



HOB was not consistent over time. Postnatal age should be considered in a neonatal HOB quality metric.

**Disclosures:** None

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#### Presentation Type:

Poster Presentation - Poster Presentation

**Subject Category:** Quality Assessment

#### Team-based infection preventionist review improves interrater reliability in identification of hospital-acquired infections

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**Background:** The University of Colorado Health (UCHealth) metropolitan region is composed of 4 hospitals. Therein, 10 infection preventionists (IPs) retrospectively review all cases of potential central-line-associated bloodstream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), and surgical site infection (SSI) to adjudicate whether each case meets the NHSN definitions for hospital-acquired infection (HAI). In August 2021, the UCHealth IP team structure transitioned from a subject-matter expert model (in which each IP reviewed a specific HAI) to a unit-based model (in which each IP reviewed all HAIs and SSIs on their assigned units) to create redundancy in knowledge and skill. The IP team subsequently instituted a weekly meeting to review all potential cases of HAI. We hypothesized that this review structure would result in increased consistency in the application of NHSN definitions across the UCHealth hospitals and units. **Methods:** From August 17, 2022, through March 3, 2023, the UCHealth IPs, managers, and medical directors met weekly for 1 hour via teleconferencing. Each IP presented key details for all near-miss and confirmed cases of SSI or HAI on their respective units and received questions and feedback from their peers and medical directors. Case determination was based on team discussion and consensus. If there was discordance in the interpretation of an NHSN case definition, a formal inquiry was sent to resolve the uncertainty. The number of cases reviewed, case determinations changed, and formal inquiries to NHSN were tracked. **Results:** During the study period, the IP team convened weekly meetings and reviewed 248 patient cases—of which 208 (83.9%) were confirmed HAIs. Based on collaborative team discussion, 14 cases (5.6%) were changed from reportable to nonreportable. Three cases (1.2%) originally thought to be nonreportable were changed to reportable. The HAI determination of a reportable case (eg, revision of a “superficial” SSI to “deep” SSI) was changed for 9 (6.0%). Following team discussion, 13 formal inquiries were sent to the NHSN to clarify case definitions, and these responses were collated for future reference. **Conclusions:** Team-based IP review of HAI cases improves consistency in application of NHSN case definitions and highlights areas of uncertainty in their interpretation. This team-based model of case review is a useful educational and practical tool to increase interrater reliability in case adjudication across

large teams of IPs, to create a systematic way to query NHSN, and to ensure that knowledge gained is disseminated for future benefit.

**Disclosures:** None

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#### Presentation Type:

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**Subject Category:** Respiratory viruses other than SARS-CoV-2

#### Incidence, risk factors, and outcomes of hospital-acquired infections with common respiratory viruses

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**Background:** We estimated the incidence of hospital-acquired respiratory virus infections (HARVIs) by viral species, and we identified risk factors for and outcomes of HARVIs. **Methods:** We identified a cohort of all inpatient admissions of  $\geq 24$  hours duration to University of Michigan hospitals during 3 study years (2017–2018, 2018–2019, and 2019–2020). HARVIs were defined as initial respiratory virus detection (adenovirus, coronaviruses, human metapneumovirus, influenza A and B, parainfluenza viruses, respiratory syncytial virus, or rhinovirus-enterovirus) in a clinical test ordered after the 95th percentile of the virus-specific incubation period. Incidence was calculated as the number of HARVIs per 10,000 patient admission days. Patient demographic and clinical characteristics were assessed as risk factors for HARVI in Cox proportional hazards models of the competing outcomes of HARVIs and hospital discharge. The association between time-varying HARVI status and the competing outcomes of discharge and in-hospital death was estimated in covariate-adjusted Cox-proportional hazards models. All analyses were performed separately for adult patients (aged  $\geq 18$  years) and pediatric patients (aged  $< 18$  years). **Results:** The overall incidences of HARVI were 8.5 and 3.0 per 10,000 admission days for pediatric and adult patients, respectively. Rhinovirus was the most common HARVI in both pediatric and adult patients, with incidences of 5.1 and 1.1 infections per 10,000 admission days, respectively. With the exception of influenza A, the incidence of HARVI was higher in pediatric patients than adult patients for all viral species. For adults, congestive heart failure, renal disease, and cancer all increased HARVI risk independent of their associations with extended hospital stays. Risk of HARVI was also elevated for patients admitted September through June relative to July admissions. For pediatric patients, chronic cardiovascular and respiratory conditions, cancer, medical-device dependence, and December admission increased risk of HARVI. Age, sex, and race were not associated with risk of HARVI for children or adults. Inpatient lengths of stay were longer for adults with HARVI compared to those without (range of virus-specific hazard ratios, 0.48–0.77). However, estimated effects were not statistically significant for human metapneumovirus, parainfluenza, or adenovirus. Only influenza A was associated with an increased risk of in-hospital death within 30 days of infection for adults. No HARVIs were associated with increased length of stay or risk of death for pediatric patients. **Conclusions:** The incidence of HARVI varied by viral species and was higher among pediatric patients. HARVIs increased the length of hospital stays for adults but not for pediatric patients.

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#### Presentation Type:

Poster Presentation - Poster Presentation

**Subject Category:** SSI

#### Quality improvement approach for surgical-site infection prevention in a Philippine provincial hospital

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**Background:** Globally, the 30-day cumulative incidence of surgical-site infections (SSI) was 11% (95% CI, 10%–13%) based on the systematic review and meta-analysis derived from 57 studies. SSIs are poorly studied in the Philippines. AmeriCare and its hospital partner, Camarines Norte Provincial Hospital, Philippines, sought to reduce SSIs through (1) establishing SSI surveillance in the hospitals' surgical departments, (2) implementing quality improvement processes, and (3) developing and implementing an SSI prevention care bundle. **Methods:** A quality improvement methodology was used to introduce SSI surveillance and care-bundle checklist in partnership with AmeriCare. Using paired *t* tests, pre- and posttest scores of the SSI care bundle training were analyzed. SSI surveillance was established based on the adapted CDC criteria. All clean surgeries were monitored except orthopedic surgeries. The number of surgeries performed, monitored, and SSIs identified were documented using the surveillance forms and plotted using Microsoft Excel software. A care bundle based on WHO evidence-based interventions for SSI prevention was designed and implemented. Compliance with the SSI care bundle was documented using Microsoft Excel. The relationship between the use of a care bundle and SSIs was analyzed using the Pearson correlation coefficient. **Results:** An online SSI care bundle training session was conducted. Overall, 150 participants had a mean pretraining test score of +6.46. After the training was conducted, the same participants had a mean posttraining test score of + 1.76. a statistically significant increase of 5.29 (95% CI). Thereby, the mean score difference after training showed that knowledge increased overall. These findings show an average of 90.43% compliance with the SSI care-bundle checklist over the 18-month window from May 2021 to November 2022. From a baseline of 0%, compliance increased from 80% upon its introduction in May 2021. Lastly, the SSI incidence rate from May 2021 to November 2022 averaged 1.89%. The days between reported SSIs averaged 16.85. No baseline was available for comparison prior to the introduction of the surveillance and care bundle. A Pearson *r* data analysis (*n* = 1,850) was used to determine the relationship between the use of the care bundle and SSIs. The data illustrated a moderate negative correlation (*r* = −.31). Therefore, higher care-bundle compliance yielded fewer SSI cases. **Conclusions:** The use of an evidence-based care bundle paired with a local quality improvement process significantly improved SSI prevention and surveillance. Future studies are needed that include clean-contaminated, contaminated, and dirty surgical cases to test the degree of SSI reduction possible.

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**Subject Category:** SSI

**Perioperative cefazolin prescribing rates following suppression of alerts for non-IgE-mediated penicillin allergies**

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**Background:** Cefazolin is the preferred antimicrobial for prevention of surgical-site infections in most procedures at our institution. Our first alternative is vancomycin which is associated with higher adverse events and infection rates. The presence of penicillin allergies can influence prescribing of vancomycin despite a low risk of cross-reactivity between penicillin and cephalosporins. Nebraska Medicine implemented a systemwide change in April 2022 that suppressed alerts for non-IgE-mediated penicillin allergies in the electronic medical record (EMR, Epic Systems) upon cephalosporin prescribing. We evaluated changes in perioperative antimicrobial surgical infection prophylaxis after this change. **Methods:** We conducted a quasi-experimental study of all patients undergoing procedures for which cefazolin is considered preferred per institutional guidance. Preintervention data were from April 1, 2021, to March 31, 2022, and post-intervention data included patients from April 11, 2022, to October 31, 2022, after guidance was distributed to surgeons, operating room staff, and pharmacists. Patients were excluded if they were aged <19 years,

Table 1. Procedure classifications and rates of penicillin allergies.

Procedure	Pre-intervention (n=4147)	Post-intervention (n=2529)
Orthopedic (%)	943 (22.7)	583 (23.1)
PCN allergy (%)	99 (10.5)	73 (12.5)
Cardiac (%)	624 (15.1)	359 (14.2)
PCN allergy (%)	82 (13.1)	44 (12.3)
Spinal (%)	512 (12.4)	339 (13.4)
PCN allergy (%)	77 (15.0)	46 (13.56)
Neurological (%)	432 (10.4)	241 (9.5)
PCN allergy (%)	59 (13.7)	38 (15.8)
Vascular (%)	332 (8.0)	192 (7.6)
PCN allergy (%)	52 (15.7)	25 (13.0)
Urological (%)	273 (6.6)	153 (6.0)
PCN allergy (%)	38 (13.9)	17 (11.1)
Thoracic (%)	235 (5.7)	144 (5.7)
PCN allergy (%)	34 (14.5)	23 (16.0)
Gynecological (%)	178 (4.3)	93 (3.7)
PCN allergy (%)	11 (6.2)	8 (8.6)
Abdominal (%)	158 (3.81)	123 (4.9)
PCN allergy (%)	20 (12.7)	17 (13.82)
Head & neck (%)	122 (2.9)	106 (4.2)
PCN allergy (%)	4 (3.3)	7 (6.6)
Kidney transplant (%)	98 (2.4)	62 (2.5)
PCN allergy (%)	3 (3.1)	3 (4.8)
Plastics (%)	82 (2.0)	31 (1.2)
PCN allergy (%)	6 (7.3)	3 (9.7)
General (%)	76 (1.8)	49 (1.9)
PCN allergy (%)	14 (18.4)	8 (16.3)
Flap (%)	46 (1.1)	28 (1.1)
PCN allergy (%)	3 (6.5)	4 (14.3)
Gastroduodenal (%)	33 (0.8)	21 (0.8)
PCN allergy (%)	6 (18.2)	3 (14.3)
Radiation (%)	3 (0.07)	5 (0.2)
PCN allergy (%)	0 (0)	0 (0)

Table 2. Rates of perioperative antibiotic prescribing in penicillin allergy patients.

Procedure	Pre-intervention		Post-intervention		p-value
	Cefazolin (n=252)	Vancomycin (n=256)	Cefazolin (n=237)	Vancomycin (n= 82)	
Orthopedic (%)	79 (79.8)	20 (20.2)	61 (83.6)	12 (16.4)	0.559
Cardiac (%)	26 (31.7)	56 (68.3)	34 (77.3)	10 (22.7)	0.0013
Spinal (%)	37 (48.1)	40 (52.0)	30 (65.2)	16 (34.8)	0.0918
Neurological (%)	19 (32.2)	40 (68.0)	29 (76.3)	9 (23.7)	0.0001
Vascular (%)	15 (28.8)	37 (71.2)	14 (56.0)	11 (44.0)	0.0262
Urological (%)	32 (84.2)	6 (15.8)	13 (76.5)	4 (23.5)	0.4792
Thoracic (%)	8 (23.5)	26 (76.5)	11 (47.8)	12 (52.2)	0.0857
Gynecological (%)	10 (90.9)	1 (9.1)	8 (100)	0 (0)	1
Abdominal (%)	7 (35.0)	13 (65.0)	12 (70.6)	5 (29.4)	0.0489
Head & neck (%)	1 (25.0)	3 (75.0)	7 (100)	0 (0)	0.0242
Kidney transplant (%)	3 (100)	0 (0)	3 (100)	0 (0)	1
Plastics (%)	2 (33.3)	4 (66.7)	2 (66.7)	1 (33.3)	0.5238
General (%)	9 (64.3)	5 (35.7)	6 (75)	2 (25.0)	1
Flap (%)	1 (33.3)	2 (66.7)	4 (100)	0 (0)	0.1429
Gastroduodenal (%)	3 (50.0)	3 (50.0)	3 (100)	0 (0)	0.4643
Radiation (%)	0 (0)	0 (0)	0 (0)	0 (0)	1

had a hospital length of stay <24 hours, underwent procedures after their first throughout the time frame, or received both vancomycin and cefazolin. Statistical significance was set at *P* < .05, determined using the Fisher exact test. **Results:** The study included 6,676 patients: 4,147 in the pre-intervention group and 2,529 in the postintervention group. We identified 15 procedure categories, with no significant differences between periods (Table 1). The average age was 61 years. Penicillin allergy was reported