Continuum of Care

Publication Number 3-140

Utilizing a Central Line and Foley Catheter Daily Indicator to Decrease Central-line Associated Blood Stream and Catheter-associated Urinary Tract Infections

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ISSUE: Central line–associated blood stream infections (CLABSI) and catheter-associated urinary tract infections (CAUTI) are two types of hospital-acquired infections (HAI) that greatly impact the health and lives of patients. These types of HAI increase both the length of hospital stay and the cost of hospitalization. 65% to 70% of CLABSIs may be prevented by implementing evidence-based strategies. A multi-pronged effort has been successful to reduce the incidence of CLABSI and CAUTI.
PROJECT: The forms purpose is to 1) inform the healthcare team of the appropriate and inappropriate indications for the device; 2) fulfill National Patient Safety Goals (NPSG 07.04.01, 07.06.01); and 3) stimulate discussion among the health-care team to determine daily necessity. All nursing staff were educated on the need and the process to complete the data. The night shift unit nurse places the form on the appropriate chart and is responsible for completing. If an appropriate indicator is not determined, the form is reviewed at change of shift during report. Further information/orders may be required by contacting the attending physician.
RESULTS: The form was trialed in the intensive care unit (20 bed) for three months. The measure of success of the trial was a utilization ratio decrease of both indicators; central lines 0.05 and foley catheters 0.12. The use of daily indicator forms was shown to increase awareness to nursing and physicians to the presence of the device. Daily discussions occurred with physicians and nurses regarding the indication for the device. This heighted awareness resulted in lower CAUTI and CLABSI utilization rates, and a decrease (raw number) of infections.
LESSON LEARNED: Ensure physicians and leadership at all levels assist in the development and implementation of the new process. Keep everyone 'in the know' at monthly intervals to show the progress towards the end goal of decreased hospital-acquired infections. Rounding daily with bedside nurses/lead nurses will greatly improve compliance and accuracy of choosing the appropriate indicators.

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Methicillin-resistant Staphylococcus aureus Screening in Hematopoietic Cell Transplant Recipients at an Outpatient Comprehensive Cancer Center: A Quality Assessment

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ISSUE: Hematopoietic cell transplant (HCT) recipients are at high risk for infection and transmission of nosocomial pathogens. To prevent the spread of methicillin-resistant Staphylococcus aureus (MRSA) and its associated complications, Infection Control policy requires HCT recipients to undergo nasal screening on arrival to our outpatient cancer center. We sought to perform a quality review of adherence to this policy, assess timing of screening, and determine the prevalence of MRSA nasal colonization in this population.
PROJECT: We conducted a retrospective cohort study of adults undergoing HCT between 2008 and 2012 at our center. All HCT recipients had pre-printed orders for MRSA screening as mandated by Infection Control policy. Recipients were considered screened if they received a nasal swab for MRSA between 2 weeks prior to transplant arrival date and HCT. The incidence rate of MRSA bacteremia was assessed through 100 days post-transplant. Demographic and outcome variables were extracted from center databases and chart review. Timing of screening, MRSA prevalence, and risk factors for missed screening were primary endpoints in this study.
RESULTS: Our cohort contained 1895 patients, and included autologous and allogeneic recipients. The mean time between arrival and screening was 15.2 days (sd=23.4, range = -6-300). A total of 125/1895 (6.6%) of recipients were not screened pre-transplant; 552/1895 (29.1%) were not screened within 14 days of arrival. Patients who received an autologous transplant ($p \leq 0.0001$) and allogeneic recipients with multiple arrival visits ($p=0.02$) were more likely to be missed. Among screened patients, prevalence of MRSA nasal carriage was 1.13%. The incidence rate of MRSA bacteremia within the first 100 days post-transplant was 0.39 per 10,000 patient-days; no colonized patients developed bacteremia.
LESSON LEARNED: Compliance with pre-transplant MRSA screening was high in HCT recipients using standard practice guidelines and pre-printed orders in our outpatient cancer center. However, current policies and procedures did not mitigate delays in testing in a substantial Number of patients, resulting in possible missed isolation opportunities. MRSA nasal carriage and MRSA bacteremia are very uncommon among HCT patients at our center.

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Surgical Antibiotic Prophylaxis and Compliance to Redosing at a Hospital in Sao Paulo, Brazil

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ISSUE: Surgical antibiotic prophylaxis efficacy is associated with compliance to all parameters involved, including redosing. In spite of publications indicating low adherence to recommendations for antibiotic prophylaxis use, there have been few studies addressing the administration of redosing and so, little is known about compliance rates. The aim of this study was to contribute to increased knowledge on compliance to redosing recommendations of surgical antibiotic prophylaxis in clean surgeries.
PROJECT: A retrospective, observational study was carried out in 2010, in a 200-bed hospital in São Paulo, Brazil, involving 748 clean surgeries performed in adults, excluding those performed in the

Table 1 – Patient and surgical procedures characteristics regarding to administration or not of antibiotic prophylaxis redosing in prolonged surgeries. Sao Paulo, 2012,

Characteristics		*Redosing*	
Variable	*Yes*	*No*	*P*
Age (range, years)	53,34 (30-73)	50,46 (25-80)	0,3464[a]
Mean duration of surgery	285,62 (180-390)	261,36 (180-460)	0,710[a]
Gender n (%)			0,674[b]
Female	9 (10,0)	28 (90,0)	
Male	15 (28,3)	38 (71,7)	
Surgical Specialty n (%)			0,027[b]
Cardiac	12 (34,3)	23 (65,7%)	
Neurologic	12 (26,7)	33 (73,3%)	
Ortoopedic	-	10 (100%)	
Cardiac Procedures n (%)			0,002[c]
Coronary by-pass	10 (41,7)	14 (58,3)	
Other	-	9 (100,0)	
Valve	2 (100,0)	-	
Neurological procedures n (%)			LH 0,140[c]
Spinal fusion	6 (20,0)	24 (80,0)	
Craniotomy	6 (46,2)	7 (53,8)	
Laminectomy	-	2 (100,0)	
Orthopedic procedures n (%)			NA
Open reduction of fracture	-	5 (100,0)	
Knee Arthroplasty	-	2 (100,0)	
Hip Arthroplasty	-	2 (100,0)	
Surgical site Infection risk index n (%)			0,057[b]
0	1 (7)	14 (93,3)	
1	17 (27,9)	44 (72,1)	
2	6 (42,9)	8 (57,1)	

[a]T test; [b] Chi-square, [c] Likelihood ratio, NA Not Applicable

presence of antibiotic therapy. Redosing was defined as new antibiotic administration prior to wound closure. The practices were evaluated based on the institutional guideline, which recommends redosing for surgeries lasting $\geq$ 180 minutes. For associations with demographic variables and those related to surgical procedures, the Chi Square test or likelihood ratio ($\alpha = 5\%$) and T test were used.

RESULTS: The surgical time was 180 minutes in $\geq$ 252 procedures. Of these, 90 were excluded due to missing data, 68 because different antimicrobials were used instead of the recommended one and four were performed without antibiotic administration. Redosing administration was assessed in 90 surgeries: 45 neurologic (50.0%), 35 cardiac (38.9%) and 10 orthopedic (11.1%) surgeries. Redosing was administered in 24 (26.6%) procedures. There was no statistical significance when comparing redosing administration and mean age, gender and time of surgery. Compliance was significantly higher in cardiac surgeries (34.3%), lower in CABG (41.7%) and in procedures with lower surgical risk classification (7%).

LESSON LEARNED: Less than 50% of the patients received redosing, demonstrating the process fragility, increasing the risk for SSI. Improving surgical antibiotic prophylaxis is a challenge to improve the quality of care and patient safety. Strategies to improve the compliance are necessary. Increase the interaction of the Hospital Infection Control Service with surgeons and anesthesiologists, implement electronic alerts and involve nurses in the process may be alternatives to improve the compliance.

Publication Number 3-143

The Evaluation of the Effectiveness of the Trivalent Influenza Vaccine for the Prevention of Hospitalizations Due to Influenza Pneumonia

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ISSUE: Due to frequent antigenic drift of influenza viruses, the influenza vaccine needs to be updated and the population re-vaccinated every year. However, there is controversy over the effectiveness of the trivalent influenza vaccine. Accordingly, the objective of this study was to evaluate the effectiveness of the trivalent influenza vaccine for the prevention of hospitalization due to influenza pneumonia.

PROJECT: This was a secondary analysis of the RETOS study database. Influenza as an etiology of pneumonia was defined by PCR. Influenza vaccination status for the current season was obtained through a questionnaire upon enrollment into the RETOS study. Vaccine effectiveness was evaluated using a logistic regression model, where the vaccine effectiveness (VE) was defined as one minus the odds ratio.

RESULTS: A total of 769 hospitalized patients with pneumonia were included in this analysis. A total of 510 (66%) patients received the influenza vaccine for the current season prior to hospitalization. The overall VE was not statistically significant (VE: 23%, 95% CI: -18% - 49%, P=0.224).

LESSON LEARNED: This study indicates that the trivalent influenza vaccine does not prevent hospitalization due to influenza pneumonia. In the upcoming 2013-2014 season, the quadrivalent influenza vaccine will become available. Accordingly, its effectiveness to prevent hospitalizations due to influenza pneumonia should be evaluated and compared to the trivalent influenza vaccine.

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Utilizing Risk Events to Justify Infection Control Practitioner Position Creation in a Multi-Center Healthcare System

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ISSUE: Clinics that perform procedures such as vaginal ultrasound, or other low risk invasive procedures may be part of an acute care organization, but may not have the same regulatory requirements as ambulatory surgery sites. Reprocessing and sterilization are left to untrained staff. Error and patient safety considerations have led to risk events. Experienced infection control staff in clinic and ambulatory sites are extremely rare.

PROJECT: Risk analysts found clinic staff were using disinfectant wipes for equipment that required cleaning with high level disinfection or sterilization. Once identified, a root cause analysis found that infection control oversight would have been instrumental in identifying and correcting this practice. Department managers were less knowledgable about infection control and