regional network-level projects in India and Vietnam were also supported. For assessment and planning, surveillance capacities were grouped into 3 domains: staff, informatics, and diagnostic capacities. Based on these capacities, simplified case definitions surveillance methodologies were devised to balance resources and effort with the anticipated value and use of findings. **Results:** There was broad understanding of the importance of HAI surveillance; however, the required resources and other challenges (eg, training, staffing, quality of available data) were underappreciated. Staff capacities were often influenced by a lack of dedicated surveillance staff and limited experience in systematic data collection and analysis. Informatics capacities were generally limited by the lack of digital data management, nonstandardized clinical data collection and storage, and the inability to assign and maintain unique patient identifiers. We found that capacity for diagnostics, a critical component of traditional HAI surveillance systems, was limited by its availability, frequency of use, and inconsistent rationale in clinical care. We found that successful surveillance strategies were generally simple, matched existing capacities, and targeted specific HAI priorities identified by clinical teams. For example, in Kenya and Sierra Leone, participating facilities established, with minimal external support, simplified SSI surveillance among post–caesarean-delivery patients. These initiatives improved integration of surveillance with clinical care through encouraging participation of the clinical team in surveillance and planning. Furthermore, these models directly linked surveillance activities to improved patient care (eg, combined clinical checklists with surveillance data collection forms). **Discussion:** In resource-limited settings, the local cost and effort required to establish and sustain the necessary infrastructure for HAI surveillance can be substantial. Establishing actionable and sustainable HAI surveillance can be achieved through simplifying HAI surveillance to match existing capacities and can result in valuable surveillance programs, even in very resource-limited settings.

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**Presentation Type:**
Poster Presentation

**Surgical Site Infection Prevention: An Analysis of Compliance With Good Practice in Large Hospitals**

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**Background:** Surgical site infection (SSI) is considered one of the most frequent adverse events globally. One of the strategies to mitigate its occurrence was proposed by the WHO in 2008 as part of the Safe Surgery Saves Lives program to reduce the rate of SSI by 25% by 2020. **Objectives:** To evaluate adherence to SSI prevention and control actions in large hospitals using a score. **Methods:** This cross-sectional study was conducted in 30 hospitals in Minas Gerais, Brazil, from February 2018 to April 2019. Data collection was performed through interviews with the coordinator of the hospital infection control service (HICS), situational diagnoses, and observation of a surgical procedures at the time of the visit. Data were analyzed using SPSS software. The variables were described using descriptive statistics. The project was approved by the Research Ethics Committee of the Federal University of Minas Gerais (COEP/UFMG) (CAAE: 30782614.3.00005149). A score was determined to identify the degree of compliance of institutions to SSI prevention practices. **Results:** In 93.3% of the HICSs, routines or protocols for the use of prophylactic antibiotic in surgery and compliance audits were mentioned, 69% reported hair removal with a clipper. SSI surveillance occurred in all institutions; however, only 63.3% disclosed SSI rates. In the situational observations, 60% of the professionals performed hand antisepsis within 3–5 minutes. Most frequently, hair removal was performed inside the operating room in 76.7% of the observed procedures and an electric clipper was used 56.7% of the time. In the surgery audit, prophylactic antimicrobial administration occurred between 30 and 60 minutes before surgical incision in only 63.3% of the observed procedures. The traffic in the operation room was limited to the necessary minimum in only 53.3% of observed procedures and unnecessary opening of the doors occurred in 76.7% of the observations. Patient temperature was not monitored in 70% of the audited procedures. **Conclusions:** According to the proposed score, 1 of the institutions (3.3%) complied with SSI prevention and control measures sufficiently; 25 complied partially (83.3%); and 4 (13.3%) demonstrated poor compliance.

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Poster Presentation

**Surgical Site Infection Trend Analysis Following Abdominal Hysterectomy, National Healthcare Safety Network, 2009–2018**

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**Background:** Surveillance data for surgical site infections (SSIs) following abdominal hysterectomy (HYST) have been reported to the CDC NHSN since 2005. Beginning in 2012, HYST SSI surveillance coverage expanded substantially as a result of a CMS mandatory reporting requirement as part of the Hospital Inpatient Quality Reporting Program. A trend analysis of HYST SSI using data submitted to the NHSN has not been previously reported. To estimate the overall trend of HYST SSI incidence rates, we analyzed data reported from acute-care hospitals with surgery performed between January 1, 2009, and December 31, 2018. **Methods:** We analyzed inpatient adult HYST procedures with primary closure resulting deep incisional primary and organ-space SSIs detected during the same hospitalization or rehospitalization to the same hospital. SSIs reported as infection present at time of surgery (PATOS) were included in the analysis. Due to the surveillance definition changes for primary closure in 2013 and 2015, these were tested separately as interruptions to HYST SSI outcome using an interrupted time-series model with a mixed-effects logistic regression. Because the previously described changes were not significantly associated with changes in HYST SSI risk, mixed-effects logistic regression was used to estimate the annual change in the log odds of HYST SSI. The estimates were adjusted for the following covariates: hospital bed size, general anesthesia, scope, ASA score, wound classification, medical school affiliation type, procedure duration and age. **Results:** The number of hospitals and procedures reported to NHSN for HYST increased and then stabilized after 2012 (Table 1). The unadjusted annual SSI incidence rates ranged from 0.60% to 0.81%. Based on the model, we estimate a 2.58% decrease in the odds of having a HYST SSI



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**Table 1.**

Table 1. Annual abdominal hysterectomy surgery surgical site infection crude incidence rates

| year | Number of hospitals | No. of events | No. of procedures | Annual SSI incidence rates (%) |
|---|---|---|---|---|
| 2009 | 422 | 357 | 43,956 | 0.81 |
| 2010 | 562 | 408 | 54,165 | 0.75 |
| 2011 | 1,155 | 530 | 82,985 | 0.64 |
| 2012 | 2,985 | 2,091 | 297,932 | 0.70 |
| 2013 | 2,983 | 2,056 | 300,770 | 0.68 |
| 2014 | 3,012 | 1,982 | 303,882 | 0.65 |
| 2015 | 3,011 | 2,055 | 302,895 | 0.68 |
| 2016 | 2,972 | 1,802 | 301,102 | 0.60 |
| 2017 | 2,959 | 1,811 | 293,621 | 0.62 |
| 2018 | 2,941 | 1,863 | 290,421 | 0.64 |

**Table 2.**

Table 2. Parameter estimates from mixed effect logistic regression

| Variable* | Estimate | Standard error | *p*-value | Odds ratio (95%CI) | Annual percent change of odds ratio, % (95%CI) |
|---|---|---|---|---|---|
| Year | -0.0261 | 0.0038 | <.0001 | 0.9742 (0.9670, 0.9815) | -2.58 (-3.30, -1.85) |

*The model adjusted for the following variables: hospital bedsize, general anesthesia, scope, ASA score, wound classification, medical school affiliation type, procedure duration and age.

annually after controlling for variables mentioned above (Table 2). **Conclusions:** The volume of hospitals and procedures for HYST reported to NHSN increased substantially because of the CMS reporting requirement implemented in 2012. The overall adjusted HYST SSI odds ratio decreased annually over 2009–2018, which indicates progress in preventing HYST SSIs.

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Poster Presentation

**Surgical Site Infection Trend Analysis Following Colon Surgeries, National Healthcare Safety Network, 2009–2018**

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**Background:** Hospitals have submitted surveillance data for surgical site infections (SSIs) following colon surgeries (COLO) to the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN) since 2005. COLO SSI data submissions to NHSN have increased substantially beginning in 2012 as result of a Centers for Medicare and Medicaid Services (CMS) mandatory reporting requirement that began that year. A trend analysis of COLO SSIs, using data submitted to NHSN, has not been previously reported. To estimate the national trend of COLO SSI rates, we analyzed data reported from acute-care hospitals during 2009–2018. **Methods:** We analyzed inpatient adult COLO procedures with primary closure and resulting deep incisional primary and organ-space SSIs detected during the same hospitalization or rehospitalization in the same hospital. SSIs reported as infection present at time of surgery (PATOS) were included in the analysis. A protocol change that reprioritized COLO above small bowel surgery (SB) in the multiprocedural abdominal operations selection list for SSI attribution beginning in 2013 was a potential interruption to COLO SSI outcome. An interrupted time series with mixed-effects logistic regression was used to estimate the annual change in the log odds of COLO SSI. The estimates were adjusted for the following variables: hospital bed size, gender, emergency, trauma, general anesthesia, scope, ASA score, wound classification, medical school affiliation type, procedure duration and age. We also assessed the slope and level change of log odds before and after 2013. **Results:** The number of hospitals and procedures increased and then stabilized after 2012 (Table 1). The annual crude SSI rates ranged from 2.40% to 3.10%. There was no statistically significant slope change in 2013 and after. Compared to 2009–2012, the log odds of COLO SSI increased in 2013–2018 (OR, 1.1975; $P < .0001$). Based on this model, we estimate a 0.58% annual decrease in the odds of having a COLO SSI during 2009–2012 and 2013–2018 after controlling for the aforementioned variables (Table 2). **Conclusions:** We observed a substantial increase in the volume of hospitals and procedures reported to the NHSN since 2012 and an increase in odds of having a COLO SSI in 2013–2018 associated with surveillance protocol changes. After adjusting for these changes, we found a slight annual decrease in the overall odds of COLO SSI. Greater prevention efforts are needed for COLO SSI.

**Table 1.**

Table 1. Annual colon surgery surgical site infection crude incidence rates

| Year | Number of hospitals | No. of events | No. of procedures | Annual SSI incidence rates (%) |
|---|---|---|---|---|
| 2009 | 306 | 832 | 29,415 | 2.83 |
| 2010 | 434 | 988 | 36,929 | 2.68 |
| 2011 | 1,073 | 1,661 | 68,030 | 2.44 |
| 2012 | 3,100 | 6,766 | 281,472 | 2.40 |
| 2013 | 3,099 | 8,157 | 289,109 | 2.82 |
| 2014 | 3,133 | 8,749 | 291,078 | 3.01 |
| 2015 | 3,125 | 9,022 | 293,420 | 3.07 |
| 2016 | 3,119 | 8,947 | 307,605 | 2.91 |
| 2017 | 3,151 | 9,151 | 309,177 | 2.96 |
| 2018 | 3,123 | 9,618 | 310,419 | 3.10 |

**Table 2.**

Table 2. Parameter estimates from interrupted time series using a mixed effect logistic regression

| Variable* | Estimate | Standard error | *p*-value | Odds ratio (95%CI) | Annual percent change of odds ratio, % (95%CI) |
|---|---|---|---|---|---|
| Year | -0.0058 | 0.0027 | 0.0289 | 0.9942 (0.9890, 0.9994) | -0.58 (-1.10, -0.06) |
| 2013-2018 vs 2009-2012 | 0.1802 | 0.0154 | <.0001 | 1.1975 (1.1619, 1.2341) | 19.75 (16.19, 23.41) |

*The model adjusted for the following variables: hospital bedsize, gender, emergency, trauma, general anesthesia, scope, ASA score, wound classification, medical school affiliation type, procedure duration and age.

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**Surgical Site Infections at a Level I Trauma Center in India: Data From an Indigenously Developed, e-SSI Surveillance System**

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**Background:** Globally, surgical site infections (SSIs) not only complicate the surgeries but also lead to \$5–10 billion excess health expenditures, along with the increased length of hospital stay. SSI rates have become a universal measure of quality in hospital-based surgical practice because they are probably the most preventable of all healthcare-associated infections. Although, many national regulatory bodies have made it mandatory to report SSI rates, the burden of SSI is still likely to be significant underestimated due to truncated SSI surveillance as well as underestimated postdischarge SSIs. A WHO survey found that in low- to



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