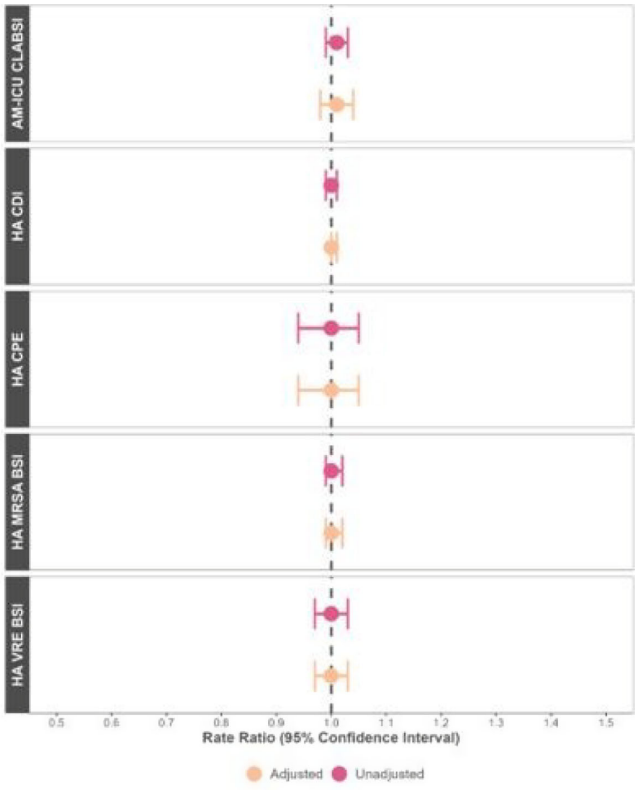
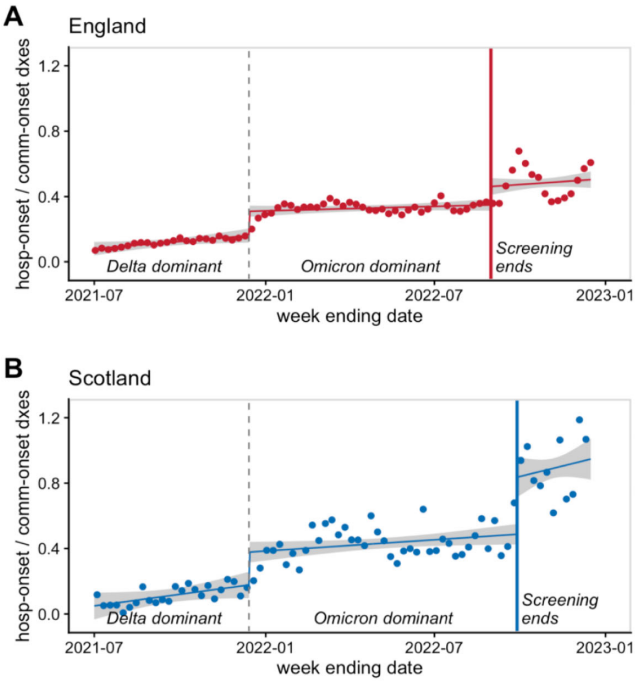


Figure 2. Forest plot of incidence rate ratios with 95% confidence intervals of healthcare-associated infection before and during the COVID-19 pandemic, Canadian Nosocomial Infection Surveillance Program, 2018–2021.

Figure. Ratio of new hospital-onset SARS-CoV-2 infections vs new community-onset SARS-CoV-2 admissions in England and Scotland.



Mean weekly ratios of new hospital-onset SARS-CoV-2 infections versus new community-onset SARS-CoV-2 admissions in (A) England and (B) Scotland. Hospital-onset infections were defined as a diagnosis >7d from admission, and community-onset infections diagnosed ≤7d from admission. The vertical solid line demarcates when universal admission testing in hospitals was no longer required by each country's national healthcare system. The vertical dashed line denotes when Omicron became the dominant variant (>50% of sequenced samples). All regression lines are interrupted time-series models, and the shaded area represents a 95% confidence interval.

Conclusions: Although the COVID-19 pandemic placed a significant burden on the Canadian healthcare system, the immediate impact on monthly rates of HAIs in Canadian acute-care hospitals was not sustained over time. Understanding the epidemiological effects of the COVID-19 pandemic in the context of changing patient populations, and clinical and infection control practices, are essential to inform the continued management and prevention of HAIs in Canadian acute-care settings.

Disclosures: None

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Presentation Type:
Poster Presentation - Oral Presentation

Subject Category: COVID-19

Association between stopping universal SARS-CoV-2 admission testing and hospital-onset SARS-CoV-2 in England and Scotland

Theodore Pak; Chanu Rhee and Michael Klompas

Background: Many hospitals test all patients for SARS-CoV-2 upon admission to prevent silent transmission to other patients and healthcare workers. The utility of universal admission testing has been questioned, however, due to resource constraints, care delays, and sparse data on its impact on nosocomial infections. England and Scotland stopped requiring universal admission testing on August 31, 2022, and September 28, 2022, respectively. We assessed associations between these changes and hospital-onset SARS-CoV-2 infection rates. **Methods:** We used public data from National Health Service England and Public Health Scotland on hospital-onset SARS-CoV-2 infections, defined as cases diagnosed >7 days after admission, between July 1, 2021, and December 16, 2022. Because hospital-onset infections are driven by SARS-CoV-2 community incidence rates, we calculated the weekly ratio between hospital-onset versus community-onset SARS-CoV-2 admissions (diagnosed ≤7 days from admission) and assessed for temporal changes associated with stopping universal admission testing using interrupted time-series analysis. The study was divided into 3 periods: sARS-CoV-2 delta-variant dominance with admission testing, SARS-CoV-2 omicron-variant dominance with admission testing (starting December 14, 2021), and SARS-CoV-2 omicron-variant dominance without admission testing. **Results:** During the study period, there were 518,379 COVID-19 admissions in England, including 398,264 community-onset and 120,115 hospital-onset cases, and 46,517 COVID-19 admissions in Scotland, including 34,183 community-onset and 12,334 hospital-onset cases. The mean weekly ratio of new hospital-onset SARS-CoV-2 infections versus community-onset admissions in England rose from 0.12 during the SARS-CoV-2 delta-variant surge to 0.33 during the SARS-CoV-2 omicron-variant surge to 0.48 after universal admission testing ended (Fig.). There was a significant immediate level change both after the SARS-CoV-2 delta-to-omicron variant transition (92% relative increase; 95% CI, 58%–127%) and after admission testing ended (32% relative increase; 95% CI, 14%–50%). Likewise, the mean weekly ratios rose from 0.11 to 0.43 to 0.89 during their analogous periods in Scotland, with significant level changes both after SARS-CoV-2 delta-to-omicron variant transition (113% relative increase; 95% CI, 54%–172%) and after admission testing ended (72% relative increase; 95% CI, 43%–100%). No significant trend changes were observed. **Conclusions:** Stopping asymptomatic screening of hospitalized patients in 2 national health systems was associated with significant increases in hospital-onset SARS-CoV-2 infections. Nosocomial SARS-CoV-2 remains a common and potentially morbid complication, with reported mortality rates for nosocomial infections by SARS-CoV-2 omicron variant ranging from 5% to 13%. Preventing infections in vulnerable populations remains an

important safety goal. Hospitals should exercise caution when considering reductions in SARS-CoV-2 admission screening.
Disclosures: None

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Presentation Type:
Poster Presentation - Oral Presentation
Subject Category: Diagnostic/Microbiology
Comparison of clinical antibiotic susceptibility testing interpretations to CLSI standard interpretations
Erin Hitchingham; Ashley Gambrell; Raquel Villegas and Daniel Muleta

Background: Clinical antibiotic susceptibility testing (AST) interpretations based on minimum inhibitory concentrations (MIC) breakpoints are important for both clinical decision making and some reportable condition criteria. Standardization of MIC breakpoints across clinical laboratories is lacking; AST instruments are often validated for outdated Clinical and Laboratory Standards Institute (CLSI) MIC breakpoint guidelines. In this study, we analyzed the agreement between the reported clinical laboratory AST interpretations and the guideline CLSI interpretation. **Methods:** Clinical laboratory AST data collected from the Multisite Gram-Negative Surveillance Initiative (MuGSI) carbapenem-resistant Enterobacterales (CRE) surveillance program in Tennessee between 2019 and 2021 were utilized. MIC values from the clinical instrument were used to calculate CLSI standard interpretations following the 2019–2021 CLSI M100 guidelines. Agreement between the clinical laboratory and CLSI interpretations of the reported MIC values were measured using a weighted Cohen κ calculated in SAS version 9.4 software. Total matches were isolates with identical CLSI and clinical laboratory interpretations. **Results:** In total, 14 antibiotics were assessed. Of those, 9 antibiotics had at least moderate agreement ($\kappa > 0.41$) between interpretations. Agreement between the clinical laboratory and the CLSI interpretations were near perfect ($\kappa > 0.81$) for 3 antibiotics. Agreement between the clinical laboratory and the CLSI interpretations were poor for cefazolin (0.06) and ertapenem (0.14). Cefotaxime (−0.07) was the only antibiotic that suggested no agreement. **Conclusions:** Of the antibiotics included in the analysis, 36% had less than moderate agreement between clinical laboratory and CLSI AST interpretations. Given the increases in antimicrobial resistance globally and the emphasis placed on antibiotic stewardship, standardization across clinical AST panels should be prioritized. Inconsistencies have the potential to contribute to inappropriate antibiotic use in addition to under- or overidentification of reportable conditions, including CRE.

Table 1: Agreement between clinical AST interpretations and CLSI standard interpretations by antibiotic.

Antibiotic (n=)	Total Matched (%)	Cohen's Kappa (95% CI)
Aztreonam (191)	181 (94.8%)	0.87 (0.79 – 0.95)
Cefepime (285)	248 (87.0%)	0.77 (0.70 – 0.84)
Ceftazidime (280)	263 (93.8%)	0.81 (0.72 – 0.89)
Ertapenem (313)	159 (50.8%)	0.14 (0.06 – 0.22)
Imipenem (318)	166 (91.8%)	0.84 (0.76 – 0.92)
Meropenem (318)	298 (93.8%)	0.84 (0.78 – 0.91)
Cefotaxime (169)	124 (73.4%)	-0.07 (-0.10 – -0.04)
Ciprofloxacin (282)	193 (68.4%)	0.38 (0.30 – 0.47)
Gentamicin (273)	219 (80.2%)	0.69 (0.64 – 0.74)
Levofloxacin (289)	186 (64.4%)	0.32 (0.24 – 0.39)
Tobramycin (277)	225 (81.3%)	0.75 (0.70 – 0.79)
Nitrofurantoin (273)	158 (57.9%)	0.57 (0.50 – 0.63)
Cefazolin (266)	81 (30.4%)	0.06 (0.03 – 0.08)
Tetracycline (141)	94 (66.7%)	0.66 (0.59 – 0.72)

Disclosures: None

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Presentation Type:
Poster Presentation - Oral Presentation
Subject Category: Environmental Cleaning
Paradoxical consequences of wastewater interventions targeting carbapenemase-producing Enterobacterales
David Lehman; Shireen Kotay; Hardik Parikh; Stacy Park and Amy Mathers

Background: *Serratia marcescens* is a leading cause of hospital-acquired infections. There has been increasing recognition of hospital wastewater as a reservoir for carbapenemase-producing Enterobacterales (CPE), including *S. marcescens*. Because CPE can proliferate in biofilms in sink drains and traps, controlling nosocomial spread is challenging. The ideal approach to eliminate transmission from wastewater to patients remains unknown. **Methods:** Patients were included if they were admitted to 1 of 2 intensive care units (ICUs) for >12 hours between December 1, 2010, and January 31, 2016. During this period at the University of Virginia Hospital, there was ongoing patient acquisition of multiple species producing *Klebsiella pneumoniae* carbapenemase (KPC) as well as consistent perirectal KPC surveillance. In January 2014, to eliminate CPE-colonized sinks, the sink drains and traps in one of the ICUs (ie, the "intervention unit") were exchanged followed by varied chemical mitigations to prevent recolonization. In another ICU, the same chemical mitigations were performed but without plumbing replacement (ie, the "control unit"). Acquisition of KPC-producing *S. marcescens* was defined as colonization or infection >12 hours after admission to either unit. To control for increases in patient-to-patient transmission, acquisition of methicillin-resistant *Staphylococcus aureus* (MRSA) was evaluated in the intervention unit during the same period and was defined as new colonization or infection with MRSA >12 hours after unit admission but within 21 days of last unit exposure. **Results:** For the postintervention period, risk of *S. marcescens* acquisition was increased (RR, 2.85; 95% CI, 1.24–6.58; $P = .01$) in the intervention unit compared to the control unit. In the intervention unit, the risk of *S. marcescens* acquisition increased in the postintervention period compared to the preintervention period (RR, 6.26; 95% CI, 2.59–15.1; $P < .0001$). There was no change in MRSA acquisition in the intervention unit representing consistent patient-to-patient infection prevention (RR, 0.95; 95% CI, 0.61–1.48; $P = .81$). *S. marcescens* isolates were noted to be highly clonal. **Conclusions:** Exposure to the intervention unit following plumbing replacement was associated with increased relative risk of acquisition of KPC-producing *S. marcescens*. This increased risk was not observed in the control unit, which had only chemical plumbing interventions. There was no concomitant increase in patient-to-patient MRSA transmission. The disturbance of the wastewater environment through the plumbing replacement intervention may have led to the unintended consequence of more KPC-producing *S. marcescens* acquisition.
Disclosures: None

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Presentation Type:
Poster Presentation - Oral Presentation
Subject Category: Implementation Science
Electronic phenotyping of community-acquired pneumonia: A tool for inpatient syndrome-specific antimicrobial stewardship
Amy Chang; Annie Bui; David Ha; William Alegria; Marisa Holubar; Brian Lu; Leah Mische; Rebecca Linfield; Kyle Walding and Emily Mui

Background: Using patient data from the electronic health record (EHR) and computer logic, an "electronic phenotype" can be created to identify patients with community-acquired pneumonia (CAP) in real time to assist