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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Disclosures: None
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Presentation Type:
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

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.

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.
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Presentation Type:
Poster Presentation
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

middle-income countries, the incidence of SSIs ranged from 1.2 to 23.6 per 100 surgical procedures. This contrasted with rates between 1.2% and 5.2% in high-income countries. **Objectives:** We aimed to leverage the existing surveillance capacities at our tertiary-care hospital to estimate the incidence of SSIs in a cohort of trauma patients and to develop and validate an indigenously developed, electronic SSI surveillance system. **Methods:** A prospective cohort study was conducted at a 248-bed apex trauma center for 18 months. This project was a part of an ongoing multi-center study. The demographic details were recorded, and all the patients who underwent surgery (n = 770) were followed up until 90 days after discharge. The associations of occurrence of SSI and various clinico-microbiological variables were studied. **Results:** In total, 32 (4.2%) patients developed SSI. *S. aureus* (28.6%) were the predominant pathogen causing SSI, followed by *E. coli* (14.3%) and *K. pneumoniae* (14.3%). Among the patients who had SSI, higher SSI rates were associated in patients who were referred from other facilities ($P = .03$), had wound class-CC ($P < .001$), were on HBOT ($P = .001$), were not administered surgical antibiotics ($P = .04$), were not given antimicrobial coated sutures ($P = .03$) or advanced dressings ($P = .02$), had a resurgery ($P < .001$), had a higher duration of stay in hospital from admission to discharge ($P = .002$), as well as from procedure to discharge ($P = .002$). SSI was cured in only 16 patients (50%) by 90 days. SSI data collection, validation, and analyses are essential in developing countries like India. Thus, it is very crucial to implement a surveillance system and a system for reporting SSI rates to surgeons and conduct a robust post-discharge surveillance using trained and committed personnel to generate, apply, and report accurate SSI data.

Presentation Type:
Poster Presentation
Surveillance and Control Efforts for Carbapenemase-Producing Gram-Negatives at a High Burden Vietnam University Hospital

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Background: Carbapenem-resistant gram-negative bacteria are an urgent threat to healthcare safety around the world. In Vietnam, Although surveillance and control of multidrug-resistant organisms is a national priority, information on the burden of these resistant pathogens is still scarce. At University Medical Center Ho Chi Minh City, Vietnam, we aimed to better understand carbapenem-resistance through 2 phases: (1) assess proportion of carbapenem-resistant gram-negative organisms that are carbapanemase-producing (CP-CRO) and (2) assess transmission burden of carbapenemase-producing carbapenem-resistant Enterobacterieacea (CP-CRE) in the general intensive care unit (ICU). **Methods:** In the first phase, all gram-negative clinical isolates collected between November 2018 and April 2019 were tested for carbapenem-resistance using the disc-diffusion method and were defined as meropenem resistant using the Clinical and Laboratory Standards Institute 2018 break point (*M100-Performance Standards for Antimicrobial Susceptibility Testing, 28th Edition*). Carbapenem-resistant bacteria were tested for phenotypic carbapenemase-production using the Becton Dickinson Phoenix CPO Detect assay. In the second phase, we instituted CP-CRE rectal screening using CHROMagar mSuperCARBA media for all ICU patients from July through September 2019. Patients were screened on admission, and negative patients were rescreened every 2 days until discharge, death, or CRE-positive screening or culture. Admission prevalence and incidence of CP-CRE transmission was calculated among CP-CRE infected or colonized patients. **Results:** From November 2018 through April 2019, 599 gram-negative clinical isolates from 543 patient samples were identified. Of these, 108 were carbapenem-resistant; 107 (99%) of carbapenem-resistant isolates were carbapenemase-producing by phenotypic method. Most CP-CRO were *Acinetobacter baumannii* (45 of 107, 42%) or *Klebsiella pneumoniae* (39 of 107, 36%). During ICU CP-CRE colonization screening, the July positivity rate on admission was 40% (32 of 81), the August positivity rate on admission was 30% (21 of 71), and the September positivity rate on admission was 40% (30 of 75). Of those with negative admission screen, the proportion of new CP-CRE colonization in July was 45% (22 of 49), the proportion of new CP-CRE colonization in August was 64% (32 of 50), and the proportion of new CP-CRE colonization in September was 44% (20 of 45). Across all 3 months of screening, the proportions of CP-CRE that were *Klebsiella*, *Citrobacter*, or *Enterobacter* were 68% (118 of 174) and the proportion of CP-CRE that were *Eschericia coli* was 37% (56 of 174). The average number of days to turn from negative to positive screening result was 4.1. **Conclusions:** Our analysis demonstrates that nearly all carbapenem-resistant organisms at our hospital are carbapenemase producing. In the ICU, we identified a high burden of CP-CRE, attributable to high presence on admission and new acquisition in the ICU. An intervention package based on CDC-recommended enhanced infection control measures is being implemented to decrease CP-CRE transmission in the ICU.

Presentation Type:
Poster Presentation
Surveillance of Healthcare-Associated Bloodstream and Urinary Tract Infections in a National Level Network of Indian Hospitals

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