Health care-associated infections (HAIs) are defined as infections acquired by patients through their contact with the health care system. Bacteria, fungi and viruses can be transmitted at any point of the patient care continuum, including clinics and long-term care settings.

According to the Centers for Disease Control and Prevention (CDC), approximately 722,000 health care-associated infections occur annually in United States hospitals. Nearly 75,000 patients died as a result of these infections; more than breast, prostate and cervical cancer combined. Given that these infections are now understood to be transmitted to patients through largely avoidable means, it validates the need for enhanced infection prevention and control efforts by health care facilities.

Device-Associated Infections

Whenever a device is introduced into the human body, it offers pathogens a new mechanism of entry. Two of the most common device-associated infections are catheter-associated urinary tract infections (CAUTI) and central line-associated blood stream infections (CLABSI).

Catheter-associated urinary tract infections (CAUTI)

Urinary tract infections are considered to be “catheter-associated” when they coincide with the use of a urinary catheter. A urinary catheter is a thin, flexible tube which is placed in the bladder for a period of time in order to drain urine into a closed collection system.

The most significant risk factor for the development of CAUTI is the duration of time that a catheter remains in the bladder. Additional risk factors include sex, age and compromised immune systems. The strongest intervention to reduce CAUTI is the reduction of unnecessary catheters.

Central line-associated blood stream infections (CLABSI)

Blood stream infections are determined to be “central line-associated” when they coincide with the use of certain types of vascular catheters. A central line catheter is a long, flexible tube threaded through the vascular system, ending in one of the great vessels. These catheters are used to infuse medication, nutrients, blood products, or for monitoring purposes such as drawing blood, or measuring cardiac output. An infection occurs when disease-causing organisms enter the catheter and travel into the blood stream. Symptoms include fever, chills, apnea, bradycardia, or hypotension.

As in CAUTI, the strongest intervention is the reduction of unnecessary catheters. The risk of CLABSI is also increased by:

- Duration of catheterization
- Femoral or internal jugular access site
- Neutropenia
- Receiving parental nutrition
- Transfusion of blood products
- Insertion in an ICU or emergency department
- Lack of maximal sterile barriers during insertion
- Suboptimal maintenance of the catheter
- Receiving hemodialysis

CLABSI has been shown to decrease in response to the use of bundled interventions, focusing on either the insertion or maintenance of catheters.

Examples of items included in an Insertion Bundle:
- Verification of catheter indication
- Aseptic technique hand hygiene
- Proper skin preparation
- Optimal insertion technique

Examples of items included in a Maintenance Bundle:
- Verifying catheter indication and removing catheters deemed unnecessary
- Proper hand hygiene prior to accessing the catheter
- Disinfection of catheter hubs, needless connectors, and injection ports before access
- Minimizing frequency of catheter access

Continued on page 4
Patient Safety Awareness Week, March 8-14, 2015: “United in Safety”

By Joe Murphy, APR, VA NCPS public affairs officer

National Patient Safety Awareness Week is an annual education and awareness campaign for health care safety led by the National Patient Safety Foundation. Each year, health care organizations around the world take part in the event. The theme for this year’s campaign is “United in Safety.” Focused on patient engagement, the theme emphasizes the importance of the relationship between providers and patients and their families.

The VA and Department of Defense (DoD) scheduled 29 presentations, March 10-12, for medical professionals to learn more about a wide range of patient safety programs and initiatives: VA programs included “Reducing Falls of Frequent Fallers” and “Health Literacy and VA Prescription Labels.”

“We are committed to continuing to develop a positive patient safety culture,” said Robin Hemphill, M.D., M.P.H., NCPS director. “I applaud the many speakers who took time to participate in our program, offering in-depth presentations on a number of important topics. They have enriched the learning opportunities for a multitude of VA and DoD professionals who view the safety of our patients as a personal priority.”

DoD offered 12 presentations this year, such as “Patient Safety Data: What is It Teaching Us?” and “OR Initiatives for a Patient Safety Success Story.”

“We were very happy that the DoD’s participation in this year’s program included presentations,” said Beth J. King, R.N., B.S.N, the NCPS program manager who led NCPS’ participation in National Patient Safety Awareness Week. “It’s another way to reflect a ‘united’ commitment to provide care for service members, many of whom will eventually be offered health care at VA facilities. Everyone wants optimal outcomes for their patients.”

“The theme, ‘United in Patient Safety,’ also really resonated with me,” King continued. “We have so many interdependencies when providing health care. The multiple systems that comprise health care delivery are vital, while at the same time require us to function in a ‘united’ fashion. Actions in one area of a system may dramatically influence others, because we are all connected!”

The effort this year marks the third year that NCPS has organized a series of Live Meetings to underscore VA’s patient safety efforts, which directly support NCPS’ goal: the nationwide reduction and prevention of inadvertent harm to patients as a result of their care.

VA’s patient safety program, led by NCPS, is based on a systems approach to problem solving that focuses on prevention, not punishment. Human factors engineering methods and ideas from high-reliability organizations, such as aviation, are applied to target and eliminate system vulnerabilities.

“Our program during National Patient Safety Awareness Week also provided a great opportunity to increase awareness of efforts underway to improve patient care at numerous VA facilities,” King said.

In conjunction with NCPS’ efforts, patient safety fairs and special events were held at VA medical facilities across the nation.

For instance, the Milwaukee VA Medical Center held two days of events. “The first day featured games and booths showcasing The Joint Commission’s National Patient Safety Goals and other hot topics in patient safety,” said Lindsey Ladell, Pharm.D., BCPS, the facility’s patient safety manager. “A number of booths were sponsored by various work groups within our organization, focusing on specific issues.”

“The second day featured presentations to both staff and leadership concerning ‘High Reliability in Health Care,’ as presented by Gary Sculli, director of NCPS’ Clinical Team Training Program,” she continued. “It was a great opportunity to learn how applying ideas from high-reliability organizations, like aviation, can improve patient safety” 2

Background

In the United States, estimates of the lives lost due to factors related to patient safety exceed those lost due to motor vehicle accidents, breast cancer and AIDS combined, as the landmark 1999 Institute of Medicine study, To Err Is Human, shows.

A 2012 study conducted by Office of the Inspector General of the Department of Health and Human Services (HHS) indicated that hospital employees recognize and report only one out of seven errors, accidents and other events that harm Medicare patients while they are hospitalized. 3

Unprecedented adverse events added at least $4.4 billion to government health care costs and contributed to the deaths of about 180,000 patients a year, as another report published in 2010 by HHS revealed. In a single month, October 2008, the report estimated that some 134,000 Medicare patients experienced at least one adverse event, ranging from a temporary health setback to death, during a hospital stay. It said 44 percent of them were “clearly or likely preventable.”

Over a decade ago, VA took the lead in developing programs and initiatives—rooted in successful approaches developed by high-reliability organizations such as aviation—that have been shown to enhance patient safety. As a number of VA studies and reports over recent years indicate, patient safety efforts can be significantly enhanced through the use of checklists, involving patients in their care, and initiatives that focus on improving teamwork and communication.

The VA has shown that a systematic approach to reporting, analyzing and correcting patient care systems is essential to developing a culture of safety. Whether it is through the use of human factors engineering methods, practice-based educational programs using high-fidelity simulators, or developing tool kits and cognitive aids, the goal has been the same: the reduction of harm to patients as a result of their care.

Taking Action

An analysis last year of more than 82,780 surgical hospitalizations, published in Patient Safety in Surgery, indicated that 46 to 65 percent of all adverse events in hospitals are related to surgery. 5 NCPS has been conducting programs nationally since 2004 to reduce adverse
events in the operating room, with significant results.

Beginning as Medical Team Training and later expanding to Clinical Team Training (CTT), the program creates an opportunity to improve patient safety and reduce the risk of patient harm by facilitating clear and timely communication and later expanding to Clinical Team groups.

Joint Commission statistics (2011-2013) indicate that approximately 61 percent of the time, communication failures continue to be cited as one of the top three major root causes in reported sentinel events.6

Aimed at a multi-disciplinary group of front-line VA health care providers, the program is based on techniques used in aviation’s Crew Resource Management (CRM) training. CRM was implemented by the airline industry in the early 1980s after a series of highly publicized accidents resulted not from mechanical malfunctions, but from poor communication and team decision making.

CTT has demonstrated effectiveness in the clinical environment. A VA study conducted in 2010 and published in Journal of the American Medical Association found a significant decrease in the annual surgical mortality rate in groups trained in CTT methods, as opposed to untrained groups.

The 74 facilities in the training program experienced an 18 percent reduction in annual mortality compared with a 7 percent decrease among the 34 facilities that had not yet undergone training. It was also noted that the longer these methods had been practiced at a medical facility, the greater the decrease in mortality.7

NCPS developed the Mental Health Environment of Care Checklist for VA medical facilities to review inpatient mental health units for environmental hazards, decreasing the chance a patient could commit suicide or inflict self-harm.2

In a 2012 VA study that examined the effectiveness of a standardized checklist for mental health units: A survey of 113 VA facilities indicated that they were able to reduce the risks associated with 5,834 (76 percent) of the identified hazards.8

The Falls Toolkit was developed by NCPS, the Patient Safety Center of Inquiry, Tampa, Fla., and other VA care givers. It was designed to aid facilities in developing a comprehensive falls prevention program and is available online.2

Because of the importance of falls reduction, the toolkit is extremely popular among professionals. Approximately 51 percent of all downloads from the NCPS Internet site during the past year were documents contained in the kit; more than 25,000 documents were downloaded.

Web users often leave an Internet page within 10-20 seconds; routinely, staying less than a minute.9 The average time spent on the Falls Toolkit was just under 8 minutes, indicating its value to users.

Many other “On the Job Tools” are also available to VA and non-VA caregivers, such as the Moderate Sedation for Non-Anesthesiologists and Wandering Reduction Toolkits, Patient Safety Assessment Tool, and detailed information on conducting a Root Cause Analysis and Healthcare Failure Mode and Effect Analysis. Nearly 23,300 visitors have reviewed these tools and downloaded material from them during the past year; all available on the NCPS Internet site.2

A Wide Range of Programs

The Daily Plan8 was developed by NCPS to enhance patient safety by involving patients in their care; a single document is discussed with the patient that outlines what can be expected on a specific day of hospitalization.

NCPS pharmacists conducted a national effort to develop a single standardized prescription label for use within VA in 2011, directly involving Veterans in the process. Based on the study and trial, a new standardized patient-centric prescription label roll-out began in 2013 and was completed in 2014.

The VA Office of Academic Affiliations (OAA) teamed with NCPS to offer one-year fellowships in patient safety. NCPS manages the program; OAA provides the funding. Ninety have been selected as fellows since the program began in 2007. Projects have included: evaluation of falls injuries and prevention strategies; curriculum for physician assistants.

Working with the VA Office of Academic Affiliations and The Dartmouth Institute, NCPS has initiated the Chief Resident in Quality and Safety Program. Forty-three chief residents from 28 VA Medical Centers (with university affiliation) participated in a patient safety boot camp, two-way interactive video conferences, and conducted quality improvement projects during 2014.

NCPS manages a number of Patient Safety Centers of Inquiry, which are an integral part of VA’s patient safety efforts. The centers develop, disseminate and, most importantly, implement clinically relevant innovations that can improve patient safety at VA medical facilities. For example, the creation of a comprehensive Moderate Sedation for Non-Anesthesiologists toolkit, noted above.2

Confidential Reporting

The NCPS Patient Safety Information System, a de-identified internal, confidential and non-punitive reporting system, has been fundamental to NCPS’ efforts. It allows NCPS to electronically document and analyze patient safety information from across VA so that lessons learned can benefit the organization.

A systems approach to problem solving requires a willingness to report problems or potential problems so that solutions can be developed and implemented. A combined total of more than 1,000,000 root cause analysis reports and safety reports have been entered into the reporting system since it was established 14 years ago.

Willingness and an avenue to report problems or potential problems are essential to safe care because we can’t fix what we don’t know about.

Conclusion

A past theme of National Patient Safety Awareness Week was “Patient Safety 7/365: 7 days of recognition, 365 days committed to safe care,” which continues to be the focus of VA’s patient safety efforts.

“Our participation in this annual event is a reminder that VA is fully engaged in a wide-ranging effort to promote patient safety,” concluded Dr. Hemphill. “The program we’ve created directly supports our commitment to provide world-class care on a daily basis.”

References

Available in online edition of TIPS.
Health Care-Associated Infections: A Persistent Patient Safety Issue
(Continued from page 1)

- Replacing catheters as a matter of need rather than prescheduled duration of time
- Maintaining sterile technique with dressing changes

Surgical site infections (SSI)

Infections are classified as surgical site infections if a surgical procedure was performed at the site immediately prior to the infection. The infection may initially be superficial, in that only the skin is affected, or it may progress to involve deep tissue, organs or bones. Despite advances in infection prevention and control practices, including: improved aseptic technique, sterilization of equipment, and the availability of antimicrobial prophylaxis, surgical site infections remain a cause of significant patient harm, including prolonged hospitalization, and in three percent of cases, death.

Obesity, smoking and comorbidities have been among the patient level risk factors associated with SSIs. Several operative characteristics have also been associated with SSIs: surgical urgency, duration of operation, general anesthesia, and performance of more than one procedure.

In addition to any interventions that may address the risk factors above, there are several additional pre-emptive measures which can be taken to guard against surgical site infections, such as: administering antimicrobial prophylaxis in accordance with evidence-based guidelines, maintaining normal blood glucose in the immediate postoperative period, keeping the patient’s body temperature at 95.9 degrees or higher, and screening for and appropriately decolonizing patients preoperatively in advance of high-risk surgical procedures.

Infections by Multidrug-Resistant Organisms

Methicillin-resistant staphylococcus aureus (MRSA)

MRSA is a bacterium which has developed resistance to an entire class of penicillin-like antibiotics called beta-lactams. MRSA can cause infections of skin and soft tissue, endocarditis, pneumonia, bone and joint infections, central nervous system infections, and bloodstream infections. MRSA infections occur most frequently among patients who have compromised immune systems or have been recently treated with antibiotics. MRSA is most often spread through direct contact with an infected wound, or contaminated hands, especially those of health care workers. MRSA can also be transmitted through fomites, which are defined as both porous and non-porous surfaces that can become contaminated with pathogens, serving as a mode of disease transmission.

Carriers of MRSA can spread the pathogen to others, while remaining asymptomatic. The best prevention against MRSA is the use of standard precautions, as well as contact precautions. Standard precautions include: hand hygiene, gloving, mouth/nose/eye protection, gowns, careful handling of patient care equipment, and handling used linens appropriately. Contact precautions would add the following: putting patients into cohorts according to infection, limiting patient movement to medically-necessary purposes, using disposable equipment whenever feasible, or dedicating equipment to individual patients when disposable items are not available.

Clostridium difficile infections (CDI)

Clostridium difficile is an infection that causes gastrointestinal illness through inflammation of the colon. The inflammation is ultimately caused by contact with the toxins produced by C. difficile. Symptoms of infection include fever, loss of appetite, belly pain and tenderness, nausea, and watery diarrhea.

C. difficile has become the most common cause of health care–associated infections in U.S. hospitals. Health care C. difficile infections comprise the majority of nearly half a million infections in the United States. Of those who contract health care-associated C. difficile, one in five will experience a recurrence, and nearly 10 percent will not survive longer than one month. In a recent study of the burden of C. difficile in the United States, people 65 years of age and older were found to have nearly nine times the risk of contracting C. difficile in comparison to people under 65 years of age.

As a spore-forming bacterium, C. difficile is extremely resilient against the most commonly used methods of disinfection. They are resistant to drying, heat, chemicals, radiation and sunlight.

In the absence of proper disinfection methods, spores can survive for months on environmental surfaces. In outbreak situations, the current recommendation is to perform hand hygiene with soap and water, as alcohol does not inactivate spores of C. difficile. This method relies on the physical removal of the spores, which also means that proper donning and doffing of gloves and other personal protective equipment is especially important.

One of the most effective protections against the increase in multi-drug resistant organisms such as MRSA and C. difficile is antimicrobial stewardship. Antimicrobial stewardship involves appropriate selection, dosing, routing, and duration of antimicrobial therapy. Antimicrobial stewardship has been shown to reduce the development and transmission of antimicrobial-resistant bacteria.

VA Takes Action

In a recent email to all VHA staff, Carolyn M. Clancy, M.D., Interim Under Secretary for Health, highlighted the outstanding progress the VA has achieved in decreasing health care-associated infections.

For instance, by implementing a multi-phase program in 2007 to decrease health care-associated MRSA, infections declined 69 percent in VA acute care facilities, 81 percent in spinal cord injury units, and 36 percent in community living centers. This successful program was then used as the model for a CDI Prevention Initiative, launched in 2012. VA hospital-onset, health care facility-associated CDI rates are now significantly trending downwards.

As Dr. Clancy noted, “These strategic, coordinated and sustained efforts allow VA to prevent, detect and control illness related to antibiotic-resistant infections. I am proud that VA is not only protecting our own patients from these dangerous infections, but leading the health care industry in the fight to protect all Americans.”

References

Available in online edition of TIPS.