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Reportable injuries to rise at hospitals

As needlesticks become reportable injuries, as required by a new record-keeping standard, hospitals will see a dramatic rise in their injury rates. That may draw more hospitals into the targeted inspections by the U.S. Occupational Safety and Health Administration (OSHA), employee health experts say. The record-keeping rule was designed to streamline forms, reduce underreporting, and clarify definitions, says OSHA statistician Jim Maddux . . . . . cover

OSHA adds regulatory details to needlestick law

OSHA's revised bloodborne pathogen standard requires hospitals to use safer devices, update their exposure control plans annually, and include frontline health care workers in device evaluation and selection. Hospitals must begin keeping a needlestick log this April; needlesticks will be reported on the OSHA 300 log in 2002. The Needlestick Safety and Prevention Act, which was signed into law in November, enabled OSHA to alter its standard without undertaking a lengthy rule-making process 27

Your ergo program may qualify for 'grandfather' status

Hospitals with an ergonomics program that they have evaluated for effectiveness may qualify for 'grandfather' status in the OSHA ergonomics standard. There's no application or other paperwork to file. If a hospital had an ergonomics program before Nov. 14, 2000, that included basic elements such as job hazard analysis and control and employee participation, it may gain some flexibility in complying with other provisions of the standard. However, hospitals must have conducted an evaluation of the program before Jan. 16, 2001 29

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Look out: New reporting rules may lead to more inspections for hospitals

New standard adds needlesticks, clarifies definitions

New record-keeping rules will greatly increase recordable injuries at hospitals but will simplify the forms used to report them. As a consequence, the rise in reported injuries may make more hospitals the subject of targeted inspections by the U.S. Occupational Safety and Health Administration (OSHA).

Under the revised standard, which becomes effective Jan. 2, 2002, all needlestick injuries will be recorded on the OSHA 300 log. That log also can be used to comply with the revised bloodborne pathogen standard, which becomes effective April 18. **(See related article, p. 27.)**

Last year, OSHA added hospitals to its targeted inspection program, which involves unannounced, wall-to-wall inspections of facilities with high-injury rates. Of 400 to 500 hospitals surveyed, 34 received letters advising them to improve their safety programs. OSHA did not reveal how many of those received targeted inspections.

"It's only going to accelerate" inclusion of hospitals in that program, predicts **Geoff Kelafant**, MD, MSPH, FACOEM, medical director of the occupational health department of the Sarah Bush Lincoln Health Center in Mattoon, IL, and vice chairman and communications chairman of the medical center occupational health section of the American College of Occupational and Environmental Medicine in Arlington Heights, IL.

"The reality is that employers that have high rates are going to be looked at," concurs **Kae Livsey**, RN,

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NAS panel: Ergonomics has a scientific basis

Opponents of OSHA's ergonomics standard have questioned its scientific validity. But a National Academic of Sciences expert panel concluded that work-related risk factors are linked to musculoskeletal disorders and that interventions reduce the risk 30

IOM: OSHA's proposed TB rule has fatal flaws

Federal regulation on occupational exposure to tuberculosis (TB) could help ensure compliance with guidelines. But an Institute of Medicine panel found fault with a proposed OSHA standard that would require annual respirator fit-testing and skin testing at most hospitals. The standard fails to provide flexibility for low-risk hospitals that don't treat TB patients 31

Is your ED staff protected from chemical poisoning?

Three health care workers in an emergency department were sickened after treating a patient who had ingested organophosphates. Two of them hadn't touched the patient or his bodily fluids; they simply inhaled the chemical from his airspace. The case points out the need to identify chemical hazards, train staff on how to respond, and provide adequate protective equipment, a poison control expert says 33

CDC & FDA: Consider risks of PEP agents

When an occupational exposure occurs and the source patient is known to be HIV positive, post-exposure prophylaxis can reduce the chance of seroconversion. But recent incidents of serious toxicity from one PEP agent, nevirapine, led the Centers for Disease Control and Prevention and the Food and Drug Administration to issue a joint report in the *Morbidity and Mortality Weekly Report*. Their message: The risk of HIV transmission needs to be carefully weighed against the toxicity of PEP agents 34

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- Why and how you should hold employees and managers accountable for safety
- Can a change in water temperature prevent dermatitis?
- Top OSHA citation: No exposure control plan
- Why some TB experts question the validity of respirator fit-testing
- HCW who won't wear gloves transmits HCV to surgery patients

MPH, public policy and advocacy manager at the American Association of Occupational Health Nurses in Atlanta. However, she cautions employers not to become too alarmed. "It's necessary to know where these incidents are occurring so you can reduce them," she says.

OSHA's record-keeping standard, issued on President Clinton's last day in office, was designed to reduce underreporting, streamline forms, and make analysis easier. The standard incorporates a privacy provision and defines what is work-related, what is first aid, and how to count lost days.

"Maybe this will tend to make the numbers more reflective of what actually is going on," says Kelafant. "It's certainly much more clear in many areas than it was before."

The forms have been streamlined, and OSHA provides easy-to-read algorithms to determine what needs to be reported, notes **Jim Maddux**, a statistician who was involved in drafting the OSHA standard. "The overriding goal is to try to improve the quality of data — to make sure they are complete, consistent, and . . . descriptive." He acknowledges that hospitals will see an immediate rise in recordable injuries, but adds, "As safer devices get into more and more workplaces, I think those numbers are going to drop down pretty rapidly. There are a lot more devices coming onto the market all the time."

Here are some specific changes and how they will affect reporting:

❒ **There are three forms instead of two.** Beginning next year, employers will use the OSHA 300, 300A, and 301. The 300A summary form makes it easier to calculate rates and to post the log without revealing employee names. Also, by placing the summary on a separate sheet, the OSHA 300 now fits on a legal-sized page.

❒ **All needlestick exposures must be reported.** Needlesticks or sharps injuries that result in exposure to blood or other bodily fluids must be reported. "Clean" sticks, a needlestick with a syringe or sharp that hasn't been contaminated, don't need to be reported. Other types of exposures, such as splashes, do not need to be reported unless they result in seroconversion of a bloodborne illness or meet other recording criteria, such as requiring more than first-aid treatment. **(For more information on needlestick reporting, see related article, p. 29.)**

❒ **Musculoskeletal disorders (MSDs) are recorded in a separate column.** Work-related MSDs are recorded in a separate column to help

track the high-prevalence injury. OSHA defines the condition as "disorders of the muscles, nerves, tendons, ligaments, joints, cartilage, and spinal discs. MSDs do not include disorders caused by slips, trips, falls, motor vehicle accidents, or other similar accidents."

❒ **Illnesses and injuries are reported together.** This provision calls for illnesses to be reported in the same manner as injuries. Previously, any illness (such as a rash), no matter how insignificant, would be reported. Now illnesses must meet the threshold of requiring more than first aid.

❒ **Timelines have changed.** Recordable injuries and illnesses must be entered on the OSHA 300 log and 301 incident report within seven calendar days. The annual summary of injuries and illnesses must be posted for three months, instead of just one month.

❒ **Tuberculosis (TB) exposure is recorded separately.** If an employee is occupationally exposed to TB and subsequently has a positive skin test or a physician's diagnosis of TB infection, that incident is recorded under a column labeled "respiratory condition." If further investigation shows the TB exposure was not work-related, the incident can be removed.

❒ **Privacy provisions apply.** The employee's name may be withheld from the OSHA 300 log in the case of: injury or illness to intimate body parts or reproductive system; sexual assault; mental illness; HIV infection, hepatitis, or TB; needlestick and sharps injuries; and illness cases where the employee requested anonymity. The incident would be marked "privacy-concern case."

The name would be recorded on the OSHA 301 incident report. However, employee representatives seeking access to information on 301 forms would not receive the employee's name.

❒ **Definitions of first aid and work-relatedness are clearer.** OSHA provides a detailed list of circumstances in which injuries or illnesses would not be work-related. For example, an injury that occurs during a voluntary wellness or fitness activity or in a car accident, which occurs in a company parking lot while the employee was commuting to or from work, would not be work-related.

A pre-existing condition must be "significantly aggravated" by some event in the work environment in order for it to become work-related. The rule also provides a complete list of tasks that are considered "first aid," including the administration of nonprescription drugs at nonprescription dosages, the use of bandages, and massages.

❒ **The rule counts calendar days, not lost workdays.** The term "lost workdays" has been eliminated in this standard.

Instead, employers must report the number of days an employee was unable to work due to a work-related injury or illness "regardless of whether or not the employee was scheduled to work on those days." Weekends, holidays, and vacation would still count as days away from work due to injury.

❒ **Employees and their representatives have greater access to records.** If an employee, former employee, personal representative, or "authorized employee representative" (i.e., a union official) asks for a copy of the 300 log, employers must provide it by the end of the next business day. Current or former employees and their designated representatives also can request the 301 incident report and must receive a copy by the next business day.

If union representatives ask for the 301 log, they may receive only the descriptive portion (titled "Tell us about this case . . ."). Employers have seven calendar days to provide that information.

A top executive must sign off on the injury and illness summary. OSHA now requires an officer of the corporation to certify the annual summary. This ensures that top managers are aware of the injury record at the company, Maddux says. ■

OSHA issues needle safety regulations

Revised standard is the last step for new law

As of April 18, hospitals will be required to maintain a detailed log of needlestick injuries and update their exposure control plans annually, requirements of a federal law that have now been outlined in a revised bloodborne pathogen standard.

In the last days of the Clinton administration, the U.S. Occupational Safety and Health Administration (OSHA) issued the rule that implements the Needlestick Safety and Prevention Act.

The standard requires hospitals to:

• Use safety devices and needleless systems to reduce the risk of bloodborne pathogen exposures.

• Maintain an exposure control plan and update it annually. The plan must document the consideration of new technology as it emerges

Exposure control plan: Meeting the standard

With the revised bloodborne pathogens standard, the Occupational Safety and Health Administration (OSHA) requires that exposure control plans "account for innovations in procedure and technological developments that reduce the risk of exposure incidents." What exactly does that mean? Here is some of the explanation OSHA offers:

- ✔ Employers must implement the safer medical devices that are appropriate, commercially available, and effective. No one medical device is appropriate in all circumstances of use.
- ✔ For purposes of this standard, an "appropriate" safer medical device includes only devices whose use, based on reasonable judgment in individual cases, will not jeopardize patient or employee safety or be medically contraindicated.
- ✔ Although new devices are being continually introduced, OSHA recognizes that a safer device may not be available for every situation. If a safer device is not available in the marketplace, the employer is not required to develop any such device.
- ✔ Furthermore, the revised requirements are limited to the safer medical devices that are considered to be "effective." For purposes of this standard, an "effective" safer medical device is a device that, based on reasonable judgment, will make an exposure incident involving a contaminated sharp less likely to occur in the application in which it is used.

The exposure control plan also should document the solicitation of input from "nonmanagerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps," OSHA notes. "No specific procedures for obtaining employee input are prescribed. This provides the employer with flexibility to solicit employee input in any manner appropriate to the circumstances of the workplace." ■

and the involvement of frontline workers in device selection.

• Maintain a sharps injury log. The log must include detailed information such as the type and brand of device involved in the needlestick incident. **(Needlesticks will become reportable injuries as required by the new record-keeping standard. See related article, above and summary box, p. 29.)**

• Include the input of frontline health care workers who are involved in direct patient care in the evaluation and selection of safety devices.

With this tougher OSHA standard, backed by federal law, needle safety experts expect to see a great improvement in the quality and availability of safer devices. Sharps with "engineered controls" can reduce needlesticks by 80%, according to research by **Janine Jagger**, PhD, MPH, director of the International Health Care Worker Safety Center at the University of Virginia in Charlottesville.

However, the battle for safer needle devices is far from over, says **Bill Borwegen**, MPH, occupational health and safety director of the Service Employees International Union in Washington, DC.

The union and others, such as the American Nurses Association, will be back in state legislatures, trying to pass laws that cover public sector (i.e., state and local) employees. In the states that are regulated by federal OSHA, public employees are not covered; however, seven of the 25 federal OSHA states passed laws that include the public sector.

States with state OSHA plans, which cover public employees, have six months after publication of the new standard to come up with a regulation that is at least as effective. Some already have met that requirement. In all, 17 states have passed some version of a needlestick safety act, many of them with provisions that mirror those in the new federal law.

Buying for quality, not economy

Meanwhile, Borwegen says he is concerned about the quality of safer devices purchased by hospitals. "Our biggest battle right now is to get hospitals to buy the better safer needles, not the cheapest safer needles."

Most health care workers favor devices that don't require extra steps for activation, such as self-blunting or retractable needles and needleless systems, says Borwegen.

With other products that require the health care worker to activate a sheath or other safety device, needlesticks can actually rise, he says. "Unfortunately, some of the better products are made by smaller companies that don't have an ability to move into the market because of barriers imposed by group-purchasing organizations."

The union plans to file complaints with OSHA in cases where "where employers are buying what we think are deficient safer needles," says Borwegen.

Needlestick record keeping: What OSHA requires

With two new Occupational Safety and Health Administration (OSHA) regulations that address the reporting of needlestick injuries, recordable injuries for hospitals are expected to increase by about 300,000 per year. Here's what you need to do to comply:

1. Beginning next year (Jan. 1, 2002), hospitals can use the OSHA 300 and 301 logs to record needlesticks, as long as the recorded information includes the type and brand of device.
2. If needlesticks are recorded on the OSHA 300 and 301, they must be easily separated out for analysis. For example, if the data is computer-based, the program must allow for sorting by injury type. If the log is kept in paper form, needlesticks must be recorded on a separate page.
3. Hospitals must maintain a distinct needlestick log as of April 18, 2001, based on requirements in the revised bloodborne pathogens standard. These injuries are not recordable on the OSHA 300 until 2002. ■

(Editor's note: On-line information on the needlestick law and the revised OSHA standard is available at www.med.virginia.edu/medcntr/centers/epinet/ or www.osha-slc.gov/needlesticks/index.html.) ■

Your hospital may qualify for special status

Ergo standard allows 'grandfather' benefit

Qualifying for "grandfather" status under the ergonomics standard of the U.S. Occupational Safety and Health Administration (OSHA) may be easier than you realize.

As the standard became effective Jan. 16, employers with ergonomics programs that contain certain basic elements and have been evaluated for effectiveness could claim "grandfather" status.

Those employers do not need to comply with the specific provisions of the standard as long as their programs include management leadership, employee participation, job hazard analysis and control, and training.

Employers have until Jan. 16, 2002, to implement musculoskeletal disorder (MSD) management and work-restriction protection.

The bottom line: "Do you have the major components of an ergonomics program and can you demonstrate to us that it's been effective in reducing the number and severity of [MSDs]?" asks **Gary Orr**, PE, CPE, an ergonomist who helped draft OSHA's standard. "Some employers may qualify that don't realize it."

Employers do not have to apply for grandfather status. Rather, it is a privilege they can evoke. "If it becomes an issue during an inspection, they have to produce documentation," asks Orr. For example, the ergonomics program must predate the final standard, which was issued Nov. 14, 2000, and an evaluation of the program must have been conducted before Jan. 16, 2001.

In a letter clarifying the grandfather provision, **Charles Jeffress**, OSHA administrator, stated: "The standard does not require employers to find, on this initial evaluation, that the program is without deficiencies or that it complies in every respect with the program required by OSHA's standard.

"Instead, OSHA expects employers with effective existing programs to have identified, by Jan. 16, 2001, any missing elements, subelements, or deficiencies in their programs and to have established a reasonable timeline for addressing these issues. Employers with effective programs [that] have established such a timeline by Jan. 16, 2001, and conform to the timeline thereafter will be considered eligible for grandfather status," he wrote

OSHA's position provides flexibility to employers who have an ergonomics program but have not fully implemented it, says **Peggy Swirczek**, CHSP, director of loss prevention services at the Michigan Health and Hospital Association in Lansing.

"Employers can document areas of their program that are not in compliance and put together a timeline of how they intend to comply, and [OSHA] will allow employers to still utilize the grandfather clause in that case," she notes. "Most hospitals have some sort of ergonomics program in place. That [letter from Jeffress] really extends a lot of leverage to hospitals in terms of compliance."

At Piedmont Hospital in Atlanta, **Joyce Cain**, RN, manager of the Employee Health Clinic, took a closer look at her injury data and prepared an evaluation of the ergonomics program. The exercise

helped focus a program that already matches much of what is outlined in OSHA's standard, she says.

Cain also was able to demonstrate the hospital's effective response to MSD hazards. For example, when wrist injuries rose among female employees in the environmental services area, the hospital's ergonomist discovered that they were using mops that were too heavy. The substitution of lighter mops led to a reduction in the injuries.

Meanwhile, the hospital's ergonomist is taking proactive measures, such as reviewing any new construction for ergonomic concerns, Cain says.

Because employers don't need to file any paperwork to request grandfather status, it's impossible to know how many hospitals plan to make use of the provision. Orr notes that a 1993 survey found that 16% of employers had an ergonomics program.

That number is likely to have grown, and may be significantly higher in hospitals, which suffered from almost 47,000 injuries involving sprains and strains and 5,200 injuries involving back pain in 1998, according to the Bureau of Labor Statistics.

By Oct. 15, all employers are required to educate employees about the ergonomics standard and begin responding to reports of injuries.

"Most people are documenting feverishly what they can for compliance with the grandfather clause and planning on how they can be in compliance with this, at least by having employee training in place by October," says Swirczek. "They are definitely moving forward." ■

Ergonomics plan can reduce injuries, says panel

Report offers evidence bolstering OSHA approach

Workplace factors such as heavy lifting, twisting, and repetition lead to musculoskeletal disorders (MSDs), and ergonomic modifications can reduce the risk, a National Academy of Sciences panel concluded.

Opponents of the U.S. Occupational Safety and Health Administration's (OSHA) ergonomics standard have asserted that there is insufficient science to link specific workplace risk factors with injuries and that not enough is known about the effectiveness of ergonomic interventions.

In fact, critics had sought to delay the release of OSHA's standard until the National Academy of Sciences completed its work.

Yet the panel stated, "The weight of the evidence justifies the introduction of appropriate and selected interventions to reduce the risk or [MSDs] of the lower back and upper extremities."

Jeremiah A. Barondess, MD, president of the New York Academy of Medicine and chair of the panel, noted that the 19 expert members spent two years in a "rigorous" literature review.

"In general, the literature related to the lower back is more robust than the literature relating to the upper extremities," Barondess told *Hospital Employee Health*. "However, both are adequate."

Charles Jeffress, OSHA administrator, greeted the report as confirmation of the agency's efforts. He noted the panel's conclusion: "To be effective, intervention programs should include employee involvement, employee commitment, and the development of integrated programs that address equipment design, work procedures, and organizational characteristics."

"OSHA's ergonomics program standard meets these requirements," Jeffress said in a statement. "Our standard provides the framework to enable employers to effectively respond to the concerns identified by the NAS panel."

However, opponents of the standard asserted that the report substantiated their concerns.

"Despite the study's implied support of OSHA's ergonomics regulation, it actually reinforces the business view that there is a lack of sound scientific evidence on the causes of [MSDs] by acknowledging the wide array of complicated, unquantifiable and subjective factors that contribute to these disorders," **Ed Gilroy**, chairman of the National Coalition on Ergonomics, said in a statement. The study also calls for more research and better statistics on MSDs, something the business community has been urging for years.

Barondess notes that every scientific field contains room for further research. He also notes that the panel wasn't trying to either bolster or debunk OSHA's standard.

"The report is a straightforward objective review of the quality of the underlying science," he says. "The report is about science; it is not about policy. There will be people who like the science base and people who don't like the science base, but it is what it is."

Nonetheless, not even the expert panel could avoid the sort of controversy that has dogged the field of ergonomics. One member, a hand surgeon,

wrote a dissent, citing "significant interpretations of the scientific literature that I consider inaccurate and misrepresentations."

The dissent by Robert M. Szabo, MD, at the department of orthopedic surgery at the School of Medicine of the University of California, Davis, focused on carpal tunnel syndrome, expressing a concern about the lack of scientific evidence linking the syndrome with keyboard use.

"The report acknowledges that the keyboard literature is weak," counters Barondess. But he adds that all other members signed off on the full report "enthusiastically," including another hand surgeon.

"It's not possible to agree with the dissent," he says. "The argument is too narrowly drawn [on carpal tunnel syndrome] and is based to a great degree [on weaker scientific studies]."

[Editor's note: A copy of the full report, Musculoskeletal Disorders and the Workplace ($54.95) is available from the National Academy Press, 2101 Constitution Ave. N.W., Washington DC 20418. Telephone: (800) 624-6242 or (202) 334-3313. The report can also be accessed on-line at www.nas.edu.] ■

IOM: OSHA's TB standard suffers from a fatal flaw

Not enough flexibility for low-risk hospitals

The proposed U.S. Occupational Safety and Heath Administration (OSHA) standard on tuberculosis (TB) fails to provide enough flexibility to hospitals at low-risk and relies on outdated and flawed estimates of the TB threat, an Institute of Medicine (IOM) panel has concluded.

Although the panel endorsed the concept of a regulation to ensure that health care workers are protected, the report lodged stinging criticisms at key provisions of OSHA's proposed standard.

In fact, even beyond creating administrative and cost burdens, false positives on screening tests at low-risk hospitals could lead to unnecessary treatment of health care workers, the panel stated. Those conclusions boost the strong opposition to the TB standard, although it is unclear what direct impact the IOM report may have on OSHA actions.

The Association for Professionals in Infection Control (APIC) in Washington, DC, lobbied Congress for funding of the IOM study and has consistently argued that the standard presented an unnecessary burden and a misdirection of resources.

In fact, the IOM report reflects many of the concerns as well as the scientific background presented by APIC. "We believe that the findings of the IOM are consistent with the materials that we have been presenting to OSHA and the materials we presented to the IOM," says **Rachel Stricof**, MPH, a member of the APIC TB task force, who is an epidemiologist in the New York (state) Department of Health in Albany.

OSHA officials already had acknowledged that the final TB standard would differ from the proposed version on issues such as the frequency of respiratory fit-testing and skin testing. But while the release of the TB standard once seemed imminent, its future under a Republican administration is murky.

"The bottom line is we have a new regime," says **Bill Borwegen**, MPH, occupational health and safety director of the Service Employees International Union. "We'll be lucky if we can save the regulations that have just been completed, let alone come out with some new ones."

When OSHA began working on a TB rule in 1994, TB cases were rising nationwide. Outbreaks occurred in several U.S. hospitals, including cases of the deadly multidrug-resistant strain.

The Centers for Disease Control and Prevention (CDC) issued guidelines for preventing TB spread in health care facilities in 1990, then updated them in 1994. The CDC is now reviewing those guidelines with another update expected in 2002.

By the time OSHA published a proposed rule on occupational exposure in 1997, increased awareness and compliance with CDC guidelines contributed to a decline in TB spread. "The sense was that many hospitals had moved to deal with some of these issues," notes **Michael Tapper**, MD, chief of infectious diseases and hospital epidemiologist at Lenox Hill Hospital in New York City. Tapper also is a member of the IOM panel.

By 1999, seven straight years of declining cases led to a rate of 6.4 cases per 100,000 population, a 35% drop since 1992. To critics of the OSHA standard, that is proof that voluntary guidelines are sufficient. But the IOM panel cautioned against a repeat of the complacency that allowed TB to re-emerge in this country.

"It's good news, but it's also a warning not to reduce our vigilance," says Tapper. A standard

provides a "legal and administrative framework to the guidelines." Moreover, it's unclear how well prisons, homeless shelters, and other high-risk facilities are handling the TB threat, he says.

"You can look to the question of whether the current performance would continue without something firmer than voluntary guidelines," says **Marilyn Field**, PhD, senior program officer at IOM and the project director. "The committee's conclusion was that an OSHA standard would at least sustain if not increase adherence with the tuberculosis control measures."

Did OSHA overstate workplace risk of TB?

Yet OSHA's proposed rule presents problems that were outlined in detail in the 350-page report. Even OSHA's justification for the standard is flawed; the proposed standard used inflated TB estimates, according to the panel.

OSHA predicted its rule would prevent between 1,477 and 1,744 cases of active TB among workers each year. "In its surveillance report for 1999, CDC lists a total of 551 cases of tuberculosis among health care workers and 16 cases among correctional facility workers," the report states. "This figure is less than two-thirds the number of cases that OSHA predicted would be prevented yearly by the implementation of its proposed rule. Moreover, of the reported cases of active disease, some proportion will have been the result of community rather than workplace exposure."

The panel was troubled by the lack of information about TB in other settings. "We had very little data, apart from acute care hospitals, to tell us the true incidence of TB infection and disease," says Tapper. "There are a lot of unknowns."

The panel particularly cited the need for better data and technical information on respirator fit-testing, noting potential problems with current methods of fit-testing. "The committee found no epidemiologic studies that have evaluated whether qualitative or quantitative fit-testing [either initial or annual] for N95 or other respirators used for tuberculosis control improves respirator fit in normal practice as workers treat, transport, guard, or otherwise have contact with people who have known or suspected tuberculosis," the panel said.

Meanwhile, the proposed standard would impose a burden on hospitals to provide respirators and fit-testing — even if they may not work, and even if the hospital rarely if ever encounters a TB patient, says Stricof. "Administrative and environmental controls have clearly been shown to be effective. What has not been shown to be effective are respirators and fit-testing programs."

The panel's greatest concern, however, focused on the criteria for a facility to be labeled "low risk."

Under the proposed OSHA standard, hospitals could not admit or provide medical services to individuals with suspected or confirmed TB. It must have had no confirmed cases of infectious TB during the previous 12 months, and it must be located in a county that has had no confirmed cases of infectious TB during one of the previous two years and less than six cases during the other year.

"Even if a facility had admitted no tuberculosis patients in the preceding 12 months, had no tuberculosis cases in its service area, and had a policy of referring those with diagnosed or suspected tuberculosis, that facility could not qualify for this 'lower risk' category if the surrounding county had reported one case of tuberculosis in each of the preceding two years," the panel notes.

That criteria are simply too strict, the panel states. The CDC guidelines provide a broader risk assessment, from minimal to high risk, and that risk assessment is likely to be reviewed in the agency's guideline update.

Assessment of risk should take into account a hospital's service area and not the entire county, explains Field. "In some cases, the service area would be smaller than a county, other cases larger," she says.

If a hospital served only a portion of the county and had no TB cases in its patient population or service area, the hospital could fail to be designated as "low risk" simply because of cases elsewhere in the county.

"To the extent that an OSHA standard inflexibly extends requirements to institutions that are at negligible risk of occupational transmission of *M. tuberculosis*, the standard is unlikely to benefit workers at the same time that it would impose significant costs and administrative burdens on covered organizations and absorb institutional resources that could be applied to other, potentially more beneficial uses," the panel concludes.

[Editor's note: A copy of the report is available on-line at www.iom.edu. A printed copy also may be ordered from the National Academy Press ($49), 2101 Constitution Ave., N.W., Box 285, Washington, DC 20055. Telephone: (800) 624-6242 or (202) 334-3313. Web site: www.nap.edu.] ■

ED staff at risk from nosocomial poisoning

Three HCWs suffer effects after treating patient

The failure of emergency department (ED) personnel to use protective equipment when caring for patients contaminated with pesticides or other toxic chemicals leaves them vulnerable to secondary contamination, according to a report in the *Morbidity and Mortality Weekly Report (MMWR)*.[1] Three health care workers suffered symptoms that required treatment after they cared for a patient who had ingested a veterinary insecticide concentrate in a suicide attempt.

The staff had not followed decontamination procedures before treating the patient and had not used personal protective equipment.

The incident points to a much broader problem and highlights the need for hospitals to be better prepared to protect workers against possible episodes of chemical terrorism, says **Robert Geller**, MD, FAAP, ACMT, FAACT, medical director of the Georgia Poison Center, which is part of Grady Health System in Atlanta.

"Ninety percent or more of hospitals nationally are ill-prepared," says Geller, who also is associate professor of pediatrics at Emory University School of Medicine. "The hospitals have not been willing to invest in this area. They haven't been convinced there's a need, which is unfortunate."

Yet the reported incident, which occurred at a South Georgia hospital, is far from an isolated one.

Learn how to protect ED staff from nosocomial poisoning

Toxic chemicals present risks to health care workers that can't be contained through the use of standard precautions: gloves, masks, and goggles. For example, in the case of health care workers sickened by organophosphates at a South Georgia hospital, the staff wore facemasks.

"TB masks don't protect against chemicals. They protect against germs," notes **Robert Geller**, MD, FAAP, ACMT, FAACT, medical director of the Georgia Poison Center, which is part of Grady Health System in Atlanta.

According to Geller, every hospital should take these basic steps to protect workers:

Develop an exposure prevention plan

Hospitals may use advice from a regional poison center or consultants and should tailor their protection strategy to local circumstances. What is the likelihood of poisonings due to farm chemicals, insecticides, or industrial chemicals? "The protection [needed] is going to be somewhat specific to the chemical and how concentrated the chemical is," says Geller. In general, that means "some type of chemically impervious skin protection and some type of protection of the employee's face and hands."

Provide training of health care workers

"You can't predict when these patients are going to come in," he says. "You have to have people who are trained to use self-protection on all shifts." Staff should be trained on how to recognize the need for protective equipment. EMS providers need to alert emergency departments (EDs) about possible chemical hazards.

And don't forget to provide training and access to protective devices to other workers who might be exposed, such as registration clerks and security guards, Geller says.

Provide adequate personal protective equipment

Depending on the extent of the contamination, health care workers caring for chemically contaminated patients should use level C protection (i.e., full face mask and powered/nonpowered canister/cartridge filtration respirator) or level B protection (i.e., supplied air respirator or self-contained breathing apparatus.) The type of canister/cartridge should be appropriate to the agent. If the agent cannot be identified, an organic vapor/HEPA filter is recommended.

To prevent dermal absorption, chemical barrier protection appropriate to the contaminant is necessary. Latex medical gloves are of little protection against many chemicals. Staff should have one-piece scrubs made of a waterproof, chemical resistant fabric.

Decontaminate patients

That includes sponging off the chemical and removing the patient's contaminated clothing. Body fluids also must be contained to prevent dermal and inhalational exposure.

Maintain adequate ventilation

To limit distant spread of the contaminant, the ED's ventilation exhaust should be directed away from the hospital's main ventilation system.

Reference

1. Geller RJ, Singleton KL, Tarantino ML, et al. Nosocomial poisoning associated with emergency department treatment of organophosphate toxicity — Georgia, 2000. *MMWR* 2001; 49:1,156-1,158. ■

Surveillance in six states shows that from 1987 to 1998 at least 46 health care workers suffered secondary contamination after providing care to pesticide-contaminated patients, says **Geoffrey Calvert**, MD, senior medical officer in the division of surveillance, hazard evaluations, and field studies at the National Institute for Occupational Safety and Health (NIOSH) in Cincinnati. Calvert and others at NIOSH are now reviewing those cases and looking for others.

"I would assume that that's the tip of the iceberg," he says. "Even in those states, there's a problem of underreporting. We're trying to gather all the cases we can identify of health care providers who have been secondarily poisoned by the patients they've treated. We'll summarize that data and provide a recommendation on how to protect the health care workers from secondary exposures that can lead to poisoning."

In fact, the incident outlined in the *MMWR* was the third such nosocomial poisoning of emergency department staff reported to the Georgia Poison Center in 2000. All cases involved the care of patients who had intentionally ingested a concentrated organophosphate mixed with xylene and other hydrocarbon solvents.

In the case outlined in the *MMWR*, which occurred at a Georgia hospital, a 40-year-old man arrived at the ED after ingesting about 110 g of a flea control concentrate containing 73% naphthalene, xylene, and surfactant, and 11.6% phosmet. He had profuse oral and bronchial secretions, vomiting, bronchospasm, and respiratory distress. A friend who brought him to the ED also exhibited symptoms and required treatment.

"ED personnel exposed to the patient had symptoms within an hour of his arrival," the report stated. "The staff noted a chemical odor in the ED and contacted the regional poison center, which recommended decontaminating the patient's skin and placing gastric contents in a sealed container to minimize evaporation; however, no decontamination was performed."

The impact on health care workers was swift and significant. A 45-year-old nursing assistant who had contact with the patient's skin, secretions, and vomit developed respiratory distress, profuse secretions, emesis, diaphoresis (or copious perspiration), and weakness. She required intubation for 24 hours to support respiration and was hospitalized for nine days.

A 32-year-old nurse had no skin contact with the patient or any secretions or vomit. Just from sharing the patient's airspace, she developed diaphoresis, confusion, hypersalivation, nausea, and abdominal cramps. She required treatment for 12 hours, after which her symptoms resolved.

Another, a 56-year-old nurse, who simply shared the patient's airspace, suffered from rapid breathing, confusion, and headache. She was treated and observed in an overnight hospitalization before being discharged.

"Many EDs don't have good plans in place for protecting the staff," says **Marilyn Tarantino**, RN, CSPI, poison information specialist at Grady Memorial Hospital in Atlanta. "We think often about what needs to be done for the patient, but what about the risk to ourselves?"

Reference

1. Geller RJ, Singleton KL, Tarantino ML, et al. Nosocomial poisoning associated with emergency department treatment of organophosphate toxicity — Georgia, 2000. *MMWR* 2001; 49:1,156-1,158. ■

Agencies urge caution in use of PEP agents

Revised CDC guidelines to offer few changes

A revised bloodborne pathogen guideline from the Centers for Disease Control and Prevention (CDC) will clarify the recommendations on post-exposure prophylaxis (PEP). The main message: The risk of HIV transmission needs to be carefully weighed against the toxicity of PEP agents.

The guideline on management of occupational exposure to bloodborne pathogens, which is due for release this spring, will include an algorithm for PEP. **(See excerpt of guidelines, inserted in this issue.)** The original guideline was published in 1996 and updated in 1998. The CDC also will address the use of newer PEP agents.

"There's no evidence that we need to change our guidelines," says **Elise Beltrami**, MD, medical epidemiologist at CDC's division of healthcare quality promotion. "But we need to emphasize the fundamental of weighing the risk and benefit of what you're doing."

Reports of severe toxicity with a PEP agent that has been occasionally used in triple-drug therapy placed added scrutiny on PEP recommendations.

In January, the CDC and the Food and Drug Administration (FDA) issued a joint report on severe adverse events related to nevirapine.[1] That followed brief reports in the *Journal of the American Medical Association* of two health care workers who suffered severe toxic effects to nevirapine during PEP, including a 43-year-old phlebotomist who developed acute hepatic failure, lapsed into a coma, and required a liver transplant.[2]

In its MedWatch reports, the FDA had 22 other cases of serious adverse events related to nevirapine taken for PEP from March 1997 through September 2000. The most common events involved hepatotoxicity and skin reaction; in four cases, patients experienced both.

"NVP is not recommended for basic or expanded PEP regimens," according to the *Morbidity and Mortality Weekly Report* (*MMWR*).

Nevirapine's addition to some PEP regimens followed its success in other uses. It has been used safely and effectively as a single dose to prevent perinatal HIV transmission, and it has more rapid activity than other PEP agents. But the benefits of using nevirapine in HIV-infected patients and to prevent perinatal transmission are very different from its use in healthy, occupationally exposed individuals, experts say.

In fact, one of the cases reported by CDC and FDA involved a 38-year-old physician who was splashed with a patient's body fluid. "It wasn't even clear there was blood in the body fluid," notes Beltrami. The physician suffered from severe hepatitis caused by the nevirapine.

In addition to presenting a danger to liver function, nevirapine can cause skin hypersensitivity reactions that actually resemble symptoms of seroconversion illness associated with acute HIV infection, notes **David K. Henderson**, MD, deputy director for clinical care at the Warren G. Magnuson Clinical Center of the National Institutes of Health in Bethesda, MD.

Those effects are even more troubling when the PEP wasn't necessary to begin with. PEPline, a national advice hotline based at San Francisco General Hospital, advised callers in 58% of consultations to stop or not start PEP. **(See *Hospital Employee Health,* January 2001, p. 10 and supplement.)** "These reports of toxicity are of great concern," says **David Bangsberg**, MD, MPH, director of the Epidemiology and Prevention Interventions Center at the hospital and co-director of PEPline. "We believe that nevirapine should not be used as standard post-exposure prophylaxis, except under extraordinary circumstances and only in the context of expert consultation."

Henderson notes that the severe toxicity can occur even on a short course of nevirapine. "[The report] provides a reminder for everyone involved in this business that these are not benign drugs."

To make it easier for employee health professionals to reference information on PEP and management of occupational exposures, the revised CDC guidelines will adopt a more user-friendly format, says Beltrami.

The CDC also has combined its recommendations related to HIV, hepatitis B, and hepatitis C into one document. A review of the current literature on occupational exposures provided the background for the upcoming guideline and indicated no significant departure from current practice.[3] The review includes the following information about managing hepatitis C exposures:

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• No PEP is recommended for HCV exposure.

• Health care workers exposed to HCV should receive baseline testing and follow-up testing at four to six months for antibodies to HCV and alanine aminotransferase elevations. Tests for HCV RNA can be performed at four to six weeks if an earlier result is desired.

• A positive test for HCV antibodies should be confirmed with supplemental testing.

• There are no reported cases of HCV transmission from infected surgeons or dentists to patients in the United States. The CDC does not recommend restriction of health care workers with hepatitis C from performing invasive procedures.

[Adverse reactions to PEP agents should be reported to the FDA MedWatch program, HF-2, FDA, 5600 Fishers Lane, Rockville, MD 20857. Telephone: (800) 332-1088. Fax: (800) 332-0178. Web site: www.FDA.gov/medwatch. For expert consultation on the use of PEP, contact PEPline (24 hours a day) at (888) 448-4911 or the CDC's occupational exposure information line (Monday-Friday, 9 a.m. to 5 p.m. EST) at (404) 639-6425.]

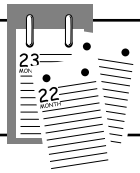
References

1. Centers for Disease Control and Prevention and Food and Drug Administration. Serious adverse events attributed to nevirapine regiments for postexposure prophylaxis after HIV exposures – Worldwide, 1997-2000. *MMWR* 2001; 49:1,153-1,156.

2. Johnson S, Baraboutis J, Sha BE, et al. Adverse effects associated with use of nevirapine in HIV postexposure prophylaxis for 2 health care workers. *JAMA* 2000; 284:2,722-2,723.

3. Beltrami EM, Williams IT, Shapiro CN, Chamberland ME. Risk and management of bloodborne infections in health care workers. *Clinical Microbiology Reviews* 2000; 13:385-407. ■

CALENDAR



• **Advances in Occupational and Environmental Medicine** — April 9-13, San Francisco. The University of California School of Medicine at San Francisco offers this one-week continuing education series each year. The first course will cover industrial toxicology and occupational diseases. For more information, contact: UCSF CME Office, Box 0656, San Francisco, CA 94143-0656. Telephone: (415) 476-5208. Fax: (415) 476-3542. E-mail: cme@medicine.ucsf.edu. ■

CE objectives

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

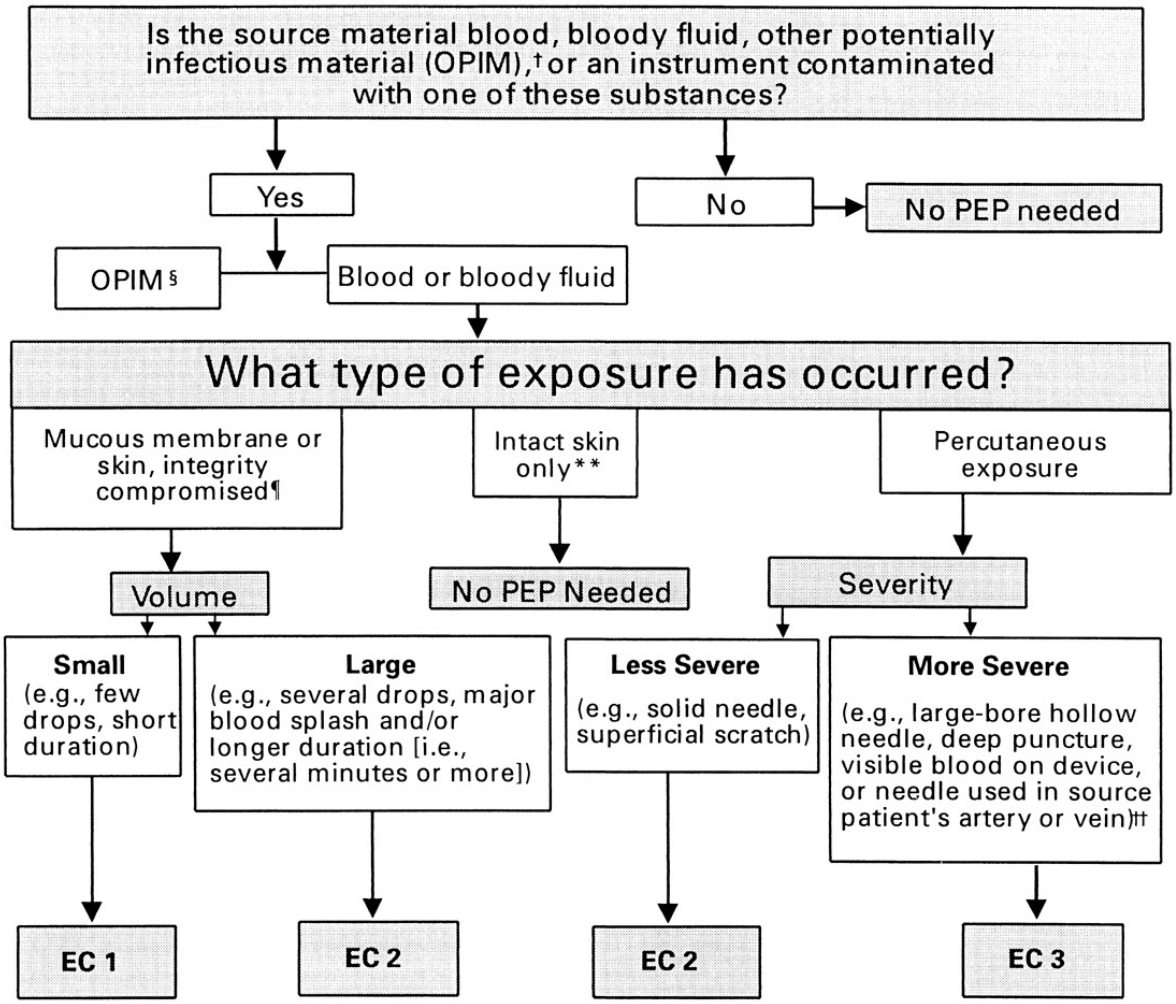
• identify particular clinical, administrative, or regulatory issues related to the care of hospital employees;

• 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. ■

Post-exposure Prophylaxis Algorithm

STEP 1: Determine the Exposure Code (EC)



*This algorithm is inteded to guide initial decisions about PEP and should be used in conjunction with other guidance provided in this report.

†Semen or vaginal secretions; cerebrospinal, synovial, pleural, peritoneal, pericardial, or amniotic fluids; or tissue.

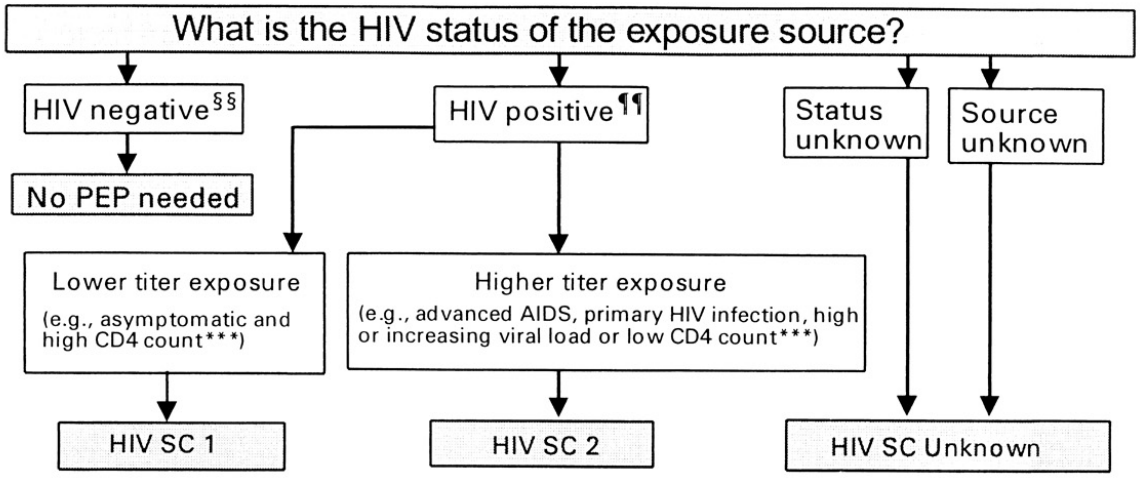
§Exposures to OPIM must be evaluated on a case-by-case basis. In general, these body substances are considered a low risk for transmission in health-care settings. Any unprotected contact to concentrated HIV in a research laboratory or production facility is considered an occupational exposure that requires clinical evaluation to determine the need for PEP.

¶Skin integrity is considered compromised if there is evidence of chapped skin, dermatitis, abrasion, or open wound.

**Contact with intact skin is not normally considered a risk for HIV transmission. However, if the exposure was to blood, and the circumstance suggests a higher volume exposure (e.g., an extensive area of skin was exposed or there was prolonged contact with blood), the risk for HIV transmission should be considered.

†† The combination of these severity factors (e.g., large-bore hollow needle and deep puncture) contribute to an elevated risk for transmission if the source person is HIV-positive.

STEP 2: Determine the HIV Status Code (HIV SC)



§§ A source is considered negative for HIV infection if there is laboratory documentation of a negative HIV antibody, HIV polymerase chain reaction (PCR), or HIV p24 antigen test result from a specimen collected at or near the time of exposure and there is no clinical evidence of recent retroviral-like illness.

¶¶ A source is considered infected with HIV (HIV positive) if there has been a positive laboratory result for HIV antibody, HIV PCR, or HIV p24 antigen or physician-diagnosed AIDS.

*** Examples are used as surrogates to estimate the HIV titer in an exposure source for purposes of considering PEP regimens and do not reflect all clinical situations that may be observed. Although a high HIV titer (HIV SC 2) in an exposure source has been associated with an increased risk for transmission, the possibility of transmission from a source with a low HIV titer also must be considered.

STEP 3: Determine the PEP Recommendation

EC	HIV SC	PEP recommendation
1	1	**PEP may not be warranted.** Exposure type does not pose a known risk for HIV transmission. Whether the risk for drug toxicity outweighs the benefit of PEP should be decided by the exposed HCW and treating clinician.
1	2	**Consider basic regimen.**††† Exposure type poses a negligible risk for HIV transmission. A high HIV titer in the source may justify consideration of PEP. Whether the risk for drug toxicity outweighs the benefit of PEP should be decided by the exposed HCW and treating clinician.
2	1	**Recommend basic regimen.** Most HIV exposures are in this category; no increased risk for HIV transmission has been observed but use of PEP is appropriate.
2	2	**Recommend expanded regimen.**§§§ Exposure type represents an increased HIV transmission risk.
3	1 or 2	**Recommend expanded regimen.** Exposure type represents an increased HIV transmission risk.
Unknown		If the source or, in the case of an unknown source, the setting where the exposure occurred suggests a possible risk for HIV exposure and the EC is 2 or 3, consider PEP basic regimen.

††† Basic regimen is four weeks of zidovudine, 600 mg per day in two or three divided doses, and lamivudine, 150 mg twice daily.

§§§ Expanded regimen is the basic regimen plus either indinavir, 800 mg every 8 hours, or nelfinavir, 750 mg three times a day.

FIG. 1—*Continued.*

Source: Centers for Disease Control and Prevention, Atlanta.