810. Cardiac Pacemaker Implantation Surgery: Automated Prediction of Surgical Site Infection

Flávio Henrique Batista de Souza, n/a; Bráulio R.G.M. Couto, PhD; Felipe Leandro Andrade da Conceição, n/a; Gabriel Henrique Silvestre da Silva, n/a; Igor Gonçalves Dias, n/a; Rafael Vieira Magno Ribeiro, n/a; Gustavo Maclêr Pimenta, n/a; Maurilio B. Martins, n/a; Júlio César O. Mendes, n/a; Guilherme Bragonjoni Januário, n/a; Rayane Thamires Oliveira, n/a; Laura Ferraz de Vasconcelos, n/a; Luís L. de Araújo, medical student; Ana Clara Resende Rodrigues, n/a; Camila Morais Oliveira E Silva, n/a; Eduarda Viana De Souza, n/a; Júlia Faria Melo, n/a; Maria Cláudia Assunção De Sá, n/a; Walquíria Magalhães Silva, n/a; Gabriela Mourão Cereque Figueiredo, n/a; Jamile Doffenfeld Colares, n/a; Lâshâla Paula Guimarães Joaquim, n/a; Maíra Cristina Reis, n/a; Mariana Ribeiro Nobre, n/a; Luísa Santos Machado, n/a; Centro Universitário de Belo Horizonte, Belo Horizonte, Minas Gerais, Brazil; Centro Universitário de Belo Horizonte – UniBHI, Belo Horizonte, Minas Gerais, Brazil

**Session:** P-44. HAI: Surgical Site Infections

**Background.** A research focused on surgical site infection (SSI) was performed in patients undergoing cardiac pacemaker implantation surgery. The main objective is to statistically evaluate such incidences and enable a study of the prediction power of SSI through pattern recognition algorithms, in this case the Multilayer Perceptron (MLP).

**Methods.** Data were collected from five hospitals in the city of Belo Horizonte (more than 3,000,000 inhabitants), between July 2016 and June 2018, on SSI by the Hospital Infection Control Committees (CCIH) of the hospitals involved in the search. All data used in the analysis during their routine SSI surveillance procedures were collected. So, three procedures were performed: a treatment of the collected database for use of intact samples; a statistical analysis on the profile of the hospitals collected; and; an assessment of the predictive power of five types of MLP (Backpropagation Standard, Momentum, Resilient Propagation, Weight Decay, and Quick Propagation) for SSI prediction. MLPs were tested with 3, 5, 7, and 10 hidden layer neurons and a database split for the resampling process (65% and 75% for testing, 35% and 25% for validation). They were compared by measuring AUC (Area Under the Curve - from 0 to 1) presented for each of the configurations.

**Results.** From 1394, 572 records were: 21% of deaths and 2.4% patients had SSI; from the confirmed SSI cases, approximately 64.3% had sites classified as “clean”; length of hospital stay ranged from 0 to 175 days (from 1 to 70 days); the average age is 67 years. The prediction power of SSI, the experiments achieved from 0.409 to 0.722.

**Conclusion.** Despite the considerable loss rate of more than 65% of the database samples due to the presence of noise, it was possible to have a relevant sampling for the profile evaluation of Belo Horizonte hospitals. Moreover, for the predictive power of the data set, although some configurations reached 0.722. To optimize data collection and enable other hospitals to use the SSI prediction tool (available in www.nois.org.br ), two mobile applications were developed: one for monitoring the patient in the hospital and the other for monitoring after hospital discharge.

**Disclosures.** All Authors: No reported disclosures

811. Impact of the COVID-19 Pandemic on Surgical Volume and Surgical Site Infections (SSI) in a Large Network of Community Hospitals

Erin Gettler, MD; Jessica Seidelman, MD, MPH; Becky A. Smith, MD; Deverick J. Anderson, MD, MPH; Duke University School of Medicine, Durham, NC; Duke University, Durham, NC; Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, NC

**Session:** P-44. HAI: Surgical Site Infections

**Background.** The COVID-19 pandemic significantly impacted hospitalizations and healthcare utilization. Diversion of infection prevention resources toward COVID-19 mitigation limited routine infection prevention activities such as rounding, observations, and education in all areas, including the peri-operative space. There were also changes in surgical care delivery. The impact of the COVID-19 pandemic on SSI rates has not been well described, especially in community hospitals.

**Methods.** We performed a retrospective cohort study analyzing prospectively collected data on SSIs from 45 community hospitals in the southeastern United States from 1/2018 to 12/2020. We included the 14 most commonly performed operative procedure categories, as defined by the National Healthcare Safety Network. Coronary bypass grafting was included a priori due to its clinical significance. Only facilities enrolled in the network for the full three-year period were included. We defined the pre-pandemic time period from 1/1/18 to 2/29/20 and the pandemic period from 3/1/20 to 12/31/20. We compared monthly and quarterly median procedure totals and SSI prevalence rates (PR) between the pre-pandemic and pandemic periods using Poisson regression.

**Results.** Pre-pandemic median monthly procedure volume was 384 (IQR 192-999) and the pre-pandemic SSI PR per 100 cases was 0.98 (IQR 0.90-1.04). There was a transient decline in surgical cases beginning in March 2020, reaching a nadir of 185 cases in April, followed by a return to pre-pandemic volume by June (figure 1). Overall and procedure-specific SSI PRs were not significantly different in the COVID-19 period relative to the pre-pandemic period (total PR per 100 cases 0.96 and 0.97 respectively, figure 2). However, when stratified by quarter and year, there was a trend toward increased SSI PR in the second quarter of 2020 with a PR of 1.15 (95% CI 0.96-1.39, table 1).

**Conclusion.** The decline in surgical procedures early in the pandemic was short-lived in our community hospital network. Although there was no overall change in the SSI PR during the study period, there was a trend toward increased SSIs in the early phase of the pandemic (figure 3). This trend could be related to deferred elective cases or to a shift in infection prevention efforts to outbreak management.

**Disclosures.** All Authors: No reported disclosures

812. The Impact of Post-Operative Cephaloxin on Surgical Site (SSI) Infections During a Ceftazolin Shortage

Brown, PharmD2; R. Briggs Turner, PharmD3; Dominic Chan, PharmD, BCPS2; 1Legacy Health, Portland, Oregon; 2Pacific University, Hillsboro, Oregon

**Session:** P-44. HAI: Surgical Site Infections

**Background.** Cephalaxin is a common choice for prophylactic treatment of patients having cardiac pacemaker implantation surgery. Despite its low cost, they are expensive to manufacture. To address the shortage, the recommendation is to change from cephalaxin to cefazolin.

**Methods.** The study was a retrospective cohort study conducted at a large community hospital network from 03/2020 to 12/2020. The study population included patients undergoing cardiac pacemaker implantation surgery. The primary outcome of interest was SSI (hospital-acquired or healthcare associated). Secondary outcomes included type of SSI and hospital-acquired pneumonia.

**Results.** During the study period, there was a trend toward increased SSIs in the early phase of the pandemic (figure 3). This trend could be related to deferred elective cases or to a shift in infection prevention efforts to outbreak management.

**Disclosures.** All Authors: No reported disclosures
813. Implementing a Nurse-driven Nasal Decolonization Intervention to Prevent Surgical Site Infections within the Veterans Health Administration

Stacey Hockett Sherlock, MA1; Cassie Goedken, MPH2; Erin C. Balkenende, MPH1; Kimberly Dukes, PhD1; Eli N. Perencevich, MD MS3; Heather Schacht Reisinger, PhD1; Marin L. Schweizer, PhD1; V A Iowa City Health Care System and University of Iowa, Iowa City, Iowa; VA Iowa City Health Care System, Iowa City, IA; Iowa City VA Health Care System and University of Iowa, Iowa City, Iowa; 814. Successful Treatment of Merck reimplantation of the prosthetic device. Only patients with exchanges were included. All patients underwent debridement of the tissue, exchange of components and/or stage procedures with long duration antibiotic therapy led us to treat a series of patients with New Jersey; 815. Short-Course vs. Extended-Course Perioperative Antibiotic Prophylaxis in Patients Receiving Unilateral Primary Total Knee Arthroplasty

Jia Le Lim, BSc (Pharmacy)1; DaiPhen Yah Chieh Yi, BSc (Pharmacy)1; Sai Chee Hung, BSc (Pharmacy)1; Winnie Lee, MSc1; Lay Hoon Andrea Kwa, PharmD1; Nicholas Eng Meng Tan, MBBS, MRCS, MMed (Ortho), FRCSEd, FAMS2; Andrew Hwee Chye Ye o, MBBS, FRCSEd (Ortho)2; Shemin Jasmine Chung, M.B.B.S, BSc, MRCP2; S Su Liang, BSc, FRCSEd (Ortho)2; Singapore General Hospital, Singapore

Table 1. Distribution of Prosthetic Device Infections

| Prosthetic Device | Number of Patient |
|-------------------|------------------|
| Breast Implant    | 1                |
| Shoulder Implant  | 5                |
| Knee Implant      | 5                |
| Hip Implant       | 1                |
| Fracture fixation | 2                |

Table 2. Duration of Treatment

| Duration of Tx | Number of Patient |
|---------------|------------------|
| 60 days       | 10               |
| 90 days       | 10               |
| >90 days      | 10               |

Table 3. Selected Laboratory Results

| Test                      | Mean   | Range |
|---------------------------|--------|-------|
| ESR Start (mm/hr)         | 31.4   | 2.95  |
| ESR End (mm/hr)           | 10.7   | 2.24  |
| CRP Start (mg/l)          | 9.94   | 1.7-23|
| CRP End (mg/l)            | 6.12   | 1-35  |
| WBC Start (x 10^9/l)      | 8.27   | 4.7-14.3 |
| WBC End (x 10^9/l)        | 6.63   | 4-10.6 |
| Hgb Start (g/dl)          | 14.48  | 8.3-16.2 |
| Hgb End (g/dl)            | 12.94  | 10-15.5 |
| Pt Start (x 10^3/µl)      | 309    | 207-551 |
| Pt End (x 10^3/µl)        | 240    | 169-409 |

814. Successful Treatment of Cutibacterium acnes (CA) Prosthetic Device Infection (PDI) with Oral Linezolid and Rifampin (LR)

Ronald G. Nahass, MD1; Mallakat Esquibel, LPN2; Krizelle Smith, RN1; Danielle Heinemann, RN1; Kathleen H. Seneca, MSN3; ID Care, Hillsborough, New Jersey; ID CARE, Hillsborough, New Jersey; The College of New Jersey; Fletcher, New Jersey

Session: P-44. HA/Surgical Site Infections

P-44. HAI: Surgical Site Infections

Background. Staphylococcus aureus surgical site infection (SSI) is common and devastating clinically. Pre-operative decolonization is associated with reduced incidence, but has been rarely adopted due to barriers implementing high-efficacy prevention bundles, including unintentional non-compliance applying intra-nasal mupirocin by patients at home. Three Veterans Affairs (VA) facilities attempted to implement an alternate evidence-based SSI prevention program that included intranasal povidone-iodine used in pre-operative setting to reduce challenging patient burden steps and to overcome other mupirocin barriers. Our objective was to identify strategies used for successful implementation of intranasal povidone-iodine.

Methods. We conducted pre- and post-implementation semi-structured interviews and site visits at three VA hospitals. Participants included surgery and clinic staff (e.g., nurses, physicians, care managers), infection control staff, and administrative leadership. Interviews were audio recorded and transcribed. Our interdisciplinary team performed a deductive and inductive consensus-based analysis.

Results. Implementation of this SSI prevention process was successful when nurse champions drove the implementation. Qualitative interviews indicate that nurses each had a variety of strategies and messages variant on their audience. Nurse-driven facilitators included: key leadership buy-in and strategic decisions about timing and setting of implementation (i.e., start implementation in units with likely early adopters then when project is working its way through the early detractors). The primary implementer who identified was lack of a champion. One site stated that in the absence of a champion, a mandated or top-down approach may be needed for implementation at their facility.

Conclusion. Nurse champions facilitated successful SSI prevention process implementation. Nurses used strategies and approaches dependent on their knowledge and understanding of the stakeholders and setting to obtain buy-in. Future implementation of new clinical practices should consider utilizing nurse champions to promote uptake.

Disclosures. Marin L. Schweizer, PhD, 3M (Grant/Research Support/Challenge) (Grant/Research Support)

815. Short-Course vs. Extended-Course Perioperative Antibiotic Prophylaxis in Patients Receiving Unilateral Primary Total Knee Arthroplasty

Jia Le Lim, BSc (Pharmacy)1; DaiPhen Yah Chieh Yi, BSc (Pharmacy)1; Sai Chee Hung, BSc (Pharmacy)1; Winnie Lee, MSc1; Lay Hoon Andrea Kwa, PharmD1; Nicholas Eng Meng Yeo, MBBS, MRCS, MMed (Ortho), FRCSEd, FAMS2; Andrew Hwee Chye Ye o, MBBS, FRCSEd (Ortho)2; Shemin Jasmine Chung, M.B.B.S, BSc, MRCP2; Singapore General Hospital, Singapore