Presentation Type:
Poster Presentation - Oral Presentation
Subject Category: Public Health
Infection prevention making a difference on statewide standardized infection ratios for device-associated HAIs from 2015-2022
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Background: Central line-associated bloodstream infections (CLABSIs) and catheter-associated urinary tract infections (CAUTIs) cause significant morbidity and mortality among hospitalized patients. Over the last 10 to 20 years, hospital accountability for the prevention of device-associated infections increased at the state and national levels. For example, the Centers for Medicare & Medicaid Services implemented the Hospital Inpatient Quality Reporting Program in 2015. The objective of this study was to assess the impact of increased federal attention on infection prevention using longitudinal data from the National Healthcare Safety Network (NHSN). We hypothesize that there was a significant decrease in statewide standardized infection ratios (SIRs) for CLABSI and CAUTI over the last 8 years. **Methods:** We collected SIRs for CLABSI and CAUTI in acute care hospitals for all 50 states and Washington D.C. from the NHSN database from 2015 to 2022. For CLABSI, we performed unique analyses for critical care units, wards, and neonatal intensive care (NICU) locations. For CAUTI, we stratified by critical care units and wards. We included all states with more than 5 hospitals reporting data. Those with fewer than 5 were excluded by listwise deletion in the corresponding analysis. We tested trends over time using linear mixed effect models with year as fixed effect and state as random effect. We also included an indicator variable representing the influence of SARS-CoV-2 (Covid-19) on healthcare-associated infections (HAIs). We elected an alpha of 0.05 as the threshold for statistical significance. **Results:** Overall, CLABSI and CAUTI SIRs exhibited significant negative slopes (Figures 1-5) after controlling for the influence of Covid-19. Each analysis revealed progressively lower SIRs compared to the previous year except for the 2019-2020 interval. Interestingly, the linear trend resumed after 2020 with subsequently lower SIRs in 2021 and 2022. Covid-19 had a greater influence on CLABSI SIRs in critical care settings compared to ward or NICU locations. The slope of CAUTI SIRs were impacted less by Covid-19 in wards compared to critical care settings. **Conclusion:** The results of the analysis demonstrate that CLABSI and CAUTI are trending in the desired direction despite the HAI spike during Covid-19. Government and hospital stakeholders in the United States should be encouraged by the reported trends and continue to prioritize

Figure 1. CLABSI Standardized Infection Ratio Estimates
Critical Care Units

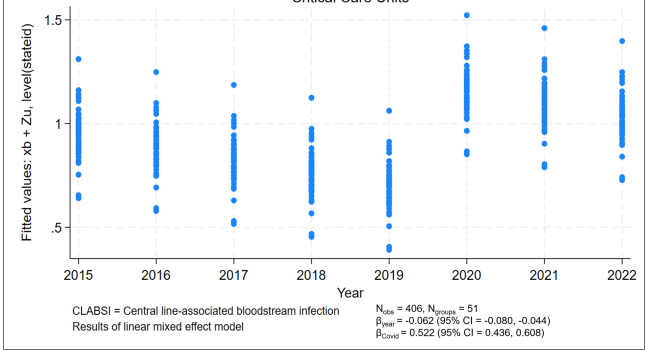


Figure 2. CLABSI Standardized Infection Ratio Estimates
Wards

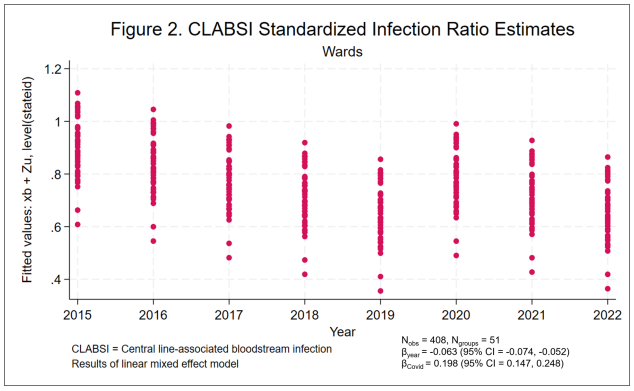


Figure 3. CLABSI Standardized Infection Ratio Estimates
Neonatal Intesive Care Units

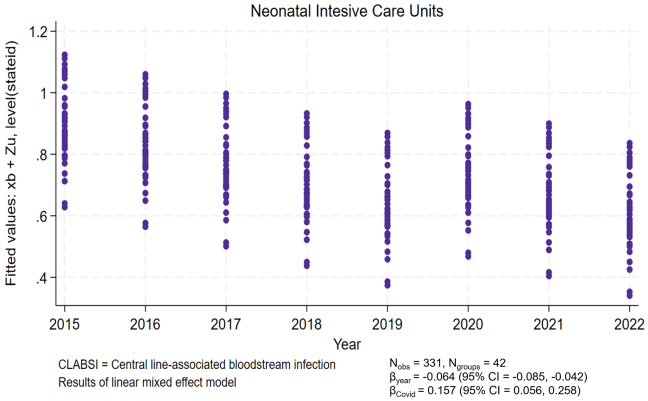


Figure 4. CAUTI Standardized Infection Ratio Estimates
Critical Care Units

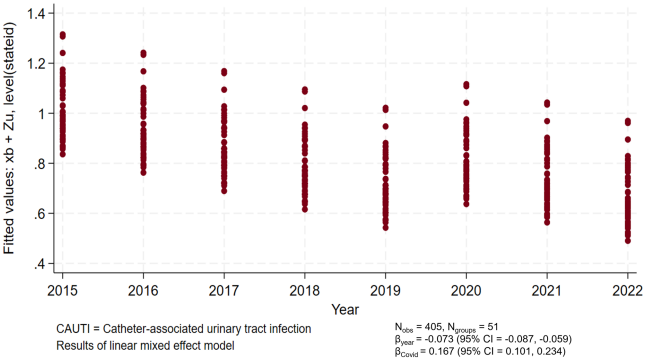
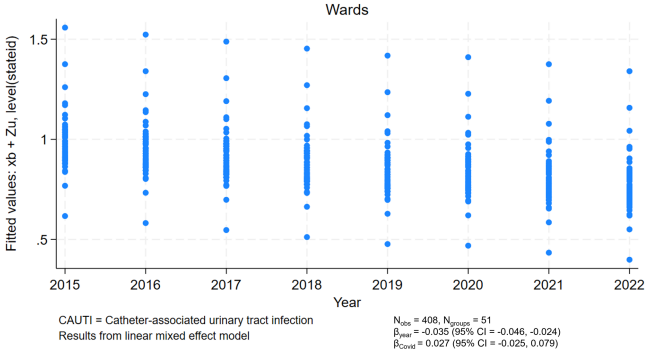


Figure 5. CAUTI Standardized Infection Ratio Estimates
Wards



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the funding and use of resources for evidence-based device-associated infection prevention.

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Investigation of Healthcare-Associated Infection Risks from Ice: Summary of CDC Consultations 2016-2023
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Background: Nonsterile ice is frequently used in healthcare settings for a wide array of patient care activities and clinical procedures. However, this ice can harbor pathogenic organisms which can threaten patient safety and cause outbreaks. We sought to characterize recent Centers for Disease Control and Prevention (CDC) consultations involving ice leading to healthcare-associated infections (HAIs). **Methods:** We reviewed internal CDC records from the Division of Healthcare Quality Promotion (DHQP) to identify investigations of outbreaks and potential outbreaks involving the use of ice in healthcare facilities. We searched records from January 1, 2016, through November 30, 2023, for keywords related to ice. We excluded consultations in which ice was not thought to be a potential transmission pathway as well as those in which only sterile ice products (e.g., saline slush) were investigated. **Results:** We identified 45 consultations for ice-related investigations, involving a total of 533 patients. Nontuberculous mycobacteria were the most frequently implicated organisms, appearing in 40% (n=18) of investigations. Eighty-four percent (n=38) of investigations occurred in acute care hospitals. The most frequently implicated hospital settings were intensive care units (13%, n=6), operating rooms (13%, n=6), and bronchoscopy suites (13%, n=6). We identified a variety of plausible exposure pathways, including direct ingestion of ice by patients, use of ice during the bronchoscopy procedure, use of nonsterile ice in heater-cooler devices during cardiothoracic surgery, and the use of ice to chill saline for respiratory care. Environmental sampling directly of ice machines was performed in 62% of investigations (n=28) and nonsterile ice from these machines was sampled in 9% of investigations (n=4). Among those investigations in which ice machines were sampled, the organism implicated in the outbreak was isolated in 54% of investigations (n=15). Among those investigations in which ice itself was sampled, the organism implicated in the outbreak was isolated in 75% of investigations (n=3). These organisms included Mycobacterium mucogenicum, Burkholderia multivorans, and Acanthamoeba spp. **Conclusions:** The use of nonsterile ice during clinical care is a potential source of pathogens that cause patient infections and HAI outbreaks. Healthcare personnel should be aware of the risk posed by nonsterile ice and consider avoiding its use, especially when caring for patients who are critically ill or immunocompromised. Healthcare facilities should ensure regular cleaning and disinfection of ice machines to decrease their microbial burden. When HAI outbreaks involving water-associated organisms are identified, nonsterile ice should be considered as a potential mode of transmission.

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Bad Habits that Stick: An Investigation into Adhesive Medical Tape Use Practices and Beliefs
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Background: Medical tape is one of the most ubiquitous resources in the hospital. Although tape is advertised by manufacturers as a single patient-use item, half-used rolls are a common sight in hospitals. Tape is often manipulated by un-sanitized and ungloved hands and comes in close contact with patient skin. Medical tape has the potential to be a source of hospital-acquired infection as it has been documented to be colonized with pathogens ranging from MRSA to Rhizopus. Despite infection risk, currently the only clinical guidelines of tape use are outlined in the Centers for Medicare & Medicaid Services guidance for Hemodialysis patients issued in 2008 that requires "tape should be dedicated to a single patient and discarded after use" as hemodialysis patients are at higher risk of infection. However, there is a lack of standards in the practice of tape use across hospital systems. **Methods:** To understand the current practices and beliefs of tape use at our institution, we developed a standardized survey to query individuals from various roles (RN, Physician, Patient Care Technicians, respiratory therapists, phlebotomists) across all patient care areas at a 746-bed academic, tertiary care center. **Results:** 52 units were surveyed, including 225 employees. Qualitative analysis revealed a wide variety of uses for medical tape for patient care, with venipuncture, securing IVs, and wound dressings being the most common. Only 1.4% of individuals reported single use of tape rolls. 54% of individuals reported tape use behaviors that carry an elevated risk for inoculation of pathogens. 70% of individuals reported that tape was discarded after the patient was discharged from their respective area. These practices did not change across procedure-heavy areas such as the Emergency Department or the Operating Rooms, in fact only 22% of individuals surveyed reported single use of tape in these areas. Beliefs about tape use varied: 95% of individuals agreed that a roll of tape could be used multiple times on a single patient, and 52% of individuals agreed that a roll of tape could be used on multiple patients. **Conclusions:** Tape use practices varied across hospital units, indicating the need for standardized policies for tape use and storage. Beliefs about tape not being a single-use item were consistent across the hospital and suggest that education and culture change efforts are needed to decrease the risk for hospital-acquired infections from improper medical tape use.

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Can Artificial Intelligence Support Infection Prevention and Control Consultations?
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Background: Artificial intelligence (AI) tools have demonstrated success in US medical licensing examinations; however, their utility in infection prevention and control (IPC) remains unknown. **Methods:** The program