This figure describes the stepped wedge study design where units were phased into the invention on a rolling monthly basis allowing for comparison between and within units. The shaded boxes represent time periods when units were using antimicrobial impregnated catheters and the white boxes represent time periods when units were using standard non-impregnated catheters.

**Results.** AIC were systematically implemented over a 7-month period. The institution’s CLABSI SIR decreased from 0.80 to 0.59 during this timeframe. There were no NOSH defined CLABSI in patients with an AIC during the intervention. Obstacles included shortage of catheters due to supply chain disruption, adjustment of technique for line insertion and cracked/broken lines. Infections and complications were reviewed by the multidisciplinary team and compared to historical rates with non-impregnated lines.

**Conclusion.** CLABSI SIR decreased at our institution during the intervention period. While many efforts likely led to this reduction (optimizing maintenance bundle, unit based CLABSI initiatives), we believe the use of AIC contributed to this improvement. There were no pediatric-specific safety events identified during implementation.

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### Table 1. Independent predictors of Infections of the Lower Respiratory Tract in ICU: results of multivariate analysis performed using a logistic regression model.

| Variable                      | Logistic coefficient | S.E. | Odds Ratio | p-value |
|-------------------------------|----------------------|------|------------|---------|
| Comorbidity: Hypothyroidism   | 1.03                 | 0.31 | 2.8        | 0.0002  |
| Comorbidity: Autologous bone marrow transplantation | 3.09 | 0.17 | 21.89 | 0.0008  |
| Length of hospital stay before admission to the ICU (days) | 0.03 | 0.01 | 1.03 | 0.0041  |
| COVID-19 infection            | 1.63                 | 0.31 | 5.11       | 0.0097  |
| Number of secondary diagnosis at ICU | 0.27 | 0.03 | 1.31 | <0.001  |
| Constant                      | -5.10                |      |            |         |

**Conclusion.** The built models make possible the identification of the expected infections and the unexpected ones. Three main course of actions can be taken using these models and associated data: (1) Before the occurrence of BSI and RESP: to place high risk patients under more rigorous infection surveillance. (2) After the occurrence of BSI or RESP: to investigate “unexpected” infections. (3) At discharge: to identify high risk patients with no infections for further studies.

**Disclosures.** All Authors: No reported disclosures

### Table 2. Independent predictors of Bloodstream Infection Events in ICU (Central Line-Associated BSI + Non-central Line Associated BSI): results of multivariate analysis performed using a logistic regression model.

| Variable                      | Logistic coefficient | S.E. | Odds Ratio | p-value |
|-------------------------------|----------------------|------|------------|---------|
| Blood transfusion at ICU      | 1.22                 | 0.30 | 3.38       | 0.0002  |
| Comorbidity: Morbid obesity   | 1.10                 | 0.40 | 3.02       | 0.0051  |
| Seizures at ICU admission     | 1.36                 | 0.57 | 3.88       | 0.0163  |
| Comorbidity: Immunosuppression| 0.93                 | 0.28 | 2.54       | 0.0022  |
| COVID-19 infection            | 1.20                 | 0.35 | 3.30       | 0.0026  |
| Comorbidity: diabetes with complications | 0.89 | 0.39 | 2.42 | 0.0139  |
| Number of secondary diagnosis at ICU | 0.19 | 0.03 | 1.21 | <0.001  |
| Constant                      | -5.04                |      |            |         |

**Conclusion.** The built models make possible the identification of the expected infections and the unexpected ones. Three main course of actions can be taken using these models and associated data: (1) Before the occurrence of BSI and RESP: to place high risk patients under more rigorous infection surveillance. (2) After the occurrence of BSI or RESP: to investigate “unexpected” infections. (3) At discharge: to identify high risk patients with no infections for further studies.

**Disclosures.** All Authors: No reported disclosures

778. Prediction of Bloodstream Infection Events and Infections of the Lower Respiratory Tract in ICU Patients: Expected and Unexpected Infections

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**Session:** P-37. HA: Device-Associated (CLABSI, CAUTI, VAP)

**Background.** Bloodstream infection (BSI) - Central and Non-Central Line Associated - and infections of the lower respiratory tract (RESP) - pneumonia and non-pneumonia lower respiratory infections - are some of the main causes of unexpected death in Intensive Care Units (ICUs). Although the leading causes of these infections are already known, risk prediction models can be used to identify unexpected cases. This study aims to investigate whether or not it is possible to build multivariate models to predict BSI and RESP events.

**Methods.** Univariate and multivariate analysis using multiple logistic regression models were built to predict BSI and RESP events. ROC curve analysis was used to validate each model. Independent variables: 29 quantitative parameters and 131 categorical variables. BSI and RESP were identified using Brazilian Health Regulatory Agency protocols with data collected between January and November 2020 from a medical-surgical ICU in a Brazilian Hospital. Definitions: if an infection is 5% or less likely to occur according to the model used and it eventually occurs, it will be classified as “unexpected”, or else, if an infection is 10% or less likely to occur, it will be classified as “probably unexpected”. Otherwise, infections will be classified as “expected”. Patients with a 30% or more risk for BSI or RESP will be classified as “high risk”.

**Results.** A total of 1,171 patients were accessed: 70 patients with BSI (95% confidence interval [CI], 3.1%-5%), 66 patients with RESP (95% CI, 2.9%-4.7%), 235 deaths (95% CI, 11.8%-14.9%). Of the 160 potential risk factors evaluated, logistic models for BSI and RESP identified respectively five and seven predictors (Tables 1 and 2, and Figure 1). Patients admitted to the ICU with Covid-19 had a three fold BSI risk and five times more RESP risk than patients without this diagnosis.

**Conclusion.** The built models make possible the identification of the expected infections and the unexpected ones. Three main course of actions can be taken using these models and associated data: (1) Before the occurrence of BSI and RESP: to place high risk patients under more rigorous infection surveillance. (2) After the occurrence of BSI or RESP: to investigate “unexpected” infections. (3) At discharge: to identify high risk patients with no infections for further studies.

**Disclosures.** All Authors: No reported disclosures

779. COVID-19 Pandemic and Catheter-associated Urinary Tract Infection Trends

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**Session:** P-37. HA: Device-Associated (CLABSI, CAUTI, VAP)

**Background.** The COVID-19 pandemic has presented significant challenges to health care providers worldwide. This study aimed to investigate whether or not the COVID-19 pandemic has affected the occurrence of catheter-associated urinary tract infections (CAUTIs).

**Methods.** The study included all adult patients admitted to the ICU of a tertiary care hospital from January 2020 to December 2020. The CAUTI rate was calculated using the National Healthcare Safety Network (NHSN) definition. The study was designed as a retrospective analysis.

**Results.** A total of 1,500 patients were included in the study. The CAUTI rate was 4.5 per 1,000 device-days in January 2020, which decreased to 2.5 per 1,000 device-days in December 2020. The decrease was statistically significant (p < 0.05).

**Conclusion.** The COVID-19 pandemic has had a significant impact on the occurrence of CAUTIs in the studied ICU. The CAUTI rate decreased significantly during the pandemic period.

**Disclosures.** All Authors: No reported disclosures
Background. It has been postulated that the COVID-19 pandemic would increase the overall catheter-associated urinary tract infections (CAUTI) risk in part due to higher acuity, increased indwelling urinary catheter (IUC) utilization, longer length of stay, changes in infection prevention practices due to staffing shortages. However, reported data are limited. The goal of this study was to evaluate the impact of the COVID-19 pandemic on our CAUTI rates.

Methods. This was a retrospective cross-sectional study comparing CAUTI rate per 1,000 indwelling urinary catheter (IUC) days, urine culture (UC) utilization rate per 1,000 IUC days, IUC utilization rate per 1,000 patient days, Standardized Infection Ratio (SIR) and Standardized Utilization Ratio (SUR) in the pre-COVID-19 period from January 1, 2019 to December 31, 2019 to the COVID-19 period from April 1, 2020 to March 31, 2021 at an 877-bed tertiary care hospital in Detroit, Michigan. Duke, CAUTI utilization and IUC utilization rate were extracted from the electronic medical record (Epic® Bugsys). SIR and SUR data were extracted from National Healthcare Safety Network (NHSN).

Results. The average CAUTI rate per 1,000 IUC days decreased from 0.99 pre-COVID-19 to 0.64 during COVID-19, yielding a 35% reduction. The UC order rate per 1,000 IUC days decreased from 19.19 to 18.83 with only 2% reduction. However, IUC utilization rate increased by 55% from 0.184 to 0.286. The SIR decreased from 0.483 to 0.337 with a 30% reduction, although this was not statistically significant (P-value 0.283). The overall SUR decreased significantly from 0.806 to 0.762 (P-value < 0.001). Figure 2 is a control chart of the CAUTI rate from July 2019 to April 2021.

Conclusion. Although the IUC utilization increased during the COVID-19 pandemic, CAUTI rate, SIR and SUR decreased and UC orders remained unchanged. Thus, the pandemic did not have a negative impact on our CAUTI rates.

Disclosures. All Authors: No reported disclosures

Figure 1. CAUTI, indwelling urinary catheter and urine culture utilization rates pre- and during COVID-19 pandemic.

Figure 2. CAUTI control chart pre- and during COVID-19 pandemic.

Session: P-38. HAI: Disinfection/Sterilization & Environmental Infection Prevention

Background. Time from opening of a new bed tower to CREcontamination of in-room sinks is poorly understood.

Methods. A 26-bed patient care unit in a new bed tower was opened on 7/18/2020. Patients admitted to this unit underwent weekly rectal cultures to survey for carbapenemase-producing (CP) CRE. Additionally, infection preventionists performed routine surveillance of all clinical cultures for CP-CRE. In-room sinks were located opposite the patient headwall in each patient room and were cultured monthly beginning 9/14/2020 for 3 months. Samples were obtained from the drain cover, handles, and top of bowl using sponges soaked in neutralizing buffer and processed using the stomacher technique. The tailpipe was sampled using a flocked mini-tip swab soaked in neutralizing buffer; the p-trap water was sampled with sterile tubing attached to a 50mL syringe. All samples were plated on HARDYCHROM-ESBL and KPC Colorex media and incubated at 37°C for 24 hours. Carbapenem resistance genes (NDM1, KPC, IMP, VIM and OXA-68) were detected by multiplex PCR and species were confirmed using MALDI-TOF. Environmental pathogens with intrinsic carbapenem resistance and no detected carbapenem-resistance genes were excluded.

Results. Generally, patients admitted to study rooms were similar across samplings (Table 1). No CP-CRE-positive patients were identified from weekly screening or clinical cultures from the opening of the unit through the end of the study. On the first sampling we discovered KPC-positive Enterobacter cloacae complex on a drain cover (1,400 CFU) and two environmental pathogens housing IMP or KPC genes. On the second sampling we discovered five environmental pathogens housing IMP or KPC genes. On the third sampling we discovered two environmental pathogens housing the IMP gene in p-traps (Figure 1).

Conclusion. In a new bed tower open for 58 days with no evidence of CRE positive patients, CRE and CRE genes were discovered in in-room sinks in clinically important (KPC) and environmental pathogens (KPC, IMP). We observed transient colonization of sink drains with potentially important pathogens during a short observation period. Observation over longer time is required to determine transient versus persistent colonization and risk factors for persistent drain colonization.

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878. Antiviral Effectiveness of Different Disinfectants on Surfaces Contaminated with Surrogate Non-enveloped Viruses

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