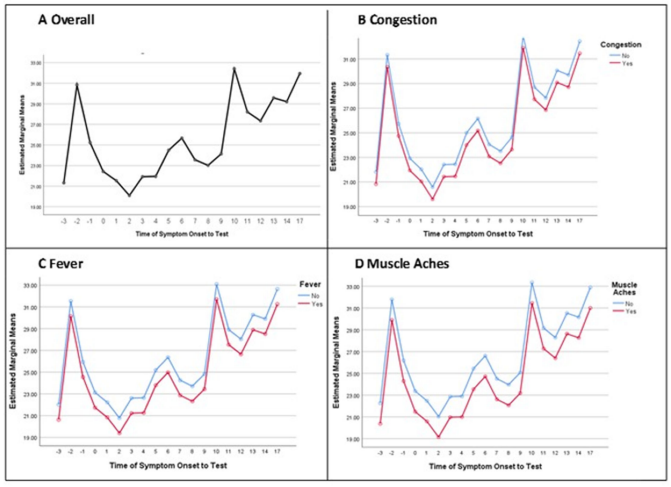
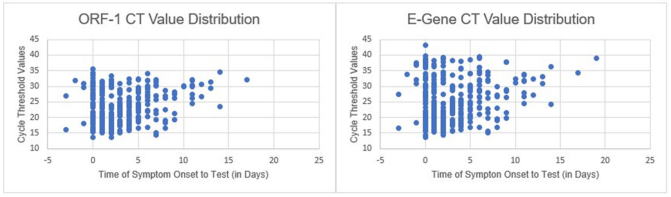
Figure 1. Estimated Marginal Mean CT Values over Time of Symptom Onset to Test



Estimated marginal mean ORF-1 CT values are adjusted for age, sex, time from symptom onset to test, and all individual symptoms.

Figure 2. CT Value Distribution over Time from Symptom Onset to COVID-19 Test



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Presentation Type:
Oral Presentation
Subject Category: COVID-19
New COVID-19 Transmission after the First Vaccine Dose at Skilled Nursing Facilities in Nebraska
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Group Name: DHHS Epi
Background: The inoculation with SARS-CoV-2 vaccine at long-term care facilities (LTCFs) in Nebraska began on December 28, 2020, as part of the Centers for Disease Control and Prevention (CDC) Pharmacy Partnership for Long-Term Care Program.[1] As of February 5, 2021, 159 skilled nursing facilities (SNFs) had completed their first vaccine clinic, and 7,271 residents and 6,768 staff had received the first dose of the 2-dose series. Surveillance data before vaccination (December 21–27, 2020) and after the first vaccination dose (January 25–31, 2021) indicate that the weekly SARS-CoV-2 positivity rate at SNFs decreased from 1.18% to 0.42% for residents and 0.54% to 0.11% for staff.[2,3,4] In this study, we examined the perceived decrease in new transmission initiated by the first dose of vaccine at SNFs. **Methods:** We analyzed the data with separate logistic regressions for residents and staff. We included 145 SNFs that completed their first vaccine clinic, and we used the Federal and Pharmacy Partnership database for the number of residents and staff that received the first dose of vaccine at the first vaccine clinic. We followed the SNFs for 21 days after the first vaccine clinic from December 28, 2020, through February 5, 2021, for any first-time SARS-CoV-2–positive cases. The National Healthcare Safety Network (NHSN) database was used to collect the information on the number of residents present at the facility on the day of the first vaccine clinic, if available, or days before in the same week as the first vaccine clinic. The staff count for each facility was extracted from Nebraska Licensure for LTCFs. We collected new case information from the state surveillance, the NHSN, and the Test-Nebraska platform. **Results:** The mean resident vaccine coverage was 80% and the median staff vaccine coverage was 43%. We found a reverse association between staff vaccine coverage and new positive staff cases. For each percentage increase in staff vaccine coverage, the odds of having a new staff positive case 7 days and 14 days after the first vaccine clinic decrease by 26% and 48%, respectively. No association between coverage and new resident transmission was detected. Possible confounding exists when infected residents might have tested positive 7–14 days after the first vaccine clinic who were not affected by the vaccine. **Conclusions:** Although we observed the association between lower case count with increased facility-level vaccine coverage, we would need to wait for the administration of the second dose of vaccine before assessing the level of association between coverage and new transmission. Further initiatives are warranted to increase the suboptimal vaccine coverage for staff.
Funding: No
Disclosures: None

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Presentation Type:
Oral Presentation
Subject Category: COVID-19
COVID-19 Conversion after Exposure in a Semiprivate Room at a Tertiary Care Center in Iowa, July–December 2020
Alexandra Trannel; Takaaki Kobayashi; Oluchi Abosi; Kyle Jenn; Holly Meacham; Lorinda Sheeler; William Etienne; Angie Dains; Mary Kukla; Mohammed Alsuhaibani; Stephanie Holley; Alexandre Marra; Bradley Ford; Melanie Wellington; Daniel Diekema and Jorge Salinas

Background: Hospital semiprivate rooms may lead to coronavirus disease 2019 (COVID-19) patient exposures. We investigated the risk of COVID-19 patient-to-patient exposure in semiprivate rooms and the subsequent risk of acquiring COVID-19. **Methods:** The University of Iowa Hospitals & Clinics is an 811-bed tertiary care center. Overall, 16% of patient days are spent in semiprivate rooms. Most patients do not wear masks while in semiprivate rooms. Active COVID-19 surveillance included admission and every 5 days nasopharyngeal SARS-CoV-2 polymerase chain reaction (PCR) testing. We identified inpatients with COVID-19 who were in semiprivate rooms during their infectious periods during July–December 2020. Testing was repeated 24 hours after the first positive test. Cycle threshold (Ct) values of the two tests (average Ct <30), SARS-CoV-2 serology results, clinical assessment, and COVID-19 history were used to determine patient infectiousness. Roommates were considered exposed if in the same semiprivate room with an infectious patient. Exposed patients were notified, quarantined (private room), and follow-up testing was arranged (median seven days). Conversion was defined as having a negative test followed by a subsequent positive within 14 days after exposure. We calculated the risk of exposure: number of infectious patients in semiprivate rooms/number of semiprivate patient-days (hospitalization days in semiprivate rooms). **Results:** There were 16,427 semiprivate patient days during July–December 2020. We identified 43 COVID-19 inpatients who roommates during their infectious periods. Most infectious patients (77%) were male; the median age was 67 years; and 22 (51%) were symptomatic. Most were detected during active surveillance: admission testing (51%) and serial testing (28%). There were 57 exposed roommates. The risk of exposure was 3 of 1,000 semiprivate patient days. In total, 16 roommates (28%) did not complete follow-up testing. Of 41 exposed patients with follow-up data, 8 (20%) converted following their exposure. Median time to conversion was 5 days. The risk of exposure and subsequent conversion was 0.7 of 1,000 semiprivate patient days. Median Ct value of the source patient was 20 for those who converted and 23 for those who did not convert. Median exposure time was 45 hours (range, 3–73) for those who converted and 12 hours (range, 1–75) for those who did not convert. **Conclusions:** The overall risk of exposure in semiprivate rooms was low. The conversion rate was comparable to that reported for household exposures. Lower Ct values and lengthier exposures

may be associated with conversion. Active COVID-19 surveillance helps early detection and decreases exposure time.
Funding: No
Disclosures: None
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Presentation Type:
Oral Presentation
Subject Category: Disinfection/Sterilization
Evaluating N95 Respirator Filtration, Seal, Qualitative and Quantitative Fit with Vaporous Hydrogen Peroxide Reprocessing
Christina Yen; Preeti Mehrotra; Dana Pepe; Sharon Wright; Patrick Gordon and Lalitha Parameswaran

Background: The COVID-19 pandemic has created personal protective equipment (PPE) shortages, particularly of N95 respirators. Institutions have used decontamination strategies including vaporous hydrogen peroxide (VHP) to augment respirator supplies. VHP can be used to decontaminate nonporous surfaces without compromising material integrity. However, little is known about its impact on N95 respirator efficacy. We assessed whether repeated VHP reprocessing altered 4 key respirator efficacy qualities: quantitative fit, qualitative fit, seal check, and filtration rate. **Methods:** We conducted a prospective cohort study from June 15 to August 31, 2020. In total, 7 participants were fitted to a 3M 1860 small or regular N95 respirator based on qualitative and quantitative fit testing. Respirators underwent 25 disinfection cycles with the Bioquell BQ-50 VHP generator. After each cycle, participants donned and doffed respirators and performed a seal check. Participants were given 2 attempts to pass their seal check. Every 10 cycles, qualitative fit testing was done using an aerosolized Bitrex solution. Quantitative fit testing was conducted using a PortaCount Pro 8038 Fit Tester to generate a fit factor score. Appropriate fit is defined as a fit factor score of 100 or greater. Quantitative testing was done at cycles 1, 3, 5, 7, 10, 15, 20, and 25. Filtration efficiencies of particles ≥0.3 µm in diameter were measured using the TSI Optical Particle Sizer 3330 at cycles 1, 5, 10, 15, 20, and 25. The Fisher exact test was used to assess qualitative fit and seal check. The Kruskal-Wallis test was used to analyze quantitative fit and filtration rate. **Results:** We observed no seal-check or quantitative-fit test failures during the study window. All participants passed qualitative fit testing. Although there was a significant degree of variability in fit factor scores across disinfection cycles (mean score 163.5, p <0.05), there was no significant difference between participants (p = 0.6) (Figure 1). There was no statistically significant change in mean filtration rate from cycle 10 to 25 (P = .05), and the filtration rate remained >95% by cycle 25 (Figure 2). **Conclusions:** VHP reprocessing did not diminish the efficacy of N95 respirators based on the 4 metrics we assessed: filtration rate, seal check, qualitative fit, and quantitative fit. Of significance, the filtration rate remained well above the 95% standard filtration for N95 respirators—even through 25 cycles of reprocessing. VHP reprocessing is a safe, viable strategy to disinfect N95 respirators and extend their use, particularly during supply shortages.
Funding: No
Disclosures: None
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doi:10.1017/ash.2021.38

Figure 1. Change in quantitative fit test score

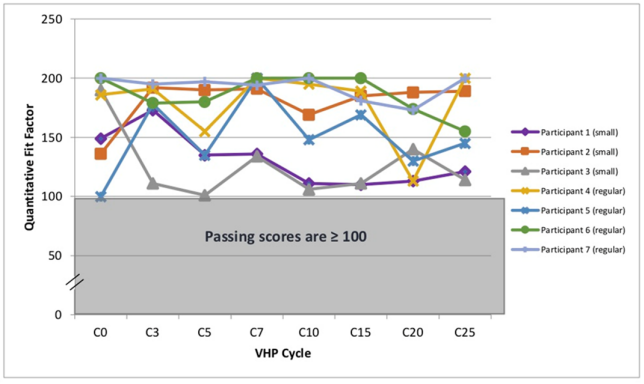

Figure 2. Change in mean filtration rate

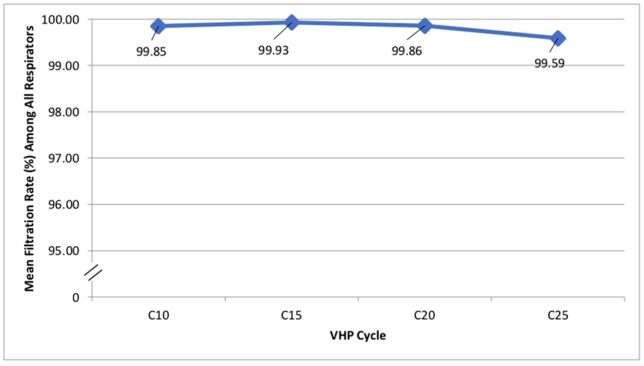

Figure 1.

Presentation Type:
Oral Presentation
Subject Category: Environmental Cleaning/Sterilization
Implementation of a Low-Cost Method to Reduce Bacterial Load in Patient-Room Sink Drains
Emilie Bédard; Marie-Ève Benoit; Thibault Bourdin; Dominique Charron; Gaëlle DeLisle; Stéphane Daraiche; Sophie Gravel; Etienne Robert; Philippe Constant; Eric Déziel; Caroline Quach and Michèle Prévost

Background: Sink drains can act as breeding grounds for multidrug-resistant (MDR) bacteria, leading to outbreaks. Drains provide a protected humid environment where nutrient-rich substances are available. Recent and growing installation of water and energy conservation devices have led to increased frequency of drain blockage due to biofilm accumulation. Ineffective drainage may lead to backflow and accumulation of water in the sink during use, increasing the risk of contaminated aerosols formation or direct contamination of surrounding material and equipment. Cleaning and disinfection procedures of sink drains need to be improved to prevent amplification and dispersion of MDR bacteria. The objective of this study was to investigate alternatives to reduce the biofilm and risk of contamination through aerosols. **Methods:** Sink drains from patient rooms were randomly selected in the neonatal intensive care unit of a 450-bed pediatric hospital. We tested 4 approaches: (1) new drain; (2) self-disinfecting heating-vibration drain; (3) chemical disinfection with 20 ppm chlorine for 30 minutes; and (4) thermal disinfection with > 90°C water for 30 minutes. A special device was used during disinfection to increase the disinfectant contact time with the biofilm. Treatments were conducted weekly, with prior sampling of drain water. Other drains were also sampled weekly, including a control drain with no intervention. Bacterial loads were evaluated using flow cytometry and heterotrophic plate counts. The drains were made of stainless steel, a heat-conductive material. **Results:** Preliminary results show that chlorine disinfection had a small impact (<1 log) on culturable bacteria at 48 hours after disinfection but not after a week or repeated weekly disinfection. Thermal disinfection using boiling water is promising, showing an important decrease of 4 log in culturable cells after 48 hours and a concentration still 100× lower 1 week after the disinfection. Repeated weekly thermal disinfection maintained lower culturable levels in the drain. No culturable cells were detected in water from the self-disinfecting drain 2 months after installation, whereas the new drain became fully colonized to concentrations similar to those of drains prior to interventions during the same period. **Conclusions:** Thermal disinfection of drains is a promising alternative