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As feds pour funding into infection projects, IPs become vital link between research and care

Translating proven prevention to clinical care

Saying preventing health care associated infections (HAIs) is a national priority, the federal Agency for Healthcare Research and Quality (AHRQ) is putting considerable money where its mouth is: $34 million. AHRQ recently allocated the funds to launch 22 HAI prevention and implementation projects across the continuum of care.

In an era of health care reform and scarce resources there is a redoubled sense of urgency to translate proven research into clinical practice. In this new paradigm, infection preventionists are the "linchpin" between research and clinical practice — key players in translating science to the patient bedside, says **Russell N. Olmsted**, MPH, CIC, president of the Association for Professionals in Infection Control and Epidemiology.

"One thing infection preventionists bring to research is that they kind of answer the question of how," says Olmsted, an epidemiologist in Infection Prevention & Control Services, St. Joseph Mercy Health System in Ann Arbor, MI. "Some of the basic research answers the 'what' in terms of strategies that may have benefit in preventing infections. Preventionists take the basic research findings and really translate or implement those. So it is kind of like we are the linchpin. We are connecting that published evidence in the journals to the patient bedside to improve care."

In that regard, one of the key AHRQ projects is national implementation of a Comprehensive Unit-based Safety Program (CUSP) to reduce Central Line-Associated Blood Stream Infections (CLABSIs). AHRQ is pushing for nationwide adoption of a groundbreaking "checklist" approach to preventing CLABSIs in intensive care units, a much heralded program that is often cited as proof

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that HAIs are preventable rather than inevitable. Originally implemented at Johns Hopkins Hospital and in ICUs throughout Michigan, the program is widely known for using a checklist for proper insertion of central venous lines.[1] *(See Hospital Infection Control, October 2008)*. In addition to the AHRQ project, the protocol is also the focus of a nationwide adoption campaign by APIC. The enthusiasm is well-founded, as the CLABSI prevent protocol recently showed statistically significant reductions in the mortality of older patients. *(See related story, p. 30.)*

The ARQ initiative expands the CLABSI prevention program to include all interested hospitals in the U.S., Puerto Rico, and Washington, D.C.

"We are trying to make sure everybody gets on board with what is really a proven approach," says **James Cleeman**, MD, AHRQ senior medical officer. "This is a good example of trying to accelerate the adoption of an evidence-based method."

The project will also include efforts by some facilities to extend the current CLABSI program to hospital units outside the ICU.

"Consortiums have been created in the various states that include the state health department, the state hospital association and project coordinators so that things are done in an organized way," he says. "They will bring together the hospitals and the state health department and to make sure there is a focus for this partnership in each state."

HHS plan continues to unfold

The AHRQ projects are being funded as part of the Department of Health and Human Services (HHS) Action Plan to prevent HAIs. The HHS collaborative also includes the Centers for Disease Control and Prevention, the Centers for Medicare & Medicaid Services (CMS), and the National Institutes of Health. With the new funding, the agencies are trying to identify and address gaps in HAI prevention, improve antibiotic prescribing practices and delivery, and enhance communication and teamwork among health care providers.

"We think that HAIs are a very important problem," Cleeman says. "The data suggest that they cause in the neighborhood of almost 100,000 deaths a year and more than $30 billion in economic loss. It's a very big problem and we think that there are some proven ways to reduce them."

Asked if such levels of funding for HAI research and implementation projects are expected to continue, Cleeman says, "There are competing priorities all over the health care system. How Congress will act on this is a complicated prediction that I wouldn't dare make. But the reason we are in the business

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AHRQ casts wide net of HAI research projects

Hospital projects include SSIs

The federal Agency for Healthcare Research and Quality's (AHRQ) $34 million initiative to prevent health care associated infections (HAIs) includes the following hospital-based projects. Look to future issues of *Hospital Infection Control & Prevention* for full findings and analysis of these projects.

Effect of the use of universal glove and gowning on HAI rates: This project will determine the effectiveness of universal glove and gowning procedures in reducing HAI rates in intensive care units (ICUs). Objectives include:

1. Documenting the effectiveness, costs, and unintended consequences associated with implementing universal glove and gowning procedures.
2. Disseminating the study findings, including information about the costs and unintended consequences.

Evaluating *Clostridium difficile* infection in hospitalized patients: This project will evaluate the extent to which hospital-level antibiotic and gastric acid suppressant usage patterns, infection prevention and control, and pharmacy policies predict CDI occurrence; develop and compare various approaches to risk adjustment to identify hospitals with higher- or lower-than-expected CDI rates; and identify facilitators and barriers to implementation of best practices for CDI prevention.

National implementation of comprehensive unit-based safety program (CUSP) to reduce central line-associated blood stream infections (CLABSIs): This project expands the previously funded project to reduce CLABSI to allow participation by all units and in all hospitals that wish to reduce CLABSI rates. Objectives include:

1. Expanding the CUSP-CLABSI efforts to include all interested hospitals in the 10 States that were funded in fiscal year 2008.
2. Expanding the current CUSP-CLABSI efforts in the intensive care unit (ICU) to include all states, Puerto Rico, and the District of Columbia and increase the number of hospitals per state that participate in the effort.
3. Extending the current CUSP-CLABSI efforts to demonstrate the effectiveness of CUSP in reducing CLABSI in hospital units outside the ICU.

Central venous catheter-related blood stream infections in pediatric cancer: This project will perform a study comparing the impact of using a specialty team of nurses providing evidence-based central venous catheter care versus the use of assigned bedside nurses on reducing central venous catheter-related blood stream infections among pediatric oncology patients.

Translating comparative effectiveness research results from ICU study to improve outcomes in cardiac surgery: This project will implement and evaluate the impact of CUSP on rates of SSIs and cardiac operating room safety culture; on rates of CLABSI, ventilator-associated pneumonia, and safety culture in cardiac surgical ICUs; on errors associated with handoffs from the ICU to the floor and discharge from the hospital; and on 30-day mortality, hospital readmissions, and hospital length of stay in cardiac operating rooms, ICUs, and floors compared to passive feedback of outcome data.

Quality of care and outcomes of health care-associated pneumonia: This project will characterize the clinical features and outcomes of patients hospitalized with health care-associated pneumonia compared to patients hospitalized with community-acquired pneumonia. It will refine and validate an inpatient pneumonia mortality model using hospital claims data and assess adherence to antibiotic prescribing guidelines in the setting of health care-associated pneumonia and identify factors associated with guideline-concordant treatment.

Optimizing pre-operative surgical antibiotic prophylaxis: This project aims to determine whether a pre-operative antibiotic prophylaxis algorithm that includes the use (including selective use) of antibiotics shown to be effective against resistant gram-positive organisms is effective in reducing the number of SSIs attributable to resistant gram-positive organisms. Objectives include:

1. Conducting an environmental scan of existing pre-operative antibiotic prophylaxis algorithms for the prevention of cardiac and orthopedic SSIs.
2. Developing one or more new prophylaxis algorithms that incorporate the use of antibiotics with demonstrated effectiveness against resistant gram-positive organisms.
3. Designing and conducting a study to compare the new algorithm(s) against standard algorithms used for administering pre-operative antibiotic prophylaxis of SSIs in cardiac and orthopedic surgery. ■

is because we think HAIs are important. The basic AHRQ mission is to improve the delivery of health care. There are agencies that deal at the basic research end of the spectrum, but our mission is more applied and clinical on the implementation end."

The scope of the AHRQ projects and funding level is unprecedented, says **William Schaffner**, MD, chairman of the department of preventive medicine at Vanderbilt University in Nashville.

"Infection control has hit the headlines as we all know," he says. "This is a much larger investment in infection prevention and control than we have seen heretofore. There is continuing need to explore and validate a variety of infection control activities that have been proposed. As resources become constrained, obviously we want to do the right thing and the best thing."

In that regard, the AHRQ funding includes a diverse array of research, in addition to trying to improve compliance with things known to work. *(See projects list, p. 27.)*

"There are many questions about what is the best thing to do and to assess the cost effectiveness of some of the things that are proposed," Schaffner says. "For that we still need guidance. You just have to go to any infection control meeting to understand that there are brisk controversies that go on about the implementation of a variety of practices."

Indeed, when it comes to research and practice, infection control and prevention has been accused at one time or another of opposite extremes: holding fast to "sacred cow" unproven practices or continuing to methodically research areas where accumulated evidence already seems to warrant a given intervention.

"The Cochrane Reviews of research always conclude that there isn't enough evidence or that the evidence is weak [for many infection control practices]," says **Elaine Larson**, PhD, professor of pharmaceutical and therapeutic Research at the Columbia University School of Nursing in New York City. "But the focus now is not so much on doing new randomized clinical trails, but doing what is called comparative effectiveness research. That, and looking at what is already being done — sort of natural experiments — to see if when you change practice it results in improved outcomes. That is more a trend now than wanting more rigorous evidence. It is just another way to get evidence."

Universal gloving for C. diff?

For example, one of the ARQ research projects will look at universal gloving, which has become more widely discussed as a possible option since the widespread emergence of *Clostridium difficile*.

"The standard approach is to glove and gown for patients who have an identified infection and isolation is appropriate," Cleeman says. "This is an attempt to see whether doing it universally — putting on gloves and gowns for every patient — will reduce the infection rate."

The CDC is particularly interested in the feasibility of universal gloving, in part because *C. diff* is notoriously difficult to remove by hand washing — particularly with the alcohol rubs now ubiquitous in hospitals. There is also the issue of patients who are asymptomatic carriers of *C. diff*, and thus would not necessarily be in contact isolation.

"When you look for epidemiologic and experimental evidence for *C. diff* transmission via hands, only gloves have been shown to actually interrupt transmission," says **L. Clifford McDonald**, MD, FACP, a leading *C. diff* expert in the CDC's division of healthcare quality promotion. "So that's the point — don't let the hands get contaminated in the first place. Whenever you do that of course, you have to prevent [people wearing] the same pair of gloves from room to room and throughout the day, that kind of thing."

In that regard, the ARQ research project will be looking specifically for such unintended consequences, Cleeman says. "When you put on gloves and a gown for every patient you introduce a time issue — it takes time — and questions arise like would a caregiver, a nurse or a doctor moving from one patient to another find it awkward and cumbersome to put on the gloves and a gown each time?" he says. "Will patient contact by the staff be unintentionally reduced by the requirement to glove and gown?"

The project will include monitoring of compliance, with researchers ultimately trying to determine if infection rates actually are lower in units with universal gloving and gowning. "You can always defeat the intervention, but assuming the intervention is done, does it actually work?" he says. "Does it produce a positive result and are there any negatives?"

The costs of such interventions are a real-world factor that must be part of the equation, Larson adds. "Some interventions that work also end up having other untoward effects and increasing costs — the question is what is the cost benefit?" she says. "[But such research] can definitely change practices, just like the research on catheter-related blood stream

infections."

The projects will eventually be the subject of reports by AHRQ or published in the medical literature by the researchers. In any case, those shown to be effective will be targeted for broad implementation, Cleeman says.

"That's the rationale for the projects," he says. "They either spread proven approaches or they try to identify an approach that actually works and then thereafter has the promise of being spread wide."

Olmsted points out however, that the speed of adopting new findings in the literature to care delivery can be exceedingly slow. For example, a landmark study published in *The Lancet* in 1991 demonstrated the superior efficacy of 2% chlorhexidine for skin preparation prior to insertion of central lines. Despite such clear evidence, 14 years later almost a third of hospitals in a national survey were not using the product, he notes. There is more pressure than ever to narrow such gaps between proven research and clinical practice, making infection preventionists key players in the implementation process.

"AHRQ is a key driver of this because one of the areas they are interested in developing in the field is implementation science or translational research," Olmsted says. "What IPs do is take those recommendations and then apply them to their facilities."

Reference

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Infection prevention moves across care continuum

Research in surgery centers, hemodialysis, LTC

As patients have moved, infections have moved with them. Accordingly, there is a surge of interest and research funding to implement and improve infection prevention beyond the hospital. The Agency for Healthcare Research and Quality (AHRQ) has made non-hospital settings a key focus in its recent $34 million initiative to prevent health care associated infections (HAIs).

"AHRQ is really focusing on ambulatory surgical settings, clinics, long-term care — areas that have not been as attended to as acute care," says **Elaine Larson**, PhD, professor of pharmaceutical and therapeutic Research at the Columbia University School of Nursing in New York City. "I think it's terrific. It's recognizing that there needs to be more attention to prevention of infections across settings. "

Consider, for example, the dramatic growth in surgery being performed in ambulatory surgical centers (ASCs). The number of surgery centers in the U.S. has gone from 336 in 1985 to 5,047 in 2007, AHRQ reports. Ensuring safe practices within these settings has become more critical, particularly since federal inspections have identified breaches in standard infection control measures in some 60% of ASCs, the agency found. In addition to surgery centers, AHRQ's new projects also focus on end-stage renal disease and long-term care facilities, where more than 500,000 patients and more than 1.5 million residents, respectively, are particularly vulnerable to infections.

"We are interested in developing and demonstrating linkages between the various settings of care," says **James Cleeman**, MD, senior medical officer at AHRQ. "That's a very important issue. Infections don't stay confined to one setting. We are trying to figure out if we can encourage people to develop better ways to link the findings in the various settings of care so that you can track patients from one setting to another."

Some of the key AHRQ infection prevention research projects in non-hospital settings include:

Surgical site and *Clostridium difficile* infections after ambulatory surgery: This project will determine incidence of CDIs and SSIs after certain procedures performed in ASCs. It will identify facility and patient-level factors associated with increased risk of developing CDIs and SSIs, develop and validate risk prediction models using patient-level factors, and determine clinical outcomes and attributable costs of SSIs and CDIs originating in ASCs.

Healthcare cost and utilization project (HCUP) administrative data initiative to support the evaluation of HAIs in ambulatory surgery settings: This project will further develop the HCUP data infrastructure to provide baseline estimates of HAIs in the ambulatory surgery setting. Implementation strategies

aimed at decreasing the occurrence of HAIs in ambulatory surgery settings also will be evaluated. Objectives include:

1. Increasing the ability to link patients across time and setting within HCUP databases.
2. Evaluating the feasibility of developing a national readmission data file that can produce national estimates of readmissions to U.S. hospitals, including readmissions for HAIs.
3. Developing a national ambulatory surgery database.
4. Developing a toolkit for States to add clinical data to administrative data with an emphasis placed on "present on admission," a critical data element to distinguish HAIs that develop during a hospitalization.

Project CLEAR — Changing lives by eradicating antibiotic resistance: This project will conduct a randomized controlled trial of serial decolonization versus standard-of-care patient education among individuals who are carriers of MRSA upon their discharge from the hospital. It will identify predictors of infection or rehospitalization due to MRSA and of successful MRSA decolonization, and estimate medical and nonmedical costs of MRSA infection among individuals who are carriers of MRSA. The potential for cost savings associated with decolonization will be evaluated.

Multidrug-resistant urinary tract infections in ambulatory settings: This project will identify the phenotypic and genotypic characteristics of extended-spectrum beta-lactamase-producing Enterobacteriaceae (ESBL-EB) causing community-onset UTIs, elucidate risk factors for community-onset ESBL-EB UTIs, develop and validate a clinical prediction rule for community-onset ESBL-EB UTIs, and identify the clinical impact of community-onset ESBL-EB UTIs. The project has parallel aims for *Klebsiella pneumoniae* carbapenemase-producing *K. pneumoniae*.

Improving infection control practices in end-stage renal disease (ESRD) facilities: This project aims to improve adherence to infection control practices in ESRD facilities to reduce preventable vascular access infections. Objectives include:

1. Develop an infection control worksheet that can be used by ESRD facilities to assess their performance and by surveyors to identify adherence to required infection control practices.
2. Implement, evaluate, and revise the infection control worksheet at a cohort of hemodialysis facilities.
3. Develop a CUSP to prevent vascular access infections and use data from implementation of the infection control worksheet to assess facility performance.

Detection, education, research, and decolonization without isolation in long-term care: This project will test the effectiveness of a protocol for admission testing and immediate decolonization of positive persons for MRSA colonization in long-term care facilities. It will develop an infection control outreach program to provide expert guidance on infection disease prevention specific to long-term care facilities and create a model of a hospital-long-term care facilities infection control collaboration.

Preventing/Managing *Clostridium difficile* for nursing home residents: This project will implement the use of a *C. diff* infection control bundle in the nursing home. It will enhance communication among providers concerning CDI and other HAIs as individuals transition between nursing homes and hospitals, determine the costs and potential savings resulting from implementation of the intervention, and determine the extent to which nursing homes and hospitals serve as a source of *C. diff* among individuals transferred between care types. ■

Keystone ICU program reduces patient mortality

Preventionists urged to be advocates

Already shown to reduce central line-associated blood stream infections (CLABSIs), a checklist protocol program has now shown to reduce mortality in ICU patients age 65 and over, researchers report.[1]

"We knew that when we applied safety science principles to the delivery of health care, we would dramatically reduce infections in intensive care units, and now we know we are also saving lives," says **Peter Pronovost**, MD, PhD, a co-author of the paper and a professor of anesthesiology and critical care medicine at The Johns Hopkins University School of Medicine.

As previously reported in *Hospital Infection Control and Prevention*, Pronovost and colleagues developed the Keystone Intensive Care Unit Project and implemented it in Michigan hospitals. *(See Hospital Infection Control, October 2008.)* A checklist used by clinicians to

ensure aseptic technique during catheter insertion has become one of the more well known aspects of the program. It focuses on the following five key measures:

- Hand hygiene
- Full-barrier precautions during catheter insertion
- Skin cleansing with chlorhexidine
- Avoiding the femoral insertion site
- Removal of unnecessary catheters.

To evaluate whether implementation of the project was associated with reductions in hospital mortality and length of stay for older adults, the authors conducted a retrospective comparative study using data from Medicare claims. The study period (October 2001 to December 2006) spanned two years before the project was initiated to 22 months after its implementation. The study sample included hospital admissions for patients treated in 95 study hospitals in Michigan (238,937 total admissions) compared with 364 hospitals in the surrounding Midwest region (1 million total admissions). The researchers found that overall a person's chance of dying decreased by about 24% percent in Michigan after the program was implemented compared to only 16% in surrounding Midwestern states where the program was not implemented.

"This study gives us assurance that investing in large-scale, evidence-based quality improvement programs can save lives—the most important outcome for patients and doctors," says **Carolyn Clancy**, MD, director of the Agency for Healthcare Research and Quality. "AHRQ and others have already initiated work to expand this project nationwide to other ICUs across the country."

Indeed, the Association for Professionals in Infection Control and Epidemiology has launched a major campaign and set up a website to urge adoption of the protocol (http://CLABSI.APIC.org). The website is a part of APIC's "I Believe in Zero CLABSIs" campaign, in which infection preventionists are urged to lead efforts to eliminate these infections in their facilities The website brings together educational materials and guidance on preventing CLABSIs, which kill some 30,000 patients in the U.S. every year.

"Our goal in this [campaign] is to really engage as many infection preventionists as possible because they can be a local champion for improving care and patient safety," says APIC President **Russell Olmsted**, MPH, CIC, epidemiologist in Infection Prevention & Control Services at St. Joseph Mercy Health System in Ann Arbor, MI. "This is a good example of a project that has a good foundation of scientific evidence — both basic research and experience implementing it in multiple settings."

The striking results of the intervention — both in decreasing infections and now lowering mortality rates — have shattered the old perception of simply reducing BSIs to a given benchmark range, he adds. "That whole conversation has changed now to the expectation of working toward elimination — going for zero," Olmsted says.

A survey of infection preventionists conducted last year by APIC found that hospitals still struggle to prevent CLABSIs. Added financial incentives from the federal government should prompt hospitals to increase measures to eliminate the infections. Starting this year, the Centers for Medicare & Medicaid Services requires that hospitals who participate in Medicare report the number and rate of adult intensive care unit patients who acquire CLABSIs, or risk losing 2% of their Medicare payments.

Reference

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Rise of drug-resistant bugs threatens transplant patients

Communication critical between centers

A catastrophic case of failed kidney transplants in two patients due to a multidrug resistant *Escherichia coli* infection in the donor underscores the critical role of communication and documentation between health care facilities, the Centers for Disease Control and Prevention emphasizes. In this case, both recipient patients survived, but the transplanted kidneys had to be removed.

"Whatever infection the donor has can potentially be transmitted to the recipient, resulting in very bad consequences such as the loss of the donated organ or even death," says **Yenlik Zheteyeva**, MD, an investigator with the CDC's

Epidemic Intelligence Service. "We are seeing an increasing resistance in hospital infections in general, so we can probably expect an increase in transplant-related infections. It makes the whole issue of communications even more important."

Although transplantation of organs from donors with bacterial infection can be managed, transplant teams need to be aware of all donor test results so that appropriate antimicrobials can be used to treat the recipient and avoid complications of an infected organ.

"Since donated organs are so valuable and are in urgent need — this urgency actually outweighs the risk of transmission," she says "But we have to make sure that the transplant centers actually have all of the information about the infection in the donor — all of the susceptibilities and the culture results in order to start prophylactic treatment as soon as possible."

According to the CDC, on July 6, 2009, the Organ Procurement and Transplantation Network (OPTN) received notification of possible disease transmission.[1] A transplant center in California reported a kidney transplant recipient with *E. coli* urinary tract infection and sepsis suspected to have been contracted from the donated kidney. Upon further investigation, a transplant center in Texas reported that the recipient of the other kidney from the same donor developed a perinephric abscess caused by *E. coli*.

Molecular typing studies conducted at CDC showed that the *E. coli* isolates from both kidney recipients were identical to an isolate from the donor's urine. The donor, a woman aged 56 years, was admitted to the intensive-care unit for a subarachnoid hemorrhage. Attempts to stabilize the patient were unsuccessful, and she was pronounced brain dead 7 days after admission. Organ recovery was performed on the ninth day after admission. However, the patient had developed a urinary tract infection that became resistant when she was prescribed ciprofloxacin empirically.

"The very first culture when she first became febrile was found to be pan-susceptible," Zheteyeva says. "They didn't have this result until some days later because cultures take some time. She was prescribed ciprofloxlin empirically, so it looks like she developed resistance over the course of her stay. Before the culture was collected by the organ procurement organization (OPO) — when the donor was already pronounced dead — it looks like she had developed resistance to five or six antibiotics by then."

Given onset after admission the infection may have been hospital-acquired, but that was not determined as part of the investigation, she says. "This [*E. coli*] strain was resistant to ciprofloxacin in the first place," Zheteyeva. "As soon as they got the culture results she was switched to levofloxacin. They saw that she was susceptible to that according to the first culture results. I'm not sure if they could have processed the cultures quicker, but maybe a wider spectrum antimicrobial [than cipro] should have been used in this kind of situation."

In any case, in part because of poor communication about the donor's status, the transplant recipients both developed infections. The left kidney recipient's urine culture results showed the same multidrug-resistant *E. coli* as was identified in the donor urine 2 days after organ procurement. The right kidney recipient developed a wound infection with multidrug-resistant *E. coli* with the same resistance pattern as the previous isolates.

The subsequent CDC investigation identified gaps in communicating important donor information that might have adversely affected transplant outcomes. Since transplantation must be done expeditiously to ensure organ viability, the results of some cultures and tests of specimens collected at the time of organ procurement sometimes become available only after the transplant has been performed, the CDC warned. Culture results that are available after organ procurement must be communicated promptly to medical teams in transplant centers so that timely and adequate antimicrobial prophylaxis or treatment is initiated in recipients.

"It is possible to transplant these kind of organs with a known infection in the donor," Zheteyeva says. "Transplant centers have to get informed consent from the recipients. Because this is a situation of urgency they have to indicate adequate antimicrobial prophylaxis in order to prevent transmission. Communication is the key. If the transplant physicians see that the infections can be adequately treated they would probably accept it. Kidneys are in high demand and it is a long wait list. There is pressure to get the organ. "

The combination of pressure for procurement and the rise of multidrug resistant organisms — particularly gram-negative pathogens like *E. coli* — create a situation where one lapse could result in transmission.

"The CDC doesn't have a surveillance system to track this kind of situation, but the OPTN requires every suspect or potential transmission to be reported to them by transplant centers," she says. "The number of reports are increasing. [That is] probably not because the number of transmissions are increasing, but because transplant centers are more aware of this kind of situation. Transmission is reported in [about] 1% of donations from disease donors."

What we have here is a…

In this particular investigation, several failures to communicate important information were identified. The results from the donor urine culture performed 5 days before organ recovery were entered incorrectly as negative in both the donor chart that accompanied the donated organs and in DonorNet, a secure web-based computer system that provides donor information to transplant centers. Multiple cultures were still obtained by the various facilities that were positive for multidrug-resistant *E. coli*. However, because neither the organ procurement organization (OPOs) nor the transplant centers maintained communication logs, no means existed to verify that these culture results were shared among the entities, the CDC reported. In addition, no documentation was entered in the recipients' medical records of *E. coli* infection in the organ donor, and no change in the recipients' antimicrobial regimen was noted that might have indicated knowledge of this information. A failure was also noted in communicating perfusate culture results from the laboratory to the transplant team in one case, which resulted in delay in initiating appropriate antimicrobial treatment in the right kidney recipient.

"We see in the course of treatment for these two recipients there is nothing indicating that this information was actually received by transplant physicians," Zheteyeva says. "The prophylactic antimicrobials were not adequately initiated. It was definitely a lack of communication. Of course we know that during the transplantation time is an issue. Everything has to be done in a matter of hours and sometimes the OPO collects cultures and they are not available at the time of donation. As soon as [culture results] are available to the OPO they have to immediately be reported to the transplant center. And not to just a random person but to a point of contact that the OPO is sure will convey the message, a person that will contact the transplant physicians caring for this particular recipient."

As a result of the case, this designated "patient safety contact" is specificed in recently revised OPTN policy.

"Now OPOs are expected to have a patient safety contact who would be available 24 hours a day to communicate with all of the labs, follow up the results, and have to send this information as soon as it becomes available," she says. "Within 24 hours the patient safety contact is required to convey the information to the transplant center. They have to record every communication by name and make sure that this information is seen by the people taking care of the patient."

In addition, the CDC recommended the following measures to improve communication during organ procurement from deceased donors.

- In the package of accompanying documents that OPOs prepare for every donated organ, all positive test results (e.g., from urinalysis or blood or urine culture), should be highlighted to draw the attention of physicians in transplant centers.
- To avoid transcription errors, OPOs should consider double-checking (by at least two OPO staff members) critical donor information against medical records in the donor's hospital.
- Any pending tests with results that could affect the organ recipient's safety (e.g., culture results) and the dates when these pending results will become available should be noted in documents accompanying the organ.
- Transplant center case coordinators should contact the OPO on the date of expected availability of laboratory results if the OPO has not already notified the transplant center of these results. All important new donor information should be documented in recipient medical records at transplant centers.
- To avoid internal communication failures, transplant center case coordinators should follow up with hospital laboratories on all culture results. These results must be documented in patient's medical records.

Reference

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IPs must notify emergency workers of exposures

Hospitals required to provide info

Infection preventionists who want to keep their programs in compliance should be well aware that when emergency responders transport an incoming patient who is later found to have a potentially life-threatening disease, they need to receive prompt notification from the hospital about the exposure risk. The Centers for Disease Control and Prevention has proposed a list of the diseases for which hospitals must notify the emergency medical services.

The CDC's National Institute for Occupational Safety and Health (NIOSH) proposed list includes three categories of potentially life-threatening infectious diseases. (Newly emerging infectious diseases that fit the criteria may be added to the list.) The categories are based on the means through which emergency responders may be exposed:

- Potentially life-threatening infectious diseases routinely transmitted by contact or body-fluid exposures: hepatitis B, hepatitis C, human immunodeficiency virus (HIV) infection, rabies, and vaccinia.
- Potentially life-threatening infectious diseases routinely transmitted through aerosolized airborne means: measles, tuberculosis, and varicella disease.
- Potentially life-threatening infectious diseases routinely transmitted through aerosolized droplet means: avian influenza, diphtheria, meningococcal disease, mumps, pneumonic plague, rubella, SARS-CoV, smallpox, and viral hemorrhagic fevers.

The Ryan White HIV/AIDS Treatment Extension Act of 2009 requires the notification and calls for the U.S. Department of Health and Human Services to list the diseases covered by the act.

"If an exposure occurs, there's to be an exchange of information in a very timely manner — no later than 48 hours," says **Katherine West**, MSEd, CIC, BSN, a consultant with Infection Control/Emerging Concepts in Manassas, VA, and an editorial board member of *Hospital Infection Control & Prevention*.

The importance of timely notification was highlighted in an incident in California on Dec. 3, 2009. That day an Oakland police officer responded to a 911 call to check on someone who had failed to show up for work. Finding the person unconscious in his home, the officer tried to clear his airway and called for emergency medical assistance. The officer didn't wear respiratory protection, but paramedics from the Oakland Fire Department and a local ambulance service did. By the next morning, the hospital, Alta Bates Summit Medical Center, determined that the patient had *Neisseria meningitidis*, but didn't notify Alameda County Public Health Department until Dec. 7, more than 78 hours after meningitis was first suspected, according to a Cal-OSHA citation. The police officer contracted meningitis and spent five days in the hospital.

Medical facilities "have an immediate responsible to notify their designated infection control officer for the emergency medical services or law enforcement" under the Ryan White Act, says West. "This law, when it came to be, was one of the most important pieces of legislation for fire rescue and law enforcement." ■

Pushback on infection reg may stall action

Proposed OSHA rule 'stuck in the mud'

The U.S. Occupational Safety and Health Administration may be becoming more cautious in its push for new regulations that include a standard on infectious diseases.

The agency is still pursuing an infectious disease standard and a rule requiring employers to have an injury and illness prevention program, but the most recent regulatory agenda indicates that progress will be slow on those initiatives.

California's Aerosol Transmissible Disease standard is thought to be a possible model for an OSHA standard, but OSHA indicated an interest in covering a range of transmission modes. In any case, the OSHA regulatory agenda shows no new action on an infectious diseases standard before the spring.

"The infectious disease rule appears to be stuck in mud," says **Brad Hammock**, Esq., workplace safety compliance practice group leader at Jackson Lewis LLP in the Washington DC region office. "They didn't even put a new specific upcoming action. They're still reviewing

comments."

In January, President Obama issued an executive order directing agencies to review rules and identify ones that are "outmoded, ineffective, insufficient, or excessively burdensome, and to modify, streamline, expand, or repeal them..."

"It's hard right now to say what effect this might have on the health care industry, either [related to] current regulations or regulations in the future," says **Pat O'Connor**, director of government affairs for the American College of Occupational and Environmental Medicine in Washington, DC.

OSHA is simply not flexible enough to adapt to changes in infection control needed for an infectious disease standard, ACOEM said in its comments.

"ACOEM is concerned that an OSHA standard addressing the broad range of infectious agents other than bloodborne pathogens will take years to develop and finalize, that the knowledge base on which some of its components will be based will be outdated by the time the standard is passed, and that it will not be possible for OSHA to further develop its guidance to respond to novel infectious threats or advancements in our understanding of infectious disease transmission," it said.

Infection preventionists and infectious disease groups have expressed similar concerns about an OSHA infectious disease standard.

"While we understand OSHA's interest in creating a standard that maximally protects health care workers from infectious agents, we have concerns about the potential scope and breadth of this potential undertaking," **Richard Whitley**, MD, FIDSA, the president of the Infectious Diseases Society of America wrote to OSHA. "The advantages of establishing a new standard for [health care workers] can be easily outweighed by the unforeseen consequences caused by such a standard, particularly if the standard is not supported by scientific evidence." ■

CNE/CME instructions

Physicians and nurses participate in this CNE/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 credit letter. ■

CNE/CME objectives

Upon completion of this educational activity, participants should be able to:

- Identify the clinical, legal, or educational issues encountered by infection preventionists and epidemiologists;
- Describe the effect of infection control and prevention issues on nurses, hospitals, or the health care industry in general;
- Cite solutions to the problems encountered by infection preventionists based on guidelines from the relevant regulatory authorities, and/or independent recommendations from clinicians at individual institutions. ■

COMING IN FUTURE MONTHS

- How IPs are handling new CMS reporting requirements
- Our Joint Commission Infection Control supplement – next issue!
- Travel limitations? Count on HIC for full coverage of APIC and SHEA
- More HIC prevent Newswire email alerts on the way!
- A punitive approach to hand hygiene compliance?

CNE/CME Questions

9. The goals of the $34 million AHRQ funding initiative include:
A. identifying and addressing gaps in HAI prevention.
B. improving antibiotic prescribing practices and delivery.
C. enhancing communication and teamwork among health care providers.
D. All of the above

10. The new trend in infection control research emphasizes all of the following except:
A. translational research.
B. comparative effectiveness research.
C. basic research.
D. implementation research.

11. The Keystone Intensive Care Unit Project demonstrated reduced mortality in which patient age group?
A. 3 to 18 years
B. 21 to 35 years
C. Those under 65
D. Those 65 and older

12. As a result of two failed kidney transplantations due to multidrug resistant *Escherichia coli* infection in the donor, Organ Procurement Organizations are required to designate a patient safety contact. This patient safety contact would be required to:
A. be available 24 hours a day to communicate with all labs and follow up the results.
B. convey all laboratory information to the transplant center within 24 hours.
C. record all communication with the transplant center by name in the medical record.
D. All of the above

CNE/CME answers

9. D; 10. C; 11. D; 12. D