

disinfecting solution to 1: 10 sodium hypochlorite solution. Also, in-service education on strict hand hygiene, with emphasis on the use of soap and water only, was completed for all staff. Further, for patients with episodes of diarrhea, a stool specimen was sent to the laboratory for *C. difficile* toxin A & B assay. These patients were placed on contact precautions, treated empirically and cohorted on one patient care unit. The environmental cleaning procedures were reevaluated during the second week of October 2006 for its effectiveness. That week there were eight new cases and two re-infection of *C. difficile* a mark increase from the previous week. A two-step cleaning process was instituted. Environmental management service (EMS) personnel were instructed to clean the patients' environment with 1:10 sodium hypochlorite solution then let it dry and then re-clean with 1:10 sodium hypochlorite solution.

RESULTS: The initial case of *C. difficile* was never identified. The majority of the patients received two or more antibiotics for approximately three days, and one month later were diagnosed with *C. difficile* infection. With the institution of double cleaning, the number of new cases for the third week of October 2006, decreased to four and for the fourth week decreased to two with two recurrences. For the entire month of November 2006, only three new cases and two recurrences of *C. difficile* infections were diagnosed. In December 2006 there was zero new case diagnosis and one recurrence of *C. difficile* infection in the entire VANJHCS.

LESSONS LEARNED: Proper environmental cleaning procedures and education have a dramatic impact on decreasing the incidence of *C. difficile* infections in the hospital environment.

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Control and Prevention of *C. Difficile* (CD) Outbreaks with a Multidisciplinary Program in a Community Hospital

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ISSUE: Three nosocomial outbreaks of *C. difficile* diarrhea were identified over a four-month period in a community hospital. Upon study of the four outbreaks, a common trend was noted to be a delay in recognizing and isolating symptomatic patients. This delay prevented proper cleaning and disinfection of patient rooms/equipment, as well as heightened hand hygiene efforts to prevent nosocomial transmission.

PROJECT: The Infection Control Practitioner gained the support of nursing leadership and worked collaboratively with a multidisciplinary team including Nursing, Education, Pharmacy, Laboratory, Environmental Services and the Medical Staff to control current cases and prevent further outbreaks. Education on *C. difficile* was provided to Nurses on all shifts concentrating on the following key points: 1) Signs and symptoms of *C. difficile*, 2) Identifying patients at risk, 3) Proper hand hygiene with soap and water (not alcohol gels) while caring for *C. difficile* patients, and, 4) Presumptive isolation of all symptomatic patients while working with physicians to diagnose those patients. Nurses were also encouraged to attend continuing education programs on *C. difficile*. The hospital Pharmacist evaluated patients and provided feedback to physicians regarding appropriate antibiotic usage. In-services were held for Environmental Services staff regarding proper cleaning procedures for areas with affected patients. The Environmental Services department received notification directly from the Laboratory on all patients who tested positive for *C. difficile* and directly from the Infection Control Practitioner for patients who were suspect. Environmental Services personnel promptly initiated enhanced cleaning procedures which included the use of

10% bleach instead of the hospital-approved disinfectant. Physicians were informed of these process changes during regularly scheduled medical section meetings.

RESULTS: The multidisciplinary process changes were well accepted and enforced house-wide. There have been no further outbreaks nor documented nosocomial transmission of *C. difficile* for a period of three months.

LESSONS LEARNED: A multidisciplinary approach involving Infection Control, Nursing, Environmental Services, Pharmacy, the Laboratory, Education, and the Medical Staff is required to control and prevent nosocomial *C. difficile* transmission.

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MRSA Outbreak: Level 3 Neonatal Intensive Care Unit

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ISSUE: Between 7/24/06 and 8/04/06 2 cases of MRSA infection were identified in a level 3 Neonatal Intensive Care Unit (NICU), 1 skin pustule and 1 blood culture. On 8/11/06 1 baby in a set of triplets developed a pustule, identified as MRSA. Nasal swabs were done on two babies in the same pod, 1 was positive. Seven isolates (1 from June) were sent for pulsed-field gel electrophoresis (PFGE). Six of the 7 isolates were indistinguishable (Type G). Then the rest of the NICU babies were screened (n = 34), 8 were positive with varying sero types.

PROJECT: The Women and Infants Program handles approximately 7,400 deliveries each year and is one of the largest, non-academic delivery centers in the country. The NICU is divided into 3 pods, each with semi-private rooms with sliding glass doors for a total of 54 beds. Immediate measures were implemented to contain the transmission. The situation was communicated internally and to Public Health and Department of Health Services (DHS). This included discussion with the Medical Director of DHS. Multidisciplinary meetings included Infection Control, Infectious Disease, Neonatology, nursing, respiratory therapy, radiology, and laboratory to discuss an action plan. Weekly screening of babies not previously positive totaled 240 isolates in 15 weeks. Identified cases were decolonized but remained in contact isolation. Strict adherence to standard precautions and contact isolation were stressed. Modification in patient care practices included: isolating MRSA positive babies in the same area and cohorting staff with these babies. No jewelry or long sleeves were to be worn when providing care in the NICU. STOP signs were added to isolation rooms and at the entry to the NICU as a hand hygiene reminder. Parents were required to wear gowns and sibling visits were limited to those who could remain under close supervision of parents. Dedicated equipment and intensified cleaning by environmental services were implemented. Heightened screening of visitors for rashes was put into place.

RESULTS: Of the 240 babies screened for MRSA, 19 were positive (7.9%) in 15 weeks. A cluster of 8 sero-type G strain was identified. Three months after the last "G" strain MRSA culture was received, DHS and a multidisciplinary team concluded that the outbreak was finished. At that time there were 2 MRSA positive babies not part of the original cluster and it was felt that this was probably a baseline level. Final recommendations were to discontinue weekly screening, change to a quarterly prevalence study and do weekly hand hygiene monitoring.

LESSONS LEARNED: NICU is family centered and encourages parental and staff bonding. This involves skin-to-skin contact, which can add to the difficulty of outbreak containment. Implementation of aggressive infection control measures, adherence to protocol, a multidisciplinary team effort and frequent communication with Infection Control and DHS Medical Director has been successful in controlling this outbreak.