video. Posters were created as a guide for staff at donning and doffing stations. Additionally, the IPE training team utilized an online data collection tool to capture staff completion on IP training and PPE competency for record keeping. We used a 'soft' approach because staff members were fearful of the unknown when caring for COVID-19 patients. Daily audits were conducted with immediate concurrent feedback to engage the relevant stakeholders. Infection prevention liaison officers (IPLOs) were appointed to assist in the daily audits. An electronic audit tool was used to facilitate audit and quick analysis. **Conclusions:** The experience gained in the last 2 years has been useful and may provide a template if new external sites are needed in the future because of the potential surge associated with the o (omicron) variant.

Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: COVID-19
Mitigation strategies to control a carbapenem-resistant *Acinetobacter baumannii* outbreak in a dedicated COVID-19 unit
Candace Campbell; Calvin White and Carolee Estelle

Background: Carbapenem-resistant *Acinetobacter baumannii* (CRAb) is considered a public health threat, and this pathogen is typically associated with hospital infections. At 3 months after opening the hospital's dedicated COVID-19 unit, 2 patients were identified with CRAb. Infection prevention staff collaborated with staff in the COVID-19 unit, hospital leadership, and health department partners to develop mitigation strategies and to prevent additional transmission. **Methods:** Admissions to the COVID-19 unit were stopped. Biweekly surveillance cultures were collected to identify any patients potentially colonized with CRAb. An infection control risk assessment was conducted to determine breaches in infection prevention practices. The risk assessment included environmental rounding of the area, epidemiological investigation, environmental testing, pulsed-field gel electrophoresis (PFGE) testing, and observing infection prevention practices. **Results:** The risk assessment identified multiple gaps in infection control practices, for example, gaps in hand and environmental hygiene practices. The extended use of personal protective equipment (PPE), staff shortages, fatigue, and staff taking on multiple roles and tasks outside their general job duties were other gaps identified by the team. Between June and September 2020, 43 additional CRAb cases were identified in the facility, with 4 (9.8%) cases outside the COVID-19 unit. Moreover, 29 cases (64%) were considered clinical infections and 16 (36%) were identified from surveillance efforts. Environmental cultures identified 1 positive surface with CRAb. PFGE testing was completed on 44 isolates; 42 isolates had identical PFGE patterns, and 2 isolates were unrelated to the COVID-19 unit; 2 isolates were closely related (with 3-band differences) but were not identified in the COVID-19 unit. **Conclusions:** The inability to definitively identify the source of transmission made it challenging to determine the best approach to eradicating the pathogen. Mitigation for outbreaks should focus on not deviating from core infection control practices.

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Subject Category: COVID-19
Enhancing respiratory protection in skilled nursing facilities during the COVID-19 pandemic: A public health fit-test training program
Jenna Scully; Mariah Menanno; Jane Gould and Tiina Peritz

Background: The Occupational Safety and Health Administration (OSHA) Respiratory Protection standard (29 CFR 1910.134) states that it is an employer's responsibility to establish and maintain a respiratory protection program when a respirator is necessary to protect the health of employees, including annual assessment of adequate respirator fit. Prior to the COVID-19 pandemic, N95 respirators were rarely used in Philadelphia skilled-nursing facilities (SNFs), and many facilities did not have programs in place or materials to fit test their staff. **Methods:** The Philadelphia Department of Public Health's (PDPH) Healthcare Associated Infections/Antimicrobial Resistance (HAI/AR) Program designed and pilot-tested 1.5-hour "train-the-trainer" sessions on OSHA-compliant fit-testing requirements and qualitative procedures. This training was offered to all 47 SNFs beginning May 2021. Training covered the role N95 respirators play in healthcare, proper donning and doffing, OSHA training requirements, medical clearances, record keeping, fit-testing procedure, and demonstrated competency to perform fit testing. Resources that were provided after training included templates of a respiratory protection policy for SNFs, a fit-test record, the OSHA medical clearance form, and a competency checklist. This bundle was designed to help SNFs establish self-sustaining respiratory protection programs. Post-training evaluations were administered on a 6-point Likert scale as well as qualitative, open-ended questions to evaluate the overall quality and effectiveness of the training session. **Results:** In total, 50 employees (clinical and nonclinical) from 13 Philadelphia SNFs received N95 fit-test training from June through December 2021. The average rating for the training overall was very high (5.9 of 6 points). On average, participants strongly agreed that content presented was directly applicable to their work (5.9 of 6 points), and most strongly agreed that information they learned would alter practices and procedures (5.79 of 6 points). When asked qualitatively what the participant would do differently in practice as a result of the training, the most frequent responses were fit test staff (58%) and educate staff on proper N95 use (60%). **Conclusions:** The PDPH HAI/AR program created a successful pilot fit-test training program for SNFs, demonstrated by program enrollment and high ratings by participants. This relatively low-cost intervention has provided tools to enhance respiratory protection during the COVID-19 pandemic and has increases the capacity of SNFs to provide essential services for their staff and residents. The PDPH will continue to offer these training sessions to SNFs, with plans to expand to other care settings, such as inpatient behavioral health facilities, outpatient clinics, and emergency medical services.

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Subject Category: COVID-19
SARS-CoV-2 N95 contamination worn under a face shield, via medical mask surrogate, in healthcare providers treating COVID-19
Amanda Graves; Bobby Warren; Aaron Barrett; Sarah Lewis; Becky Smith; David Weber; Emily Sickbert-Bennett Vavalle and Deverick Anderson
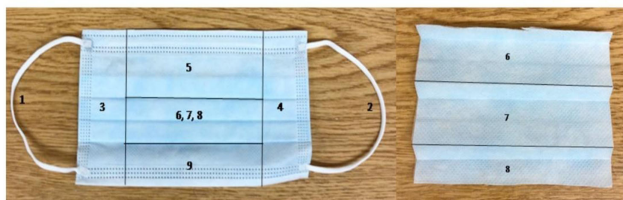
Background: SARS-CoV-2 N95 mask contamination in healthcare providers (HCPs) treating patients with COVID-19 is poorly understood. **Method:** We performed a prospective observational study of HCP N95 respirator SARS-CoV-2 contamination during aerosol-generating procedures (AGPs) on SARS-CoV-2–positive patients housed in a COVID-19–specific unit at an academic medical center. Medical masks were used as surrogates for N95 respirators to avoid waste and were worn on top of HCP N95 respirators during study AGPs. Study masks were provided to HCPs while donning PPE and were retrieved during doffing. Additionally, during doffing, face shields were swabbed with Floq swabs premoistened with viral transport media (VTM) prior to disinfection. Medical masks were cut into 9 position-based pieces, placed in VTM, vortexed, and centrifuged (Fig. 1). RNA extraction and RT-PCR were completed on all samples. RT-PCR–positive samples underwent cell culture infection to detect cytopathic effects (CPE). Contamination was characterized by mask location and front and back of face shields. Patient COVID-19 symptoms were collected

Table 1.

	n (%)
HCPs	N=31
Respiratory Therapist	7 (23)
Registered Nurse	12 (39)
Medical Doctor	6 (19)
Certified Nurse Assistant	1 (3)
Speech Pathology	2 (7)
Radiologic Technologist	2 (7)
Phlebotomist	1 (3)
Height, cm (IQR)	165 (158-168)
Patients	N=12
Age (IQR)	70 (63-78)
Female	8 (67)
Length of Stay in Room, days (IQR)	10 (5-13)
Symptoms	
Shortness of Breath	8 (67)
Cough	9 (75)
Fever	6 (50)
Diarrhea	3 (25)
Vaccinated[1]	6 (50)
Length between AGP & Onset of Symptoms, days (IQR)	9 (7-15)
Length between AGP & COVID +, days (IQR)	4 (3-7)

[1] 2 doses of mRNA vaccines, Pfizer or Moderna, or 1 dose of others, Johnson & Johnson

Figure 1. Nine position-based medical mask pieces

from routine clinical documentation. Study HCPs completed HCP-role–specific routine care (eg, assessing, administering medications, and maintaining oxygen supplementation) while in patient rooms and were observed by study team members. **Results:** We enrolled 31 HCPs between September and December 2021. HCP and patient characteristics are presented in Table 1. In total, 330 individual samples were obtained from 31 masks and 26 face shields among 12 patient rooms. Of the 330 samples, 0 samples were positive for SARS-CoV-2 via RT-PCR. Positive controls were successfully performed in the laboratory setting to confirm that the virus was recoverable using these methods. Notably, all samples were collected from HCPs caring for COVID-19 patients on high-flow, high-humidity Optiflow (AGP), with an average of 960 seconds (IQR, 525–1,680) spent in each room. In addition to Optiflow and routine care, study speech pathologists completed an additional AGP of fiberoptic endoscopic evaluation of swallowing. Notably, 29 (94%) of 31 study HCP had physical contact with their patient. **Conclusions:** Overall, mask contamination in HCPs treating patients with COVID-19 undergoing AGPs was not detectable while wearing face shields, despite patient contact and performing AGP.
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Subject Category: COVID-19
The role and relevance of asymptomatic healthcare worker testing in COVID-19 hospital outbreaks
Matthew Garrod; Katy Short; James Zlosnik and Natalie Prystajecky

Background: Many healthcare facilities have faced the decision of conducting point prevalence testing (PPT) of healthcare workers (HCW) during COVID-19 outbreaks. As a containment strategy, PPT can identify asymptomatic or presymptomatic cases for isolation. It is less clear how useful testing asymptomatic HCW is in understanding the spread and possible routes of transmission in an outbreak. This study investigated HCW cases identified through PPT during acute-care outbreaks in Fraser Health (FH), British Columbia, incorporating both epidemiological and whole-genome sequencing (WGS) data to determine their epidemiological source. **Methods:** This study was a retrospective review of cases associated with COVID-19 acute-care outbreaks in FH occurring between December 2020 and June 2021, when most of these infections were of the alpha and gamma lineages. All patients and HCWs with a positive COVID-19 test and epidemiologically linked to the outbreaks were included in the study. WGS results supported determination of epidemiological source for cases. The proportion of patient and HCW cases related to the outbreak was compared. All analyses were conducted using SAS version 4.3 software with the PROC GLM package. **Results:** Between December 2020 and June 2021, 49 acute-care COVID-19 outbreaks were declared. Point-prevalence testing of HCWs, in addition to routine patient PPT, was conducted in 28 outbreaks (57%), with 2,167 eligible HCWs (63%) tested. Testing identified 14 previously unknown HCW cases, representing 12.96% of all HCW cases epidemiologically linked to the outbreaks. None of these HCWs were determined to be the index case for their associated outbreak. There was no statistically significant difference between HCWs and patients regarding WGS failure rate, and all failed samples were removed from further analysis. Patients were 3.8 times as likely as HCWs to present as symptomatic when testing positive. HCWs were 2.2 times as likely as patients to have WGS results unrelated to the outbreak. **Discussion:** Although point-prevalence testing of HCW identified previously unknown cases, these cases were more likely than patients to be unrelated to the outbreak and therefore less useful in understanding the epidemiology of the outbreak. It is difficult to determine whether HCW PPT was effective at preventing transmission, especially with robust infection prevention measures already in place. Patients were more likely than HCWs to present as asymptomatic, however this may be due to the attribution of symptoms to other conditions. **Conclusions:** Point prevalence testing of HCWs during COVID-19 outbreaks may assist with preventing transmission but is less likely to contribute meaningful information to the investigation.
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Risk factors associated with SARS-CoV-2 transmission, outbreak duration, and mortality in Fraser Health acute-care settings
Tamara Duncombe; Matthew Garrod; Wang Xuetao; Joyce Ng; Eunsun Lee; Katy Short and Kennard Tan

Background: Transmission of SARS-CoV-2 in acute-care settings affects patients, healthcare workers, and the already-burdened healthcare system. An analysis of risk factors associated with outbreak severity was conducted to inform prevention strategies. **Methods:** This study was a cross-sectional analysis of COVID-19 outbreaks at Fraser Health (FH) acute-care sites between March 2020 and March 2021. Outbreak severity measures included COVID-19 attack rate, outbreak duration, and 30-day case mortality. Covariates at patient, outbreak, unit level, and facility level were included (Table 1). Generalized linear models with generalized estimation equations were used for all outcome measures, with outbreak duration and 30-day case mortality using multivariate negative binomial distributions, and attack rate using Gaussian distribution. A P value of .05 indicated statistical significance. Analyses were performed using SAS version 3.8 software, R version 4.1.0 software, and Stata version 16.0 software. **Results:** Between March 2020 and March 2021, 54 COVID-19 outbreaks were declared in FH acute-care sites involving 455 SARS-CoV-2–positive patients. The average outbreak duration was 23 days, the average attack rate was 28%, and the average 30-day all-cause mortality per outbreak was 2 deaths. The results of the full models are shown in Table 1. **Discussion:** We identified an inverse relationship between increased hand hygiene compliance during outbreaks and all 3 severity measures. Paradoxically, hand hygiene rates in the year prior to