and safety audit recommendations are addressed and that the steps taken to address the recommendations are documented.

Train staff

Familiarize Employees with OSHA Basics. Ensure employees understand:

• OSHA standards applicable to the employer's industry and workplace.

• Special emphasis programs relevant to the employer's industry and workplace.

• The employer's safety and health programs and procedures.

• Any site-specific safety and health programs and procedures.

Familiarize Employees with Employers' OSHA Inspection Rights. Employees should understand that the employer has a right to:

• Demand an administrative warrant from the inspector.

• Reasonable inspection at reasonable times.

• An opening conference.

• A copy of formal employee complaints.

• Escort Compliance Safety & Health Officer (CSHO) on inspections of the workplace.

• Participate in management interviews.

• Protect trade secret and confidential business information.

• A closing conference.

• Contest alleged violations.

Familiarize Employees with their OSHA Inspection Rights. Employees should understand that they have a right to:

• File a safety or health complaint with OSHA.

• Participate in the inspection by having a designated employee participate in the:

— opening and closing conferences;

— CSHO walkaround;

— private interviews with OSHA; and

— informal settlement conference.

• Access inspection records (e.g., citations, notice of contest, and abatement records).

• Protection from retaliation and discrimination for exercising these rights.

Familiarize Employees with OSHA's Inspection Rights. Employees should understand that during inspections, OSHA has the right to:

• Decline to provide advance notice of inspections.

• Inspect workplaces with probable cause, consent, or when hazards are in plain view.

• Inspect records.

• Collect evidence, for example, air or noise samples and photographs.

• Conduct employee interviews.

• Exercise their authority to issue subpoenas for records and interviews.

Establish an inspection team and inspection protocols.

• Prepare a notification plan, identifying who must be informed (and by whom) of the start of an OSHA inspection, including senior management, field supervisors and OSHA counsel.

• Designate an inspection team and assign the following responsibilities (one person can fill multiple roles):

— team leader (management spokesperson and OSHA point person; and, generally, OSHA counsel, site-safety director, or other senior management representative);

— opening and closing conference participants (generally, a senior management representative, the inspection team leader, walk-around representative, and document production manager);

— walk-around representative (escort OSHA throughout the inspection);

— document production manager (manage the document control system);

— photographer (take side-by-side pictures of the CSHO's pictures);

— sampler (coordinate industrial hygiene sampling and acquire parallel samples);

— contractor liaison (coordinate inspection activities with contractors);

— union liaison (coordinate inspection activities with the employees' union); and

— interview representative (prepare employees for interviews and participate in management interviews).

• Equip the inspection team with the following materials:

— camera and video recorder;

—template for document production log;

— labels for designating documents as trade secret or business confidential;

— notebooks;

— contact list; and

— copy of OSHA's Field Operations Manual.

• Designate walk-around routes for each area of the facility. In doing so:

— understand the "plain view doctrine," which permits OSHA to investigate hazards in areas beyond the scope of consent or a warrant if the CSHO observes a hazard in plain view from an area within the scope of consent or the warrant.

SOuRCE

• **Eric J. Conn**, Epstein, Becker & Green, Washington, DC, econn@eblaw.com.
The full checklist is available at: http://bit.ly/vxMnvZ. ■

Take steps to reduce risk of work violence

Give employees a way to anonymously report

A 70-year-old man waves a gun in the emergency department. A gunman shoots his estranged wife and her mother in an intensive care unit. An environmental services worker at a hospital shoots his ex-wife, also an employee, in the hospital garage.

Headlines tell the stories of violent events at hospitals, many of them from patients but some from visitors or co-workers. The U.S. Occupational Safety and Health Administration put nursing homes on notice that it will look at workplace violence in its inspections as part of the National Emphasis Program. The focus also has heightened at other health care facilities, including hospitals, safety experts say.

Workplace violence is an issue that requires collaboration between employee health and safety, human resources, security and risk managers, says **Cara Wzorek**, MA, a risk management analyst at ECRI Institute, a research organization and evidence-based practice center based in Plymouth Meeting, PA.

While it isn't possible to eliminate the risk of violence, hospitals can take steps to address it, including training, security audits, reporting systems and counseling for employees who are victims of violence, Wzorek says.

"There are things you can do that show you assessed your risk and that you took steps to show you addressed any risks you identified," she says. "Make sure you document your efforts."

While patients are the source of most violent events in hospitals, violence prevention needs to include the risk from co-workers or outsiders, she says. Possible actions may range from bullying or harassment to acts against patients. Employees also could be victims of domestic violence, which could potentially spill into the workplace.

"Make sure you give employees an opportunity to anonymously report. Employees may be hesitant to report against another employee, especially if it's someone superior to them or someone they fear might retaliate against them," she says.

Hospitals also have an obligation to be thorough in their hiring process, Wzorek says. "One of the biggest predictors of violent behavior is past violent behavior," she says. "You want to make sure you conduct a criminal background check. Look at every state the employee worked in."

ECRI recommends these action steps related to workplace violence:

• Work with the security department to audit the facility's risk of violence. Evaluate environmental and administrative controls throughout the campus, review records and statistical crime rates for the area surrounding the facility, and survey employees on their perceptions of risk.

• Use a self-assessment to identify strengths and weaknesses and improve the organization's violence prevention program.

• Thoroughly prescreen all job applicants, and

ensure that procedures for background checks of prospective employees and staff are in place.

• Encourage employees and other staff to report incidents of violent activity or any perceived threats of violence.

• Ensure compliance with OSHA's requirements for reporting workplace injuries.

• If the facility is in an area with a high rate of crime or gang activity, consider taking extra security precautions in the ED (such as installing metal detectors, using police dogs).

• Collaborate with the human resources department to ensure that procedures for disciplining and firing employees minimize the chance of provoking a violent reaction.

• Ensure that counseling programs for employees who become victims of workplace crime or violence are in place.

• Require appropriate staff members to undergo training in responding to patient family members who are agitated and potentially violent. Include education on procedures for notifying supervisors and security staff.

• Ensure that procedures for responding to incidents of workplace violence (such as notifying managers or security, activating codes) are in place and that employees receive instruction on these procedures.

• Inform supervisors that all reports of suspicious behavior or threats by another employee must be treated seriously and thoroughly investigated. Train supervisors to recognize when an employee may be experiencing domestic violence.

• Work with the media relations department to determine procedures for release of information regarding violent events that occur at the facility.

[Editor's note: The ECRI publication, "Healthcare Risk Control: Violence in Healthcare Facilities," is available at http://bit.ly/L0uqHm] ■

Fine line: Employee records not part of medical data

'Important thing is maintaining those firewalls.'

As hospitals move rapidly toward an electronic medical record to improve patient care and coordination, employee health has a delicate task. Employee health can ride the wave to better use of technology but must still maintain employee confidentiality.

Employers should only receive limited information about an employee's health status, such as whether or not they have work restrictions or have been cleared for work, employee health experts say. Yet those same employees are often patients with information in the hospital's electronic medical records, which can be accessed by physicians and other clinicians.

"The important thing is maintaining those firewalls so the people who are looking at data solely for the purpose of employment-related activities are not privy to information that is not related to employment-related activities," says **Roman Kownacki**, MD, MPH, director of occupational health for Kaiser Permanente Northern California in Oakland.

"The other side of it is that if you're trying to create databases of an individual's entire health record, wouldn't you want information such as current immunization, X-ray findings related to follow up to a positive TB test, and other information that's important just for the person's general health record? How do you really assure that the appropriate firewalls are in place and the appropriate data is available for each particular entity?" he says.

Those challenges are being addressed in varying ways by employee health professionals across the country.

Just another occ health client

Think of hospital employee health as just another client of an occupational health clinic. Most employers would have no way to access a patient's personal health records, even if they wanted to.

"Technically, employee health records are not medical data, they're employment data. They're subject to employment law, not just medical record law," says **Mary Stroupe**, president of Integritas, Inc., a Monterey, CA-based company that makes the Stix employee health software and Agility EHR for employee and occupational health.

Some hospitals expect employee health to become a part of the broader electronic health record. But that system doesn't necessarily have the elements and functions that are required.

"For example, [the U.S. Occupational Safety and Health Administration] requires injury records be maintained 30 years after termination. If these records are part of the EMR, archived off after a period of time — how can the hospital distinguish which records need to be archived off and which records need to be maintained?" says Stroupe.

There are important reasons that occupational health information is currently maintained in a separate record. "If the only place you're capturing employee health data is in the hospital's EMR, it's a problem," says Stroupe. "Let's suppose an employee

Key vendor leaves market, EHPs scramble for software

BD discontinues popular occ health program

Amid all the advances in electronic medical records software, there's been a setback in occupational health. Respond, which was purchased by Becton, Dickinson and Company in 2009 and renamed BD Protect, is being discontinued.

That has left many hospitals scrambling to replace their software before the technical support contracts expire. They are seeking an option that is cost-effective and user-friendly.

Sue A. Miller, RN, BSN, COHN-S/CM, director of Employee Health at DuBois (PA) Regional Medical Center, had used Respond for 21 years. It was a shock to learn it was being discontinued, says Miller. It also presents an unexpected cost; she hadn't budgeted for new software. "It's just a very challenging time for all of us," she says.

Bruce Cunha, RN, MS, COHN-S, manager of employee health and safety at the Marshfield (WI) Clinic, needs a system that can be accessed by employee health nurses at the clinic's 63 centers. It needs to be compatible with the clinic's human resources database and capable of accepting information from the laboratory.

Respond fit those needs, he says. "We were one of their largest users. It worked fine for us for years and years and years," Cunha says.

He's hoping the transition to a new vendor won't be painful. "One of the first questions we have to any new vendor — Do you have a conversion program to take our data and convert it to your program? I don't want to lose 18 years of data," he says. ■

has a blood and body fluid exposure. She doesn't want that where anyone in the hospital can see it.

"Or maybe the employee had a work-related drug screen. They don't want that in their personal health record. There are privacy issues that certainly the [employee health] nurses are very concerned about. The hospital's EMRs do not distinguish fundamentally between which data is employment-related and subject to employment law and which data is protected health information," she says.

Privacy protections also limit what is available to employee health professionals. Employee health does not have access to a patient's health record — for example, to see whether a patient has had a previous HIV test. "We really try to keep our involvement with the electronic medical record separate," says **Bruce Cunha**, RN, MS, COHN-S, manager of employee health and safety at the Marshfield (WI) Clinic.

"In the past, our legal [department] said it would be okay for us to go into the electronic medical record to look up a patient's record to see if they were high-risk for bloodborne pathogens. They have since told us we can't access the EMR at all," he says.

Marshfield also seeks to protect employee information. "Employee health doesn't have any access at all to the electronic medical record of the clinic. We are two separate entities," he says.

"We treat ourselves as we do any other employer out there. No other employer outside the medical facility would have access to electronic medical records," he says. "If you treat yourself that way you're a lot less likely to have legal problems."

What you might need to share

Where do you draw the line? And how do you maintain the security? Hospitals have addressed this in different ways.

Kaiser developed its own software — different ones for employee health and the electronic medical record that contains patient information. "We have to have multiple systems. There is no system that's out there that is the answer to everybody's problem," says Kownacki.

Many hospitals have occupational health software that allows for tracking and reporting of injuries. *(See related article on injury surveillance, p. 68.)* That software now is likely to conform to national EMR standards, which means it could potentially communicate with the hospital's EMR.

In fact, there are a few employee health items that you might want to allow into a patient's personal health record, such as immunizations and medication allergies.

"The aspirational goal is that on the individual patient level, you want to have a full medical record. You don't want to have a siloed medical record," says Kownacki. "What you would need is a system that you could set security protections and firewall protections."

Sharing information on medications and adverse reactions between the employee health system and the ambulatory EMR may be important in some cases to protect the employee from medical mishaps, notes Stroupe. "Whereas in the past it was not feasible [to

share such information], now it's not only feasible but it's part of the whole point of having an electronic medical record," she says.

Posing new questions of records

There are other questions about information-sharing that can impact the employees' health. For example, hospitals also are increasingly collecting health information through wellness programs, including monitoring cholesterol, blood pressure, and body-mass index. What are they doing with that information? Should it be a part of the EMR, as well?

"Let's say employee health has been monitoring people and there's been some incident [such as a heart attack]. Nobody in the emergency room on Saturday night has access to all that information that employee health has been collecting," says Stroupe.

Employees may choose to share the personal health information collected by employee health with other

The information age arrives for occ health

NIOSH launches timely database of injuries

If information is power, then employee health professionals are about to get a lot more powerful.

The National Institute for Occupational Safety and Health (NIOSH) is launching the Occupational Health and Safety Network, a surveillance system that will help hospitals track and benchmark their injury rates against other similar hospitals across the country. It will include slips and trips, falls, workplace violence, patient handling injuries, other overexertion, and blood and body fluid exposures. NIOSH is currently seeking hospitals interested in helping test the system.

NIOSH's aim: "To take advantage of this electronic age and have almost real time electronic surveillance," says **Ahmed Gomaa**, MD, ScD, MSPH, medical officer in the Surveillance Branch of NIOSH's Division of Surveillance, Hazard Evaluations & Field Studies in Cincinnati.

The surveillance system, which will be active in late 2012 or early 2013 and will be free of charge, also will highlight successful interventions that prevent injuries. "Once people start enrolling in the system, they will put their own solutions on the web. Beside the problem you can find the solution," he says.

The goal is to make surveillance simple and timely. NIOSH is working with vendors of occupational health software so it will be able to export the specific data collected by NIOSH. But if employee health professionals collect data with the specific categories and definitions, NIOSH can extract data from home-grown software systems or even from Excel spreadsheets, Gomaa says.

Key is a common language

"The key to participation is the common language, such as the event type, event location, and occupational category," says **Sara Luckhaupt**, MD, MPH, who is also medical officer in the Surveillance Branch. "No matter what kind of software system you use, we need everybody participating to use the same language."

Facilities will submit data monthly, and NIOSH will update the benchmarking data monthly. As the database of participants grows, it will be possible to look for benchmarks based on facility size, region or type — large teaching hospitals or small community hospitals. The surveillance system will be open to acute care hospitals, psychiatric hospitals, rehabilitation hospitals, outpatient dialysis centers, ambulatory surgery centers, outpatient clinics, and long-term care facilities.

The quality and timeliness of the data will far exceed what is currently available from the U.S. Bureau of Labor Statistics, notes Gomaa. For example, BLS provides the most detailed information on injuries that involve days away from work or restricted work. Yet most injuries don't require time off, he says.

The BLS data does not really tell you "why people get injured, what to do about it and how to improve it," says Gomaa. That is the goal of the NIOSH project.

Meanwhile, the National Healthcare Safety Network, which is run by the Division of Healthcare Quality of the Centers for Disease Control and Prevention will continue to collect data on blood and body fluid exposures and influenza immunization of health care workers. *(An updated protocol for HCW flu immunization surveillance will be implemented in August 2012.)*

For more information on the Occupational Health and Safety Network or to become a testing facility, visit the website at www.cdc.gov/niosh/topics/OHSN/ or email Ahmed Gomaa (AGomaa@cdc.gov) or Sara Luckhaupt, (SLuckhaupt@cdc.gov). ■

physicians, she said. "What I anticipate happening is that the employee is going to say, 'You've been tracking my blood pressure, will you send that to my personal health record?'" says Stroupe.

Meanwhile, employee health also wrestles with lack of access to the employee's electronic health record. "If you've got a carpal tunnel case, the weight will have been redacted off the record," says Cunha. "That's part of the information I need to know. Weight is a significant risk factor for carpal tunnel."

One thing is certain: electronic medical records and occupational health software will continue to evolve. Employee health professionals should be sure that they are part of the conversation related to information technology, and that they have an advocate in the administration who understands their needs and concerns, says Kownacki.

Avoiding an electronic record isn't an option, he says. "Going from a paper record to an electronic record is going from the horse and buggy era to the 21st century," he says. "I can't even imagine going back, and I think we're just scratching the surface of what the use of this technology will be in improving health care." ■

TB tracking prevents HCW exposures

'Good — but see where prevention didn't work.'

Closely tracking infections among health care workers helps Vanderbilt University Medical Center in Nashville, TN, detect clusters and prevent further infections.

Tuberculosis remains the primary infectious disease threat to health care workers, with exposures occurring from delays in diagnosis, according to a Vanderbilt analysis. From 2006 to 2011, 1,844 employees were exposed in 62 events, resulting in nine new latent TB infections, the analysis showed. The tracking of specific exposures was possible because of Vanderbilt's homegrown occupational health surveillance system.

The occupational health software links with the human resources database, so employee health professionals can determine who was working in a particular unit. If there is a conversion on a TB skin test, they can check to see if any other conversions occurred on the same unit.

Twice, Vanderbilt has detected increased conversions and provided additional training and personal protective equipment, says **Mary Yarbrough**, MD, MPH, FACOEM, associate professor of clinical medicine and executive director of Vanderbilt's health and wellness program.

On a quarterly basis, employee health works with infection control to review cases of TB conversions and other exposure events, Yarbrough says.

"We're so focused on prevention, which is good, but we've also got to look and see where the prevention didn't work," she says. "Where did we have our exposures? What diseases resulted from that and what can we do [to prevent the exposures]?"

Connections with conversions

The surveillance software makes it easy to look for connections. "If someone comes in and converts on a TB test, we can go back and see if they had any exposures. Were there any other people on that unit that had conversions or exposures?"

For example, when an increase in conversions was detected in the emergency department, occupational health investigated and found that employees were not always closing the door of isolation rooms and some employees were not wearing the respirators. After re-training and a switch to bi-annual TB testing, no conversions occurred the following year, says Yarbrough, who presented her results at the annual stakeholder meeting of the National Personal Protective Technology Laboratory of the National Institute for Occupational Safety and Health (NIOSH) in Pittsburgh.

Another cluster of TB conversions was detected among environmental services workers. It turned out that respirator use had waned with the switch to new management of the contracted service. "We were able to quickly educate [workers] and get their masks issued," Yarbrough says.

Yarbrough also was able to establish the effectiveness of the respiratory protection program. Employees who work with TB patients and wear N95 respirators do not have a greater risk of conversion than employees who don't work with TB patients, she says.

Early identification is key

The surveillance program also allowed Yarbrough to look at other airborne diseases. In that six-year period, there were two measles exposure events that resulted in the exposure of 17 employees. They were all vaccinated and there were no secondary cases.

Similarly, the vaccination effectiveness also was demonstrated in the 45 varicella exposures. While

1,434 employees were exposed, none developed varicella disease. The lower rate of pertussis vaccination (34.5%) put employees at greater risk. In 89 exposure events, 818 employees were exposed, leading to two cases of occupationally-acquired pertussis.

The electronic health record helps occupational health improve vaccination rates, says Yarbrough.

TB exposures were most likely to be associated with unidentified cases, she says. Most often, those are cases that do not present with "classic" symptoms, such as night sweats, cough and weight loss, she says. The patient may have been transferred to another facility with a diagnosis other than TB, or may have TB in addition to another medical condition or even a surgical need, she says.

Vanderbilt is constantly looking for ways to improve the detection of TB, Yarbrough says. Fortunately, most cases are detected swiftly. "We have lots of cases that don't result in exposures. People use precautions and everything works like it should," she says. ■

Measles cases hit 15-year high

Four HCWs infected at work

Measles cases rose to their highest level in 15 years in 2011, yet another reminder to be on guard for the highly transmissible disease, public health authorities say.

Last year, there were 222 reported cases and 17 outbreaks. That included four health care workers who had been exposed at work, says **Jane Seward**, MD, MPH, deputy director of the Division of Viral Diseases at the Centers for Disease Control and Prevention in Atlanta.

One was a receptionist in the emergency department who had no documented immunity. Immunization one day after the exposure did not prevent her from acquiring measles, Seward says. One health care worker had serologic evidence of immunity and one had a history of disease, but both became infected. The fourth health care worker had no record of immunization.

The risk of transmission to patients or visitors in hospitals and other health care facilities is even greater. Last year, 15 cases were transmitted in health care facilities, Seward says.

"It's highly, highly transmissible, including through the air," she says. "Those coughs propel thousands of droplets into the air. Some of those will aerosolize and the virus will remain suspended in the air for up to a couple of hours after someone leaves the room."

Measles was eliminated as an endemic disease in the United States in 2000, according to the CDC. But large measles outbreaks continue to occur in other countries. There were more than 15,000 cases in France alone last year, says Seward. Almost all of last year's U.S. cases were linked to travel abroad or foreign visitors, CDC said.

Because measles can be severe, people with measles may visit a clinic, doctor's office or hospital — or more than one. "You can have a lot of different exposures in health care settings just from a single case," Seward says.

If there's an outbreak in a hospital, employee health will need to verify immunity of employees. People born before 1957 are presumed to be immune, but in an outbreak, CDC recommends that they receive two doses of MMR.

Seward advises hospitals to maintain good documentation on immunization and immune status of employees and to consider immunizing those born before 1957. It can be difficult and costly for hospitals to scramble to verify immunity of employees during an outbreak, Seward says.

"Some select studies have been done in health care workers showing that a small percent are susceptible. But that small percent, if they become exposed to a case, probably will become a case," she says.

"The best prevention is to be vaccinated. If you're not vaccinated then you certainly have a great chance of becoming a case if you're exposed to measles," she says.

REFERENCE

1. Centers for Disease Control and Prevention. Measles – United States, 2011. *MMWR* 2012; 61:253-257. ■

Smoke lingers in the surgical suite

Health effects can be significant

Many hospitals have banned smoking from their campuses, but exposure to smoke continues to cause health problems — in the operating room.

"On the front door of the hospital, it says no smoking. But go up to the OR and we're smoking like crazy," says **Kay Ball**, PhD, RN, CNOR, FAAN, associate professor of nursing at Otterbein University in Westerville, OH, and an expert on surgical smoke. "We have to breathe in noxious compounds [that are byproducts of electrosurgery]."

Although hospitals are more likely to use wall

suction to clear the air, there's been little progress in smoke evacuation during electrocautery, according to a 2010 web-based survey of 1,356 operating room nurses. Wall suction is considered to be effective for smaller amounts of surgical smoke, but smoke evacuation is required for larger volumes.

For example, only 24% of respondents said they "always" or "often" use smoke evacuation for cosmetic or plastic surgery that uses electrocautery or electrosurgery. That is a modest increase from the rate of 20% in 2007.[1]

Surgical smoke contains small concentrations of hazardous chemicals, such as benzene and toluene. A health hazard evaluation by the National Institute for Occupational Safety and Health found the levels were not above the recommended or permissible exposure limits. *(See* HEH, *June 2008, p.65.)*

Yet the health effects on nurses still can be significant. "The symptoms that we're hearing about over and over again are symptoms of allergic sensitization, allergic rhinitis and allergic asthma," says **Ben Edwards**, MS, CLSO, CHP, radiation safety officer at Vanderbilt University in Nashville and co-author of the article on the survey in the AORN Journal.

Edwards cites industrial hygiene literature indicating that up to 40% of the workers who are regularly exposed to surgical smoke may develop allergic sensitivity.[3]

"[The Centers for Disease Control and Prevention] says that some 500,000 people a year are occupationally exposed to surgical smoke. Sixty percent of those will never have any problem," he says. "But 200,000 [workers], if they continue in this line of work, ultimately are going to get sensitization and are really going to be bothered by the surgical smoke."

For some, the sensitivity can be career-altering. Ball tells of an OR nurse who carries an asthma inhaler to treat the effects from surgical smoke.

"She's just one of the many out there who have come up to me and said, 'I can't work in that environment anymore but I'm afraid to say anything because I don't want to lose my job,'" Ball says.

Clearing the air

It's time to change the paradigm, say Ball and other OR nursing leaders. Lasers were introduced into hospitals with built-in smoke evacuators, and hospitals generally adhere to the ANSI (American National Standards Institute) standard on laser smoke evacuation.[2]

While smoke evacuation with lasers varied widely, the survey found that it was consistently higher than with electrocautery. For example, while 68% of nurses reported using smoke evacuation with electrocautery for condyloma or dysplasia (the highest of any procedure), 84% reported using an evacuator when the same procedure was done with a laser.

Some physicians and OR managers don't realize that the technology of smoke evacuation has improved significantly. "The older smoke evacuators are loud. It's like having a vacuum cleaner in the room," says Edwards. "That's a safety issue. Communication within the surgical team is critical. The newer smoke evacuators have addressed that."

In her research on compliance with surgical smoke

CNE INSTRUCTIONS

Nurses participate in this CNE/ CME program and earn credit for this activity by following these instructions.

1. Read and study the activity, using the provided references for further research.
2. Log on to **www.cmecity.com** to take a post-test; tests can be taken after each issue or collectively at the end of the semester. *First-time users will have to register on the site using the 8-digit subscriber number printed on their mailing label, invoice or renewal notice.*
3. Pass the online tests with a score of 100%; you will be allowed to answer the questions as many times as needed to achieve a score of 100%.
4. After successfully completing the last test of the semester, your browser will be automatically directed to the activity evaluation form, which you will submit online.
5. Once the completed evaluation is received, a credit letter will be e-mailed to you instantly. ■

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 the clinical, administrative and regulatory issues particular to the care of hospital employees affect health care workers, hospitals, or the healthcare industry at large;
- cite solutions to the problems faced in the care of hospital employees based on expert guidelines from relevant regulatory bodies, or the independent recommendations of other employee health professionals.

COMING IN FUTURE MONTHS

■ CMS targets work-related infections in surveys

■ Are your lifts posing push-pull risks?

■ How to motivate workers for wellness

■ Gaps in respiratory protection programs

■ Are your nurses victims of workplace bullying?

evacuation, Ball found that physician attitudes toward its use and lack of availability of the equipment were the greatest barriers. "Freestanding surgical centers are more likely to evacuate smoke than hospital departments," she says. "Nurses will be more apt to evacuate if they have attended a course or read an article that educated them on the negative consequences of surgical smoke."

Edwards also found that nurses reported physician resistance to evacuator use as the greatest barrier.

"This is a workplace safety issue," says Ball. "No physician should ever have any say against workplace safety."

The Association of peri-Operative Registered Nurses (AORN) has worked to raise awareness about smoke evacuation and the hazards of surgical smoke. AORN provides a surgical smoke toolkit to members, including a sample policy, awareness posters, and background information on the hazards.

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1. Edwards BE and Reiman RE. Comparison of current and past surgical smoke practices. *AORN Journal* 2012; 95:337-350.
2. Ball, K. Surgical smoke evacuation guidelines: Compliance among perioperative nurses. *AORN Journal* 2012; 92:e1-e23.
3. Burge HA and Hoyer ME. Indoor air quality. The occupational environment – its evaluation and control. Ed. Salvatore DiNardi. Fairfax, VA: American Industrial Hygiene Association Press, 1997. 400. ■

CNE QUESTIONS

1. In the OSHA new National Emphasis Program for nursing homes, what level of days away from work or restricted duty (DART rate) will make a facility eligible for inspection?
   A. 7
   B. 10
   C. 12
   D. 16

2. Employee health records and an employee's personal health record cannot be combined because:
   A. technical problems prevent it
   B. occupational health trends couldn't be tracked
   C. employee health information is employment data subject to different laws
   D. every physician keeps a separate medical record on patients

3. According to **Sara Luckhaupt**, MD, MPH, the key to participating in the new Occupational Health and Safety Network is:
   A. using a common language, such as for event types and locations.
   B. having occupational health software.
   C. knowing how to code for injuries.
   D. completing an OSHA 300 log.

4. According to a survey of OR nurses published in the *AORN Journal*, what is the greatest barrier to the use of smoke evacuators in electrocautery?
   A. Lack of adequate technology
   B. Resistance on the part of nurses
   C. Resistance on the part of physicians
   D. High cost of smoke evacuators