

After barrier creation, there was an immediate APC reduction in region A from the predicted mean APC of $2\mu\text{g}/\text{m}^3$ to $1\mu\text{g}/\text{m}^3$ (difference of $0.8\mu\text{g}/\text{m}^3$, $p=0.01$) (Figure 2). While the barrier was in place, there was a significant reduction in APC in region A by $0.01\mu\text{g}/\text{m}^3$ per day ($p < 0.001$).

There was no significant change in APC in regions B and C after the barrier was erected and while it was in place. In the control region, there was no significant change in APC at barrier placement nor afterwards. There was no change in the maximum APC at any of the measurement locations. **Discussion:** Our analysis demonstrated a change in APC at an adjacent area following erection of the barrier; however, APCs were not significantly changed in patient areas. This model could help objectively evaluate changes in particulate concentration. While this analysis cannot predict changes in IFD incidence, it could inform whether permanent architectural changes might reduce APC. **Conclusions:** We propose a model to evaluate changes in APCs from temporary architectural changes, which could inform permanent architectural changes.

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Surgical site infections among cesarean patients in Bangladeshi hospitals: results from an observational study

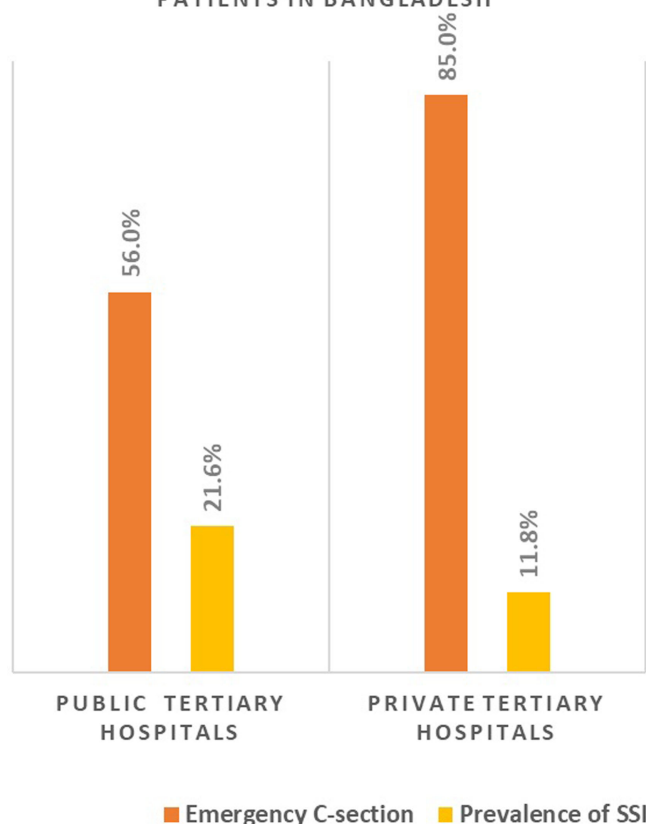
Shariful Amin Sumon¹, Aninda Rahman², Syed Abul Hassan Md Abdullah³ and Md. Golam Dostogir Harun⁴

¹icddr,b; ²Communicable Disease Control, MOHFW; ³South Asia Field Epidemiology & Technology Network (SafetyNet) and ⁴International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b)

Background: Surgical site infections (SSIs) following cesarean deliveries (C-sections) result in excess morbidity, mortality, and healthcare expenses in resource-limited countries such as Bangladesh. Over the past two decades, C-section rates have increased dramatically in Bangladeshi hospitals, and comprehensive data on SSI after cesarean delivery, which is vital for the improvement of maternal health outcomes, remains limited. In this study, we assessed the prevalence of SSIs including their determinants among patients undergoing C-sections in Bangladesh. **Methods:** From May to December 2023, we conducted a prospective observational study at six tertiary hospitals (3 public and 3 private) in Bangladesh. Participants were hospitalized pregnant women who had undergone C-sections. The WHO-guided methodology and tools were employed to acquire the data. Participants were systematically evaluated on days 1-3, 7, 14, and 30 of surgeries, with a rigorous inquiry into symptoms such as fever, abdominal pain, localized swelling and redness, wound dehiscence, and purulence or abscess. The SSI diagnosis was confirmed based on at least two present symptoms, or a physician's assessment, or microbiological confirmation within the 30-day post-operative window. Descriptive and multivariate logistic analyses were performed to determine the prevalence and factors associated with SSI. **Results:** Of 1335 participants enrolled, the overall prevalence of SSIs was 19.1% (255/1335, 95%CI: 17.6-21.5), with public hospitals having almost twice as SSIs at 21.6% (215/995) compared to private hospitals (11.8%, 40/340). More than half of the patients (54.8%) were found with at least two SSI symptoms within the 7 to 14 days of follow-up. Approximately half of the patients (49.2%) had a history of previous C-sections. The C-sections performed in private hospitals were predominantly on an emergency basis (85.1%) compared to public hospitals (56.2%). The multivariate analysis identified key determinants of SSI following C-section were patients with prolonged labor > 18 hours (AOR: 2.2, 95%CI: 1.16, 4.13), fetal distress (AOR: 1.82, 95%CI: 1.33, 2.49), premature rupture of membrane (PROM) > 12 hours (AOR: 1.70, 95%CI: 1.05, 2.75), and high BMI (AOR: 1.69, 95%CI: 1.27, 2.25). **Conclusions:** This study highlights the burden of SSIs following C-sections in tertiary hospitals in Bangladesh, particularly in public healthcare settings. The findings highlight the critical need to enhance infection prevention and control measures to mitigate the occurrence of SSIs within these healthcare settings.

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PREVALENCE OF SSI IN C-SECTION PATIENTS IN BANGLADESH



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Can A Supplemental Hysterectomy Prevention Bundle Result In Reduction Of Surgical Site Infections?

Aarikha D'Souza¹ and Kisha McIntyre²

¹Banner Health and ²Banner Health

Background: Surgical Site Infections (SSIs) are a major cause of morbidity resulting in devastating patient outcomes following an Abdominal Hysterectomy (HYST) procedure. No single intervention has demonstrated reduction in SSI rates, however, bundling prevention strategies have demonstrated reduction in SSI. In addition to our organization's system-wide surgical site infection prevention bundle, we developed a supplemental bundle of focused strategies specific to abdominal hysterectomy procedures, to address a 37.26% increase in Abdominal Hysterectomy Standardized Infection Ratios (SIRs) in 2021. **Methods:** In 2021, a supplemental hysterectomy specific bundle was developed and implemented in three facilities within our health system that were experiencing increased HYST SIRs. After review of current literature, the following four strategies were included for the supplemental bundle for all abdominal hysterectomy procedures (open, laparoscopic, and robotic); the utilization of 500mg Metronidazole with Cefazolin as part of surgical antimicrobial prophylaxis, for cases where: anticipated bowel involvement occurs and for oncology patients with complex hysterectomies; the use of standardized vaginal and perineal preparation using either chlorhexidine (CHG) or Povidone Iodine (PVI); the use of a separate sterile closing tray; and changing of gown and gloves by surgical team, prior to going to abdomen from vaginal area. Compliance with the prevention strategies were measured during this period and SSI SIRs were reviewed monthly with overall trends monitored.

The National Healthcare Safety Network (NHSN) criteria for SSI were used to assess for SSI after hysterectomy. **Results:** The SIR for HYST procedures in 2021 was 1.083 with 23 SSIs identified from 2339 abdominal hysterectomy procedures performed. Immediately following the implementation of the supplemental bundle at three facilities, the SIR decreased by 39% to 0.661 in 2022 with 11 SSIs identified from 1842 procedures performed. The HYST SIR outcomes were 0.782 in 2023 and currently at 0.979 through July 2024. Compliance during the intervention period ranged from 93.9% to 94.6%, and surgical antimicrobial prophylaxis compliance increased by 4% to 89.35% at these three facilities. **Conclusion:** Bundled interventions when employed, demonstrate benefit from the synergistic effects of multiple strategies decreasing the outcome rate of surgical site infections as compared to a single intervention. Establishing a standardized abdominal hysterectomy bundle, allows for minimal variation for patients undergoing abdominal hysterectomy procedures when adherence is at its maximum. Our goal is to expand systemwide based upon the successes from the three facilities, to achieve as close to zero postoperative infections by implementing evidence-based practices performed as a comprehensive bundle.

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Defining Nontuberculous Mycobacterium Surgical Site Infections at a Tennessee Ambulatory Surgery Center with NHSN Surveillance Protocol

Jordan Morris¹, Ashley Gambrell² and Simone Godwin³

¹Tennessee Department of Health; ²Tennessee Department of Health and

³Tennessee Department of Health

Background: Procedures performed at Ambulatory Surgical Centers (ASCs) have increased over the last decade in the United States. In Tennessee, surgical site infection (SSI) outbreaks in ASCs have been increasingly detected. Still, there is no mandated SSI reporting for ASCs through the National Healthcare Safety Network (NHSN) as there is for Acute Care Hospitals (ACHs). In 2023, the Tennessee Department of Health's Healthcare-Associated Infections (TDH HAI/AR) program responded to an outbreak of 14 nontuberculous mycobacteria (NTM) periprosthetic joint infections at an ASC. Despite extrapulmonary NTM being a reportable condition in Tennessee, detection of this outbreak was delayed due to gaps in reportable conditions practices at this ASC. Here, we evaluate how NHSN reporting could have impacted the surveillance and detection of infections for this investigation. **Methods:** Extrapulmonary NTM cases were detected through clinical laboratory and provider reporting. Chart abstractions were performed for cases by HAI/AR epidemiologists using a tool adapted from the Centers for Disease Control and Prevention (CDC). Infections were evaluated using standardized 2023 and 2024 National Healthcare Safety Network (NHSN) definitions depending on the infection date of event. **Results:** Initial reporting of cases was as mentioned above, resulting in five cases reported together in June 2023, two months after the first positive specimen. Eight (57%) cases met the NHSN definition for Surgical Site Infections (SSIs); four (29%) cases met the criteria for Deep Incisional SSIs, and four (29%) met the Organ/Space SSI. Six cases (43%) were not detected within the 90-day surveillance window; however, three of these cases had documented evidence of superficial infection within those 90 days. **Conclusions:** Despite its slow infection progression, most NTM infections in this outbreak would have been detected through NHSN surveillance. Even in cases where NHSN SSI criteria were not met, reviewing records and entering data within the NHSN framework may have facilitated faster facility-level detection. Although the nature of NHSN reporting is not suited for rapid detection of outbreaks, the standardized definitions, regular records reviews, and established data entry system would benefit ASC surveillance such as the facility described here, which had no formal mechanism for tracking infections. Additionally, the collection of summary data required through NHSN would better identify reporting gaps prior to outbreak occurrences.