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Infection Control Current Awareness: August 2014

Analysis and recommendations for reducing risks of patient crosscontaminations via noncritical medical devices.

Wright EW, Marvel JH, Neubrander J, DesMarteau K.
Health Care Manag (Frederick). 2014 Jul-Aug, vol 33, no 3, p205-13

Abstract
Based on the serious problem of health care-associated infections and the understanding that patient crosscontamination is essentially preventable, opinions were sought from health care providers for insight into likely sources of crosscontamination in US hospitals, probable causes, and areas for additional investigation. Respondents indicated that inadequate disinfection of noncritical, patient care devices pose an underrecognized threat to patient crosscontamination. This led the researchers to question reliance upon the current Centers for Disease Control and Prevention (CDC) Guideline for Disinfection and Sterilization in Healthcare Facilities for such items. The CDC Guideline follows the Spaulding approach, which categorizes items and their disinfection treatment based on the risk of infection from the intended use of the item. A failure modes, effects, and criticality analysis approach is recommended as an additional refinement to the CDC Guideline whereby likely sources of cross-contamination are identified irrespective of intended use. Enhancing infection control practices with this approach promotes the development of preventive plans for cleaning and disinfection that can mitigate such risk.

Clinical Usefulness of Laparoscopic Surgery for Clinical Stage 0/I Cancer in the Rectum: A Single-center Experience in 137 Patients.

Nakamura T, Tsutsui A, Miura H et al
Surg Laparosc Endosc Percutan Tech. 2014 Aug, vol 24, no 4, p361-5

Abstract
PURPOSE:
Laparoscopic surgery has yet to achieve widespread acceptance for the treatment of rectal cancer because of technical difficulty caused by anatomical features and the lack of sufficient evidence supporting effectiveness. Consequently, the safety and long-term outcomes of laparoscopic surgery for rectal cancer remain to be established in Japan. We evaluated the feasibility, safety, and effectiveness of laparoscopic surgery in patients with up to clinical stage 0/I rectal cancer.

MATERIALS AND METHODS:
From February 1998 through December 2010, we studied 137 patients with up to clinical stage 0/I rectal cancer treated by laparoscopic surgery. Surgical outcomes, invasiveness, safety, recurrence

rates and patterns, and medium-term outcomes were examined. Four patients were converted to open surgery and excluded from analysis.
RESULTS:
The median follow-up was 64 months (range, 9 to 156 mo), and the rate of conversion to open surgery was 2.8% (4/141). Postoperative complications occurred in 37 patients (27%) and included anastomotic leakage in 10 patients (10/125, 7.9%) and ileus in 10 patients (10/37, 7.3%). The recurrence rate was 6.6%. Lung metastasis and liver metastasis were frequent, but no patient had port-site recurrence. The 5-year disease-free survival rate and the cumulative survival rate were 94.2% and 96.9%, respectively, in patients with stage I disease and 80.2% and 94.7% in those with stage III disease.
DISCUSSION:
Laparoscopic resection had good surgical outcomes, minimal invasiveness, high safety, and high rates of disease-free survival and overall survival in patients with up to clinical stage 0/I rectal cancer. These results suggest that laparoscopic surgery is a safe and effective procedure for the management of rectal cancer with clinical stage 0/I.

Compliance with prevention practices and their association with central line-associated bloodstream infections in neonatal intensive care units.

Zachariah P, Furuya EY et al

Am J Infect Control. 2014 Aug, vol 42, no 8, p847-51

Abstract
BACKGROUND:
Bundles and checklists have been shown to decrease the rates of central line-associated bloodstream infections (CLABSIs), but implementation of these practices and association with CLABSI rates have not been described nationally. We describe implementation and levels of compliance with preventive practices in a sample of US neonatal intensive care units (NICUs) and assess their association with CLABSI rates.
METHODS:
An online survey assessing infection prevention practices was sent to hospitals participating in National Healthcare Safety Network CLABSI surveillance in October 2011. Participating hospitals permitted access to their NICU CLABSI rates. Multivariable regressions were used to test the association between compliance with NICU-specific CLABSI prevention practices and corresponding CLABSI rates.
RESULTS:
Overall, 190 level II/III and level III NICUs participated. The majority of NICUs had written policies (84%-93%) and monitored compliance with bundles and checklists (88%-91%). Reporting ≥95% compliance for any of the practices ranged from 50%-63%. Reporting of ≥95% compliance with insertion checklist and assessment of daily line necessity were significantly associated with lower CLABSI rates ($P < .05$).

CONCLUSIONS:
Most of the NICUs in this national sample have instituted CLABSI prevention policies and monitor compliance, although reporting compliance ≥95% was suboptimal. Reporting ≥95% compliance with select CLABSI prevention practices was associated with lower CLABSI rates. Future studies should focus on identifying and improving compliance with effective CLABSI prevention practices in neonates.

The management of central venous catheters and infection control: is it time to change our approach?

Langton H.
J Perioper Pract. 2014 Jun, vol 24, no 6, p141-6.

Abstract
Catheter related bloodstream infections (CR-BSIs) can lead to a number of serious conditions for the patient, including death. There is much recent evidence both in the UK and abroad which identifies the sources of CR-BSIs, yet they continue to occur. This article seeks to review some of the current evidence in relation to the prevention of CR-BSIs at insertion point.

Nursing staff can be a source of clostridium difficile infection.

Tin SS, Wiwanitkit V.
Nurs Stand. 2014 Aug 6, vol 28, no 49, p35

Abstract
In their article on nursing considerations in clostridium difficile infection (Art & Science July 23), Brett Mitchell et al note: 'There are many aspects to the prevention and control of c. difficile infection: appropriate antibiotic use, early instigation and maintenance of prevention and control strategies, and high standards of environmental cleanliness, education, and surveillance.'

A point prevalence cross-sectional study of healthcare-associated urinary tract infections in six Australian hospitals.

Gardner A, Mitchell B, Beckingham W, Fasugba O.
BMJ Open. 2014 Jul 29, vol 4, no 7, pe005099.

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Abstract

OBJECTIVES:

Urinary tract infections (UTIs) account for over 30% of healthcare-associated infections. The aim of this study was to determine healthcare-associated UTI (HAUTI) and catheter-associated UTI (CAUTI) point prevalence in six Australian hospitals to inform a national point prevalence process and compare two internationally accepted HAUTI definitions. We also described the level and comprehensiveness of clinical record documentation, microbiology laboratory and coding data at identifying HAUTIs and CAUTIs.

SETTING:

Data were collected from three public and three private Australian hospitals over the first 6 months of 2013.

PARTICIPANTS:

A total of 1109 patients were surveyed. Records of patients of all ages, hospitalised on the day of the point prevalence at the study sites, were eligible for inclusion. Outpatients, patients in adult mental health units, patients categorised as maintenance care type (ie, patients waiting to be transferred to a long-term care facility) and those in the emergency department during the duration of the survey were excluded.

OUTCOME MEASURES:

The primary outcome measures were the HAUTI and CAUTI point prevalence.

RESULTS:

Overall HAUTI and CAUTI prevalence was 1.4% (15/1109) and 0.9% (10/1109), respectively. Staphylococcus aureus and Candida species were the most common pathogens. One-quarter (26.3%) of patients had a urinary catheter and fewer than half had appropriate documentation. Eight of the 15 patients ascertained to have a HAUTI based on clinical records (6 being CAUTI) were coded by the medical records department with an International Classification of Diseases (ICD)-10 code for UTI diagnosis. The Health Protection Agency Surveillance definition had a positive predictive value of 91.67% (CI 64.61 to 98.51) compared against the Centers for Disease Control and Prevention definition.

CONCLUSIONS:

These study results provide a foundation for a national Australian point prevalence study and inform the development and implementation of targeted healthcare-associated infection surveillance more broadly.

Reducing Catheter-Associated Urinary Tract Infections: A Quality-Improvement Initiative.

Davis KF, Colebaugh AM, Eithun BL et al

Pediatrics. 2014 Aug 11. pii: peds.2013-3470. [Epub ahead of print]

Abstract

BACKGROUND:
Catheter-associated urinary tract infections (CAUTIs) are among the most common health care-associated infections in the United States, yet little is known about the prevention and epidemiology of pediatric CAUTIs.

METHODS:
An observational study was conducted to assess the impact of a CAUTI quality improvement prevention bundle that included institution-wide standardization of and training on urinary catheter insertion and maintenance practices, daily review of catheter necessity, and rapid review of all CAUTIs. Poisson regression was used to determine the impact of the bundle on CAUTI rates. A retrospective cohort study was performed to describe the epidemiology of incident pediatric CAUTIs at a tertiary care children's hospital over a 3-year period (June 2009 to June 2012).

RESULTS:
Implementation of the CAUTI prevention bundle was associated with a 50% reduction in the mean monthly CAUTI rate (95% confidence interval: -1.28 to -0.12; P = .02) from 5.41 to 2.49 per 1000 catheter-days. The median monthly catheter utilization ratio remained unchanged; ~90% of patients had an indication for urinary catheterization. Forty-four patients experienced 57 CAUTIs over the study period. Most patients with CAUTIs were female (75%), received care in the pediatric or cardiac ICUs (70%), and had at least 1 complex chronic condition (98%). Nearly 90% of patients who developed a CAUTI had a recognized indication for initial catheter placement.

CONCLUSIONS:
CAUTI is a common pediatric health care-associated infection. Implementation of a prevention bundle can significantly reduce CAUTI rates in children.

Surgical site infections and bloodstream infections in infants after cardiac surgery.

Murray MT, Krishnamurthy G, Corda R, Turcotte RF, Jia H, Bacha E, Saiman L.
J Thorac Cardiovasc Surg. 2014 Jul, vol 148, no 1, p259-65.

Abstract

OBJECTIVE:
Few recent studies have assessed the epidemiology of and risk factors for surgical site infections (SSIs) and bloodstream infections (BSIs) in infants after cardiac surgery. We hypothesized that infants younger than 30 days old and those with higher Risk Adjustment in Congenital Heart Surgery-1 scores would have an increased risk of SSIs, but not an increased risk of BSIs after surgery.

METHODS:
We performed a retrospective cohort study of infants younger than 1 year of age undergoing cardiac surgery from January 2010 to December 2011 to determine the rates of SSIs and BSIs occurring within 3 months of surgery, risk factors associated with these infections, and causative

pathogens. Multivariable associations using Cox proportional hazard modeling assessed potential risk factors for BSIs or SSIs.

RESULTS:
Overall, 8.7% (48 of 552) of surgical procedures were complicated by SSIs (n = 19) or BSIs (n = 29). Thus, SSIs and BSIs occurred after 3.4% and 5.3% of procedures, respectively. Multivariate models found age younger than 30 days, incorrect timing of preoperative antibiotics, and excessive bleeding within 24 hours of surgery to be significant predictors for SSIs, and duration of use of arterial lines to be a significant predictor for BSIs. Gram-positive bacteria caused 75% of SSIs and BSIs and methicillin-susceptible Staphylococcus aureus caused 63% of SSIs.

DISCUSSION:
We identified some potential strategies to reduce risk, including closer monitoring of timing of preoperative antimicrobial prophylaxis and enhanced efforts to achieve intraoperative hemostasis and earlier removal of arterial lines.

CONCLUSIONS:
SSIs and BSIs remain important complications after cardiac surgery in infants.

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