

exposures to sharp injuries occur among 35 million healthcare workers (HCWs) annually. We report the 5-year incidence and trends of sharp injuries in an acute-care hospital. We compared the rates of injury, the distribution of injuries, and the type of exposure of HCWs during the pre-pandemic and pandemic eras. **Methods:** We conducted a retrospective analysis of a 5-year surveillance on self-reported sharp injuries in Changi General Hospital, a 1,000-bed acute-care hospital. The occupational groups, the type of sharps, and the incident activity involved were reviewed. The blood-borne pathogen statuses of the identified source patients were studied. **Results:** In total, 441 sharp injuries were reported from 2017 to 2021. Among the occupational groups, doctors reported the highest number of sharp injuries ($N = 272$, 61.7%), followed by nurses ($N = 129$, 29.3%) and other allied health professionals ($N = 29$, 6.4%). An increasing proportion of doctors reported sharp injuries from 2017 to 2019 (pre-pandemic era) and the proportion declined from 2020 to 2021 (pandemic era); 52 doctors (58.4%) reported sharp injuries in 2017, 61 (61.1%) in 2018, 72 (67.9%) in 2019, 47 (61%) in 2020, and 40 (57.1%) in 2021. Most sharp injuries were caused by solid sharps (212 of 441, 48.1%) and hollow-bore needles (205 of 441, 46.5%). Source patients were identified in 407 sharp injuries. From the known sources, 51 were seropositive: 20 for hepatitis B (HBV), 27 for hepatitis C (HCV), and 4 for human immunodeficiency virus (HIV). No seroconversion occurred. Overall, 198 sharp injuries (44.9%) were sustained during surgical procedures, 83 (18.8%) occurred during blood taking, and 44 (9.9%) occurred during injection administration. Also, 37.5% of sharp injuries among doctors occurred during surgical procedures, and 69.6% of sharp injuries in OT occurred among junior surgical doctors. **Conclusions:** The overall incidence of sharp injuries has decreased during the pandemic. Fewer elective surgical procedures were performed during the pandemic period. OT suturing training workshops and awareness programs on strategies for preventing sharps injuries in the operating theatre, targeted at surgical residents during the past 2 years, could have contributed to the decrease in the incidence of sharp injuries in our hospital. Sharp injuries pose a significant exposure to blood and body fluids and should be subject to continued epidemiological surveillance.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s19–s20
doi:10.1017/ash.2023.59

Subject Category: Improvement science (quality improvement)

Abstract Number: SG-APSIC1154

Evaluation of disposable antimicrobial curtains in an ambulatory cancer center

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Objectives: The prevention of nosocomial infection is a challenge for all healthcare institutions. Privacy curtains are often changed infrequently, and they are difficult to clean. Contaminated curtains can be touched by healthcare providers and patients, which may result in indirect transmission of infectious disease. Hence, we evaluated the impact of the antimicrobial properties of disposable curtains and their cost-effectiveness. **Methods:** This descriptive exploratory study was conducted in an ambulatory cancer center in 2017. Privacy curtains were assigned to 2 cohorts, labelled E1 and E2. They were placed in the clinical areas for 6–12 months. Moist swab samples for MRSA, VRE, and CP-CRE cultures were obtained from the leading edges of the curtains during the evaluation period. Also, 10-cm × 10-cm swatches were cut from the high-touch areas of curtains and were tested for total aerobic count on the first of the month and quarterly thereafter. **Results:** All bacterial culture swabs obtained from the E1 and E2 cohorts of curtains were negative. The total bacterial plate count results from E1 curtains were negative for up to 1 year. However, the total bacterial plate count results for E2 curtains were positive in the sixth month. Using disposable curtains yielded an annual cost saving of ~50%. **Conclusions:** The use of appropriate impregnated antimicrobial disposable curtains can improve patient safety in the clinical areas. These curtains may eliminate potential sources of infection and thereby

decrease the rate of nosocomial infection. They also save significant institutional costs by reducing frequent laundry and manpower requirements needed for the installation of curtains.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s20
doi:10.1017/ash.2023.60

Subject Category: Improvement science (quality improvement)

Abstract Number: SG-APSIC1056

Finding the right fit: Our experience in quantitative N95 respirator fit-testing

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Objectives: Following a cluster of COVID-19 cases in a Singapore public hospital in April 2021, the local health authority mandated the use of N95 respirators in all inpatient wards. This increased the demand for N95 mask fit-testing to ensure that healthcare workers were donning respirators that fit their facial characteristics and hence provided protection through a good facial seal. The demand for fit-testing during the pandemic highlighted the scarcity of manpower and ergonomics concern, such as carpal tunnel syndrome experienced in long hours of qualitative fit-testing sessions. We evaluated the operational efficiency, cost-effectiveness, and difference in passing rate after the introduction of the quantitative method. **Methods:** Conventional qualitative fit-testing was conducted using manual pumping of a challenge agent, enabling the user to determine the fit of the respirator. The quantitative fit-testing protocol used a condensation particle counter (CPC) to measure the concentration of particles inside the mask and the atmosphere to determine the fit of respirator. The Occupational Safety and Health Administration (OSHA)-approved minimum fit factor of 100 was used as the criterion for a successful N95 respirator fit. Tubes used during quantitative fit-testing were reprocessed using thermal disinfection. **Results:** Quantitative mask fit-testing provided an objective numerical measure to assess adequate fit of N95 respirator, which provided users with confidence in the respirator fit. It addressed a manpower limitation issue because it did not require qualified trainers to conduct the test, and automation also prevented any potential occupational hazard from repeated actions required in qualitative fit-testing. An increase in the passing rate for N95 fit-testing from 94.5% to 95.5% was observed. However, the high cost of equipment, annual recalibration, and consumables must be considered. **Conclusions:** Quantitative N95 fit-testing, when adopted with careful consideration of its cost, is an approach to consider for hospital-wide fit-testing.

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S1):s20
doi:10.1017/ash.2023.61

Subject Category: Improvement science (quality improvement)

Abstract Number: SG-APSIC1180

Successful reduction in the number of hospital-acquired dialysis-catheter-related bloodstream infections: Quality improvement initiative

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Objectives: Patients undergoing hemodialysis using a catheter are at significant risk of developing central venous catheter-related bloodstream infections (CRBSIs), especially with methicillin-resistant *Staphylococcus aureus* (MRSA), resulting in increased morbidity, mortality, and cost. In our 1,000-bed regional hospital, the average CRBSI (any bacteria) rate in patients dialyzing via dialysis catheters was 1.44 per 1,000 catheter days, and the average CRBSI (MRSA) rate was 0.56 per 1,000 catheter days.