A Sporadic Reservoir?
Infection Control Measures Used to Reduce an Outbreak of *Clostridium difficile*-associated Diarrhea at a Community Hospital

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Objective:
To investigate the nursing and environmental practices associated with an outbreak of *Clostridium difficile*-associated diarrhea (CDAD) in a community hospital.

Methods:
A prospective descriptive design of all in-hospital CDAD patients from January 2002 to August 2002 was monitored on the outbreak institution (Hospital A). The Infection Control Coordinators reviewed the incidence of all CDAD cases in three acute care community hospitals (Hospital A, B, C) within the Niagara Region. The case definition for hospital-acquired transmission of CDAD: a patient identified with diarrhea 72 hours after hospital admission with a microbiology laboratory report positive for *Clostridium difficile* toxin assay, and no other recognized etiology for the diarrhea. Risk factors studied included age >50 years; exposure to CDAD; treatment with antibiotics in previous 8 weeks; laxatives, enemas, stool softeners, gastrointestinal stimulants, chemotherapy; surgery or gastrointestinal procedures; and gastrointestinal co-morbidity. A 3-month intervention plan was introduced to Hospital A: a new CDAD protocol and supplemental education sessions; installation of hand sanitizer dispensers and handwashing education sessions; change of hand soap to Chlorhexidine-based product; implementation of a new environmental cleaning protocol practice for regular daily cleaning, isolation cleaning, regular discharge cleaning, isolation discharge cleaning; implementation of an accelerated hydrogen peroxide product for environmental cleaning; and new Infection Control isolation signage.

Results: Frequency distributions on nosocomial, known, and community-acquired CDAD infections displayed a 50% to 75% range reduction of total number of cases admitted to Hospital A, post the 3-month intervention plan.

Conclusion:
Clinical nursing increased awareness of CDAD as a nosocomial infectious disease and learned new strategies to prevent transmission of *Clostridium difficile* infection. Baseline statistics of CDAD from Hospitals A, B, and C was established.

Relevance: Evidence-based practice on the effect of enhanced environmental control measures and continuing education are significant to the prevention and control of nosocomial CDAD. This study was used as a benchmark for environmental products and sanitizers/dispensers across the hospital system. Further studies are required to assess the benefit of ongoing new environmental products for reducing in-hospital transmission of CDAD and to enhance clinical nursing practice.