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ISSUE: As part of the system's commitment to quality program, hospital infection prevention and control programs were evaluated to assess compliance with nationally accepted standards of care and patient safety. One important outcome of the collaborative effort was the development of an infection prevention and control hospital resource plan that could be implemented across the system.

PROJECT: The model infection control program plan was created as a framework to assist tenet hospitals in the development of their infection control programs. The goal of the model infection control program plan was to provide a minimum outline of what should be included in each and every infection control program in the system. The model plan encompasses the 2005 regulatory requirements from the Centers for Medicare and Medicaid Conditions of Participation; the 2005 Joint Commission on Accreditation of Healthcare Organization Standards for Practice; and the position statements about infrastructure and essential activities of infection control and epidemiology programs in hospitals from the combined Society of Healthcare and Epidemiology and the Association of Professionals in Infection Control and Epidemiology Consensus Panel Report.

RESULTS: In January 2004, a pilot implementation of the model plan was initiated at 14 of the system's Florida hospitals and has been in operation for 13 months. There was no known resistance to implementing the plan. Infection control practitioners did report an increased confidence in individual hospital program plans as a result of this project. Following a successful introduction of the pilot, a model plan that could be implemented company-wide was drafted and subsequently modified (see below). The model plan has been approved and will be introduced to all hospitals by the end of January 2005.

LESSONS LEARNED: Because the pilot plan was developed in Florida, it reflected state-specific requirements that were not generalizable to hospitals across the country. Therefore, the plan was modified with a focus on making it as comprehensive as possible, while maintaining flexibility so that it could be tailored to meet the needs of specific hospitals and specific regions. Involving the legal department was important in the development of the plan and is crucial to any hospital implementing a model plan for use nationwide, because legal counsel can ensure that the plan will comply with medical staff bylaws and laws of individual states.

Abstract ID 53935

Monday, June 20

The effectiveness of infection control measures during a Rotavirus outbreak in a 36-bed pediatric progressive care unit

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ISSUE: Low compliance in following established infection control measures; such as hand hygiene and isolation precautions by healthcare workers can result in an outbreak of Rotavirus in a pediatric progressive care unit (PCU).

PROJECT: Staff compliance with the established infection control measures was found to be low during the weekly inspections by the infection control practitioner (ICP) in the year preceding the outbreak. During that same time period, quarterly inservices had been presented by the ICP reinforcing the importance of sound infection control practices, but the compliance rates continued to remain low. During the winter an outbreak of

healthcare-associated Rotavirus was detected in PCU. At the beginning of the outbreak, lectures regarding infection control practices were presented to limited numbers of staff but new cases of Rotavirus continued to occur. Another series of mandatory interactive inservices were presented by the ICP, and these were attended by a majority of the unit clinical staff. The staff agreed to be proactive in controlling the outbreak by intervening, teaching, and observing their coworkers' compliance with infection control measures. Alcohol foam dispensers were installed inside and outside every patient's room and pocket-size alcohol hand products were made available for the staff. All patients with diarrhea were placed on contact precautions with ample supplies of gowns and gloves outside every patient's room.

RESULTS: Staff adherence to established infection control practices was noted during infection control rounds. The outbreak of Rotavirus was brought under control within 2 weeks and no additional healthcare-associated cases were identified after that time.

LESSONS LEARNED: 1) Education alone did not have a strong impact in controlling this outbreak. 2) The teamwork approach of self-monitoring compliance prevented the continuance of this outbreak. 3) Increased availability of alcohol foam dispensers increased hand hygiene compliance. 4) Timely initiation of isolation played an important role in controlling this particular outbreak.

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Tuesday, June 21

Disruption of biofilms associated with vascular catheterization

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ISSUE: Biofilms are of great concern to patients who are vascular-catheterized. Of the more than 20 million vascular catheterizations performed in the United States every year, almost all of them become infected with biofilms. The FDA requires all patient preoperative skin preparation products to demonstrate efficacy versus *Staphylococcus epidermidis*, but only in its planktonic state. Biofilms are from 500 to 1500 times more resistant to antibiotic therapy than are planktonic forms. Hence, the question arises as to how effective against biofilms are topical antimicrobials.

PROJECT: The evaluation consisted of comparing the bactericidal effectiveness of a new topical antiseptic product (alcohol-based ZPT) versus planktonic *Staphylococcus epidermidis* and a biofilm formed of the same species. Planktonic time-kills were performed to test the efficacy of the product versus *Staphylococcus epidermidis*. For the biofilm challenge, biofilms were developed on microporous membranes resting on agar nutrient medium. The membranes were inoculated and incubated at $35^{\circ} \pm 2^{\circ}\text{C}$ for 48 hours, with transfers to fresh agar nutrient medium every 10-12 hours. After 48 hours, the membrane-supported biofilm was exposed to the alcohol-based ZPT product for 15 seconds and 2 minutes in screw-capped containers. Following each exposure time, neutralizing fluid was transferred into the jars. The neutralizer/product/disaggregated biofilm suspension was then serially diluted, plated, and incubated at $35^{\circ} \pm 2^{\circ}\text{C}$.

RESULTS: The alcohol-based ZPT achieved a $>5 \log_{10}$ reduction versus planktonic bacteria at both the 15-second and 2-minute time point. The alcohol-based ZPT achieved only a .28 \log_{10} reduction versus the biofilm in 15 seconds, but after 2 minutes the alcohol-based ZPT again achieved $>5 \log_{10}$ reduction versus the biofilm.

LESSONS LEARNED: The biofilm was able to retard the rate of microbial action of the alcohol-based ZPT, relative to that demonstrated in the planktonic time-kill. However, the topical antimicrobial demonstrated a high antimicrobial activity against the biofilm well within a timeframe practical for site preparation. Use of alcohol-based ZPT to prepare skin sites prior to vascular catheterization offers promise of reducing catheter-associated infections by not only demonstrating very good kill against planktonic and biofilm *Staphylococcus epidermidis*, but by providing the known accumulative antimicrobial activity of ZPT to prevent rebound of skin colonization.