

**Methods:** From January 2012 to June 2014, We implemented strategies for reducing CLABSIs in 3 ICUs of a teaching hospital with 850 beds in Gyounggi province: 1) Central line insertion bundle(5 elements of maximal sterile barrier precaution(MBP), alcohol-based chlorhexidine(CHG) antiseptis usage) compliance were monitored, weekly analyzed and feedback to doctors who did not perform each element. 2) Daily assess for necessity and maintenance of central lines using a tool in electrical medical record(EMR) 3) Informed and forced to physician for early removal. In the same period, CLABSI incidence rates(cases/1,000 catheter-days) were surveyed using CDC/NHSN surveillance definition. The infection rates were analyzed by  $\chi^2$ -test using statistical program(Epiinfo Ver. 6).

**Results:** During the study period, MBP compliance with 5 elements improved from 91.4% to 98.6%, 2% CHG antiseptis usage adherence increased from 83.6% to 99.7%. The CLABSI rates decreased from 1.97 to 1.58 ( $\chi^2 = 1.19$ ,  $P = .275$ ) after implementation.

**Conclusions:** Although there was no statistically significant between CLABSI rates, the actual numbers of CLABSIs reduced after implementation. Implementing strategies may be useful to reduce CLABSIs. Further evaluations are needed and we will continue actions for device early removal and proper maintenance of central lines for reducing CLABSIs.

#### PS 1-060

##### REDUCING BLOOD CULTURE CONTAMINATION FOR QUALITY IMPROVEMENT METHODOLOGIES

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**Purpose:** Blood culture contamination is a common problem in the hospital that leads to unnecessary patient morbidity and health care costs. The study objective was to develop a quality improvement intervention for reducing blood culture contamination.

**Methods:** The intervention was developed through quality improvement methodologies, including process mapping, fishbone diagramming, and plan do-study-act cycles. We found that many factors contributed to the high contamination rate. The Countermeasures of implementation have 1) trained the staff how to use the sterile collection technique taking blood culture with educational sessions, 2) enhance the implementation of hand hygiene and periodical assessment, 3) Enhance the cooperation among nurses and paramedics. The goal was to achieve and maintain a contamination rate below 3%.

**Results:** On October, 2013, the intervention was introduced. During the baseline period (January 1, 2013, to June 30, 2013), 3.97% blood cultures were contaminated; compared to 27 of 1046 (2.58%) during the intervention period. The contamination rate was maintained below 3% during throughout the intervention period.

**Conclusions:** The blood culture is an essential tool for diagnosing bloodstream infections and guiding antibiotic therapy. However, false-positive blood cultures due to specimen contamination with skin bacteria are a common problem that leads to unnecessary patient morbidity and increased hospital costs. Using a quality improvement methodologies are reducing blood culture contamination below the 3% benchmark.

#### PS 1-061

##### CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS FOR TWELVE YEARS SECULAR TRENDS IN INCIDENCE AND MORTALITY IN THE INTENSIVE CARE UNIT AT A MAJOR TEACHING HOSPITAL IN TAIWAN

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**Purpose:** Device-associated infection plays an important part in healthcare associated infection. Of them, central line-associated bloodstream infections (CLABSI) have been associated with significant cost and mortality. In this study, prospective surveillance was conducted to determine the CLABSI rate and prevalence of antibiotic resistant isolates at an adult medical-surgical ICU (MS ICU). Our aim was to analyze the secular trend of incidence for CLABSIs, determine the common pathogens involved, and determine the rates of antimicrobial resistance and overall 30-day and in-hospital mortality.

**Methods:** This study was conducted in an adult MS ICU located in a major teaching hospital in the northern Taiwan. All patients admitted to the ICU in the period 2002–2013 who developed infections more than 48 hours after admission were eligible for the study. Central line-associated bloodstream infections of the Outcome Surveillance Component were categorized using standard US CDC NHSN definitions that included laboratory and clinical criteria. Trend analysis was performed and logistic regression was used to assess prognostic factors of mortality.

**Results:** During the study period, those patients who admitted to the ICU had a mean age of  $68.5 \pm 18.6$  years and a mean APACHE II score  $23.1 \pm 6.8$ . Totally, 165,629 patient-days and 118,105 central line-days were evaluated and a device-utilization ratio for central line catheterization was mean 0.71. The overall mean rate of CLABSIs was 1.77 episodes per 1000 central line-days, range 1.12–3.48 per 1000 central line-days. The most common antimicrobial-resistant pathogens were methicillin-resistant *Staphylococcus aureus*. After controlling for potentially confounding factors, the CLABSI was an independent prognostic factor ( $p < 0.05$ ) for both 30-day mortality and in-hospital mortality.

**Conclusions:** The secular trend of CLABSIs was maintenance of low incidence despite high device-utilization ratios. The implement of infection control and surveillance program was important.

#### PS 1-062

##### QUALITATIVE FIT TEST OF N95 FACIAL MASKS FOR MEDICAL STAFF

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**Purpose:** Personal protective equipment in airborne precautions is used to avoid inhaling fine droplets with infectious substances. For providing the safest protection, the users need to select the appropriate individual N95 facial masks and perform fit test to determine the suitability of the masks.

**Methods:** Fit Test can be divided into "qualitative" and "quantitative" methods. Qualitative fit test by hood method is evaluated in four high-risk wards. The subjects perform the eight test actions including normal breathing, deep breathing, swing left and right, swing up and down, speak loudly, expression of emotions, bending over and normal breathing in the process. It means that respiratory protection does not reach the proper adhesion if feeling the test substances through taste or smell at any time.

**Results:** Total of 200 people involved in analysis. The results disclose that the pass rate of model 3M-1860 is 46%, model 3M-1870 is 36%, model 3M-1860S is 16%.

**Conclusions:** Performing fit test and choosing appropriate individual N95 facial mask to achieve the personal protective effect is necessary.

#### PS 1-063

##### TAUROLIDINE-CITRATE LOCK SOLUTION FOR THE PREVENTION OF CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTION

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**Purpose:** Catheter-line associated bloodstream infection (CLABSI) is a serious complication of patients on long term central venous catheters (CVC). Taurolidine-citrate solution (TCS) is a catheter-lock solution with broad-spectrum antimicrobial action that prevents biofilm formation. The aim of this study was to evaluate the efficacy of TCS in reducing CLABSI rate in pediatric patients with long-term CVC at KK Women's and Children's Hospital.

**Methods:** Patients were eligible for the TCS protocol if they had at least 1 previous CLABSI and had long-term CVC including Gastrointestinal (GI) patients on parenteral nutrition (PN) from intestinal failure, and Hematology-Oncology (H/O) patients undergoing chemotherapy or receiving stem-cell transplant. The period of surveillance was from each patient's first