**APIC And Industry Partners Join Forces To Create Innovative Online IP Resource**

The Association for Professionals in Infection Control and Epidemiology (APIC) has launched *Industry Perspectives*, a new online platform for infection preventionists (IPs) and other healthcare professionals. The new website was created to expand access to the information and research that accompany infection prevention industry products and services.

*Industry Perspectives* is intended to expand healthcare professionals’ and IPs’ clinical knowledge related to infection prevention product usage, the science supporting a specific methodology, and best practices to keep patients safe. The mobile-friendly web platform features information in a variety of formats including white papers, background articles, reports, research papers, case studies, product guides, PowerPoint presentations, videos, podcasts, and educational session proceedings.

“We are pleased to partner with our industry colleagues to offer this new resource to expand the knowledge base and competencies of infection preventionists,” says APIC Chief Executive Officer Katrina Crist, MBA, CAE. “Geared to the needs of busy healthcare professionals, *Industry Perspectives* provides easy access to evidence-based information related to infection prevention products and services to facilitate better understanding and evaluation of innovations in patient safety.”

The site’s focus areas include: Environmental Infections, Hand Hygiene, Patient Pre-operative Preparation, Care Settings, Decontamination-Disinfection-Sterilizations, HAI’s, and Health Information Technology. *Industry Perspectives* gathers and sorts the information, allowing you to search by topic for what you need, when you need it.

Content provided by industry undergoes review by APIC subject matter experts and is clearly identified as coming from healthcare companies. Topic areas include environmental infection; hand hygiene; patient pre-operative preparation; care settings; decontamination, disinfection, and sterilization; healthcare-associated infection types and pathogens; and health information technology.

Source: Apic eNews

**Welcome**

Bryna Stacey is the new Program Director of the Healthcare Associated Infections and Antimicrobial Resistance Program at the Kansas Department of Health and Environment. Bryna earned a Master of Public Health degree from Kansas State University in May 2012 and a Bachelor of Science degree in Nursing from Washburn University in May 2015. She is a licensed registered nurse in both Kansas and Missouri. She worked as a critical care nurse in the Intensive Care Nursery at Children’s Mercy Hospital from July 2015 to January 2017. We welcome Bryna to the HAI/AR team. Bryna.Stacey@ks.gov, (785) 296-4090.
Testing Penicillin Allergy Cuts Wide-Spectrum Antibiotic Use

Patients with a penicillin allergy indication on their electronic medical record test negative for penicillin allergy nearly 90% of the time, new research shows.

Testing these patients can dramatically reduce the use of broad-spectrum antibiotics in hospitals. "We were able to avoid prescribing vancomycin, fluoroquinolones, clindamycin, carbapenems, and aztreonam in a substantial number of cases, both while patients were in the hospital and at discharge," said Justin Chen, MD, from the University of Texas Southwestern Medical Center in Dallas. "We think our protocol could be useful at any institution that is interested in improving infection outcomes," he told Medscape Medical News.

Dr. Chen described the team approach to tackling penicillin allergy screening, piloted at the Parkland Health and Hospital System in Dallas, here at the American College of Allergy, Asthma & Immunology 2016 Annual Scientific Meeting.

During an 18-month period, a dedicated allergy pharmacist looked over charts flagged by an algorithm developed to pinpoint patients who might need screening. The algorithm looked for patients coming into the hospital who reported a penicillin allergy and prioritized them for testing on the basis of the antibiotics they were receiving and whether they were at high risk for infection and would likely need antibiotics in the future.

Of the 252 patients prioritized for testing, a large number had high-risk conditions - 90 patients had diabetes, 36 had HIV, 24 had malignancy, and 13 had immunosuppression.

Penicillin allergy testing was performed with a PRE-PEN skin test antigen, penicillin G skin prick and intradermal test, followed by oral amoxicillin 500 mg. Of the 252 patients tested, 223 (88.5%) were found not to be allergic.

"After a negative test, we educate the patient on the results" and explain to them that they can take penicillin now and into the future, said Dr. Chen.

In addition, after a negative test, the penicillin allergy label was removed from the patient's record. Care teams were then notified of results. In 77 of the 223 cases (34%), patients were switched from alternative beta-lactams to a penicillin or cephalosporin, which reduced the use of vancomycin by 34%, clindamycin by 61%, aztreonam by 68%, carbapenems by 50%, and fluoroquinolones by 36%.

The researchers estimated that this prevented 504 inpatient days and 648 outpatient days on alternative agents. In addition, five patients (2%) were cleared of their allergy when researchers looked closely at their health record and found previous use of penicillin, despite a label of a penicillin allergy.

"The majority of patients report remote reaction histories, but the label sticks with them throughout their lives despite true allergy resolving with time," Dr Chen explained. "There's a misconception about the natural course of drug allergy."

Simply having the label of penicillin allergy on an electronic medical record is associated with higher rates of infection with Clostridium difficile, methicillin-resistant Staphylococcus aureus, and vancomycin-resistant enterococci, and increased rates of hospitalization. "If we can clarify the allergy status and eliminate some of these complications, that's the biggest benefit," he said.

In the study cohort, 19 patients (7.5%) did not complete testing and five (1.9%) tested positive. The patients who tested positive had a history of urticaria or angioedema skin reaction with penicillin, associated with itching, which usually resolves within 24 hours, Dr Chen said.

One patient reported having had a reaction in the previous year, two patients in the previous 5 to 9 years, one patient in the previous 10 to 19 years, and one patient in the previous 20 years.

"In our institution, we're hoping to implement a similar protocol," said Connie Lin, MD, a fellow at the University of California, Los Angeles. She noted that as well as being important for antimicrobial stewardship, it is also beneficial for cost-effectiveness, because some beta-lactam alternatives are more expensive. "It's good to know that someone's already done this successfully. This is a really good model," she said.
Heater-Cooler Devices Blamed for Global Mycobacterium chimaera Outbreak

A global outbreak of *Mycobacterium chimaera*, an invasive, slow-growing bacterium, is linked to heater-cooler devices (HCD) used in cardiac surgery, according to a study published today in Infection Control & Hospital Epidemiology. This study adds interim guidance to recent field reports on the outbreak, providing precautionary recommendations to hospitals and health systems to reduce the risk of infections.

“It is surprising that a global outbreak like this could go unnoticed for years. This dangerous infection has put many patients at risk all over the world,” said Rami Sommerstein, MD, of Inselspital, Bern University Hospital in Switzerland, the lead author of the study. “Now that we know HCDs are the source, individual action from the different players (healthcare institutions, manufacturers, etc.) is needed to contain the ongoing patient risk. The most important action a hospital can take is to remove contaminated HCDs from the operating room and other critical areas. That is the only way to ensure that patients are protected from this infection moving forward.”

HCDs are stand-alone devices needed for heat exchange in heart-lung machines used in some 250,000 surgeries annually in the U.S., according to the Centers for Disease Control and Prevention. In response to an increasing number of infections, investigators looked into hospital water sources and found *M. chimaera* in HCD water circuits—specifically, in the LivaNova 3T HCD used in most hospitals around the world. They also found the bacteria in air samples during surgeries with LivaNova HCDs, suggesting transmission through air particles.

To prevent future cases of invasive *M. chimaera* infections, the researchers made the following recommendations for hospitals and health systems, as well as public health authorities, based on their personal experience with the outbreak:

- Ensure strict separation of contaminated HCDs from air of critical medical areas
- Educate clinicians on the risks for and dangers associated with *M. chimaera*
- Screen patients who had open heart surgery, heart transplantation or those who were exposed to ventricular assist devices and demonstrate prolonged and unexplained fevers. *M. chimaera* is a non-tuberculous mycobacterium that was previously known to cause lung infections. Invasive *M. chimaera* in cardiac surgery patients is particularly difficult to treat because it requires surgery and prolonged antibiotic therapy.

“While our understanding of the causes and the extent of the *M. chimaera* outbreak is growing, several aspects of patient management, device handling and risk mitigation still require clarification,” said Sommerstein.

**Update:** The CDC has updated its heater-cooler webpage to provide a frequently asked questions (FAQ) for hospitals regarding contaminated devices that are putting open-heart surgery patients at risk. In addition to the FAQ, the CDC’s heater-cooler webpage provides a number of resources that may be helpful to healthcare facilities and patients including: CDC’s notification toolkit, press release, Health Alert Notification (HAN), and recent *Morbidity and Mortality Weekly Report*.
Nurses’ Scrubs Often Contaminated with Harmful Pathogens

Nurses’ scrubs can become contaminated with potentially harmful bacteria through direct patient care and through contact with the patient’s environment, according to a molecular analysis of pathogen transmission.

"Our study showed that nurses’ clothing becomes contaminated with epidemiologically important organisms in more than 10% of their shifts," said lead investigator Deverick Anderson, MD, associate professor of medicine at the Duke University Medical Center in Durham, North Carolina.

"Much of the published research on the spread of pathogens in healthcare environments is related to the back-and-forth transmission between patients and healthcare workers. We think the environment is a third part of what we call the ‘transmission triangle’," he said. "Bugs are spreading from patients to their environment and then to the healthcare worker."

In the Antiseptic Scrub Contamination and Transmission (ASCOT) study, Dr Anderson and his team conducted microbiologic and molecular analyses to characterize patterns of pathogen movement. Dr Anderson presented the results at IDWeek 2016.

In surgical and medical intensive care units (ICUs) at Duke University Hospital, 40 participating nurses wore new scrubs for three consecutive shifts.

Cultures from three scrub sites (sleeve, midriff, and pocket) and from each patient’s room (bed, bedrail, supply cart) were taken at the beginning and end of each shift.

Cultures were also obtained from all patients cared for by the nurses (nares, perirectum, integument) on each shift.

The genetic relatedness of pathogens was tested with pulsed-field gel electrophoresis. A potential transmission event occurred if the same pathogen species was identified on the nurse's uniform, on the patient, and/or in the environment. A potential transmission event was confirmed if the identified pathogens were identical.

During the 120 ICU shifts, the 40 nurses cared for 167 patients. The investigators obtained 2185 cultures from nurses' clothing (mostly scrubs), 455 from patients, and 2919 from patient environments. They looked at three possible patterns of transmission: from patient to nurse, from environment to nurse, and from patient to environment.

During the 120 shifts, there were 39 (33%) potential transmission events and 23 (19%) confirmed transmissions. More than half of the confirmed transmissions (10%) were found on nurses’ clothing.

Most of the transmissions went from patient to nurse, and in more than one third of cases, bacteria were transmitted from the environment, not the patient.

"The 10% rate of confirmed transmission is a low number; it's what we confirmed with our microdetection techniques," Dr Anderson reported. But "it's likely higher."

The distribution of the organisms was similar at the three scrub sites sampled. The presence on clothing means that pathogens "are likely present on your hands as well, and then you are likely to transmit," he said.

Source: Medscape Infectious Diseases

Announcing the New, First Ever Global Guidelines on the Prevention of Surgical Site Infection

The new Global guidelines for the prevention of surgical site infection include a list of 29 concrete recommendations distilled by 20 of the world's leading experts from 26 reviews of the latest evidence. The recommendations were also published in The Lancet Infectious Diseases and are designed to address the increasing burden of health care-associated infections on both patients and health care systems globally. A World Health Organization (WHO) press release has been issued alongside an interview with Professor Dame Sally Davies, Chief Medical Officer for England. Antimicrobial resistance (AMR) is clearly pertinent to the Surgical Site Infections (SSI) work and these guidelines include key recommendations on the prudent use of antibiotics. WHO has also issued social media messages. Like and retweet these messages to be part of WHO’s dissemination strategy! This is a world first and we encourage you all to access the guidelines, publications and supporting tools here.

Source: Infection Control Today
Social Media Proves Effective as a Tool for Antimicrobial Stewardship

A new study from the University of Chicago Medicine examines the use of social media platforms to inform young physicians about proper use of antimicrobial agents such as antibiotics. Currently, as much as 50 percent of all antibiotic use is inappropriate, leading to such unintended consequences such as antibiotic toxicity and increased antimicrobial resistance. Ensuring optimal use of antibiotics continues to be a central public health concern, and medical residents are a central focus of efforts to improve education in this field. But the question remains as to the best way to reach them.

A study by Jennifer Pisano, MD, and colleagues appearing in the American Journal of Infection Control, finds that social media platforms—including Facebook and Twitter—provide an effective method to reinforce antimicrobial stewardship programs (ASP) and encourage the use of ASP resources to promote antimicrobial mindfulness among internal medicine residents. The strategy pioneered by the researchers, successfully directed medical residents to the appropriate use of clinical pathways.

Over the course of six months, 55 medical residents received Facebook posts and tweets of basic information promoting both educational tools and clinical pathways located on the researchers' hospital's ASP website. The medical residents also received identical infectious disease and antibiotic knowledge “trivia questions,” as well as interspersed questions.

Participants’ knowledge of how to use the ASP website increased from 70 percent to 94 percent, while these residents’ antibiotic knowledge also improved. Crucially, use of relevant clinical pathways sometimes, frequently, or always increased from 33 percent to 61 percent (P = .004).

Each year in the United States, at least 2 million people become infected with bacteria that are resistant to antibiotics and at least 23,000 people die as a direct result of these infections, according to the Centers for Disease Control and Prevention. The use of antibiotics is the single most important factor leading to antibiotic resistance.

Source: Infection Control Today and APIC

Study Links Antibiotic Resistance With Exposure to Chlorhexidine

*Klebsiella pneumoniae* bacteria exposed to chlorhexidine-containing disinfectants can become resistant to colistin, a last resort antibiotic often used against multidrug resistant pathogens. This is the first study to link exposure to chlorhexidine with resistance to colistin in this clinically important pathogen. The research is published this week in Antimicrobial Agents and Chemotherapy, a journal of the American Society for Microbiology.

In the study, the investigators tested the hypothesis that *K. pneumoniae* could survive exposure to increased concentrations of chlorhexidine, and that these exposures might cause resistance to commonly used antibiotics. They selected specific strains of *K. pneumoniae* that were representative of isolates routinely found in the clinic. Chlorhexidine is a common ingredient in a number of disinfectants used widely in the home and in healthcare settings, where it is a critical part of many infection control practices.

While some strains died on exposure, others were able to survive at much higher concentrations of chlorhexidine than their parental strains. Some also gained resistance to colistin. The investigators also found gene mutations in the exposed *K. pneumoniae* that conferred resistance to both compounds.

"Chlorhexidine is a critical part of current infection control practices, and the development of increased resistance to this compound has potential implications for our ability to prevent infections during routine and emergency surgery, and during admission to hospitals," said coauthor J. Mark Sutton, PhD, scientific leader at the National Infections Service, Public Health England in Salisbury, UK.

The study data, and other ongoing work in Sutton's laboratory suggest that many bacterial pathogens may share the same, or similar metabolic pathways. Specific selective pressures from antiseptics, such as chlorhexidine, may result in similar mutations in these pathways conferring increased resistance in these different species of bacteria, he said. "If the same response is seen in hospitals, this might mean that we need to rethink how and where some types of critical disinfectants or antiseptics are used in the clinic."

Source: American Society for Microbiology
Hospital Installed More Sinks to Stop Infections

When you’re a patient in a hospital, you’d like to think the doctors, nurses, or orderlies standing at your bedside had recently washed their hands, wouldn’t you? You’d also probably be glad to hear that hospitals in recent years have pushed for more hand-washing stations — part of an effort to cut down on the spread of bacteria that thrive in hospitals, further compromising the health of people who are already sick. There’s a problem here, however. Those sinks have been implicated in the spread of dangerous bacteria.

In a devilish case of unintended consequences, sinks have been linked to a number of outbreaks of serious infections in hospitals from Baltimore to Shanghai and many places in between in recent years. In one notable case, a hospital in the Netherlands took sinks out of the patient rooms in its intensive care unit in a bid to slow the spread of bacteria. (It worked.)

At a time when concern is mounting about antibiotic resistance, and when the specter of untreatable infections threatens the advances of modern medicine, finding ways to slow the development and spread of drug-resistant bacteria is a major preoccupation of infection control teams. As a result, evidence that hospital sinks could exacerbate the problem presents health care specialists with a quandary.

“The thing about the sinks is that they’re the cornerstone of infection control policy. … All of the [hospital] guidelines in the developed world talk about having sinks — the ratio of sinks per beds and where they are and that sort of thing,” said Dr. Michael Gardam, director of infection control at University Health Network, an institution comprising four Toronto hospitals.

When it comes to hospital sinks, there are two major issues. First, the water coming into them can contain bacteria. That’s true of any sink, anywhere; municipal water treatment systems don’t produce sterile water. But a bug that isn’t a risk for a healthy person can be dangerous for someone whose immune system is suppressed to prevent rejection of a donor organ or who is recuperating from a serious operation. The other problem is that sinks, particularly the pipes that drain them, are ideal places for bacteria to proliferate. The bugs form what are known as biofilms — colonies where they gang together and attach to a surface. These water-dwelling bacteria especially like p-traps, the U-shaped bend in pipes that drain the contents of a sink.

Getting rid of biofilms once they form is, well, pretty much impossible. There are cleaning tricks hospitals try, but even those generally only lower the bacterial count for a while. “Once you have the biofilms in there, short of ripping the sinks and the piping out, it’s impossible to get rid of. And in fact, even if you do that, it frequently comes back,” said Dr. Alex Kallen, a medical officer in the Center for Disease Control and Prevention’s division of health care quality promotion.

He said it’s not entirely clear how much of a risk biofilms in hospital sinks pose. These bacterial colonies are generally — though not always — found in the pipes leading away from sinks, so people using the sinks shouldn’t, in theory, have contact with them. In fact, to see if bacteria from biofilms in sinks drains could find their way back up to contaminate hands, the CDC ran an experiment where it had people wash their hands in sinks with contaminated drains. It saw no evidence of bacteria transferring from sinks to hands. But Kallen said more experiments are underway because of the number of reports that put sinks squarely at the heart of hospital outbreaks.

Gardam has firsthand experience with an outbreak caused by a sink. It was a bad one. Three dozen patients in intensive care contracted a drug-resistance bacteria; an investigation after the fact said five died because of the infection. Figuring out how the patients were getting infected took sleuthing, but eventually suspicion fell on some sinks in the ICU. They had gooseneck faucets that directed water straight down into the drain. The pressure created back splash, with tiny droplets of bacteria-laced water spraying onto nearby porous surfaces where medical staff prepared tubing and other equipment used in patient care. Gardam ordered staff to stop using the sinks, going so far as encasing them in garbage bags. There were no new cases after that.

The hospital subsequently made a number of changes, which have been adopted elsewhere as well, Gardam said. “Some of the stuff we’ve learned … is: Don’t have the gooseneck (faucet) drain directly into the drain; have it drain off the side of the bowl. Don’t allow it to splash. Make sure it’s deep enough that it can’t splash on you and splash on your clothing. Make sure that the stuff around [the sinks] is waterproof.” Exacerbating the problem is the fact that biofilms that develop in hospital sinks may house really bad bugs — bacteria that are resistant to key antibiotics.
**Hospital Installed More Sinks to Stop Infections**

That’s because sinks aren’t just used to wash hands. Staff sometimes use them to dispose of patient specimens—urine, for instance—or to drain the dregs of an intravenous bag of antibiotics. “It’s just like: How do you use your kitchen sink? You dump your disgusting stuff down there and then you wash your hands,” said Dr. Trish Perl, an infection control expert who is chief of infectious diseases at the University of Texas Southwestern Medical Center in Dallas.

Hospitals should have clean sinks — for hands — and dirty sinks, for disposing of patient specimens, said Kallen. But some health care workers would argue it’s safer to tip a specimen into the nearest sink rather than walk down a hallway with something that might spill. “There does seem to be at least anecdotal evidence that if you discard patient specimens down sinks, then you can contaminate the drains with the things that are in those specimens — which, if they’re in the hospital, are more likely to be multidrug resistant [organisms],” said Kallen. “Now whether or not that’s a true source of transmission to other patients is controversial. But you certainly can contaminate the sink that way.”

As problems with sinks have become apparent, experts have been working to design better and safer sinks. But even there it’s important to look for unintended consequences. For instance, a couple of studies, including one done by Perl, looked at bacterial accumulation in electronic eye faucets—the no-tap sinks where water flow is activated by placing hands in front of a sensor. The suspicion is that sinks without taps would actually reduce the risk that freshly washed hands would be recontaminated by turning off taps. But some appear to be more likely to accumulate bacteria, Perl said, explaining they have multiple internal valves and more surfaces on which biofilms can form. It’s an important lesson, she said: New sink designs need to be tested, in the way drugs are, to ensure they are actually better. “We need to start insisting on studies so that we understand the implications of introducing novel technologies before we do it,” she said.

Health care specialists say concerns about hospital sinks have provided them with another lesson: Use alcohol gel. Some people still believe it dries out their skin, and it’s not effective on its own if a health care worker’s hands are soiled. But there’s no doubt that it can help curb the spread of bacteria. And it is, in fact, what the CDC recommends when hands need to be cleaned but aren’t soiled with a contaminant that gel won’t remove. “But you know, the cornerstone of hand washing isn’t sinks, it’s alcohol gel,” said Gardam. “And the reason why the world has moved to alcohol gel is that it’s a lot cheaper, it works better, it’s faster, you can wash your hands while you’re walking, it doesn’t dry your hands out as much. I can go on and on and on.”

*Source: STAT News*

**Save Lives: Clean Your Hands Campaign**

Each year the [SAVE LIVES: Clean Your Hands campaign](#) aims to progress the goal of maintaining a global profile on the importance of hand hygiene in health care and to ‘bring people together’ in support of hand hygiene improvement globally. This years focus: Hand hygiene as part of an infection prevention and control program in all settings that support surgery, prevents patient infection and reduces an avoidable burden on health systems.

**Antimicrobial Stewardship in Kansas: Results From a Statewide Survey**

We are pleased to be able to share with you a recent journal article, written by a Master of Public Health student who recently completing their Capstone project under the guidance of the Kansas Healthcare-Associated Infections and Antimicrobial Resistance Program here at the Kansas Department of Health and Environment. The project involved a survey of all hospitals in the state of Kansas to better understand the scope and needs in the development of antibiotic stewardship programs. The article can be found at: [http://dx.doi.org/10.1016/j.ajic.2016.08.016](http://dx.doi.org/10.1016/j.ajic.2016.08.016)
FDA Conducts Inquiry of Third-Party Servicing and Refurbishment of Medical Devices

To help address the tough questions related to its inquiry into third-party servicing and refurbishment of medical devices, the Food and Drug Administration (FDA) scheduled a two-day public workshop for late October. Stakeholders are many and quite diverse, ranging from clinicians, patient safety managers and HTM professionals, to original equipment manufacturers (OEMs) and those aforementioned third-party firms; all of whom will be providing their perspectives on how to ensure patient safety while controlling costs in an environment where organizations vary in how they repair and generally maintain devices.

The workshop, titled “Refurbishing, Reconditioning, Rebuilding, Remarketing, Remanufacturing, and Servicing of Medical Devices Performed by Third-Party Entities and Original Equipment Manufacturers,” follows the FDA’s announcement in March that it was soliciting comments from all interested parties on this issue because of safety concerns, particularly as it relates to the use of third-party entities. The announcement in the Federal Register triggered a significant number of public comments which will be used to help inform a set of working questions “designed to promote an understanding of challenges and best practices to mitigate risks associated with these activities,” the FDA said. The goals of the workshop include establishing working definitions for third-party and OEM activities; discussing benefits, challenges and risks for stakeholders; identifying best practices when it comes to third-party activities; and determining whether “specific procedures are necessary for each activity as it relates to third-party services performed.” At issue is the level of regulatory action -- if any -- that the FDA will take.

A panel session held during the Association for the Advancement of Medical Instrumentation (AAMI)’s annual conference earlier this year assembled Mary Logan, outgoing AAMI president and CEO; Dave Francoeur, senior director of program development and support at Sodexo; Dale Munson, manager of service and biomedical training at Medtronic; Gabe Viscomi, vice president of service at Block Imaging; and Binseng Wang, vice president of quality and regulatory compliance at Greenwood Marketing LLC. Viscomi speculated that the FDA will choose a select few comments that involve some level of evidence and scrutinize them further. He also said that “the cost for FDA to implement some type of licensing would be immense, and I don’t see that happening.” He added, “From the imaging perspective, my greatest fear is that FDA implements labeling regulations. It would be discouraging if the few bad players end up causing the vast majority, who handle repairs responsibly, to face unnecessary labeling requirements.”

According to the FDA’s original comments in the Federal Register, “Stakeholders have expressed concerns that some third-party entities ... may use unqualified personnel to perform service, maintenance, refurbishment, and device alterations on their equipment and that the work performed may not be adequately documented. Possible public health issues arising from these activities include ineffective recalls, disabled device safety features, and improper or unexpected device operation.”

OEMs have stated they are worried about the quality of repairs made in the field, as the OEMs are the ones regulated and held liable by the FDA for any post-market issues that may occur with their devices, not third-party repair firms. There is some precedent that can be studied, according to Wang, who pointed to the late 1990s when reprocessors of single-use devices (SUDs) were subject to additional regulations. According to AAMI, since 2000, the FDA has considered reprocessors of SUDs to be manufacturers, and therefore they are subject to the full range of requirements that apply to OEMs, as well as additional requirements that apply only to reprocessors. Wang called for “meaningful rules,” adding that a “shotgun approach would kill good birds as well as bad birds in the process.” Ultimately, he foresees “segments of devices coming under greater scrutiny and being controlled more rigorously this time,” similar to what occurred for reprocessors of SUDs.

AHRQ Publishes Guide to Promote Antibiotic Stewardship in Nursing Homes

The Agency for Healthcare Research and Quality (AHRQ) published a Nursing Home Antimicrobial Stewardship Guide that addresses challenges in creating and implementing antibiotic stewardship programs (ASPs) in nursing homes and provides toolkits to help nursing homes optimize their use of antibiotics. The guide also includes a toolkit to educate and engage residents and family members. Read more about the guide.

Source: APIC
Source of *Elizabethkingia* Outbreak Eludes Investigators

An epidemiologic investigation into the recent outbreak of *Elizabethkingia* infection in Wisconsin underscores the importance of statewide infection surveillance systems and highlights challenges faced by epidemiologists trying to track down the source of such rare infections. "This is the largest reported outbreak of *Elizabethkingia* infections, and the source of the outbreak strain of *E anophelis* remains unknown," said Lina Elbadawi, MD, from the Bureau of Communicable Diseases at the Wisconsin Division of Public Health in Madison and the Office of Public Health Preparedness and Response at the Centers for Disease Control and Prevention (CDC).

*Elizabethkingia anophelis* is a rare aerobic Gram-negative bacillus that can be isolated in soil, water, and sink drains. It is intrinsically multidrug-resistant and opportunistic and causes severe infections in people who have underlying medical conditions. The three species associated with human illness — *E anophelis*, *E meningoseptica*, and *E miricola* — are hard to distinguish phenotypically.

On January 5, 2016, the Wisconsin Division of Public Health notified the CDC that six *E anophelis* bloodstream infections had been identified in residents of four counties in the preceding 13 days. Four isolates had indistinguishable patterns on pulsed-field gel electrophoresis (PFGD), but the CDC confirmed them to be *E anophelis*. A joint investigation ensued, during which many more cases emerged.

### Identifying Clusters

Infection preventionists and clinical laboratories began to watch for cases involving *Elizabethkingia* and its former genera, *Flavobacterium* and *Chryseobacterium*. In searching for other clusters, epidemiologists looked at neighboring states, the nationwide Emerging Infections Network, and other programs in which outbreaks have been described. "Rapidly established statewide retrospective and prospective surveillance techniques were critical to case-finding efforts," Dr Elbadawi explained. An isolate of *E anophelis* from any clinical specimen collected on or after November 1, 2015, with a PFGD pattern matching that of the outbreak was considered to be a case.

The outbreak was found to be characterized by tight geographic clustering, community onset, and occurrence in older adults with comorbidities. The medical records of each case-patient were reviewed to identify all healthcare encounters in the 30 days before collection of the first positive specimen. A Charlson comorbidity score was assigned to each patient, and epidemiologists interviewed each patient or a proxy about community exposures and potential sources and modes of transmission. "We tested numerous potential community-associated and healthcare-associated sources," reported Dr Elbadawi. Sources of interest included, but were not limited to, personal contacts, animals, personal-care products (such as lotions, shampoos, and oral care products), food, water, the facility in which the patient resided, and environmental factors. The clinical isolates underwent extensive laboratory testing. Water and other environmental samples were cultured, as were medical and personal-care products. For the household and healthcare contacts of each patient, cultures were taken at several sites on the body.

### High Fatality Rate

The vast majority of the infections appeared to have occurred in the 2-month period from February to April 2016. Sixty-three case-patients lived in 12 southeastern Wisconsin counties, and three lived in neighboring states. The median age of the Wisconsin case-patients was 77 years (range, 19 - 101), 56% were male, and the median Charlson score was 3.5 (range, 3 - 5). Most initial specimens were collected at the patients' private residences (75%), but 13% were collected in assisted-living facilities, 6% in long-term care facilities, and 6% in acute care facilities. In most of the initial positive specimens (89%), the isolate was identified in the blood. In the Wisconsin cohort, 34% of the infections were associated with soft tissue, 33% with the lungs, and 13% with the urinary tract; 5% of the case-patients showed no evidence of infection. Sequelae were often serious, and 29% of the patients died, possibly as a result of the infection.

### Looking for Source of Transmission

Case-patients had encounters at 47 healthcare facilities, but no facility had more than seven encounters in common with another facility, which eliminates any one facility as the cause of infection. Municipal water, which came from 27 different systems, was used by 80% of the patients. Surveillance cultures from 15 household contacts and 182 healthcare contacts were negative for *E anophelis*. In the 30 days before specimen collection, most patients had at least one healthcare exposure; 43% of these were hospital admissions, and 14% were for hemodialysis. No common intravenous medications or compounded products were identified. The investigators analyzed 31 personal-care products, 38 water samples, and 61 water-associated biofilm swabs from 12 residences and assisted-living facilities. At five acute care facilities, they sampled water and sink drains. continue on page 10
Source of *Elizabethkingia* Outbreak Eludes Investigators

All healthcare and personal-care products, tap water, and water-associated biofilm samples tested negative for the outbreak strain of *E. anophelis*, with the exception of one sample of tub water that contained bedding from an infected patient. "All 41 medical products we tested were also culture-negative for *E. anophelis,*" Dr Elbadawi reported. These included alcohol swabs, single-exposure products, and products related to dialysis and other procedures. "Food history interviews did not identify any food reported more frequently than expected," she said, "and there was no common food distributor among five long-term care facilities and no common personal-care products or brands identified among the majority of patients."

Obstacles Facing Investigators

A number of factors that limited the search for answers highlight the challenges faced by investigators of outbreaks. "The high case-fatality rate and advanced age of the patients required broad use of proxy interviews, and recall was a limitation among surviving patients," said Dr Elbadawi. "Also, among the earliest cases, prolonged time from diagnosis to the completion of the interview made it hard to ascertain exposure. "Despite extensive data and the numerous means used to collect it, we were also unable to determine the incubation interval for these illnesses, which has been a challenge during previous *Elizabethkingia* investigations as well," she added. "I applaud the efforts of these investigators trying to get to the bottom of this relatively rare disease," said Scott Fridkin, MD, senior advisor in the Division of Healthcare Quality Promotion at the CDC. "They approached it from many directions, but it's relatively rare, and there is difficulty with recall of exposures."

The case-fatality rate is high largely because this organism infects mostly people with chronic and recurrent illnesses. They "go in and out of the healthcare setting," which makes it hard to pinpoint sources, he told Medscape Medical News. "It may also be a community-based disease." The CDC provided guidance to healthcare providers in Wisconsin on how to recognize and empirically treat the infection. Although *Elizabethkingia* infections are rare, many infectious disease physicians have seen it, Dr Fridkin explained.

Source: Medscape Infectious Diseases

Educational Opportunities

Webinars

**CMS Emergency Preparedness Rule - What IPs Should Know**

Wednesday, January 25 at 1:00 p.m. EST


APIC online courses: Basics of Infection Prevention; Disinfection and Sterilization; Infection Prevention Certification Review Course; Infection Prevention Knowledge Review and Assessment; Infection Prevention in the Long-Term Care Setting; Microbiology 101 for Infection Preventionists; Basics of Microsoft Excel; Basics of Microsoft PowerPoint; and Basics of Social Media. Learn more and register at: [http://apic.org/Education-and-Events/Course-Catalog/CourseCategory?id=536cda-ca72-4480-976b-2470a57835e2](http://apic.org/Education-and-Events/Course-Catalog/CourseCategory?id=536cda-ca72-4480-976b-2470a57835e2)