

cesarean section. The SSI prevention bundle together with improvements by multidisciplinary teams and a good patient-safety culture helped reduce SSI rates. Patient education on pre- and postoperative infection prevention also played an important role in reducing this infection rate.

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Subject Category: SSIs

Abstract Number: SG-APUSIC1066

Costs and surgical-site infection outcomes using ChloroPrep versus aqueous povidone iodine after colorectal surgeries in Australian public hospitals

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Objectives: In Australia, the prevalence of SSI is 3.6%, with a particularly high burden in colorectal procedures of 8.7%. ChloroPrep (2% chlorhexidine gluconate (CHG)–70% isopropyl alcohol formulation) is a preoperative sterile alcoholic CHG solution prefilled in a ready-to-use applicator. We compared the costs and SSI outcomes of adopting ChloroPrep versus a bulk aqueous povidone iodine (PVI) solution for colorectal procedures in a public hospital setting. **Methods:** We used a budget-impact tool to evaluate the clinical and economic impacts of skin preparation methods. The PVI SSI rate was assumed to be the baseline rate observed in Australia (8.7%). The ChloroPrep SSI rate was derived by applying the demonstrated ChloroPrep SSI reduction versus PVI (41%) to the PVI SSI rate. The cost of ChloroPrep was AU\$8 (US \$5.50) and the cost of PVI solution was AU\$3 (US \$2). The PVI equipment cost AU\$2.13 (US \$1.47). Additional average length of stay was 9.4 days, and the daily average cost was AU\$2,347 (US \$1,618). The average skin preparation time was 3.5 minutes using ChloroPrep and 8.5 minutes using PVI. The hospital-acquired complication (HAC) penalty for SSI was calculated using the national efficient price (AU \$5,797 or US \$3,996), national weighted activity unit (4.6261), and adjustment rate for patient complexity levels (high, 4.8%; moderate, 5.9%; and low, 7.9%). **Results:** The model estimated SSI rates were 5.1% using ChloroPrep and 8.7% for PVI. For every 1,000 patients, skin preparation cost was estimated to be AU\$8,100 (US \$5,583) using ChloroPrep and AU\$5,200 (US \$3,585) using PVI. SSI treatment cost was estimated to be AU\$449,900 (US \$310,127) for ChloroPrep and AU\$762,500 (US \$525,610) for PVI. In addition, 330 bed days could be avoided and at least 80 operating room hours could be saved with 35 SSIs avoided. With 35 SSIs avoided, a potential reduction of AU\$26,500 (US \$18,267) in HAC penalty could be expected. This intervention could yield an overall cost savings of AU\$336,300 (US \$231,820). **Conclusions:** Using ChloroPrep for skin preparation prior to colorectal procedures could result in lower SSI rates and cost savings from treating fewer SSIs. Operational efficiency might also be improved.

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Surgical-site infection in Hung Vuong Hospital, a gynecology and obstetrics tertiary-care hospital in Ho Chi Minh City, Vietnam

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Objectives: Surgical site infection (SSI) is the most common healthcare-associated infection (HAI) in our gynecology and obstetrics hospital. SSI among patients following gynecological and obstetrical surgery not

only results in increased morbidity but also has far-reaching implications. Thus, this study was conducted to determine the incidence, risk factors, and bacterial pathogens related to SSI. **Methods:** We conducted this retrospective study based on medical records from January 2019 to December 2020 at Hung Vuong Hospital. **Results:** Of 51,466 patients undergoing surgery, 581 patients (1.34%) developed an SSI after cesarean section and 145 patients (1.77%) developed an SSI after gynecological surgery. A multivariate logistic regression analysis identified the following risk factors among patients who underwent cesarean section: age (OR, 1.02; 95% CI, 1.01–1.04), emergency cesarean section (OR, 1.62; 95% CI, 1.36–1.93), operation time >60 minutes (OR, 2.04; 95% CI, 1.48–2.80), surgery during the night shift (OR, 1.29; 95% CI, 1.08–1.54), and prolonged hospital stay ≥2 days (OR, 1.51; 95% CI, 1.21–1.89). SSI risk factors for patients following gynecological surgery included age (OR, 1.03; 95% CI, 1.02–1.05), contaminated wound (OR, 3.44; 95% CI, 1.56–7.57), dirty wound (OR, 3.61; 95% CI, 1.44–9.05), vertical abdominal incision (OR, 2.49; 95% CI, 1.65–3.77), and duration of surgery >180 minutes (OR, 2.02; 95% CI, 1.24–3.29). *Staphylococcus aureus* was the most commonly identified SSI pathogen following cesarean section (49.56%), and *Escherichia coli* was isolated in 44.93% of SSIs among patients undergoing gynecological surgery. **Conclusions:** SSI interventions should target this high-risk group. Based on microbiology culture and susceptibility results isolated from SSI cases, novel antibiotic therapies are needed to treat SSIs.

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Implementing a quality-improvement approach to surgical-site infection prevention in the Philippines

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Objectives: We aimed to reduce surgical site infections in Camarines Norte Provincial Hospital, Philippines, (1) by establishing SSI surveillance in the surgical departments, (2) by implementing quality improvement processes, and (3) by developing and implementing an SSI prevention care bundle.

Methods: In partnership with Americares, SSI surveillance based on CDC criteria was instituted for all surgeries, excluding orthopedic surgeries. Staff were trained in applying quality-improvement methodology, infection prevention and control, and SSI prevention. A care bundle based on the WHO evidence-based interventions for SSI prevention was designed. Interventions included preoperative bathing, surgical hand preparation, intraoperative surgical-site preparation using 2% chlorhexidine isopropanol solution, and postoperative wound management. The model for improvement methodology was used to implement these changes for 12 months from May 2020 to May 2021. **Results:** In total, 718 surgeries were followed for SSI surveillance, with an average of 58 surgical patients per month in 2020, which increased to 90 patients per month in 2021. In 2020, the SSI incidence rate was 1.76%, and this rate increased 38.64% to 2.44% in 2021. A statistically significant increase in knowledge of 5.29 points (95% CI, 4.91–5.67) among 150 participants undergoing SSI training between pretest (+6.46) and posttest (+ 11.76) was achieved. SSI care-bundle checklists were used for 80% of eligible surgical patients by 2021. Compliance with the SSI care-bundle checklist increased from 0 to 87.69% (n = 718) by October 2021, subsequently decreasing by 2.75% by December 2021. **Conclusions:** A quality-improvement process embedded in routine surgical care can be a building block for reducing

SSIs. However, we did not achieve an overall decrease in SSIs, likely due to increased reporting of SSIs through improved SSI surveillance. However, important gains were achieved in improved healthcare worker knowledge and practice through the implementation of an SSI care bundle. Fluctuations in checklist compliance reflected COVID-19 surges.

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Bundled preoperative preparation reduced surgical-site infections

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Objectives: We aimed to reduce the overall surgical-site infection (SSI) rate to 0.2%. **Methods:** A new checklist protocol was developed based on the APUSIC guidelines. The bundle for preoperative preparation was implemented: adequate preoperative bathing, proper time of hand-forearm washing, and sufficient contact time of antiseptic application. The compliance rate was monitored with a weekly control chart from December 2019 to November 2020. **Results:** In total, 9,995 cases were operated at Narasuan University Hospital (NUH) in 2020, classified by surgical wound type as follows: clean wound, 62.6%; clean-contaminated wound, 32.1%; contaminated wound, 0.8%; and dirty wound, 4.5%. According to surgical wound type, the mean compliance with preoperative bathing was 68.22% for clean wounds, 68.33% for clean-contaminated wounds, and 34.82% for contaminated wounds. Hand hygiene preparation compliance was higher for clean wound surgeries (mean, 94.01%) and clean-contaminated wound surgeries (mean, 95.05%) than for contaminated wound surgeries (mean, 88.30%). A high percentage was achieved by the 3 groups. The rate of skin antiseptic preparation compliance was higher in the clean wound group (mean, 89.05%) and the clean-contaminated wound group (mean, 90.70%) than the contaminated wound group (mean, 68.12%). The lower rate might be due to time constraints in contaminated wound operations. Only 0.18% of clean-wound operations had SSIs, and the clean-contaminated wound group had 0.19% SSIs, whereas no SSIs occurred in the contaminated and dirty wound groups. The overall SSI rate was 0.17%; thus, we achieved our goal. **Conclusions:** A bundle of preoperative infection-prevention preparations reduced the rate of SSI. Furthermore, the bundle had a highly tangible positive impact for both internal and external stakeholders, and it was effective in ensuring good practice regarding preoperative preparation.

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Abstract Number: SG-APUSIC1109

Redesign of outpatient clinic clean care to decrease postoperative SSIs after orthopedic implants

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Objectives: Based on Sardjito Hospital surveillance data in 2020, the incidence of SSI in orthopedic implant surgery was 46 cases (4.7%), mostly in the outpatient clinic. We evaluated some of the potential risks and proposed redesign of infection prevention and control measures in April 2021 to improve the overall clean care at the orthopedic outpatient clinic. **Methods:** We conducted an operational study to redesign various components of clean care using a before-and-after evaluation of infection risk. The study was led by an IPC nurse and was supported by all levels of stakeholders at Sardjito Hospital, a referral and academic hospital in Yogyakarta, Indonesia, during May–September 2021. **Results:** The redesigned components covered continuing professional development (CPD) through a workshop on clean care and wound care for doctors

and nurses. The workshop also encouraged high-level management to make several important changes: (1) to redistribute medical staff schedules, (2) to start online patient registration to better distribute and decrease patient loads, (3) to set up the waiting room as well as the dressing room with strictly separate between dirty and clean areas, (4) to schedule daily general disinfection at noon during service hours, and (5) to perform routine air disinfection after daily clinic services as well as placing an additional portable HEPA filter for continuous air disinfection. After these changes, during 2021, 7 SSIs occurred among postoperative orthopedic implant patients, a decrease of 85%. We observed more clean and neat rooms without patient overcrowding as well as easy and comfortable flow of patients and staff. Environmental pathogen germ counts decreased significantly. **Conclusions:** A redesign project at the orthopedic outpatient clinic reduced the incidence of postoperative SSIs and reduced the number of environmental pathogens. Overall clean care is a basic strategy in IPC for improving patient safety.

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Microbiological surveillance of endoscopes in a Singapore tertiary-care academic hospital: A retrospective study from 2018 to 2021

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Objectives: Improper reprocessing of endoscopes may result in healthcare-associated infections. Regular microbiological surveillance is an important means of evaluating the quality of endoscope reprocessing. We evaluated the effectiveness of reprocessing endoscopes (including the protocols on steps to be taken in the event of any positive microbiological results) in a sterile supply unit (SSU) and an endoscopy unit in a Singapore tertiary-care academic hospital. **Methods:** Singapore General Hospital (SGH) is a 1,750-bed, tertiary-care, academic medical center in Singapore with 2 main SSUs: 1 inpatient endoscopy unit and 1 outpatient endoscopy unit. We reviewed microbiological surveillance results from endoscopes following reprocessing from January 2018 to December 2021. In total, 160 endoscopes (27 bronchoscopes, 58 gastroscopes, 52 colonoscopes, 6 duodenoscopes, 5 echoscopes, 5 cystoscopes, 5 rhinolaryngoscopes, and 5 enteroscopes) and 15 automated endoscope reprocessors (AERs) were evaluated for the presence of microorganisms. Samples were obtained by swabbing the tip of the scope and the biopsy channel. Fluid was flushed from the biopsy channel after reprocessing, and this water from the AERs was sampled after waterline disinfection. **Results:** Of the 15,783 samples collected, 15,667 (99.3%) yielded no growth; 36 (0.2%) were positive for gut and environmental flora; and 80 (0.5%) were positive for low-concern organisms such as skin flora. **Conclusions:** Microbiological surveillance yielded a high percentage of negative results confirming the effectiveness of endoscope reprocessing. This quality-assurance process is necessary and beneficial in achieving patient safety.

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Reduce cost and reesterilization rate of reusable medical device sets by reorganizing and rearranging packaging and process

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Objectives: We evaluated the reesterilization rate, user satisfaction, and cost of reesterilization after rearranging and packing of reusable instrument sets. **Methods:** For 1 month in July 2018, we conducted an observational