Medical News

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The Surgical Infection Prevention Project of the Centers for Medicare & Medicaid Services Expands to Include Other Surgical Complications

The new Surgical Care Improvement Project (SCIP) of the Centers for Medicare & Medicaid Services (CMS) is a national partnership of organizations committed to improving the safety of surgical care through the reduction of postoperative complications. The goal (expanded from the CMS Surgical Infection Prevention project) is to reduce surgical complications nationally by 25% by 2010 in four target areas: surgical-site infections and cardiac, respiratory, and venous thromboembolic complications. A SCIP steering committee, consisting of public and private organizations including the Society for Healthcare Epidemiology of America, has been working since 2003 to develop a quality improvement framework to improve both patient safety and the quality of care for surgical services nationwide. In preparation for an official launch in summer 2005, several developmental activities are currently under way, including the completion of a three-state demonstration pilot, the formation of four technical expert panels to provide specialized guidance for improving each of the four target areas, and the development of information, materials, and evidence-based strategies to help hospitals and their professional staffs participate and succeed in this national effort.

Along with the proper use of antibiotics to prevent surgical-site infections, examples of additional measures being evaluated include preventing hypothermia during the procedure, maintaining high levels of inspired oxygen, controlling serum glucose within certain limits, and avoiding shaving of the operative site.

More information on SCIP is available at www.MedQIC.org/scip.

Computer-Based Standing Orders Versus Physician Reminders to Increase Influenza and Pneumococcal Vaccination Rates

Dexter et al., from Wishard Memorial Hospital, Indianapolis, Indiana, studied the effects of computerized physician standing orders compared with physician reminders on inpatient vaccination rates in a randomized trial of 3,777 patients during two influenza seasons (November 1, 1998, through December 31, 1999).

The hospital's computerized physician order entry system identified inpatients eligible for influenza and pneumococcal vaccination. For patients with standing orders, the computer system automatically produced vaccine orders directed to nurses at the time of patient discharge. For patients with reminders, the computer system provided reminders to physicians that included vaccine orders during routine order entry sessions.

Approximately 50% of all hospitalized patients were identified as eligible for influenza vaccination. Twenty-two percent of patients hospitalized during the entire 14 months of the study were found eligible for pneumococcal vaccination. Patients with standing orders received an influenza vaccine significantly more often (42%) than did those with reminders (30%) ($P < .001$). Patients with standing orders received a pneumococcal vaccine significantly more often (51%) than did those with reminders (31%) ($P < .001$).

The researchers suggest that computerized standing orders should be used more widely for increasing immunization rates among inpatients.

FROM: Dexter PR, Perkins SM, Maharry KS, Jones K, McDonald CJ. Inpatient computer-based standing orders vs physician reminders to increase influenza and pneumococcal vaccination rates: a randomized trial. *JAMA* 2004;292:2366-2371.

Healthcare-Associated Transmission of *Mycobacterium tuberculosis* Among Patients at Three Hospitals and a Residential Facility

Immunocompromised patients have an increased risk of experiencing progression of latent *Mycobacterium tuberculosis* infection to active tuberculosis (TB) disease. In January 2002, two patients with leukemia (patients 1 and 2) developed pulmonary TB after recent exposure at three hospitals (hospital A, hospital B, and hospital C) and at a residential facility for patients with cancer. Neither was known to have latent *M. tuberculosis* infection. Within 1 year, three other patients with malignancy and TB disease had been identified at these facilities, prompting an investigation of healthcare facility–associated transmission of *M. tuberculosis*. Malone et al., from the Centers for Disease Control and Prevention, performed genotypic analysis of the five available *M. tuberculosis* isolates from patients with malignancies at these facilities, reviewed medical records, interviewed individuals who had identi-

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cal *M. tuberculosis* genotypic patterns, and performed tuberculin skin testing (TST) and case finding for possible exposed contacts.

Only patients 1 and 2 had identical genotypic patterns. Neither patient had baseline TST results available. Patient 1 had clinical evidence of infectiousness 3 months before the diagnosis of TB was ascertained. Among employee contacts of patient 1, TST conversions occurred in 1 (2%) of 59, 2 (6%) of 34, 2 (6%) of 32, and 0 (0%) of 8 who were tested at hospitals A, B, and C and at the residential facility, respectively. Among the other patients who were exposed to patient 1, 1 (3%) of 31, 1 (3%) of 30, 0 (0%) of 40, and 12 (9%) of 136 who were tested had positive TSTs at hospitals A, B, and C and at the residential facility, respectively. The authors concluded that delayed TB diagnosis in two patients with leukemia resulted in the transmission of *M. tuberculosis* to 19 patients and staff at three hospitals and a residential facility. Baseline TB screening and earlier clinical recognition of active disease could reduce healthcare facility–associated transmission of *M. tuberculosis* among patients with malignancy.

FROM: Malone JL, Ijaz K, Lambert L, et al. Investigation of healthcare-associated transmission of *Mycobacterium tuberculosis* among patients with malignancies at three hospitals and at a residential facility. *Cancer* 2004;101:2713-2721.

Nurses' Working Conditions Have Implications for Infectious Disease

Stone et al. recently published a review of the research related to staffing patterns. They found that nurses' working conditions are risk factors for healthcare-associated infections as well as occupational injuries.

The research revealed that staffing shortages, especially those involving nurses, have been identified as one of the major factors expected to constrain the ability of hospitals to deal with future outbreaks of emerging infections.

The authors noted that nursing is a predominately female occupation for which the working conditions are often poor. Such conditions contribute to recruitment and retention problems. These factors, together with demographic changes, have resulted in a shortage of qualified nurses. Mounting evidence demonstrates that the lack of an adequate supply of qualified nurses is a global public safety issue that may require a multi-pronged policy approach. Monitoring and improving the working conditions of nurses is likely to improve the quality of healthcare by decreasing the incidence of many infectious diseases, assisting in retaining qualified nurses, and encouraging men and women to enter the profession. The authors conclude that further research is needed to understand how best to protect patients and healthcare workers. Changes in the work force will have implications for infectious disease, infection control, and occupational health professionals with a need for much more thorough training of nonprofessionals in critical practices.

FROM: Stone PW, Clarke SP, Cimiotti J, Correa-de-Araujo R. Nurses' working conditions: implications for infectious disease. *Emerg Infect Dis* 2004;10:1984-1989.

Emergence of New Strains of Methicillin-Resistant *Staphylococcus aureus* in a Neonatal Intensive Care Unit

Genetically distinct strains of methicillin-resistant *Staphylococcus aureus* (MRSA) of community rather than hospital origin have emerged in many areas of the United States. Healy et al., from Baylor College of Medicine, Houston, Texas, conducted a study to determine whether MRSA strains causing bacteremia in infants treated from birth in a neonatal intensive care unit (NICU) demonstrated the genetic traits of community-associated MRSA. They conducted a retrospective cohort study among NICU infants with bacteremia due to MRSA during 2003 in a NICU of a large tertiary-care center in Houston. MRSA isolates were characterized by antimicrobial susceptibility testing and staphylococcal cassette chromosome *mec* (SCC*mec*) typing by polymerase chain reaction. All MRSA cases were reviewed for clinical severity of infection and outcome.

During 2003, a total of 8 (47%) of 17 infants with bacteremia due to *S. aureus* had MRSA infection. Isolates from 6 (75%) of these 8 infants carried the SCC*mec* genes (class B *mec* and *ccr*2) that are characteristic of community MRSA; 4 isolates were type IVa. All 6 isolates were resistant to beta-lactam antibiotics and erythromycin; 1 was also resistant to clindamycin. One isolate could not be typed, and another carried the SCC*mec* type II gene (typical of hospital-associated strains) and was susceptible only to vancomycin. Seven (88%) of 8 infants presented with septic shock. Despite initial treatment with vancomycin, 3 (38%) of the infants died, and 3 of the infants who survived had complications requiring prolonged antimicrobial therapy; these 6 infants had MRSA isolates with genetic characteristics of isolates of community origin. The authors concluded that community-associated MRSA strains have emerged as a significant cause of nosocomial sepsis in neonates hospitalized in the NICU since birth and have caused disseminated infection with substantial morbidity and mortality.

FROM: Healy CM, Hulten KG, Palazzi DL, Campbell JR, Baker CJ. Emergence of new strains of methicillin-resistant *Staphylococcus aureus* in a neonatal intensive care unit. *Clin Infect Dis* 2004;39:1460-1466.