There are limited data regarding SARS-CoV-2 (SC2) environmental contamination in staff areas of healthcare settings. We performed environmental sampling of staff areas in wards where coronavirus disease-19 (COVID-19) patients received care and compared findings to surfaces within COVID-19 patient rooms.

Methods. The study was conducted at the Hospital of the University of Pennsylvania (Philadelphia, PA) from 9/15/20-1/26/21. Sampling of 20cm² surfaces in staff common areas (breakroom high-touch surfaces comprising tables and microwave/refrigerator handles; bathroom surfaces comprising toilet, sink, and doorknob; and floors), nurse workstations (computer mice and floors), and COVID-19 patient rooms (high-touch surfaces comprising bedrail, computer mice/keyboards, and doorknobs; bathroom surfaces; and floors) was performed using flocked swabs one or more times per week. Specimens underwent RNA extraction and quantitative real-time polymerase chain reaction to detect the SC2 N1 region. Median comparisons were performed using Wilcoxon rank sum test. Trends in odds were evaluated using Score test.

Results. Proportions of surface specimens with detectable SC2 RNA are summarized in Table 1. Median copy numbers were lower among staff toilets compared to COVID-19 patient toilets (135.6 vs. 503.8 copies/specimen, p=0.02), lower among staff breakroom compared to patient room high-touch surfaces (104.3 vs. 220.3 copies/specimen, p=0.007), and similar between staff and patient room samples from sinks and floors. At nurse workstations, SC2 RNA was detected among 22/177 (12.4%) common area high-touch surfaces; however, the likelihood of detection increased over time. Environmental SC2 RNA detection may reflect primary contamination from infected healthcare workers or secondary contamination from contact with infected patients, though a direct relationship between surface SC2 RNA viral detection and transmission risk has not been established.

Table 1. SARS-CoV-2 (SC2) RNA detection on staff common area and coronavirus disease 19 (COVID-19) patient room surfaces at the Hospital of the University of Pennsylvania, 9/15/20-1/26/21.

| Surface type          | Staff common area | COVID-19 patient room |
|-----------------------|-------------------|-----------------------|
|                       | no. of specimens with detectable SC2 RNA/total no. (%) | no. of specimens with detectable SC2 RNA/total no. (%) |
| High-touch surface    | 26/1440 (19.6%)   | 24/801 (30.1%)        |
| Bathroom              | 14/2460 (5.8%)    | 10/668 (1.5%)         |
| Floor                 | 120/1860 (75.0%)  | 44/4574 (7.7%)        |

Conclusion. A low prevalence of detectable SC2 RNA was observed among staff area high-touch surfaces; however, the likelihood of detection increased over time. Environmental SC2 RNA detection may reflect primary contamination from infected healthcare workers or secondary contamination from contact with infected patients, though a direct relationship between surface SC2 RNA viral detection and transmission risk has not been established.

419. SARS-CoV-2 Environmental Surface Contamination of Healthcare Staff Common Areas
Helen L. Zhang, MD1; Brendan Kelly, MD, MSCE2; Michael Z. David, MD PhD3; Ebbing Lautenbach, MD, MPH, MSCE1; Elizabeth Huang, n/a4; Selamawit Bekele, BS5; Pam C. Tolomos, MPH, CCRP6; Emily C. Reesey, MS7; Sean Loughey, BS8; David A. Pogues, MD9; Matthew J. Ziegler, MD MSCE10
1University of Pennsylvania Perelman School of Medicine, Philadelphia, PA; 2Hospital of the University of Pennsylvania, Philadelphia, PA; 3University of Pennsylvania, Philadelphia, PA; 4Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA; The CDC Prevention Epicenters Program

Session: P-19. COVID-19 Infection Prevention

Background. There are limited data regarding SARS-CoV-2 (SC2) environmental contamination in staff areas of healthcare settings. We performed environmental sampling of staff areas in wards where coronavirus disease-19 (COVID-19) patients received care and compared findings to surfaces within COVID-19 patient rooms.

Methods. The study was conducted at the Hospital of the University of Pennsylvania (Philadelphia, PA) from 9/15/20-1/26/21. Sampling of 20cm² surfaces in staff common areas (breakroom high-touch surfaces comprising tables and microwave/refrigerator handles; bathroom surfaces comprising toilet, sink, and doorknob; and floors), nurse workstations (computer mice and floors), and COVID-19 patient rooms (high-touch surfaces comprising bedrail, computer mice/keyboards, and doorknobs; bathroom surfaces; and floors) was performed using flocked swabs one or more times per week. Specimens underwent RNA extraction and quantitative real-time polymerase chain reaction to detect the SC2 N1 region. Median comparisons were performed using Wilcoxon rank sum test. Trends in odds were evaluated using Score test.

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Conclusion. A low prevalence of detectable SC2 RNA was observed among staff area high-touch surfaces; however, the likelihood of detection increased over time. Environmental SC2 RNA detection may reflect primary contamination from infected healthcare workers or secondary contamination from contact with infected patients, though a direct relationship between surface SC2 RNA viral detection and transmission risk has not been established.

420. Emergency Nurses’ Experiences over 1 Year of the COVID-19 Pandemic: A Qualitative Study
Ki Rog Lee, BSN, RN1; JiHyun Kang, PhD, MPH2; 1Asan Medical Center, Seoul, Seoul-t’ukpyolsi, Republic of Korea; 2College of Nursing and Research Institute of Nursing Science, Seoul National University, Seoul, Seoul-t’ukpyolsi, Republic of Korea
Methods. This study was conducted at a 2,715-bed tertiary hospital in Seoul, Korea. Using a purposeful sampling method, we recruited 20 nurses who had worked for more than 1 year in the ER and have capacity for independent care for COVID-19 patients. With institutional review board approval, one-on-one individual, in-depth interviews were completed using a semi-structured questionnaire from February 13 to March 25, 2021. After recording and transcribing interviews, the narrative data were analyzed using a thematic analysis method.

Results. The 20 participants were 29.9 years old on average with 69.2 months’ clinical experience. The overarching theme was derived as ‘COVID-19 highlighted the importance of ER’s infection control and ER nurses’ professional dedication’ covering 6 sub-themes and 16 concepts (Table 1). Sub-themes were ‘psychological burden of COVID-19 Pandemic Experience’, ‘ER nurses experienced challenges from their drastically changed work burden, received poor compensation from the hospital, and felt pressure from social burdens throughout the provision of emergency care for incoming patients without knowing their COVID-19 status. However, little is known about their work burden, exhaustion, and psychological distress in the pandemic. Therefore, to provide basic data for effective counterstrategies against future emerging infectious diseases in the ER, this study aims to understand ER nurses’ COVID-19 work experiences in depth at one tertiary hospital over 1 year.

Table 1. Summary of Qualitative Responses Regarding Emergency Room Nurses’ COVID-19 Pandemic Experience

| Exposure | Positive | Negative | Total results | Rate |
|----------|----------|----------|--------------|------|
| Partner  | 12       | 43       | 55           | 21.8% (12/55) |
| Child    | 1        | 25       | 26           | 3.8% (2/10)   |
| Other    | 3        | 11       | 13           | 23.0% (3/13)  |
| Total    | 16       | 78       | 94           | 17.0% (16/94) |

Conclusion. High risk household exposures to COVID-19 infection remains a significant potential source of infections in healthcare workers even after workers are fully vaccinated with COVID mRNA vaccines especially those with contact to positive domestic partners.

Disclosures. All Authors: No reported disclosures

421. Effect of SARs-Cov-2 mRNA Vaccination in Healthcare Workers with Household COVID Exposure

Laura Selby, DO,1 Richard Starlin, MD,1,1 University of Nebraska Medicine, Omaha, Nebraska

Session: P-19. COVID-19 Infection Prevention

Background. Healthcare workers have experienced a significant burden of COVID-19 disease. COVID mRNA vaccines have shown great efficacy in prevention of severe disease and hospitalization due to COVID infection, but limited data is available about acquisition of infection and asymptomatic viral shedding.