

would be a cost-effective measure in Singapore. **Conclusions:** We have provided evidence that adoption of a temporary isolation room would be cost-effective for Singapore acute-care hospitals. Using temporary isolation rooms may be a positive decision for other countries in the region with fewer resources for infection prevention and control.

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Subject Category: Outbreaks
Abstract Number: SG-APUSIC1076

Bacteremia caused by *Streptococcus mitis* in a hematology unit

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Objectives: *Streptococcus mitis* is a gram-positive coccus and is a common commensal found in the throat, nasopharynx, and mouth. In an immunocompromised host, *S. mitis* opportunistically multiplies and can translocate to other sites. At baseline, the prevalence of *S. mitis* remained stable among hematological patients, averaging ~1 case monthly. However, in August–September 2020, 5 *S. mitis* cases were documented in a hematology ward and included overlapping inpatient stays. In this descriptive cluster report, we sought to identify the reasons for the increased prevalence of *S. mitis* in our institution. **Methods:** A literature review was undertaken to gain a better understanding of the bacteriology of *S. mitis*. Subsequently, geographical mapping was performed to identify epidemiological links. Further culture and sensitivity testing was requested. Hand hygiene compliance, environmental audit, and handling of central lines within the ward were examined for any lapses in practice. **Results:** Based on geographical mapping, no epidemiological linkages were established between patients; they were admitted to different rooms and did not share any equipment. Moreover, based on the antibiogram, different bacteria sensitivities were recorded across the isolates from these patients. A hand hygiene and environmental audit result showed 100% compliance. Nurses performed care of central lines in accordance with guidelines. However, an investigation of changes in practice revealed that the use of a toothbrush had only recently been permitted as part of streamlining oral care for hematology patients. Because toothbrushes were not provided by the hospital, patients were utilizing their personal toothbrushes with no direct supervision of their oral care regimen. **Conclusions:** The prevalence of *S. mitis* in hematological patients was likely due to the neutropenic condition of patients. This report provides valuable information supporting the optimization of oral hygiene in immunocompromised patients while minimizing the risk of opportunistic infections.

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Strategies to reduce hospital-onset *Clostridioides difficile* infections in an acute-care hospital in Singapore

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Objectives: Control of *Clostridioides difficile* infections (CDIs) in health-care facilities presents significant challenges to infectious disease physicians, infection prevention and control practitioners, and environmental

services staff. CDI is a common cause of infectious diarrhea and is associated with significant morbidity, mortality, and healthcare cost. A high infection rate was documented in our institution in 2017, higher than the national infection rate. Strategies to reduce hospital-onset CDI were implemented after review of international guidelines and relevant literature. The impact on hospital-onset CDI was assessed. **Methods:** The following strategies were implemented beginning early in 2018: (1) contact precautions for patients with diarrhea; (2) early recognition and diagnosis of *C. difficile* infection; (3) prompt isolation of *C. difficile* patients; (4) emphasis on hand hygiene and contact precautions; (5) enhanced environmental cleaning with chlorine-based disinfectant and use of UV-C and ionized hydrogen peroxide for equipment disinfection; (6) enhanced cleaning and disinfection using sporicidal wipes for shared high-risk equipment; (7) audit and feedback regarding compliance with practices and environmental cleaning; and (8) collaboration with antibiotics stewardship program (ASP) to reduce inappropriate antibiotic use. Hospital-onset CDI cases were tracked by infection prevention and control nurses using definitions from the Singapore Ministry of Health. **Results:** In total, 135 hospital-onset *C. difficile* infection cases occurred in 2017, a rate of 4.2 per 10,000 patient days. This rate gradually decreased to 3.0 in 2018 and to 2.3 in 2020, with an average of 87 infections per year. This rate further decreased to 1.8 infections per 10,000 patient days in 2021, with 61 clinical infections. **Conclusions:** Using multimodal strategies, CGH achieved a gradual and steady reduction in hospital-onset CDI over several years. These strategies require close collaboration among various departments to achieve the desired outcome.

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Effectiveness of a surgical-site infection bundle in reducing postoperative infection in cesarean deliveries in a tertiary-care teaching hospital in Malaysia

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Objectives: Surgical-site infections (SSIs) cause significant increases in mortality, morbidity, and prolonged hospitalization after cesarean deliveries. We assessed the effectiveness of the implementation of an SSI bundle in reducing postoperative infections in cesarean deliveries in a tertiary-care teaching hospital in Malaysia. **Method:** We conducted a quality-improvement study on all women who underwent labor and scheduled cesarean sections at the University Malaya Medical Center (UMMC) between May and December 2020. The preintervention period was May–June 2020 and the postintervention period was September–December 2020. Patients were followed for 90 days after their operation. Before the intervention, SSI rates and compliance with prevention practices were documented. A multidisciplinary team was formed, and education regarding the elements of the SSI prevention bundle was conducted before they were implemented. The care bundle focused on monitoring compliance with preoperative bathing, contact time for skin preparation, hair management, and antibiotics prophylaxis given within 60 minutes prior to incision, as well as patient education. **Result:** With the implementation of the SSI bundle, we observed a significant reduction in the SSI rate by 50%, from 7 per 100 procedures to 2 per 100 procedures. Compared with the preintervention period, overall compliance with bundle elements improved greatly for preoperative bathing (0 vs 95.7%) and contact time for skin preparation (0 vs 98.8%). In the postintervention period, the method of hair removal was documented, compared to no documentation during the preintervention period. The administration of prophylactic antibiotics within 60 minutes prior incision decreased from 99% to 92.3%. **Conclusion:** Implementation of an SSI prevention bundle successfully reduced the rate of SSI after

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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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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Subject Category: SSIs

Abstract Number: SG-APUSIC1107

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