FOR 30 YEARS COVERING INFECTION CONTROL AND PREVENTION

30

HOSPITAL INFECTION CONTROL®

FOR 30 YEARS THE LEADING SOURCE OF NEWS AND COMMENT IN HEALTH CARE EPIDEMIOLOGY

THOMSON
AMERICAN HEALTH CONSULTANTS

IN THIS ISSUE

FEBRUARY 2004
VOL. 31, NO. 2 • (pages 13-28)

OSHA outflanks infection control professionals with surprise TB move

APIC vows to fight annual respirator fit-testing

In a move that stunned infection control professionals, the Occupational Safety and Health Administration (OSHA) recently announced that it will require one of the most contentious provisions of its failed tuberculosis standard — annual respirator fit-testing — under its existing general respiratory protection standard.

The 1998 general respiratory provisions have not been applied previously to health care because OSHA's plan was to create a separate TB regulation, which was issued as a proposed rule in 1997.[1,2] With TB in steep decline nationally, ICPs led a successful effort to scuttle the proposed TB standard.

According to the most recent data available from the Centers for Disease Control and Prevention, 15,075 TB cases were reported in the United States in 2002. That represents a 5.7% decrease from 2001 and a 43.5% decrease from 1992 when the number of cases most recently peaked in the United States.

However, in a one-two punch delivered on New Year's Eve 2003, OSHA announced it was dropping the proposed TB standard but folding some of its provisions into the existing 1998 respiratory standard. As a result, OSHA appears poised to enact some of the same requirements ICPs successfully staved off during several years of debate and hearings.

"It is unfortunate that OSHA has bypassed our own government process, grounded in democracy," says **Patti Grant**, RN, MS, CIC, an ICP at RHD Memorial Medical Center and Trinity Medical Center, both in Dallas. "I was shocked, astounded, and profoundly disappointed. We were cut off at the knees for trying to save health care resources."

New requirements under enforcement of the general standard will include updating the facility's respirator program, complying with amended medical evaluation requirements, annual fit-testing of respirators, and some training and record-keeping provisions. Enforcement of the new requirements will be phased in to allow affected employers to come into compliance, the agency said. A six-month grace period began Jan. 1, 2004, with publication of the action in the *Federal Register*.[3]

The scope of the action primarily is aimed at hospitals that have workers who may be exposed to TB patients. However, other facilities potentially affected include nursing homes, correctional facilities, substance abuse treatment facilities, and others who deal with people with the disease.

"If you don't have any provisions for taking care of a TB patient, it wouldn't apply to you," says **Sue Sebasco**, RN, an ICP at Arlington (TX) Memorial Hospital and chairwoman of public policy at the Association for Professionals in Infection Control and Epidemiology (APIC). "If you transfer them out, it doesn't apply to you. It applies to facilities that have the potential for caring for a patient with TB."

OSHA estimated that the total cost of compliance will be close to $12 million nationally, with more than 90% comprised of fit-testing and training expenditures for the N95 particulate respirators commonly used for TB protection. Still, the agency said the costs represent only 0.005% of the revenues of the affected establishments in the hospital sector. While OSHA downplayed the fiscal impact in announcing the plan, Sebasco says the impact will be substantial.

"This will have a tremendous impact on any health care facility that will need to go to annual fit-testing," she says. "It will have a dramatic impact because it will take a lot of manpower, supplies, and will take a lot of employee time"

Having led the fight to defeat the TB standard, the Washington, DC-based APIC is weighing its options to reverse the action. "As our members are well aware, APIC has long opposed the notion of mandatory annual fit-testing, since there is no solid scientific justification for this practice," the association said in a statement posted on its web site. "This was one of our biggest concerns with the proposed OSHA TB rule. We will be contacting OSHA and working with Congress in an attempt to address this issue. We will also let you know if it becomes necessary to enlist your assistance in contacting your representative. Please know that APIC is prepared to do all we can to reverse this decision."

However, interviews with OSHA officials indicate there may be little recourse because the TB provisions are being added to the existing 1998 respiratory protection standard for industry. OSHA notes that the fit-testing provisions in the general standard have already withstood legal challenges. In announcing the action, OSHA stated that courts "have concluded that the requirement is supported by substantial evidence in the record, even though 'some evidence' indicated that such frequent retesting might not be necessary."

That means that annual respirator fit-testing for health care workers — a procedure many ICPs have protested is labor-intensive and unnecessary — will now be required. While it is not clear how many ICPs are already doing annual fit-testing, many apparently have gone to a policy of fit-testing on hire and then asking questions during an annual employee screening.

"Fit-testing is necessary so the employee knows they have the right size and they understand and

Hospital Infection Control®, including **Infection Control Consultant**™ and **Healthcare Infection Prevention**™ (ISSN 0098-180X), is published monthly by Thomson American Health Consultants, 3525 Piedmont Road, Building Six, Suite 400, Atlanta, GA 30305. Telephone: (404) 262-7436. Periodicals postage paid at Atlanta, GA 30304. POSTMASTER: Send address changes to **Hospital Infection Control**®, P.O. Box 740059, Atlanta, GA 30374.

Subscriber Information

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

Subscription rates: U.S.A., one year (12 issues), $449. Outside U.S., add $30 per year, total prepaid in U.S. funds. Two to nine additional copies, $359 per year; 10 to 20 additional copies, $269 per year. For more than 20 copies, call customer service for special handling. Missing issues will be fulfilled by customer service free of charge when contacted within one month of the missing issue date. **Back issues**, when available, are $75 each. (GST registration number R128870672.)

This continuing education offering is sponsored by Thomson American Health Consultants, which is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. Thomson American Health Consultants is an approved provider by the California Board of Registered Nursing for approximately 18 contact hours per year (provider #CEP10864).

Thomson American Health Consultants is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians. Thomson American Health Consultants designates this continuing medical education activity for approximately 18 credit hours in Category 1 of the Physicians' Recognition Award of the American Medical Association. This activity was planned and produced in accordance with the ACCME Essentials.

In order to reveal any potential bias in this publication, and in accordance with Accreditation Council for Continuing Medical Education guidelines, we disclose that Drs. Joseph (consulting editor) and Schaffner (editorial advisory board) report no consultant, stockholder, speaker's bureau, research, or other financial relationships with companies having ties to this field of study.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

Editor: **Gary Evans**, (706) 742-2515.
Vice President/Group Publisher: **Brenda Mooney**, (404) 262-5403, (brenda.mooney@thomson.com).
Editorial Group Head: **Coles McKagen**, (404) 262-5420, (coles.mckagen@thomson.com).
Senior Production Editor: **Ann Duncan.**

Editorial Questions

For questions or comments, call **Gary Evans** at (706) 742-2515.

can feel what a proper fit is like," Grant says. "But that does not translate into doing it year after year after year."

Instead, Grant and colleagues ask employees a series of questions annually to determine if another fit test is necessary. "We ask them about facial scarring, any dental changes, cosmetic surgery, or obvious weight change," she says. "If they answer yes to any of those questions then they have to be fit-tested [again]. Otherwise they just have to show the employee health nurse that they know how to put the mask and do a quick fit check."

The actual fit test involves donning the respirator and doing a series of talking and breathing exercises, including trying to determine seal leakage by asking the worker if they can smell or taste a benign agent like saccharin. **(See box, p. 16.)**

"Unless there is a product change or unless they answer 'yes' to one of those questions, there is no reason to fit test them again," Grant says. "This is why I am so disappointed that OSHA bypassed the [rule-making] system."

Asked if annual questions about worker changes are sufficient, **John Steelneck**, OSHA directorate of standards and guidance, emphasized that that the standard calls for "physically doing a new fit test every year."

"Fit-testing is a specific requirement that has to be done annually," he tells *Hospital Infection Control*. "It is redone annually because people change in size — they gain weight, they lose weight, or they have something else happening. The more they wear them and the longer they wear them, the more [complacent] they get about fit. The annual fit test is to make sure that the particular respirator they are wearing is the one that gives them a good fit."

However, ICPs argue that the drain on resources will be considerable because annual fit-testing is a labor-intensive process. Sebasco says the test takes about 15 minutes a person, and it is difficult to limit those tested to a small cadre of employees.

"We will have to do it while they are on duty, so they will have to leave their station and come to be fit-tested," Sebasco says. "I certainly agree that we need to teach our employees how to use these respirators and give them appropriate training. But the annual fit-testing is just going to take a tremendous amount of manpower and time and energy away from our patients."

OSHA argues that ICPs and their employee health colleagues must strive to keep the number of workers in a respirator program to a minimum.

"If they want to be smart, they should actually decide that it is only going to be this group of nurses and doctors who are going to be dealing with it and don't include in the program other people who may never be even peripherally [involved]," Steelneck says. "[People say], 'Now we have to fit test everybody in the hospital.' That's not true. They really need to only fit test the people who are going to be wearing the respirators and dealing with the people with TB, SARS, or any of the other biological agents that they may be exposed to."

But that is a taller order when translated to actual clinical practice. The number of ancillary worker contacts who may have to come into a patient's room run the gamut from housekeeping to plant services to social work, ICPs note.

"We tried to limit fit-testing when we started it," Sebasco says. "We tried to pick and chose people to do fit-testing on, but we had to broaden and expand that because you just don't know who is going to be in there at any given time. We had to open it up."

Dearth of data

While acknowledging that some ICPs cited additional costs and a perceived lack of benefits from repeating fit-testing, OSHA said there was insufficient data for it to drop the requirement. The agency conceded that a study cited by the Infectious Disease Society of America found that use of respirators, negative-pressure isolation rooms, and other measures reduced a hospital's skin test conversions by 90% without annual fit-testing.[3]

"The fact that a single study of workers whose respirators were fit-tested only once did not show excess TB infections does not overcome the evidence supporting OSHA's conclusion in the revised respiratory protection standard that annual fit-testing is appropriate to protect employee health," the agency said in the ruling.

In addition, a large number of participants in both the respiratory protection and TB rulemakings supported annual fit-testing, OSHA stressed. Those participants agreed that fit is not static, and that a one-time, initial fit test without a requirement for annual re-fitting does not ensure that the appropriate level of protection would continue to be sufficient, OSHA argued.

Indeed, proponents of the action say OSHA made the right call and ICPs need to demand

(Continued on page 17)

Respiratory rule includes several fit-testing basics

Worker must be able to do variety of tests

The Occupational Safety and Health Administration's (OSHA) 1998 respiratory protection standard, which now applies to tuberculosis exposures in health care settings, includes the following general requirements for respirator fit-testing:[1]

- Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
  1. position of the mask on the nose;
  2. room for eye protection;
  3. room to talk;
  4. position of mask on face and cheeks.
- The following criteria shall be used to help determine the adequacy of the respirator fit:
  1. chin properly placed;
  2. adequate strap tension, not overly tightened;
  3. fit across nose bridge;
  4. respirator of proper size to span distance from nose to chin;
  5. tendency of respirator to slip;
  6. self-observation in mirror to evaluate fit and respirator position.
- The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel, which interferes with a satisfactory fit, shall be altered or removed.
- If a test subject exhibits difficulty in breathing during the tests, he or she shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing his or her duties.
- If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and be retested.
- **Exercise regimen.** Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least five minutes before the start of the fit test.
- The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use, which could interfere with respirator fit.
- The test subject shall perform exercises, in the test environment, in the following manner:
  1. **Normal breathing.** In a normal standing position, without talking, the subject shall breathe normally.
  2. **Deep breathing.** In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
  3. **Turning head side to side.** Standing in place, the subject shall slowly turn his or her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily, so the subject can inhale at each side.
  4. **Moving head up and down.** Standing in place, the subject shall slowly move his or her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
  5. **Talking.** The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text, count backward from 100, or recite a memorized poem or song.
  6. **Grimace.** The test subject shall grimace by smiling or frowning.
  7. **Bending over.** The test subject shall bend at the waist as if he or she were to touch his or her toes. Jogging in place shall be substituted for this exercise in those test that do not permit bending over at the waist.
- Each test exercise shall be performed for one minute except for the grimace exercise, which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

Reference

1. Department of Labor. Occupational Safety and Health Administration. Respiratory protection; final rule. 63 *Fed Reg* 1,152-1,200 (Jan. 8, 1998). ■

the resources to protect workers. "It has been documented that annual fit testing makes sense," says **Bill Borwegen**, health and safety director at the Service Employees International Union in Washington, DC.

"I think OSHA did a pretty good job of articulating that in the *Federal Register* notice. The bottom line is if [hospitals] are willfully not doing this, then OSHA can issue willful citations. Instead of $7,000, they are $70,000 per incident. This an excellent opportunity for ICPs to go to their supervisors and say, 'We need more resources to protect health care workers.'"

Still, it is instructive to look at the bigger picture by going back to the 2001 report by the Washington, DC-based Institute of Medicine (IOM), which effectively killed the OSHA TB rule by determining it would put inflexible and expensive requirements on institutions at "negligible risk for occupational transmission of TB."[4]

While citing a paucity of data on the fit-testing issue, the IOM panel said the respiratory protection, in general, does not appear to be a major component of TB outbreak control. Instead, administrative measures such as identifying and isolating suspect TB cases in negative isolation rooms provided the essential protection from further transmission.

"These data, although imperfect and limited, support CDC's emphasis on administrative controls and suggest the lesser contribution of a respiratory protection program in the hierarchy of tuberculosis infection control," the IOM concluded.

"OSHA forgot their first rule of thumb," Grant says. "Engineering controls are the least important on their three rungs of control of any occupational exposure. The first [rung] is administrative, followed by work practice, followed by engineering controls. On Dec. 31, they took the engineering control and made it the most important."

References

1. Department of Labor. Occupational Safety and Health Administration. Respiratory protection; final rule. 63 *Fed Reg* 1,152-1,300 (Jan. 8, 1998).
2. Department of Labor. Occupational Safety and Health Administration. Occupational exposure to tuberculosis; proposed rule. 62 *Fed Reg* 54,160-54,307 (Oct. 17, 1997).
3. Blumberg HM, Watkins DL, Berschling JD, et al. Preventing the nosocomial transmission of tuberculosis. *Ann Intern Med* 1995; 122:658-663.
4. Institute of Medicine — Committee on Regulating Occupational Exposure to Tuberculosis. *Tuberculosis in the Workplace.* Washington, DC: National Academy Press; 2001. ■

Medical evaluations also now required by OSHA

Workers who wear respirators must be assessed

While annual respirator fit-testing has proven to be the most controversial element of the recent federal action on TB, a new requirement for medical evaluation of employees also will affect infection control and employee health programs.

Effective July 1, 2004, the Occupational Safety and Health Administration (OSHA) will require health care workers who wear N95 respirators to receive medical evaluations. The 1998 respiratory standard that OSHA is enforcing stresses that using a respirator may place a physiological burden on employees.[1] One of the minimum requirements in the medical evaluation area is for employees to be administered a questionnaire to look for possible risk factors associated with respirator use.

"They will need to medically screen everyone who is using a respirator using that questionnaire," says **Bill Borwegen**, health and safety director at the Service Employees International Union in Washington, DC. "If [workers] have health problems, they are going to have to undergo additional measures before they can be given an N95 respirator. To me, that is possibly an even bigger issue [than annual fit-testing]."

OSHA stressed fit-testing and medical evaluations in a recent statement announcing that health care facilities have until July 1 to begin compliance. "Requirements such as annual fit-testing and medical evaluations for covered employees may be new for some employers," said **John Henshaw,** administrator, in a statement. "We want to make sure they are aware of these new requirements and give them every opportunity to be able to successfully come into compliance." The mandatory medical evaluation questionnaire includes a series of yes/no questions on history of smoking, seizures, diabetes, allergic reactions, claustrophobia, and pulmonary and lung problems.

(Editor's note: The medical evaluation questionnaire is included as "appendix c" to the 1998 respirator standard. Web: www.osha.gov.)

Reference

1. Department of Labor. Occupational Safety and Health Administration. Respiratory protection; final rule. 63 *Fed Reg* 1,152-1,300 (Jan. 8, 1998). ■

MRSA infections kill six children with flu

Invasive infections with community strains

At least six children have died this year of invasive infections with community strains of methicillin-resistant *Staphylococcus aureus* (MRSA) after acquiring influenza, *Hospital Infection Control* has learned.

The finding surfaced after the Centers for Disease Control and Prevention (CDC) began investigating flu deaths in children. The reports are incomplete because there is no formal surveillance system for either flu deaths in children or community-acquired MRSA. However, *HIC* was able to confirm the six MRSA deaths and the fact that none were related to nosocomial strains of the pathogen.

"These were invasive infections that were community-associated," says **Tim Ueki**, MD, medical epidemiologist in the CDC influenza branch.

"Some children and adults are colonized with [MRSA], and they are carriers. It may not have any health implications for them until there is some invasive infection. I have actually heard about a few adult cases as well. You get influenza infection, and it facilitates the invasive staphylococcal bacterial infection. Primarily, that is going to [result in] pneumonia," he adds.

As of Jan. 6, 2004, the CDC had received reports of 93 fatal flu infections in children younger than 18. A total of 35 (38%) of the 93 children were reported to have had underlying chronic medical conditions. However, 41 (44%) were otherwise healthy. The medical history was unknown for 17 (18%) children.

Of the 55 children for whom the location of death was reported, 15 (27%) died at home, 12 (22%) died in emergency departments, 25 (45%) died as inpatients, and three (5%) died in transport to hospitals. Pneumonia was a reported complication in 25 of the 93 children. In addition to the aforementioned six children, invasive bacterial coinfections were reported in nine children with pathogens that include *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Enterococcus* sp., *Haemophilus influenzae* (type b and non-typable), *Neisseria meningitidis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *Serratia marcescens*.

"Secondary invasive bacterial infections [previously] have been associated with influenza virus infections," Ueki says. "But what is new is the increasing prevalence of community-acquired MRSA. We are starting to hear about more of these MRSA cases associated with influenza. [These infections] may have very bad outcomes, and can certainly result in critical illness or death."

In what proved to be a sentinel public health event in 1999, four fatal community-acquired MRSA infections occurred in otherwise healthy children with no history of previous hospitalization or other traditional risk factors for the pathogen. **(See *HIC*, October 1999 under archives at www.HIConline.com.)**

While those cases were not linked to flu, they heralded the emergence of community-acquired strains of MRSA. Rather than "escaping" from their traditional hospital stronghold, the continuing cases of MRSA involve strains that have genetically acquired antibiotic resistance due to massive and often injudicious prescribing trends in the community. While little data are available regarding the flu death cases, the CDC reports that some of the recently recognized outbreaks of MRSA in communities are associated with different drug-resistance patterns and possibly increased virulence compared to hospital-based MRSA strains.

The problem is that clinicians may not suspect MRSA in the community, thereby choosing the wrong empiric antibiotic therapy and setting the patient up for treatment failure. Though that occurred in at least some of the 1999 cases, it is not known whether treatment failures led to death in the six 2003 MRSA/flu cases.

"It is always a concern, [but] we are not privy to all of the clinical details," he says. "We don't have that information."

The CDC must rely on voluntary state and local reporting of such incidents and, in that regard, is requesting more reports of any flu deaths in children. The agency is developing studies in collaboration with health departments and other partners to estimate the rates of influenza-associated hospitalization and serious complications and to identify risk factors for severe illness and complications during the current season.

Additional studies are planned to assess the relative severity of this season compared to influenza-associated hospitalizations and mortality among children with those in previous seasons.

Such information might lead to revised pediatric influenza vaccination recommendations.

Of the 45 children whose influenza vaccination status was reported, only one child had evidence

(Continued on page 23)

JCAHO Update for Infection Control

News you can use to stay in compliance

Joint Commission Infection Control Conference

ICPs have skills to expand job; do they have resources?

Meeting bioterrorism, new infection challenges

Infection control professionals have the expertise to handle a rapidly expanding job definition, but must have the resources and staff to accomplish the new demands on the profession, a leading ICP recently said in Chicago at a conference held by the Joint Commission on Accreditation of Healthcare Organizations.

The Joint Commission held the Nov. 17-18, 2003, meeting to discuss the future of infection control and release its new 2005 standards for the field.

Effective Jan.1, 2005, the new infection control standards describe a facilitywide program that enjoys both administrative support and staff collaboration. **(See standards highlights, p. 20.)**

Whether such a vision truly becomes a reality may well depend on how serious the Joint Commission is about the infection control revolution it appears to be trying to start.

Right now, as evidenced by the meeting in Chicago, the bulk of the preaching still is being done to the choir. "People who have the power to allocate resources are not necessarily [ICPs], and we need something that's validated to take to those people who allocate resources," **Barbara M. Soule**, RN, MPA, CIC, the 2003 president of the Association for Professionals in Infection Control and Epidemiology, told conference attendees.

"We need to develop a deep culture of infection control and prevention in our organizations. That is the challenge that we have ahead of us. How can we accomplish that so we are prepared for whatever comes?" she asked.

And whatever comes appears to be on its way. Bioterrorism, emerging infections, and patient safety issues are exploding on all fronts, and ICPs find their job responsibilities broadening out across the continuum of care. But their epidemiologic skills put ICPs in an excellent position to meet the challenge, Soule emphasized.

"New knowledge and core skills will continue to evolve," she said. "These new skills do not fundamentally define who we are, but they add to our role, scope and complexity. [But], we need some assistance in terms of resources so we can accomplish all of our goals."

While some attendees questioned whether the Joint Commission put enough emphasis on those needed resources in the 2005 standards, Soule noted the importance of the longstanding partnership between ICPs and the nation's leading accreditation organization.

"The Joint Commission can be a powerful ally because our missions are right in line," she said. "They really care about the quality and safety for patients and so do we. We need their help to be fairly persuasive with the administrators and other folks. Not just in the hospitals, but out among the federal agencies. So I am hoping that they will take that challenge on."

Knowledge must expand

The current skill base of ICPs, the knowledge of infectious disease detection and prevention has to expand with every new pathogen such as severe acute respiratory syndrome (SARS). ICPs must not only know how to prevent transmission, they must master teaching abilities, use available research, and ensure they know the employee health ramifications, she said.

"As each new pathogen or disease presents

itself, we need to understand the epidemiology of the organism," Soule said. "Is it the same challenges in new clothes, or do we need a whole new wardrobe? Obviously, we can't focus on bioterrorism and emerging pathogens to the exclusion of preventing health care-related infection."

Battle in the balance

The ongoing battle against old enemies still is in the balance. While it is well and good to look to future challenges, Soule pointed to a recently published study that tallied the extraordinary costs of infections resulting in postoperative sepsis.[1]

"You can see we still have a lot of work do," she said. "If you look at post-op sepsis, excess days are almost 11, excess charges close to $60,000, and attributable mortality close to 22%."

With such issues still ongoing, the field must hold its current focus while expanding to meet the new challenges, she said. "I don't believe we need a bioterrorism and emerging infections section [in Joint Commission standards]. New knowledge and skills essential for bioterrorism and emerging pathogens expand the scope and complexity of infection control practice."

But again, that begs the question of resources and staffing. Concerning the latter, Soule noted

JCAHO cites collaboration, adequate resources for 2005

New standards effective Jan. 1, 2005

New infection control standards by the Joint Commission describe a widely supported and collaborative program that represents one of a hospital's top priorities. Highlights of the 2005 standards, which are effective next Jan. 1, include this statement in the overview: "Health care-associated infections (HAIs) represent one of the major safety initiatives an organization can undertake, making the effective evaluation and possible redesign of existing infection prevention and control programs (IC program) a priority. Key program support standards include:

STANDARD IC.8.10
Representatives from relevant components/functions within the hospital collaborate to implement the infection control program.
Rationale
The successful creation of an organizationwide IC program requires collaboration with all relevant components/functions. This collaboration is vital to the successful gathering and interpretation of data, design of interventions, and effective implementation of interventions. Managers within the hospital who have the power to implement plans and make decisions about interventions related to infection prevention and control participate in the IC program. While a formal committee consisting of leadership and other components is not required as evidence of this collaboration, the hospital may want to consider this option.
Elements of Performance for IC.8.10
1. Hospital leaders including medical staff, licensed independent practitioners, and other direct and indirect patient care staff (including, when applicable, pharmacy, laboratory, administration, central supply/sterilization services, housekeeping, building maintenance/engineering, and food services) collaborate on an ongoing basis with the qualified individual(s) managing the infection control program.
2. Those representatives participate in these activities:
   - Development of strategies for each component's/function's role in the IC program.
   - Assessment of the adequacy of the human, information, physical, and financial resources allocated to support infection prevention and control activities.
   - Assessment of the overall failure or success of key processes for preventing and controlling infection.
   - The review and revision of the IC program as warranted to improve outcomes.

STANDARD IC.9.10
Hospital leaders allocate adequate resources for the infection control program.
Rationale
Adequate resources are needed to effectively plan and successfully implement a program of this scope.
Elements of Performance for IC.9.10
1. Leaders review on an ongoing basis (but no less frequently than annually) the effectiveness of the hospital's infection prevention and control activities and report their findings to the integrated patient safety program.
2. Adequate systems to access information are provided to support infection prevention and control activities.
3. When applicable, adequate laboratory support is provided to support infection prevention and control activities.
4. Adequate equipment and supplies are provided to support infection prevention and control activities. ■

that a recent study confirmed that the old ratio of one ICP per 250 beds is insufficient for today's demands.[2]

"[That] study that showed that 0.8 to one ICP per 100 occupied beds — based on current practice today — was more in line with resources needed for effective programs," she told attendees. That same study found that 100% of participants agreed that identifying the occurrence of infectious diseases and assessing patients were critical functions, but 10% said they did not have time to do such tasks.

"The primary factors influencing nonperformance were competing priorities and responsibilities for traditional and nontraditional infection functions," Soule said. Competing issues cited included bioterrorism, workers' compensation, and latex allergies. In addition, staffing and lab support often was lacking.

The price for undersupporting infection control programs already has been exacted on Toronto, Soule reminded, citing the comments of Canadian clinicians that directly linked some of their considerable problems with SARS to reduced infection control resources.

References

1. Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. *JAMA* 2003; 290:1,868-1,874.

2. O'Boyle C, Jackson M, Henly SJ. Staffing requirements for infection control programs in U.S. health care facilities: Delphi project. *Am J Infect Control* October 2002; 30(6):321-333. ■

Joint Commission Infection Control Conference

Between the unknown and the uninformed

ICPs must craft 'message,' provide answers

Amid increasing sensational press exposés and consumer advocates demanding release of hospital infection rates, comes this cold truth from a leading public health official: Health care-associated infections are fraught with so many variables that epidemiologists don't really know how many occur and how many can be prevented.

For example, it has been estimated 2 million nosocomial infections occur annually, but projections are as high as 4 million, said **Steve Solomon**, MD, acting director of the division of health care quality promotion at the Centers for Disease Control and Prevention (CDC).

Solomon spoke at an infection control conference held recently in Chicago by the Joint Commission, which has taken an increasing interest in collecting data about serious nosocomial infections. While much is unknown, Solomon stated flatly that one thing is clear — there is an inherent risk in entering the health care system.

"Who is at risk? Everybody is at risk," he said. "Every time you come into contact with the health care system there is some potential risk."

He also reminded conference attendees that the traditional wisdom that some one-third of infections are preventable is essentially a baseline estimate. The CDC data from the study on the efficacy of nosocomial infection control (SENIC) was collected decades ago by researchers who were not trying to answer the question of preventability of any given infection.[1]

"How preventable are nosocomial infections? That is the $64,000 question," Solomon said. "It is uncertain. For many years at CDC, we used the figure 28% to 32%. We got that from the SENIC study. It certainly is a good baseline number. What they [really] said was in 1975 if all hospitals had infection control programs — according to certain criteria of infection surveillance and control — the number of infections would be 28% to 32% lower than hospitals that don't have such programs."

Yet with scathing press coverage and public demands for medical data increasing, there is a growing perception that health care infections are medical errors that can be prevented. Given that, consumers want to know where and how many infections are occurring before they seek medical care.

"Health care is a commodity," he said. "It is bought and sold, and that's why consumers want information. They want information about health care to be transparent, and they want it to be accountable."

Time for a public education campaign?

Epidemiologists have long stressed that data that are not risk adjusted for patient severity of illness — or otherwise taken out of epidemiologic context — actually could make good hospitals look worse than poor ones. For example, hospitals with lax surveillance programs detect fewer

infections — and thus may have lower infection rates — than those that strive to identify and prevent every one. In light of such complex issues, Solomon was asked if the CDC would consider a public education campaign to explain the inherent risks of infection in the health care environment and the ongoing efforts of ICPs to prevent such outcomes.

"What is the [campaign] message?" Solomon said, pondering the question. "The message can't be that there is a risk that you can't control. The message can't be that there are things out there that are preventable that we are not preventing. We've got to figure out what the message is [for] our industry. Is it risk-free care? Is it the best care available? I'm not sure that we know. I agree with you [that there] is a breakdown in communication. I think we need to have a frank and honest dialogue within the industry about what is it we really want to communicate."

Barbarians at the gates?

That dialogue might need to come sooner than later, because consumer groups and attorneys are starting to demand data that hospitals traditionally have fiercely protected. For example, the Consumers Union — publishers of *Consumer Reports* — have set up a web site: www.stophospitalinfections.org.

"We're going to have little [ratings] circles eventually, black and red, like they do for the cars," Solomon told conference attendees.

"It sounds silly but it may not be that far away. There is tremendous press and public scrutiny, a lot of discussion in Congress. This is a very real issue. In Illinois and Pennsylvania at the state level, [there are demands] for reporting infections. . . . We have to address the public perception. We have got to do something about those screaming headlines [in] paper after paper," he continued.

Yet while there are, so to speak, barbarians at the gates, there is little comfort on what is going on inside the castle. Solomon described a health care system overwhelmed by information, hampered by antiquated systems, and thoroughly undercut by chaos.

For example, there currently is an unprecedented exchange of medical information, with more than 20,000 articles published on infectious diseases in 2003, he said. Roughly 1,000 of those articles deal with severe acute respiratory syndrome (SARS).

"We have added close to a thousand new articles on a disease that didn't exist last New Year's Eve," he said. "We have today in health care reached and exceeded the ability of the system to adapt to the input that is coming in to it."

Chaos within, pressure without

As a result of all the chaos within and pressure without, the CDC is striving to become more "responsive and accountable," he said. New fast-track approaches under study for infection control in clinical settings include more practical surveillance methods such as random chart review, charts screened based on certain thresholds like antibiotic use, and syndromic surveillance to detect clusters. While many private companies feature elaborate tracking systems that can tell where your order is at any time, the health care system is in need of a massive overhauling of computer and information systems to meet current demands for information, he said.

"We need to free your time to do hands-on prevention," he told the ICPs in the audience.

Better statistical models are needed to delineate patients with "suspect" infections, who may or may not be epidemiologically significant but remain outside the grasp of surveillance definition. "There is a group of patients who have suspect infections who live in a nether world between confirmed infections and no infection," Solomon said.

Given such gray areas, the demands by some for hospital infection data — like a reading off a meter — seem all the more counterproductive. But the demands will not stop, so the challenge is to make the data more meaningful and understandable, he said.

"I think the thing for us to do as infection control professionals and epidemiologists is to figure out how we are going to make the data more meaningful, and convince the people that want that data that a lot of [that information] isn't going to help them," Solomon said. "We have got to figure out which data are going to help them and show them why they can help them. We have got to turn that sow's ear into a silk purse, and it's not going to be easy."

Reference

1. Haley RW, Culver DH, White J, et al. The efficacy of infection surveillance and control programs in preventing outbreaks of nosocomial infections in U.S. hospitals. *Am J Epidemiol* 1985; 121:182-205. ■

(Continued from page 18)

of adequate vaccination. In contrast, 33 (73%) were not vaccinated, and six children were only partially vaccinated (i.e., they had received one of two doses). Five children were reported as vaccinated, but the interval between vaccination and onset of illness was not documented.

Because young, otherwise healthy children are at increased risk for influenza-related hospitalization, influenza vaccination of healthy children ages 6-23 months continues to be encouraged when feasible. However, vaccination of children ages 6 months or older usually is more strongly recommended primarily for those with underlying medical conditions.

Clinicians should consider influenza testing in children who have severe febrile illness, when flu viruses are circulating in their local community. Clinicians should recognize that secondary conditions such as bacterial infection can complicate some cases of influenza. Susceptibility testing of bacterial isolates is important to guide appropriate antibiotic therapy, the CDC advises.

"Ninety-three children have died of flu so far this year, and that's a very, very sad and sobering figure," said **Julie Gerberding**, MD, CDC director, at a recent press conference. "Because some of the children have died from complicating bacterial pneumonia, [we advise clinicians] to think about bacterial pneumonia, to test the child to make sure that the infection is sensitive to the antibiotics that would be indicated if there was a complicating pneumonia, and to be alert for drug-resistant bacteria because that has been a problem in some of the children with complicating illnesses," she added.

In addition, the CDC is emphasizing that children with chronic medical conditions are at increased risk for hospitalization and death with flu infection. "[Clinicians should] have a very low threshold of suspicion for thinking about flu in children with underlying medical conditions," Gerberding said.

The CDC is trying to stop transmission among children in schools and other public settings by launching the "Germ Stopper" campaign. (To obtain educational materials for the campaign, go to: www.cdc.gov/flu/.) The campaign urges hand hygiene and other common-sense measures to limit the spread of flu and colds in public gathering places.

"These materials are available for schools, for churches, for any venue where children gather or parents gather," Gerberding explained.

"This campaign is based on the concept that flu and colds are mainly spread through close contact, through coughing and sneezing, and through transmitting the germs on hands. So there's a strong emphasis on that old-fashioned intervention, good hand hygiene. We're hoping that this will just be a reminder, in schools and other public places, to take the simple steps that really do make a difference in preventing transmission of these infectious diseases," she said.

[Editor's note: As this issue goes to press, the CDC received reports of 18 additional pediatric flu deaths, bringing the total to 111 as of Jan. 20, 2004. Possible coinfection with MRSA in any of the additional cases could not be determined at press time. In light of the cases, the CDC is asking for any clinical reports of pediatric flu deaths. To report the influenza-associated death of a child, state health departments should contact the CDC's Influenza Branch at (800) 232-4636. E-mail: eocinfluenza@cdc.gov. Case-reporting and specimen-collection forms will be made available to state health departments and medical examiners via the Epidemic Information Exchange at www.cdc.gov/mmwr/epix/epix.html. When completed, the forms should be sent with a cover sheet headed ATTN: Fatal Case Reporting to the CDC via fax at (888) 232-1322.] ■

The CDC heads to Vietnam to assess pandemic threat

H5N1 avian flu kills 12 in Vietnam

Concerned about the emerging threat of pandemic influenza in Vietnam, the Centers for Disease Control and Prevention (CDC) has dispatched a team to Hanoi to investigate an H5N1 avian flu outbreak that had claimed 12 lives as of Jan. 15, 2003.

In the United States, the CDC has issued an alert for enhanced surveillance of possible incoming cases. State and local health departments, hospitals, and clinicians should look for patients who have been hospitalized with unexplained pneumonia, acute respiratory distress syndrome, or severe respiratory illness *and* who have traveled to Vietnam, South Korea, and Japan within 10 days from onset of symptoms.

Since the end of October 2003, 14 people (13 children and one adult) in Vietnam have been admitted from surrounding provinces to hospitals in Hanoi for severe respiratory illness.

Among the 14 patients, three (two children and one adult) have had avian influenza A (H5N1) virus infections confirmed by testing conducted at the National Institute of Hygiene and Epidemiology in Hanoi and in Hong Kong. Twelve of the patients, including 11 children and the mother of one of the deceased children, have died.

A near miss of a global influenza pandemic involving a strain of H5N1 occurred in Hong Kong in 1997. In that outbreak, fatal infections occurred in otherwise healthy people and H5N1 was transmitted to at least two health care workers before it was stopped.

In 1997, 18 people were hospitalized and six died. Last year, two residents of Hong Kong who traveled to China acquired H5N1 infections and one of them died. Flu experts predicted the avian strain would appear again because it has a reservoir in the wild bird population.

Vaccine work under way

Raising the specter of pandemic flu, the World Health Organization (WHO) reports that network laboratories immediately will begin work on the development of a strain that can be used to produce a vaccine. WHO has initiated the development of candidates and reagents for vaccine production, plus antigenic and genetic assessments of the H5N1 strain to provide up-to-date diagnostic tests to national influenza centers.

The H5N1 strain implicated in the outbreak has been partially sequenced. All genes are of avian origin, indicating that the virus that caused death in the three confirmed cases had not yet acquired human genes. The acquisition of human genes increases the likelihood that a virus of avian origin can be transmitted readily from one human to another. Investigations are focusing on the source of infection and possibilities of human-to-human transmission.

Staff from the CDC will travel to Vietnam to work with WHO and Vietnam's human and animal health authorities to evaluate the situation, including patterns of transmission of the H5N1 viruses. Dubbed "chicken ebola" for its deadly effect on farm poultry, the avian strain also has stricken farms in Vietnam. In December 2003, an outbreak of H5N1 was reported among poultry in South Korea. In January of this year, Japan reported the deaths of 6,000 chickens on a single farm due to H5N1 infection. No human cases of infection with the avian influenza virus have been reported in either of those outbreaks. ■

SARS returns: Look for pneumonia, travel history

Will China cases spread beyond borders?

On Jan. 13, 2004, the World Health Organization (WHO) reported a new suspect case of severe acute respiratory syndrome (SARS) in a 35-year-old man living in Guangdong province, China. The case is the third recent report of suspected or confirmed SARS in patients in southern China. No link has been established at present between the confirmed case and the two recent suspect SARS cases, and the source of exposure for all three cases is unclear.

In light of these reports, the CDC is recommending that clinicians in the United States maintain a greater index of suspicion of SARS in patients who require hospitalization for radiographically confirmed pneumonia or acute respiratory distress syndrome (ARDS) AND who have a history of travel to Guangdong province (or close contact with an ill person with a history of recent travel to Guangdong province) in the 10 days before onset of symptoms. When such patients are identified, the following actions should be taken:

- Patients should be placed immediately in appropriate isolation precautions for SARS (i.e., contact and airborne precautions).
- Patients should be reported promptly to the state or local health department.
- Patients should be tested promptly for evidence of SARS-CoV infection as part of the diagnostic evaluation. (See Appendix 2, "Updated Guidelines for Collecting Specimens from Potential SARS Patients," in the CDC document *In the Absence of SARS-CoV Transmission Worldwide: Guidance for Surveillance, Clinical and Laboratory Evaluation, and Reporting* at www.cdc. gov/ ncidod/sars/absenceofsars.htm.)
- The health department should identify, evaluate, and monitor relevant contacts of the patient, as indicated. In particular, the health status of household contacts or people who provided care to symptomatic patients should be assessed.

In addition, the CDC continues to recommend that health care providers and public health officials identify and report patients who require hospitalization for radiographically confirmed pneumonia or ARDS without identifiable etiology **AND** who have one of the following risk factors in the 10 days before the onset of illness:

- Travel to mainland China, Hong Kong, or Taiwan, or close contact with an ill person with a history of recent travel to one of these areas.
  OR
- Employment in an occupation associated with a risk for SARS-CoV exposure (e.g., health care worker with direct patient contact; worker in a laboratory that contains live SARS-CoV).
  OR
- Part of a cluster of cases of atypical pneumonia without an alternative diagnosis.

Diagnostic testing for SARS should be considered in such patients, as described in the guidelines at www.cdc.gov/ncidod/sars/absenceofsars.htm. "Infection control practitioners and other health care personnel should also be alert for clusters of pneumonia among two or more health care workers who work in the same facility," the CDC warned. ■

ABSTRACT & COMMENTARY

Resistant HIV strains may undermine PEP regimens

Exposed workers should be given different drug

Synopsis: In a multicenter study of occupational HIV exposures, 38% of source patients had genotype mutations associated with resistance to antiretroviral drugs. Recent antiretroviral treatment history was highly associated with resistance.

Source: Beltrami EL, et al. **Antiretroviral drug resistance in human immunodeficiency virus-infected source patients for occupational exposures to health care workers.** *Infect Control Hosp Epidemiol* 2003; 24:724-730.

Beltrami and colleagues enrolled health care workers (HCWs) with percutaneous exposure to HIV, along with source patients for the exposures, in tertiary care medical centers in five U.S. cities. They collected antiretroviral treatment histories from source patients. In addition, they collected source patients' blood for RNA viral load. HIV-1 isolates were submitted for genotyping to identify mutations associated with primary drug resistance.

They enrolled a total of 64 HCW-patient pairs. Fourteen patients had undetectable viral loads, and thus virus was not available for genotyping. Of the 50 isolates genotyped, 19 (38%) had one or more (range: 1-6) mutations associated with primary drug resistance. Of the 50 patients, 26 had taken and 23 had not taken antiretroviral agents within the three months prior to the exposure incident. No drug treatment history was available from one patient. Of the 26 isolates from patients having received antiretroviral therapy, 16 (26%) had at least one primary drug resistance mutation. Of the 23 isolates from patients without recent antiretroviral treatment, three (13%) had at least one primary drug resistance mutation.

Multivariate analysis was performed on five drugs that are included in the Centers for Disease Control and Preventions' (CDC) current post-exposure prophylaxis (PEP) regimens: lamivudine, zidovudine, efavirenz, nevirapine, and nelfinavir.[1]

Resistance to a specific drug was related to current or previous (within three months) use of that drug or of another drug of the same class. The results were similar when agents used within the preceding year were analyzed. Beltrami, et al. recommend that when a health care worker sustains a percutaneous exposure from a source patient known to be HIV-positive, PEP should include one or more agents with which the source patient has not been treated. If that is not possible, an attempt should be made to select agents with which the source patient has not been treated within the preceding three months.

Comment by Robert Muder, MD, hospital epidemiologist, Pittsburgh VA Medical Center

Although an HCW's risk of acquiring HIV infection after a percutaneous exposure to blood from an HIV-positive source patient is low (0.3%), the U.S. Public Health Service recommends the initiation of PEP to reduce the risk further.[1]

Although there are no controlled trials of PEP, the estimated efficacy is approximately 80%, based on indirect evidence and animal models.

The recommended regimes contain two or three antiretroviral drugs; ideally, PEP should be started within 24 hours of exposure. The relatively high prevalence of primary drug resistance mutations in HIV from patients who have received antiretroviral therapy could potentially compromise the efficacy of antiretroviral therapy. At the time of a percutaneous exposure incident, the viral genotype of the source patient is likely to be unavailable, and the appropriate testing can't be

performed within the 24-hour window in which PEP should be initiated.

Beltrami, et al. show evidence that the source patient's recent history of antiretroviral therapy is highly correlated with the presence of primary drug resistance mutations. It's not perfect; for example, 13% of treatment-naïve patients had virus with drug resistance mutations. Nevertheless, treatment history likely is to be obtainable in a timely fashion and offers at least a rational basis for adjusting the agents used in PEP. Whether such an approach will reduce the incidence of occupationally acquired HIV infection probably never will be demonstrated by a clinical trial, but at present, it seems to be a highly logical approach.

Reference

1. Centers for Disease Control and Prevention. Updated U.S. Public Health Service guidelines for the management of occupational exposures to HBV, HCV, and HIV and recommendations for postexposure prophylaxis. *MMWR Morbid Mortal Wkly Rep* 2001; 50(RR11):1-52. ■

JOURNAL REVIEWS

Positive news: Culture results a matter of time

Timing culture results to prevent BSIs

Radd I, Hanna HA, Alakech B, et al. **Differential time to positivity: A useful method for diagnosing catheter-related bloodstream infections.** *Ann Intern Med* 2004: 140:18-25

Diagnosing potentially deadly central venous catheter–related bloodstream infections may be difficult, but the authors found that a lot of it may be a matter of timing.

Differential time to positivity of at least 120 minutes between centrally and peripherally drawn blood cultures helps diagnose catheter-related bloodstream infection, especially in critically ill patients, the authors reported. Accurate diagnosis of such infections results in proper management of patients and in reducing unnecessary removal of catheters.

This prospective study from a tertiary care cancer center examined 191 infections with the same

CE/CME *questions*

If you have any questions about the testing method, please contact customer service at (800) 688-2421.

5. OSHA recently announced that it will require which of the following under its general respiratory standards?
   A. annual respirator fit-testing
   B. medical evaluations of employees who wear respirators
   C. some training and record-keeping provisions
   D. all of the above

6. A concern is that clinicians may not suspect strains of methicillin-resistant *Staphylococcus aureus* in the community, thereby choosing the wrong empiric antibiotic therapy and setting the patient up for treatment failure.
   A. true
   B. false

7. The acquisition of human genes increases the likelihood that an avian flu virus:
   A. will be susceptible to an existing vaccine
   B. can be readily transmitted from one human to another
   C. no longer will be transmissible between humans
   D. will result in self-limiting, mild infection

8. With severe acute respiratory syndrome appearing again in China, the CDC advised infection control practitioners and other health care personnel to be alert for clusters of pneumonia among two or more:
   A. family members
   B. Canadians
   C. health care workers who work in the same facility
   D. public health investigators

CE/CME instructions

Physicians and nurses participate in this CE/CME program by reading the issue, using the provided references for further research, and studying the questions. Participants should select what they believe to be the correct answers, then refer to answer key to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing the semester's activity, you must complete the evaluation form that will be provided and return it in the reply envelope to receive a certificate of completion. ■

organism detected from simultaneously drawn central and peripheral blood cultures. Catheter-tip colonization or quantitative blood cultures defined catheter-related bloodstream infection. When the culture drawn from the catheter became positive at least 120 minutes earlier than the peripherally drawn culture, the odds of catheter-related bloodstream infection increased almost sixfold.

The study included all patients over a one-year period that had the same organism isolated from blood cultures drawn simultaneously through the central venous catheter and the peripheral vein. The key measurement was the time necessary for the blood cultures from the central venous catheter and the peripheral vein to become positive, as well as other relevant patient information.

As a diagnostic tool for catheter-related bacteremia (using a composite definition reference standard according to the Infectious Diseases Society of America guidelines), differential time to positivity of 120 minutes or more was associated with 81% sensitivity and 92% specificity for short-term catheters and 93% sensitivity and 75% specificity for long-term catheters. "Differential time to positivity of 120 minutes or more is highly sensitive and specific for catheter-related bacteremia in patients who have short- and long-term catheters," the authors concluded. ▼

Cat fever: Curiosity almost killed the owner

Be wary of animals and dialysis patients

Sillery J, Hargreaves J, Marin P, et al. ***Pasteurella multocida* peritonitis: Another risk of animal-assisted therapy.** Letter to the Editor. *Infect Control Hosp Epidemiol* 2004; 25:5-6.

Here's one for the strange-but-true case file: A 48-year-old woman under home therapy for continuous ambulatory peritoneal dialysis (CAPD) presented to the emergency department with a one-day history of fever and chills accompanied by general abdominal discomfort without nausea or vomiting. She had end-stage renal failure and had been on maintenance peritoneal dialysis for three years. The patient was admitted to the hospital for management of suspected peritonitis.

Empiric antibiotic therapy, consisting of intraperitoneal cefazolin and gentamicin, was initiated with no improvement. *Pasteurella multocida* was isolated from the peritoneal fluid on day 4 and found to be sensitive to gentamicin, ciprofloxacin, and trimethoprim-sulfamethoxazole, and the patient

COMING IN FUTURE MONTHS

- The final round in the epic TB battle
- Just in case: Cost-effective compliance tips for OSHA TB actions
- Preparing for the JCAHO's new infection control standards
- Merging bioterrorism and natural disaster planning
- Complete coverage: ICEID in Atlanta, APIC in Phoenix, SHEA in Philadelphia

responded to intravenous ampicillin.

The patient reported she had a cat, which was — for her — an important source of psychosocial support. She admitted to frequent breaks in handwashing technique, with her cat frequently licking her hands before and during fluid cycling.

"The cat also displayed his curious nature by habitually investigating the tubing and fluid bags during the cycling process," the authors noted. The patient's outcome could have been dire had the novel infecting pathogen gone undetected.

"This case illustrates the potential for zoonotic transmission of diseases to humans undergoing CAPD," the authors concluded. "With the number of patients using at-home [dialysis treatment] increasing and the numbers of dogs or cats in the home burgeoning, the clinician must be suspicious of a pet-acquired illness in a patient with peritonitis. Given the proximity of pets to their owners and the natural attraction of a carnivorous animal to human body fluid, it is clear that the supposedly healing touch of a dog's or cat's tongue could be fatal for a patient undergoing CAPD." ■

CE/CME objectives

After reading each issue of *Hospital Infection Control*, the infection control professional will be able to do the following:

- identify the particular clinical, legal, or educational issue related to epidemiology;
- describe how the issue affects nurses, hospitals, or the health care industry in general;
- cite solutions to the problems associated with those issues, based on guidelines from the federal Centers for Disease Control and Prevention or other authorities, and/or based on independent recommendations from clinicians at individual institutions. ■

CE/CME answers

5. D	7. B
6. A	8. C