



Service Priorities and Programmes
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Reduction of surgical site infection (SSI) by Quality Improvement Program (QIP) for colorectal surgery

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Introduction

SSI is the third commonest healthcare-associated infections in public hospitals. SSI leads to prolonged hospital stay, increased morbidity and mortality. SSI rate for colorectal surgery is used as Key Performance Indicator (KPI) to monitor the quality of care to surgical patients. About 1 in 10 patients (10.46%) developed SSI after colorectal surgery in 2010, which was higher than the National Healthcare Safety Network (NHSN) SSI rate in USA (4.90%). To improve the situation, evidence-based SSI prevention strategy had been formulated as QIP and implemented since October 2011.

Objectives

To evaluate the effectiveness of the QIP by monitoring process and outcome indicators.

Methodology

The QIP had the following components: 1) Prophylactic antibiotics: right choice, right time, right dose; 2) Prevention of perioperative hypothermia, 3) Using 2% chlorhexadine-in-alcohol for skin preparation. The QIP was promulgated by CICO under the steering of Director, Q&S Division, HA to COC surgery, COC anesthesia and Hospital Infection Control Team. Trainings/Meetings were conducted to disseminate the message to surgeons. Posters/Reminders were produced to remind frontline doctors for using the right prophylactic antibiotics. Operation theatres were reengineered to prevent hypothermia including easy access to warm IV fluid and warm blankets. Budgets were secured for the provision of 2% chlorhexadine-in-alcohol. The SSI surveillance system was enhanced to capture data on process (QIP compliance) and outcome (SSI rate) indicators. Chi square test was used for the comparison.

Result

Colorectal procedures were reviewed before (Jan-Sep 2011, 1727 cases) and after

QIP (Oct 2011- Jun 2012, 1766 cases), compliance to right prophylactic antibiotics increased from 12.3% to 48.7% ($p<0.005$) and right dose from 4.6% to 35.3% ($p<0.005$). Perioperative body temperatures were more frequently monitored (19.3% vs 91.3%, $p<0.005$). However, a significant number of patients still had hypothermia (15.4%). All surgical departments started using 2% chlorhexidine-in-alcohol as skin preparation after QIP. The SSI rates dropped from 10.54% to 9.46% ($p=0.313$). SSI surveillance and benchmarking with NHSN enabled identifying surgical procedures for improvement. Identifying gaps between current practice and recommendations enabled planning QIP. Monitoring process and outcome indicators enabled evaluating compliance and effectiveness of the program. With better compliance to QIP, better outcomes would be expected. By reducing SSI, quality of care to surgical patients can be improved and cost to healthcare system can be reduced.