change in DOT/1,000 PD increased in the period without automatic stop orders compared to the period with automatic stop orders, it was not statistically significant ($P = .41$). Manual chart abstraction revealed that in the period with automatic stop orders, 9 of 150 patients had 17 unintentionally missed days of therapy, whereas none (of 150 patients) in the period without automatic stop orders did. **Conclusions:** Following removal of the automatic stop orders, there was an overall increase in antibiotic use, although the change in monthly trend of antibiotic use was not significantly different. Even with a dashboard to identify missed doses, there was still a risk of unintentionally missed doses in the period with automatic stop orders. Therefore, this risk should be weighed against the modest difference in antibiotic utilization garnered from automatic stop orders.

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Poster Presentation

Impact of Screening for Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Pneumonia on Vancomycin Utilization

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Background: Methicillin-Resistant *Staphylococcus aureus* (MRSA) is frequently targeted with empiric treatment for pneumonia in the hospital. Obtaining quality lower respiratory tract cultures to promote appropriate de-escalation can be difficult or impractical. Nasal screening for MRSA has a high negative predictive value for MRSA pneumonia and can be an effective tool for early de-escalation. **Methods:** A pharmacist-driven process for nasopharyngeal MRSA screening of patients prescribed intravenous vancomycin was implemented in October 2018. Vancomycin utilization was extracted from the electronic medical record (EMR) and summarized as days of therapy per 1,000 patient days (DOT/1,000 PD). Vancomycin utilization data for the 6 months following process implementation (November 2018–April 2019) were compared to the same period from the previous year (November 2017–April 2018). Specific patient outcomes data were manually collected for patients prescribed vancomycin for pneumonia during the first 2 months following process implementation (November–December 2018; postintervention group) and comparable months (November–December 2017; preintervention group). Data were analyzed using the χ^2 test (nominal data) and Mann–Whitney U test (continuous data). **Results:** Total vancomycin utilization decreased from a monthly average of 114 to 95 DOT/1,000 PD (17% reduction) and from 27 to 14 DOT/1,000 PD for pneumonia (48% reduction). In-patient mortality was unchanged following process implementation at 17.2% versus 17.5% in the pre- and postintervention groups, respectively. Other clinical outcomes were also similar between the pre- and postintervention groups (Table 1). Fewer vancomycin levels were obtained following implementation with 34.4% of patients (0.61 levels per patient) having a level obtained in the preintervention group compared to 21.6% (0.30 levels per patient; $P \leq .001$) in the postintervention group. **Conclusions:** Nasopharyngeal MRSA screening of patients prescribed vancomycin for pneumonia is an effective antimicrobial stewardship strategy to reduce unnecessary use of anti-MRSA therapy without negatively impacting clinical outcomes.

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Impact of Seasonality and Influenza Rates on Interventions to Reduce Hospital-Acquired *Clostridioides difficile* Rates

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Table 1. Clinical and process outcomes between comparator groups.

	Pre-Group (n=64)	Post-Group (n=97)	P-value
Vancomycin Duration (Days)*	2.9 (1.8, 4.2)	2.0 (1.5, 2.6)	**0.001**
Vancomycin Levels/patient	0.61	0.30	**<0.001**
Patients with Vancomycin Level, n(%)	22 (34.4)	21(21.6)	0.109
De-Escalation, n(%)	20 (31.2)	91 (93.8)	**<0.001**
Escalation/Restart, n(%)	8 (12.5)	2 (2.0)	**0.015**
Acute kidney injury, n(%)	13 (22.8)	12 (15.2)	0.364
Length-of-Stay(Days)*	5.5 (3, 10)	6.5 (3, 11)	0.433
ICU admission, n(%)	24 (37.5)	38 (39.2)	0.962
ICU Length-of-Stay(Days)*	5 (2, 7)	3.5 (2, 7)	0.549
Inpatient Mortality, n(%)	11 (17.2)	17 (17.5)	0.956

* Continuous variable shown as median, (interquartile range)

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Background: Hospital-acquired *Clostridioides difficile* infection (HA-CDI) rates are highly variable over time, posing problems for research assessing interventions that might improve rates. By understanding seasonality in HA-CDI rates and the impacts that other factors such as influenza admissions might have on these rates, we can account for them when establishing the relationship between interventions and infection rates. We assessed whether there were seasonal trends in HA-CDI and whether they could be accounted for by influenza rates. **Methods:** We assessed HA-CDI rates per 10,000 patient days, and the rate of hospitalized patients with influenza per 1,000 admissions in 4 acute-care facilities (n = 2,490 beds) in Calgary, Alberta, from January 2016 to December 2018. We used 4 statistical approaches in R (version 3.5.1 software): (1) autoregressive integrated moving average (ARIMA) to assess dependencies and trends in each of the monthly HA-CDI and influenza series; (2) cross correlation to assess dependencies between the HA-CDI and influenza series lagged over time; (3) Poisson harmonic regression models (with sine and cosine components) to assess the seasonality of the rates; and (4) Poisson regression to determine whether influenza rates accounted for seasonality in the HA-CDI rates. **Results:** Conventional ARIMA approaches did not detect seasonality in the HA-CDI rates, but we found strong seasonality in the influenza rates. A cross-correlation analysis revealed evidence of correlation between the series at a lag of zero (R = 0.41; 95% CI, 0.10–0.65) and provided an indication of a seasonal relationship between the series (Fig. 1). Poisson regression suggested that influenza rates predicted CDI rates ($P < .01$). Using harmonic regression, there was evidence of seasonality in HA-CDI rates (χ^2 [2 df] = 6.62; $P < .05$) and influenza rates (χ^2 [2 df] = 1,796.6; $P < .001$). In a Poisson model of HA-CDI rates with both the harmonic components and influenza admission rates, the harmonic components were no longer predictive of HA-CDI rates. **Conclusions:** Harmonic regression provided a sensitive means of identifying seasonality in HA-CDI rates, but the seasonality effect was accounted for by influenza admission rates. The relationship between HA-CDI and influenza rates is likely mediated by antibiotic prescriptions, which needs to be assessed. To improve precision and reduce bias, research on interventions to reduce HA-CDI rates should assess historic seasonality in HA-CDI rates and should account for influenza admissions.

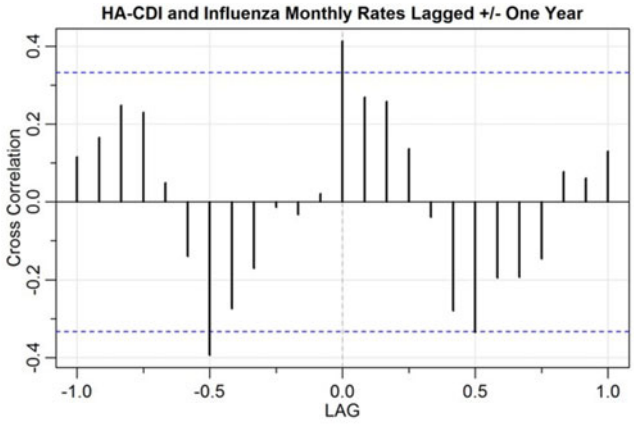

Figure 1 Plot of correlations between monthly series of HA-CDI and Influenza rates. Vertical lines represent Pearson correlation of the series with the influenza series shifted (lagged) in time relative to the HA-CDI series. The dashed blue line corresponds to a two-tailed P<0.05.

Fig. 1.

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Impact of the Revised Non–Culture-Based Methodology Criteria on Central-Line–Associated Bloodstream Infections

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Background: The current NHSN guideline states that positive results from both blood cultures and non–culture-based testing (NCT) methodologies are to be used for central-line–associated bloodstream infection (CLABSI) surveillance determination. A positive NCT result in the absence of blood cultures or negative blood cultures in patients who meet CLABSI criteria is to be reported to NHSN. However, the reporting criteria for NCT changed starting January 1, 2020: If NCT is positive and the blood culture is negative 2 days before or 1 day after, the NCT result is not reported. If the NCT is positive with no blood culture within the 3-day window period, the NCT result is reported in patients who meet CLABSI criteria. We estimated the impact of the new NCT criteria on CLABSI numbers and rates compared to the previous definition. **Methods:** At our facility, the T2Candida Panel (T2), an NCT, was implemented for clinical use for the detection of early candidemia and invasive candidiasis. The T2 is a rapid molecular test performed directly on blood samples to detect DNA of 5 *Candida* spp: *C. albicans/C. tropicalis*, *C. glabrata/C. krusei*, and *C. parapsilosis*. In this retrospective study performed at an 877-bed teaching hospital in Detroit, we reviewed the impact of discordant T2 results (positive T2 with negative blood cultures) on CLABSI rates from January 1, 2017, to September 30, 2019, based on the current definition, and we applied the revised criteria to estimate the new CLABSI numbers and rates for the same period. **Results:** Of 343 positive T2 results, 202 (58.9%) were discordant and qualified for CLABSI determination during the study period. Of these, 109 (54%) met CLABSI criteria based on the current definition and 11 (5%) met CLABSI criteria using the new definition (proportional $P < .001$), resulting in an 89.9% reduction. The CLABSI rate per 1,000 central-line days, which includes discordant T2 results, based on the current and new NCT criteria, are listed in Table 1. **Conclusions:** In institutions that utilize NCT such as T2, application of the new 2020 NCT NHSN definition would significantly reduce the CLABSI number and have a significant impact on the CLABSI rates and standardized infection ratios (SIRs).

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Poster Presentation

Impact of UV-Light Use on the Quality of Manual Cleaning and Room Turnover Times at a Large Tertiary-Care Hospital, 2019

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