

Methods: To evaluate the efficacy of LAD's in preventing passage of contamination, an in-vitro study was performed. Twenty two (22) samples of each device type were studied. Each LAD was inoculated with 10^3 CFU's of *Staphylococcus epidermidis* (ATCC #12228), after four minutes disinfection was performed using common swabbing methods (70% IPA). The alcohol was allowed to dry for one minute after which the connector was activated using sterile syringe with 10 cc of PBS. The PBS was pushed through the LAD and collected in the attached filter funnel unit. This process of inoculation, swabbing, and activating was repeated 24 times a day over period of three days. Eight of the 24 activations per day were prolonged activations where the syringe remained attached to the LAD for 1 hour. Daily, the collected eluate was tested for the presence of the challenge microorganism. This model challenged the LAD under what would be considered a worst case clinical setting totaling 72 inoculations, 72 accesses and 24 hours of static insertion over a three day period.

Results: Zero (0) out of 20 samples of Device 3 showed transmission of *Staphylococcus epidermidis* through the LAD into the flush collection unit. Seventeen (17) out of 20 samples of Device 1 showed transmission of *Staphylococcus epidermidis* into the flush collection unit and all LADs (20 out of 20) of Device 2 showed transmission of *Staphylococcus epidermidis* into the flush collection unit.

Conclusions: The findings suggest that there is a difference in the microbial barrier properties of commercially available LAD's. LAD's with intricate surface details or depressions at that access point may allow contaminants to escape conventional disinfection practices. The LAD featuring a flat, smooth, access surface which enabled disinfection had no failures in this study, thus permitting for optimal LAD hub disinfection.

2:00 pm - 2:15 pm

Publication Number: 234

Nosocomial Bloodstream Infections: The Associated Length of Stay and Costs

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Background: Although many studies have examined outcomes nosocomial bloodstream infections (NBSIs), population-based estimates of Length of Stay (LOS) and cost have seldom been reported.

Objectives: The purpose of this study is to use U.S. national based sample to estimate LOS and costs associated with NBSIs.

Methods: This study used a matched case-control design based on admission and discharge data from the 2003 National Inpatient Sample (NIS) to estimate LOS and costs associated with NBSIs. The NIS for the year of 2003 provides information on approximately 8 million inpatient stays from 994 hospitals in 37 states. A list of ICD-9-CM codes was used to identify the cases of NBSIs. The cases were judged to be nosocomial when the ICD-9-CM code is listed as secondary diagnosed. A 1:1 matching procedure was performed using an algorithm ran by SAS®-PC Version 9.1 in which all patients who were identified as having an NBSI were matched to patients without a BSI during hospitalization. The matching criteria were exact age, gender, and primary diagnosis at admission.

Results: Of 113,436 who developed NBSIs, 92.1% (n = 104,443) were successfully matched with a comparison group. The weighted means and standard deviations for LOS and total charges were computed. The differences in weighted means for LOS and total charges between groups after the first 48 hours were compared using the paired t-test. We estimate that 541,081 patients would have acquired a NBSI in 2003, and of these, 111,427 died. The mean of LOS for cases was 16.0 days beyond the first 48 hours of admission versus 7.5 days for the comparison group ($p < 0.0001$). Whereas, the mean total charges for patients with NBSIs was \$85,508 versus \$32,474 for uninfected patients ($p < 0.0001$). The estimated extra LOS and total charges attributed to nosocomial BSIs were 8.5 days and \$53,034, respectively.

Conclusions: The National Inpatient Sample was useful for estimating the extra LOS and charges associated with NBSIs. Moreover, this study demonstrated the great negative impacts of NBSI.

Keywords: Nosocomial, bloodstream infections, cost, charges, length of stay, United States national estimates, extra cost, national inpatient sample

2:15 pm - 2:30

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Blue Ribbon Award Winner

A Simple Tool to Help Reduce Duration of Indwelling Urinary Catheters

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Background: The duration of catheterization (DOC) with an indwelling urinary catheter (IUC) is the major risk factor for the development of a catheter associated urinary tract infection. Several recent studies have shown that nurse-led initiatives were effective at reducing the DOC. We implemented an intervention that helped nursing personnel keep track of how long an IUC had been in place and measured the impact on duration of catheterization.

Methods: A simple bright yellow sticker was designed that requested three pieces of information: did the patient have an IUC, the date the IUC was inserted, and the number of days the IUC had been in place. A statement to "Please consider if the IUC is still necessary" was written at the bottom of the sticker. The sticker was placed at the top of the Nursing Notes section of the daily nursing flow sheet. Nurses were expected to answer the questions on a daily basis about the presence of an IUC, the date of the IUC insertion, and the current number of DOC days. Baseline data about the DOC was collected from a 30-bed general surgery unit at an academic medical center for 3 weeks prior to the placement of the stickers on the daily flow sheet. Thirteen short training sessions for the nursing staff were held after the baseline data had been collected to inform the nursing staff about the reason for the stickers and how to complete them. Using the same data collection method, data about the DOC was then collected for a three-week period following the implementation of the stickers.

Results: After the implementation of the stickers, the mean DOC for patients on the study unit was significantly decreased from 4.5 days to 2.8 days ($p = 0.01$). There was also a difference in the number of patients who were catheterized for only 1 day. In the pre-intervention group 10 of 66 (17%) patients were catheterized for 1 day only, while in the post-intervention group 35 of 83 (42%) were catheterized for 1 day only.

Conclusions: This project supports previous findings that nurse-led initiatives to reduce the duration of catheterization are effective and that a simple, easy-to-use intervention can result in a significant and immediate reduction in the duration of indwelling urinary catheters.

Oral Abstracts Session 2301

Infection Prevention Programs

Tuesday, June 9, 2009

Fort Lauderdale Convention Center – Floridian B-C

1:30 pm – 2:30 pm

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Preventing Mediastinitis: Success with the SCIP Bundle and Evidence Based Best Practices

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Issue: At an academic teaching hospital, a baseline post-operative mediastinitis rate above the benchmark set by the National Nosocomial Surveillance System prompted further scrutiny. Assessment of practices found that the