Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: CLABSI
Impacts of Hospital Acquired Bloodstream Infections in Patients Undergoing Hemodialysis Through a Central Venous Catheter
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Background: Hospital acquired infections (HAI) are of interest given their resultant morbidity, mortality, and hospital utilization. Among HAIs, central line associated bloodstream infections result in the highest rates of mortality and additional costs. While all central venous catheters (CVC) carry risk for BSI, long-term catheter use is at increased risk. One population that utilize CVCs for extended durations are those undergoing hemodialysis. While data are available characterizing BSI impacts on outpatient hemodialysis patients, little data exist describing inpatients. The purpose of this study was to characterize the demographics, outcomes, and economics associated with the development of hospital acquired BSI (HA-BSI) in patients undergoing hemodialysis through a CVC (HD-CVC). **Methods:** All admissions of adult patients in the Premier Healthcare Database with hospital stays including HD-CVC with discharge dates during 2020-2022 were retrospectively evaluated. BSIs were identified by ICD-10 codes and blood culture collection dates. A BSI was deemed hospital acquired if the blood culture date was ≥3 calendar days after admission. Descriptive analyses were undertaken for HA-BSI patients including: baseline demographics, clinical characteristics, and outcomes. Length of stay (LOS), ICU utilization, and estimated costs were evaluated for HAI-BSI and non-BSI populations. **Results:** 166,394 admissions from 91,448 patients were identified. Of these, 5,722 patients (6.3%) had 5,842 admissions with a HA-BSI. These patients were 58.9% white, 28.3% black, 56.8% male, and 62.9% were aged ≥60years. Patients had considerable comorbidities at baseline with 88.9% having ≥2 Charlson comorbid conditions and 46.9% with ≥6. During the study period, all-cause mortality was 27.8% for HA-BSI patients with 85.5% of deaths occurring while inpatient. Median LOS for patients with HA-BSI was 25 days compared with 6 days for HD-CVC without BSI; patients with HA-BSI were also more likely to require the ICU (65.6% vs. 27.6%). The median ICU LOS was 12 days for HA-BSI versus 34 days for HD-CVC without BSI. Greater intensity of healthcare utilization was reflected in median costs of $402K for HA-BSI, compared with $43K for HD-CVC without BSI. Discussion: We described the characteristics of HD-CVC patients that developed HA-BSI. These patients had many comorbidities and relatively high rates of all-cause in-hospital mortality. Patients were likely to have long LOS, both in-hospital and within the ICU. Collectively, care of these patients was associated with considerable healthcare costs, particularly as compared with HD-CVC patients not developing a HA-BSI. Future studies should characterize risk factors and evaluate potential prevention strategies for this high-risk population.

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Activities and Role of certified Nurse in Infection Control in COVID-19 Cluster Response in Japan
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Background: Mie Prefecture in Japan established a Cluster Response Team within the Headquarters for COVID-19 and registered prefectural staff as well as certified Nurse in Infection Control (CNICs) and other experts, who were promptly dispatched to the site of the cluster and provided other support. However, the extent to which they were dispatched, what activities they performed, and what contributions they made have not been analyzed. **Method:** The Mie prefectural government officials who were responsible for coordinating the dispatch were interviewees regarding the cluster response situation from November 2020 to August 2022. In addition, a questionnaire survey was conducted with CNICs on the supporting side and facility managers on the receiving side regarding the activities and roles of CNICs. **Result:** Of the 275 cluster cases, cluster response teams were dispatched in 59 cases (64% to nursing facilities, 34% to medical institutions). Nineteen of the 46 CNICs registered in Mie Prefecture were dispatched. The number of days CNICs were dispatched ranged from 1 to 4 days, with 1 day being the most common (69.5%). The dispatch coordinators commented that the CNICs they requested were biased, but that they would have liked to request all CNICs to be dispatched. In a survey of CNICs, 36 of 46 (78.3%) responded to the survey. Support was provided for zoning (92%), PPE donning and doffing instruction (92%), infection control evaluation and instruction (85%), cleaning and disinfection services (54%), and training sessions (54%). The tasks that CNIC believed should be performed were generally consistent with the tasks that were actually performed. However, cleaning and disinfection tasks and nursing tasks that were not indicated as tasks to be performed were actually performed. In a questionnaire targeting recipients, 31 of 67 facilities (46.3%) responded to the survey. Respondents indicated that the dispatch of staff improved their knowledge of infection control measures (90.3%), reduced anxiety (87.1%), ensured thorough hand disinfection (61.3%), and standardized the PPE donning and doffing method (58.1%). Requests to the CNIC included regular on-site guidance, sharing and disseminating information, and holding training sessions. **Conclusion:** Administrative staff and infection control staff, mainly CNICs, paired up to provide effective cluster response. However, the uneven distribution of the dispatched CNICs and the unexpected tasks they had to perform indicated the need to re-establish a community-wide infection control system in preparation for the next pandemic.

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Viral Kinetics of SARS-CoV-2 in Nursing Home Residents and Staff
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Background: Nursing home (NH) residents are at high risk of COVID-19 from exposure to infected staff and other residents. Understanding SARS-CoV-2 viral RNA kinetics in residents and staff can guide testing, isolation, and return to work recommendations. We sought to determine the duration of antigen test and polymerase chain reaction (PCR) positivity in a cohort of NH residents and staff. **Methods:** We prospectively collected data on SARS-CoV-2 viral kinetics from April 2023 through November 2023. Staff and residents could enroll prospectively or upon a positive test (identified through routine clinical testing, screening, or outbreak response testing). Participating facilities performed routine clinical testing; asymptomatic testing of contacts was performed within 48 hours if an outbreak or known exposure occurred and upon (re-) admission. Enrolled participants who tested positive for SARS-CoV-2 were re-tested daily for 14 days with both nasal antigen and nasal PCR tests. All PCR tests were run by a central lab with the same assay. We conducted a Kaplan-Meier survival analysis on time to first negative test restricted to participants who initially tested positive (day zero) and had at least one test ≥10 days after initially testing positive with the same test type; a participant could contribute to both antigen and PCR survival curves. We compared survival curves for staff and residents using the log-rank test. **Results:** Twenty-four nursing homes in eight states participated; 587 participants (275 residents, 312 staff) enrolled in the evaluation, participants were only tested through routine clinical or outbreak response testing. Seventy-two participants tested positive for antigen; of these, 63 tested PCR-positive. Residents were antigen- and PCR-positive longer than staff (Figure 1), but this finding is only statistically significant (p=0.006) for duration of PCR positivity. Five days after the first positive test, 56% of 50 residents and 59% of 22 staff remained antigen-positive; 91% of 44 residents and 79% of 19 staff were PCR-positive. Ten days after the first positive test, 22% of 50 residents and 5% of 22 staff remained antigen-positive; 61% of 44 residents and 21% of 19 staff remained PCR-positive. **Conclusions:** Most NH residents and staff with SARS-CoV-2 remained antigen- or PCR-positive 5 days after the initial positive test; however, differences between staff and resident test positivity were noted at 10 days. These data can inform recommendations for testing, duration of NH resident isolation, and return to work guidance for staff. Additional viral culture data may strengthen these conclusions.

Disclosure: Stefan Gravenstein: Received consulting and speaker fees from most vaccine manufacturers (Sanofi, Seqirus, Moderna, Merck, Janssen, Pfizer, Novavax, GSK, and have or expect to receive grant funding from several (Sanofi, Seqirus, Moderna, Pfizer, GSK). Lona Mody: NIH, VA, CDC, Kahn Foundation; Honoraria: UpToDate; Contracted Research: Nano-Vibronix

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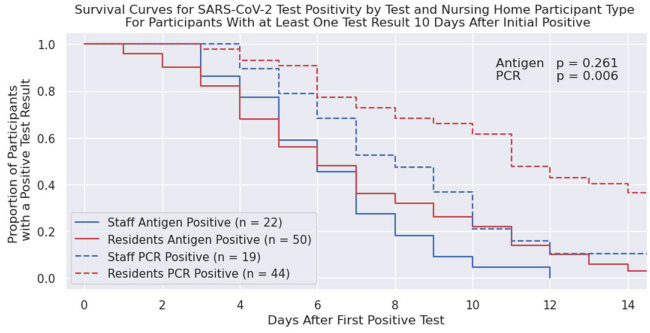

Figure 1 Survival curves for Antigen and PCR test positivity by participant type. 72 participants both tested antigen positive for SARS-CoV-2 and had at least one test result 10 days after initial positive antigen test. Of those 72 participants, a subset of 63 participants also tested PCR positive for SARS-CoV2 and had at least one test result 10 days after initial positive PCR test.

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Subject Category: Decolonization Strategies

Survey of Hemodialysis Patients' Knowledge of Their Infection Risk and Acceptability of a Nasal Decolonization Intervention

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Background: Patients undergoing hemodialysis are at high risk for healthcare-associated infections; they are at 100 times the risk of Staphylococcus aureus bloodstream infections (BSI) compared with U.S. adults not on hemodialysis. Prior studies found that nasal decolonization with mupirocin prevented S. aureus BSI among hemodialysis patients. We implemented a nasal decolonization intervention in which patients self-administered povidone-iodine (PVI) at each dialysis session. We aimed to assess: 1) hemodialysis patients' knowledge of their infection risk and their willingness to take an active role in infection prevention; 2) the acceptability of the PVI nasal decolonization intervention. **Methods:** We performed a stepped wedge cluster randomized trial at 16 outpatient hemodialysis centers. Patients were surveyed: before starting PVI, 1 month after their center started using PVI, and ~6 months after starting PVI. We used a chi-square test to compare results. **Results:** 469 patients completed at least 1 survey: 400 pre-intervention, 237 at 1 month and 201 at 6 months. Overall, 56% of patients thought that their risk of infection was average or below average compared with an average person in the U.S. (Figure). Over 98% agreed with the statement "One of the most important things I can do for my health is to take an active role in my health care." In the pre-intervention survey, 73% were willing to do "a lot of effort" to prevent an infection. This proportion was similar (73%) in the 2nd survey, but decreased to 63% in the final survey (p < 0 .01). Among 106 patients who reported starting PVI, 85% reported that PVI felt neutral or pleasant, 9.4% reported a side effect, and 79% reported using it during the past 3 dialysis sessions. Among 102 patients who reported using PVI at 6 months, 87% said it felt neutral/pleasant, 3.9% reported a side effect and 75% reported using it during the past 3 dialysis sessions. Side effects included nasal dripping, congestion or burning/stinging, unpleasant smell, headache, yellow tears, and minor nose bleeding. **Conclusions:** Hemodialysis patients are