tool (available in www.sacihweb.com), two mobile application were developed: one for monitoring the patient in the hospital and the other for monitoring after hospital discharge.

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897. Prediction of Surgical Site Infections in Colon Surgery in Belo Horizonte Hospitals

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Session: P-42. HAI: Surgical Site Infections

Background. In Belo Horizonte (a 3,000,000 inhabitants city) a survey was carried out in five hospitals, between July 2016 and June 2018, about surgical site infection (SSI) in patients undergoing colon surgery procedures. The general objective is to statistically evaluate such incidences and enable an analysis of the SSI predictive power, through MLP (Multilayer Perceptron) pattern recognition algorithms.

Methods. Through the Hospital Infection Control Committees (CCIH) of the hospitals a data collection on SSI was carried out. Such data was used in the analysis during your routine SSI surveillance procedures. So, three procedures were performed: a treatment of the collected database for use of intact samples; a statistical analysis on the profile of the collected hospitals and; an assessment of the predictive power of five types of MLPs (Backpropagation Standard, Momentum, Resilient Propagation, Weight Decay and Quick Propagation) for SSI prediction. The MLPs were tested with 3, 5, 7 and 10 neurons in the hidden layer and with a division of the database for the resampling process (65% or 75% for testing, 35% or 25% for validation). They were compared by measuring the AUC (Area Under the Curve - ranging from 0 to 1) presented for each of the configurations.

Results. From 2126 records, 638 were complete for analysis. It was found: the average age is 55 years (from 1 to 94 years); the surgeries had an average time of approximately 197 minutes; the average hospital stay is 8 days, the death rate reached 5.625% and the SSI rate reached 6%. Regarding the predictive power, a maximum predictive power of 0.8316 was found.

Conclusion. There was a loss of 70% of the database samples due to the presence of noise. However, it was possible to have a relevant sample to assess the profile of these five hospitals. The predictive process presented some configurations with results that reached 0.8316, which promises the use of the structure for the monitoring of automated SSI for patients undergoing colon surgeries. To optimize data collection, enable other hospitals to use the prediction tool and minimize noise from the database, two mobile application were developed: one for monitoring the patient in the hospital and the other for monitoring after hospital discharge. The SSI prediction analysis tool is available at www.nois.org.br.

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898. Prevalence of Extended Spectrum Beta-Lactamase Producing *Escherichia coli*, *Klebsiella Pneumoniae* and *Pseudomonas Aeruginosa* from Hospital Acquired Surgical Site Infections in Ghana

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NAVAL MEDICAL RESEARCH UNIT THREE GHANA DETACHMENT

Session: P-42. HAI: Surgical Site Infections

Background. Globally, ESBL-producing bacteria pose a great challenge for treating hospital acquired SSI. Currently, the prevalence of ESBL pathogens in Ghana hospitals is poorly understood. Determining the frequency ESBLs are encountered will, in turn, provide insight for antibiogram development and shape antimicrobial stewardship policies in Ghana.

Methods. Using U.S. CDC criteria for SSI, wound swabs or aspirates were collected from 112 participants who met study inclusion criteria. Specimens were plated on MacConkey and blood agar; then colonies were isolated and identified using MALDI-TOF. Antimicrobial susceptibility testing was performed using the Kirby-Bauer disk diffusion method and interpreted according to the 2018 Clinical and Laboratory Standards Institute (CLSI) guidelines. The combined disk method was used to screen for ESBLs among *E.coli* and *K. pneumoniae* isolates. Genes associated with ESBL production (*SHV, TEM and CTX-M*) were detected using PCR analysis.

Results. Thirty-eight percent of the bacterial isolates recovered were *E. coli, K. pneumonia* accounted for 32%, and *P. aeruginosa* accounted for 16% of the total isolates; remaining isolates were gram positive pathogens not discussed here. ESBL production was detected in 50% of *E. coli isolates* and 73% of *K. pneumoniae* isolates. ESBL-producing isolates were susceptible to meropenem but resistant to cefuroxime, cefotaxime, tetracycline, trimethoprim-sulfamethoxazole, gentamicin, ciprofloxacin and chloramphenicol. *P. aeruginosa* isolates were only sensitive to meropenem, gentamicin, and ciprofloxacin. In our study, *CTX-M* was the most frequently detected gene producing the ESBL-phenotype: 33% of *E. coli* isolates and 73% of *K. pneumoniae* isolates possessed the *CTX-M* gene.

Conclusion. Approximately 70% of total bacterial isolates recovered from our SSI study were ESBL producers. The presence of these multi-drug resistant organisms raises clinical concerns due to the absence of routine antimicrobial resistance (AMR) testing and lack of suitable first-line antimicrobials for ESBL pathogens. Improved laboratory capacity to more readily detect MDROs is essential for effective clinical management of patients, antibiogram development and refining antimicrobial stewardship practices in Ghana hospitals.

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899. Reduction of Surgical Site Infections Post Cesarean Section through Implementation of Novel Evidenced Based Bundle

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Session: P-42. HAI: Surgical Site Infections

Background. A frequent complication post cesarean section (C-section) is surgical site infections (SSI) which are associated with heightened maternal morbidity and mortality, decreased patient satisfaction, prolonged hospitalization, and increased costs. In Calendar Year 2019, our Infection Control Committee identified an increase in the incidence of post-operative C-section SSI rates over an 8 month period from January through August of 2019.. The purpose of this study was to develop, implement and measure the compliance and efficacy of a novel pre-operative bundle (POB) for patients undergoing C-section.

Calendar Year 2019 Jan. through Aug. C-Section Infections Raw Numbers

C-Section Infections Raw Number Jan. 2019 through August 2019

n= 212
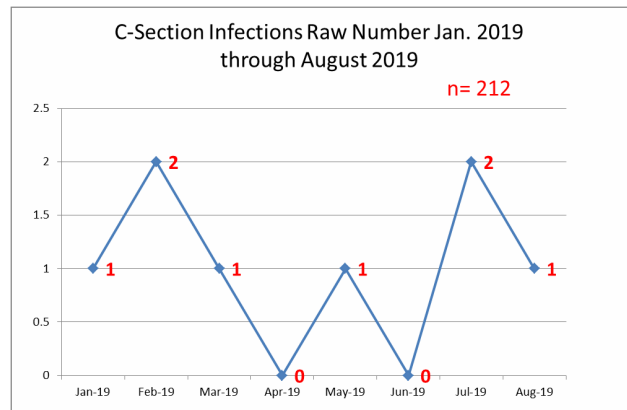
Methods. In October 2019, our multidisciplinary team consisting of Infection Control, Pharmacy, Nursing, and Physicians developed and implemented POB for patients undergoing C-section. The POB included the following:
1. Mandatory interventions of vaginal cleansing using povidone iodine
2. Chlorhexidine (CHG) 2% wipes to abdomen
3. Addition of Azithromycin 500mg x 1 dose as pre-operative antibiotic.

Primary endpoint of the study was to measure the overall C-section SSI incidence for 8 months period pre and 8 months post implementation of the POB. This Secondary endpoint of the study included POB compliance and efficacy of real-time prospective audit and feedback for non-compliance.