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BRINGING INFECTION PREVENTION TO LONG TERM CARE
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Dear Caregivers--The Key To Preventing C. Diff:

Cleaning the hospital environment, educating personnel about C. diff, and controlling antibiotic use are essential to meet the C. diff challenge. But in addition, hospitals and nursing homes need to focus on a largely NEGLECTED OPPORTUNITY TO PREVENT C. DIFF: patient hand hygiene.

Sometimes contaminated medical devices are to blame for C. diff, but more often patients give themselves C. diff. They touch contaminated surroundings, pick up the spores on their hands, and then touch their lips or pick up food and swallow the spores along with the food.

RID’s Fifteen Steps that patients can take to reduce their infection risk include this advice: “Wash your hands frequently, avoid touching your hands to your mouth, and do not set food or utensils on furniture or bed sheets.” But many patients need help cleaning their hands and unfortunately don’t get it. They also need a reminder, especially at mealtime. RID has printed tent cards for meal trays available in many languages. The cards say, “Please clean your hands before enjoying this meal and avoid putting your utensils on any surface except your plate.”

We’d like to work with you to provide patients with the reminders and the help they need to keep their hands clean, including towelettes on their meal trays.

And we are looking for opportunities to measure the positive impact of this strategy on C. diff infection rates.

Please contact us to partner in this important effort. 212-369-3329 or betsy@hospitalinfection.org.

A lack of government leadership has fostered a culture of ignorance among the healthcare industry. Contributing to the misunderstood nature of the problem, Legionnaires Disease mimics pneumonia symptoms and is commonly misdiagnosed as “Complex Pneumonia.” This results in an unacceptable loss of life, some estimate as high as 10,000 annually in the US. If correctly identified and treated, deaths due to Legionnaires Disease are preventable.

In 2008, the US Department of Veteran’s Affairs had the foresight to issue the first national policy to proactively address Legionella in its hospitals’ water systems. The reason the Veterans Hospital of America is under fire is because the Pittsburgh VA experienced a Legionella outbreak killing five veterans over a period of time that culminated in November of 2012, when the story broke in the local media.

The irony is that the Pittsburgh VA had been at the forefront of Legionella research and had been a pioneer in the successful use of water disinfection technology for over 10 years. The Department of Veterans Affairs, Office of Inspector General found that the Pittsburgh VA did not follow their own Legionella policy and failed to properly maintain their disinfection system, a copper silver ionization system that had success...
A Revenue Leak Soon Turns to Flood: How Payment Penalties for High Infection Rates Could Drain Hospital Finances

by Adam A. Boris, CEO, ICNet Systems

A s a host of new government payment penalties and reporting requirements take effect, preventing healthcare-associated infections is becoming a matter of financial survival for hospitals. HAIs put millions of dollars in revenue at risk, threaten hospital reputations and tax already limited infection prevention resources. Accounting for all of the Medicare payment reforms related to HAIs, as well as the costs of extended stays to treat infections, a hospital with $50 million in annual Medicare inpatient revenue would have a potential of $4.82 million in reimbursement at risk this year; that risk will grow to more than $6.6 million by the fall of 2014 (see chart).

Those figures do not take into account Medicaid and private payer actions, which are growing in intensity. Nor do they reflect the significant costs of litigation arising from infections. With 39 percent of hospitals running at a financial loss in 2011, even a small change to reimbursement rates can lead to huge changes in staffing models at hospitals and ultimately the quality of patient care they are able to provide, the American Hospital Association says.

As a result of these pressures, many senior leaders are looking at new ways of preventing infections, including screening new patients and adopting surgical checklists, stronger isolation precautions and electronic surveillance of potential infections.

HAIs and Payment Penalty Calculator

For a 250-bed hospital, with 2013 Medicare inpatient PPS reimbursement of $50 million

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**Fiscal year 2013**

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<th>Program</th>
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**Fiscal year 2015**

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* Based on total withhold in fiscal year 2012 divided by number of U.S. hospitals subject to payment penalties

** Assumes 10,000 admissions, 4% HAI rate, and 7 days of extended stay per HAI; internal cost of additional patient day assumed to be $1,000

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**A continuing threat**

The contagion in America’s hospitals is far from being under control. In fact, emerging threats from multi-drug-resistant organisms and continuing problems in controlling surgical-site and catheter-related infections have, if anything, made the problem more dire.

There is evidence that public reporting and payment reforms have had a positive, but limited, effect.

“The mandatory reporting and in some cases public reporting of HAIs has seemed to elevate the importance of infection prevention in hospitals and often resulted in increased attention by the C-suite on the roles, responsibilities and data collected by infection preventionists and hospital epidemiologists,” said Patricia W. Stone, a professor of health policy and director of the Center for Health Policy at Columbia University School of Nursing, who has written extensively on HAIs and reimbursement.

Although there has been a reduction in those infections that have been systematically measured and reported, many common infections persist and are increasing in prominence. Norovirus, a pathogen that often causes food poisoning and gastroenteritis, is the fastest-growing infection and was responsible for nearly one in five infection outbreaks and 65 percent of unit closures in U.S. hospitals during a two-year period, according to a study published in the February 2012 issue of the American Journal of Infection Control.

The high price of inaction

Government payment policies initially focused on a few HAIs. Since 2008, Medicare has refused to pay the added cost of treating catheter-associated urinary tract infections and central-line-related bloodstream infections, a policy since extended to surgical-site infections following coronary artery bypass grafts, bariatric surgeries and orthopedic procedures.

A Harvard study published in the New England Journal of Medicine in October 2012 found no evidence that the Medicare non-payment policy had any mea-
A Revenue Leak Soon Turns to Flood

(continued from page 3)

surable effect on infection rates in U.S. One issue blunting the impact of the law is that hospitals can continue to bill for not only the diagnosis present on admission, but also co-morbidities for infected patients. In fact, CMS has admitted that nationally only about $50 million to $60 million has been withheld each year from hospital reimbursements. Newer payment penalties are rapidly changing the picture.

If you think about that amount of money spread across 3,000 or 6,000 facilities, hospitals haven’t had a lot of skin in this game, but the no-pay rule did get people’s attention because it was the first time there were any payment ramifications related to quality,” said Ed Septimus, MD, a professor of internal medicine at Texas A&M Health Science Center in Houston, who previously ran infectious disease programs at Memorial Hermann Healthcare System.

Newer payment penalties, however, are rapidly changing the picture. The Patient Protection Affordable Care Act introduced the Hospital Inpatient Value-Based Purchasing program, a readmissions reduction program and a new withholding program for adverse events. The law also broadened the Inpatient Hospital Quality Reporting Program, with more data required to be reported through the National Healthcare Safety Network.

Value-based purchasing began in earnest in October 2012 with a 1 percent withhold of baseline DRG payments (the potential penalty will rise to 2 percent by 2016). To earn back a portion or all of the withhold, hospitals must perform well on a combined score based on clinical quality indicators and patient satisfaction measures. For fiscal year 2013, 70 percent of the score is composed of clinical process measures, including several related to infections.

In all, for fiscal year 2013 Medicare is rewarding 1,557 hospitals with more money and reducing payments to 1,427 others, according to CMS data.

The VBP program will be even more painful for hospitals when “double jeopardy” kicks in. Beginning in October 2014, another 1 percent penalty on all Medicare payment will be assessed for hospitals in the bottom quartile of all healthcare-associated conditions—the so-called “never events” that include HAIs—doubling down on the nonpayment rule. "Once you are in it, you might not ever get out of that quartile," Mr. Septimus notes.

Readmissions
Under a policy that began to take effect on Oct. 1, 2012, hospitals with high rates of 30-day readmissions will be subject to a payment penalty, with those in the worst quartile losing 1 percent of baseline MS-DRG payment. That maximum penalty will rise over two years to 3 percent.

A recent report found that 2,217 hospitals, or 63.4 percent received penalties for having too many readmissions, and 307 hospitals received the maximum 1 percent penalty.

Post-discharge infections are one of the leading causes of readmissions, especially for surgical patients, studies show. Hospital patients with a positive clinical culture for MRSA, vancomycin-resistant enterococci or Clostridium difficile are 40 percent likelier to be readmitted within a year than other patients, said a study in the June issue of Infection Control and Hospital Epidemiology.

Payment reform is hardly limited to Medicare. Starting July 1, 2012, the PPACA prohibited federal Medicaid matching funds to states for payments attributed to care provided for the same conditions as the Medicare non-payment rule.

Reporting concerns
Since January 2011, hospitals participating in the Hospital Inpatient Quality Reporting Program have had to report central-line-related infections to the National Healthcare Safety Network or risk loss of 2 percent of baseline Medicare payment. In 2012, the program expanded to cover urinary tract infections and infections from inpatient colon and abdominal hysterectomy surgeries.

Beginning in January 2013 inpatient acute-care facilities must report MRSA and C. difficile infections to NHSN Reporting data to NHSN has become a full-time job for many infection preventionists. Hospitals must report not only infections, but also all procedures covered by those codes so the CDC can establish baseline rates of infections.

“Many infection control departments are stretched with various mandatory reporting requirements, including the federal, state and perhaps the local Quality Improvement Organization or and/or The Joint Commission,” Ms. Stone of Columbia said. “Many clinicians have reported that this takes away time from general prevention activities such as education and patient follow up, as well as from important (infection-related) problems.”

To effectively manage the myriad metrics and reporting requirements and their resulting penalties and costs, Ms. Stone says that hospitals need to invest in appropriate resources to ensure they can reliably set objectives for HAI reduction and measure their performance against those objectives.

Adam Boris is CEO of ICNet Systems, a Chicago-based provider of automated infection surveillance and antibiotic stewardship software for hospitals. For more information go to ICNetSystems.com.
Reducing Legionella Infection in Hospitals by Risk Assessment and Cost-Effective Preventive Measures

IT’S UBQUITOUS, SO LET’S LOOK FOR IT AND BE BETTER PREPARED

By Yusen E. Lin, PhD, MBA, University of Pittsburgh, Visiting Professor, Civil & Environmental Engineering

Incidence of hospital-acquired Legionnaires’ disease is increasing. Outbreaks are occurring worldwide and have been reported not only from healthcare facilities but also long-term care facilities (nursing homes and assisting living apartments). Cases of Legionnaires’ disease are usually due to contaminated drinking water supplies, but several reservoirs are also implicated including oxygen humidifiers, ice machines, bronchoscopes, and decorative fountains. Although effective antimicrobial therapy is available, sometimes it is too late because hospitalized patients may have underlying diseases that complicate the therapy. The 30-day mortality was 13% for community-acquired Legionnaires’ disease versus 33% for hospital-acquired cases.

Hospital-acquired Legionnaires’ diseases may become more apparent if knowledge of environmental culture results stimulate the awareness by physicians and increased use of specialized laboratory testing for pneumonia patients, as has been documented elsewhere. In other words, if a doctor is informed that there is Legionella in his hospital water supply, he/she will be far more diligent in testing patients for signs of Legionnaires’ disease.

Risk Assessment

The presence of Legionella in the hospital water system is the only predictive factor of risk for contracting Legionnaires’ disease

The pipe network of a hospital water distribution systems are ideal reservoirs for Legionella replication, and the presence of Legionella in a high proportion (>30%) of distal sites has been shown to be predictive of case occurrences. In studies conducted by 8 hospitals in U.S. and Spain, 100% (8/8) of hospital water systems colonized with Legionella reported hospital-acquired Legionnaires’ diseases which were uncovered following subsequent clinical surveillances. In a U.S. national surveillance study of 20 hospitals in 13 states, 14 hospitals were colonized with Legionella in the water systems in which 43% (6/14) hospitals had environmental positive rates for Legionella > 30%. Among the 6 hospitals with high-level of Legionella contamination, 4 hospitals discovered hospital-acquired Legionnaires’ diseases.

Routine environmental cultures of Legionella are necessary to assess such risk, and are recommended by various authorities. The Allegheny County (Pittsburgh) Health Department recommends once a year culturing of water sites in patient units and wards housing high risk patients while the Maryland State Guideline recommends flexibility with four time a year culturing if an outbreak has occurred. For those hospitals using systemic disinfection, World Health Organization (WHO) recommends Legionella culture of the drinking water be performed every 3 months to verify efficacy.

Cost-Effective Preventive Measure

If Legionella is found to colonize the hospital water system, and cases of hospital-acquired Legionnaires’ disease continue to occur, such infections can be prevented by disinfecting hospital water systems. Copper-silver ionization disinfection and point-of-use (POU) filters have proved effective and considered the best available technology today.

The selection of vendor for a disinfection system is an important decision. In our experience, such disinfection system is likely to fail if the decision for purchase and installation was made by the engineers within the facilities with minimal input from the infection control team. It takes a team approach to arrive at the solution that satisfies all the departments. As a result, we recommend that the infection control team lead the task force in both selecting the disinfection method and the vendor. Other members of the team should include hospital engineers and members of the administration. Evidence-based data should be used for choosing a vendor that provides the system monitoring, data validation and technical support.

Legionella site positivity and disinfectant concentrations need to be routinely monitored for the life of the system. Beyond the technology, selecting a vendor who has an ongoing monitoring support and service plan is critical to the efficacy of the program.

In this industry, clinical treatment, patient safety, and treatment costs are all controlled by “Pay for Performance”. Hospital management need a multi-pronged approach to ensure optimal results for patients and thrive in the demands of today’s healthcare world.

Dr. Eason Lin is currently the Visiting Professor at University of Pittsburgh in Pennsylvania. He is Professor and Director of Center for Environmental Laboratory Services, National Kaohsiung Normal University, Taiwan. Contact: yusenlin@pitt.edu.
What is carbapenam:
Carbapenams are a class of antibiotics made by modifying penicillin. This chemical modification keeps part of the penicillin molecule, called the beta-lactam structure, and makes the rest artificial. The modifications were made because bacteria rapidly became resistant to penicillin. Chemists added bits and pieces of chemical structures to penicillin to avoid this resistance. The bacteria figured out how to make enzymes to chemically destroy these new modifications. After 70+ years of this war between chemists and bacteria, the bacteria have topped the chemists by making a class of enzymes called carbapenemases. Currently, the most common carbapenam antibiotic used is meropenam. In the fight between chemists and bacteria, meropenam is the last antibiotic standing. If a bacterium is resistant to meropenam there are no good other choices.

What is CRE?
The gram negative bacteria that have become resistant to carbapenams are known as CRE, or carbapenam resistant enterics. Until a short time ago carbapenam resistance was only in one type of enteric, called Klebsiella pneumoniae; therefore resistant bacteria were called KPC. Unfortunately resistance has spread to bacteria related to Klebsiella and we now use the term CRE. These enteric bacteria normally live in the intestines of humans.

CRE AND A NEW CRE TEST
by Stephen C. Edberg, Ph.D., A.B.M.M., F.A.A.M.
Yale University, Professor, Laboratory Medicine, Internal Medicine and Chemical Engineering

What is the CRE problem?
CRE is primarily a nosocomial associated problem. The likely reasons include the following: the use of large amounts of various antibiotics that select for the CRE bacteria; the transport from patient to patient of CRE on the hands of health care workers, including doctors and nurses; an environment such as a hospital room in which the bacteria can be deposited to infect new residents. For example, the CRE bacteria can remain alive in hospital rooms for a very long time period. In one study, after 30 days significant numbers of CRE could be found in a hospital room, and even after 100 days CRE were recovered.

Death rates of up to 50% can be seen in patients with CRE isolated from the blood. The CDC has identified CRE as one of the prime problems for hospitalized patients.

Impediments to Control
Lack of funding: There is no billing code for CRE under Medicare and Medicaid. Therefore, reimbursement for the actual laboratory testing is not available. While there would be a huge financial benefit to the prevention of infections (in addition to the obvious benefit to the patient) hospitals do not balance costs and benefits between departments.

Lack of a diagnostic test: The IDSA says “New, rapid accurate diagnostic tests are sorely needed. Unfortunately, there is little impetus for companies…” Need for highly skilled labor: Current methods require several days and utilize highly skilled and costly labor.

The Answer: New CRE Test
Now there is a test that allows the detection of CRE bacteria directly from people or the environment. It is called EPI-CRE® and is one of a group of screening tests for dangerous bacteria such as MRSA and VRE marketed by Pilots Point LLC (www.PilotsPoint.net). The CRE comes as a powder in a test tube. At the time of use, water is
Legionella Risks and Other Water-borne Pathogens
by Russ Nassof

While the quality of the indoor air we breathe every day has been the focus of governmental regulation and has even stimulated a huge “Green Building” initiative throughout the United States, little, if any, focus has been directed at the quality of water in those buildings, and the potentially deadly bacteria that all too often live within that same environment. I can assure you that the words pseudomonas, acinetobacter, and/or legionella—all very common water-borne bacterial pathogens—are words that you NEVER want to hear associated with anyone that you know or care about.

Why is it then that all our focus appears to be on the air we breathe and not the water we drink, and is this all about to finally change?

Just a little more than 35 years ago, an outbreak of what appeared to be a new form of pneumonia occurred during an American Legion convention at a hotel in downtown Philadelphia killing 34 people and sickening hundreds more. Today, we know that the source of this illness was the bacteria legionella and the disease was what has come to be known as Legionnaires’ Disease and not pneumonia. Unfortunately, this bacteria, along with new and significantly more drug resistant bacteria, are now showing up with increasing frequency in our water systems and causing illness not only in healthcare and long term care facilities, but in other structures as well including some of the ritziest hotels in this country.

This increase has not gone unnoticed: the Centers for Disease Control and Prevention (CDC) reported a 217%

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Legionella Risks  
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increase in cases of just legionellosis between 2001 and 2009 and the problem is not limited to the United States, but is a worldwide issue.

Contamination of building water systems can potentially destroy not only lives, but businesses and economies as well. Liability is significant with a nearly $200 million dollar verdict having been awarded for gross negligence on a recent legionella outbreak, reported healthcare costs of approximately $86,000 to treat a single case of legionellosis, and a single publicized case of Legionella was sufficient to destroy the business of a great hotel in less than a year. So maybe people are now starting to pay attention to the water…

For the last several years, the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) has been working on a “guideline” to be released in code ready language (i.e. will have the force of law when adopted into local building codes) to finally address the “water” issue. This guideline (known as 188) will be applicable to those buildings where historical risks have been greatest for water-borne outbreaks of illness including many types of healthcare facilities, buildings greater than 10 stories, and/or those buildings with cooling towers, whirlpool spas/baths, decorative fountains, humidifiers, and potable water systems (since much of the legionella in our water survives chlorination from municipal water treatment facilities).

While water testing is not specifically required under the guideline, the development of a hazard analysis and critical control point program (HACCP) which will monitor conditions (known to be conducive to legionella proliferation) along with response actions (to be taken if established parameters are exceeded) will be needed to comply with ASHRAE 188.

Unlike many other pathogens potentially impacting our health, including the emerging and growing group of multi-drug resistant organisms all too present particularly in healthcare facilities today, prevention and control of legionella as well as other water borne pathogens IS possible and has been successfully demonstrated with numerous prevention and response technologies currently available today. Careful consideration should therefore be given to evaluating whether surveillance of your water supply should be performed even in the absence of the ASHRAE 188, with the goal of making the water in your building as safe or safer than the air you breathe.

Russ Nassof is Executive Vice President of RiskNomics, LLC. For more information, visit www.risknomicsllc.com or email rnassof@risknomicsllc.com.

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