Root Cause Analysis of Clostridium Difficile Associated Diarrhea Cases

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PROBLEM: Clostridium difficile associated diarrhea (CDAD) cases increased significantly at a VA acute care facility in FY04.

EVIDENCE: Incidence rates of CDAD ranged between 0.4 and 1.6, with a mean of 1.1, per 1000 patient days between October 2003 and June 2004. In July 2004, rate increased to 2.5/1000 patient days, a variation noted at 3 standard deviations from the mean indicating an unstable process with special variation cause. (p=.0128)

STRATEGY: Chief of Staff appointed an interdisciplinary Root Cause Analysis team composed of infection control, patient safety, housekeeping, nursing, medicine, pharmacy, and supply to evaluate the causes of the outbreak.

PRACTICE CHANGES: (1) CDAD medical treatment algorithm was implemented. Algorithm has been made accessible to medical staff in on-line house staff manuals and wall mounted in their work rooms. (2) Contact Precaution isolation sign was simplified to highlight hand washing rather than hand rub. (3) C. difficile education is provided to all healthcare professionals, (4) Accessibility of Personal Protective Equipment (PPE) was improved, (5) Laboratory alerts of positive CDAD patients are sent to infection control staff electronically, and (6) Patients presenting with diarrhea etiology unknown are placed in Contact Precautions empirically.

EVALUATION: Incidence rates began to decline in August 2004 steadily decreasing to a present mean of .4 per 1000 patient days. (p=.0128) Compliance to the CDAD medical algorithm, hand hygiene, and Contact Precautions has been established.

RESULTS: Management and education significantly impacted CDAD occurrence as evidenced by the decrease in incidence. Cost savings have been substantial. Pharmacy costs were $30,000 higher and costs of bed days of care were $125,000 higher in CDAD patients than in non-CDAD patients for a total increased cost of care of $155, 000 per CDAD patients.

RECOMMENDATIONS: (1) Implement CDAD medical treatment algorithm. (2) Place patients with diarrhea etiology unknown in Contact Precautions until cause is identified and treated. (3) Ensure health care workers use hand washing for patients with CDAD. (4) Ensure that PPE is readily available at all times clinically. (5) Educate healthcare workers on CDAD. (6) Monitor compliance to prevention activities.

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