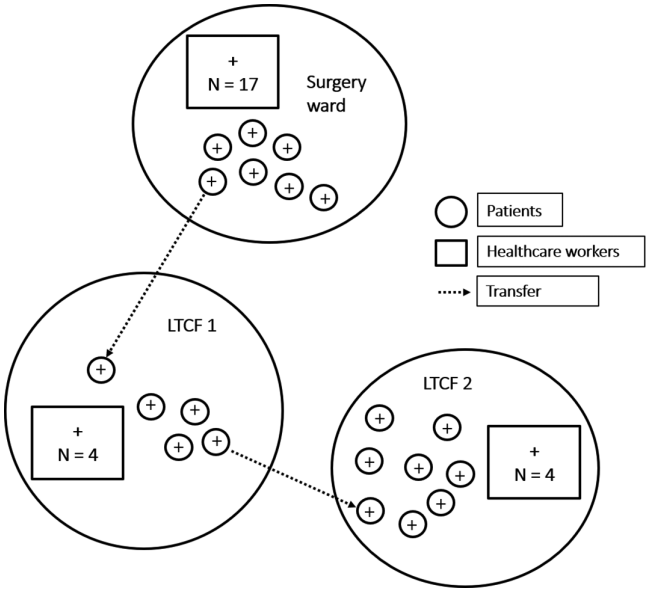

Fig. 1. Schematic representation of transmission chains between the surgical ward and 2 wards in a hospital-affiliated long-term care facility (LTCF). Patients are represented as circles. Healthcare workers are represented as squares.

incidence, confirming an expanded cluster of infections in the involved wards.

This outbreak report highlights the ease of transmission between various settings, including the community, the acute-care setting, and affiliated LTCFs, involving asymptomatic patients. It seems indeed impossible to control the social life of HCWs, just like that of any other individual. Furthermore, HCWs are at the interface between hospitals and the community, always at risk to silently introduce SARS-CoV-2 in the workplace.[9,10] Daily screening of HCWs seems an unrealistic concept on a large scale. Therefore, healthcare facilities can hardly remain a SARS-CoV-2–free bubble, especially as the prevalence in the community rises.

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Medical facemasks are adequate for healthcare worker safety at outdoor coronavirus disease 2019 (COVID-19) drive-through testing centers

Johanna B. Warren MD[1], Ryan Norton DO[1], Dawn Nolt MD, MPH[2], Faiza J. Khan MBBS, MBI[3] and Judith A. Guzman-Cottrill DO[2]

[1]Department of Family Medicine, Oregon Health and Science University, Portland, Oregon, [2]Department of Pediatrics, Division of Infectious Diseases, Oregon Health and Science University, Portland, Oregon and [3]Business Intelligence and Advanced Analytics Information Technology Group, Oregon Health and Science University, Portland, Oregon

Author for correspondence: Johanna B. Warren, E-mail: warrejoh@ohsu.edu

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To the Editor—Since the beginning of the coronavirus disease 2019 (COVID-19) pandemic, recommendations for healthcare worker (HCW) respiratory personal protective equipment (PPE) continue to be a topic of debate. The Centers for Disease Control and Prevention (CDC) recommends an N95 respirator or higher level of protection, plus eye protection.[1] However, the Infectious Disease

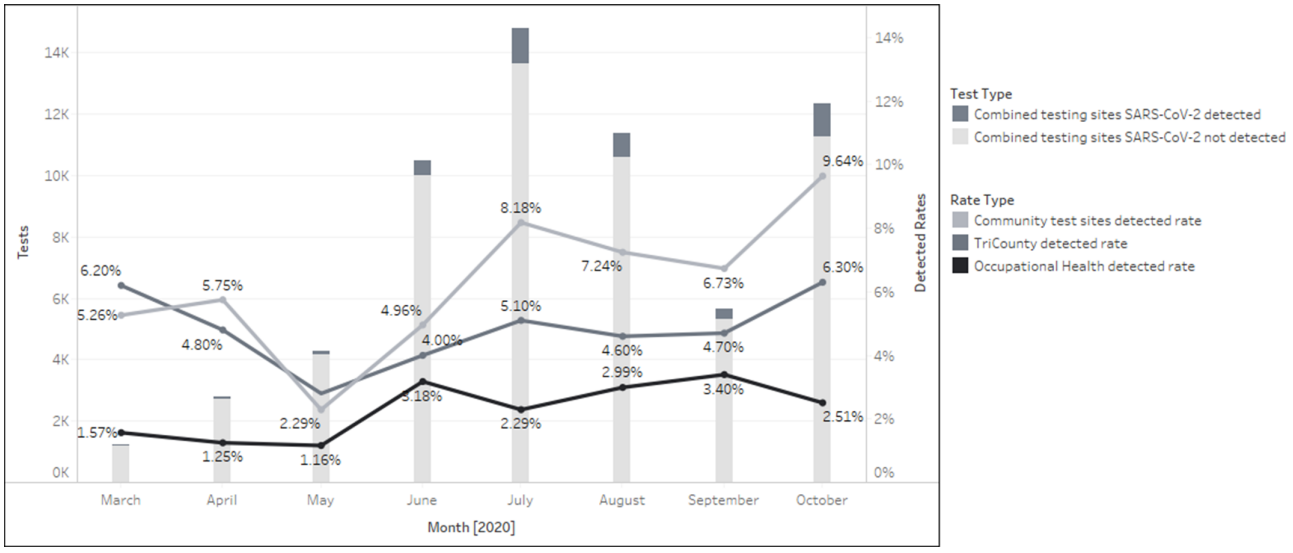

Fig. 1. SARS-CoV-2 tests by month at Oregon Health and Science University testing sites with local tricounty (Multnomah, Washington, and Clackamas counties) detected rates. Test type: combined testing sites SARS-CoV-2 detected and combined testing sites SARS-CoV-2 not detected. Rate type: community test sites detected rate, tricounty detected rate, and occupational health detected rate.

Society of America (IDSA) infection prevention guideline recommends either a medical facemask or N95 respirator for routine care of patients with COVID-19, prioritizing respirators for aerosol-generating procedures (AGPs).[2] The HCW PPE guidance published by our state public health department, Oregon Health Authority (OHA), aligns with the IDSA guidance,[3] as does our healthcare system, Oregon Health and Science University (OHSU). Importantly, OHSU considers both nasopharyngeal (NP) and oropharyngeal (OP) swab collection to be "routine care," and not an AGP.

Starting on March 23, 2020, OHSU launched 2 large-scale drive-through COVID-19 community testing sites. One site is in an open-air sports stadium parking lot, and the second site was in an open-air convention center parking lot. On September 26, 2020, the second site was relocated to a large street-level parking garage to provide overhead coverage during inclement weather. Individuals drive through the site and interact with HCWs at 4 points: an entry point greeter, a station to create an appointment in the electronic health record (EHR), a visual assessment by a registered nurse (RN) with laboratory order entry into the EHR, and finally, a swab by a medical assistant (MA) inside an individual's vehicle. Each site has 7–10 MAs and 2–3 RNs working daily. In total, 90 RNs and 44 MAs have worked at least 1 shift at these sites. In addition to the community sites, the OHSU Occupational Health Department runs a drive-through testing facility on the medical campus, folllowing similar work flows and testing protocols as the community sites. The occupational health site is staffed by 1–2 MAs each 8-hour shift. Overall, 20 MAs have worked at least 1 shift at this site.

HCWs at all sites wear ASTM level 1 face masks and eye protection, predominantly face shields. The same mask is worn for the entire shift, changed only if it becomes moist or compromised. Each HCW clean their own face shield or goggles prior to the start of each shift, before donning and after doffing. Face shields or goggles are stored in paper bags between shifts, are not shared with other workers, and are discarded when compromised. HCWs wear gloves and disposable isolation gowns, which are both changed between vehicles. Hand hygiene is performed with alcohol-based hand sanitizer. The MA and RN staff wear scrubs as part of their professional uniforms.

Specimens for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) polymerase chain reaction (PCR) assay are obtained by nasopharyngeal sampling, except during April when oropharyngeal swabs were used due to supply constraints. All testing sites accommodate symptomatic individuals, as well as asymptomatic persons being tested for medical reasons (eg, future scheduled AGP) or following public health testing guidelines (eg, known exposure to COVID-19).

Between March and October 2020, 55,217 tests were collected from the community testing sites; 3,937 (7.1%) of these tests were positive. Symptomatic individuals (n = 28,826) showed a monthly detected range of 3.6% to 10.6%. Tests from asymptomatic individuals showed a monthly detected range of 0% to 8.2% (Fig. 1). At the community testing sites, 2 HCWs developed symptoms compatible with COVID-19, sought testing through the occupational health site, and tested positive for SARS-CoV-2.

In the same period, 7,781 tests were collected at the occupational health site. Among them, 5,787 were from symptomatic employees with a monthly positive range between 1.8% and 5.7% (Fig. 1). The remainder from asymptomatic persons showed virus detection rates <1%. No HCWs from the occupational health site have had detected tests for SARS-CoV-2.

Our findings confirm that ASTM level 1 face masks (with eye protection, gowns and gloves) provide adequate protection for HCWs while collecting NP or OP swabs for SARS-CoV-2 testing in an outdoor drive-through setting. In >7 months of testing involving 4,104 individuals with PCR-detected SARS-CoV-2, only 2 HCWs (1 RN and 1 MA) became symptomatic; SARS-CoV-2 was detected by PCR in both. The occupational health exposure investigation did not identify any breaches in the RN's PPE use during patient care or work breaks. The results of the MA's exposure investigation are unknown at this time.

These observations have limitations. Our state has an overall low prevalence of COVID-19; thus, our findings may not reflect a level of risk to HCWs in other regions. Although HCWs complete a symptom-based electronic health survey prior to arriving to work each day, an HCW may have become infected but remained asymptomatic. In addition, underreporting of infected HCWs

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may have occurred if they sought testing outside our healthcare system.

Healthcare facilities continue to experience challenges with medical supply chains. N95 respirators should be prioritized for HCWs involved in AGPs on patients with proven or suspected COVID-19. Shifting ambulatory testing to outdoor areas and parking garages allows for natural airflow and ventilation, decreases indoor crowding, and thus can decrease the risk of viral transmission to individuals, including HCWs.[4] To preserve PPE supplies while balancing HCW safety, regulatory bodies should allow healthcare facilities to determine the appropriate PPE for their employees, based on HCW-focused risk assessments, overall community disease prevalence, patient testing location (indoors versus outdoors), and length of anticipated close contact. Our experience demonstrates that NP and OP specimen collection can be safely performed without use of N95 respirators as part of HCW PPE.

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Donning and doffing technique for coverall personal protective equipment, is it safe?

Dayana Souza Fram PhD, Wanderson Eduardo Gomes de Souza Coelho RN, Luciana de Oliveira Matias MSc, Daniela Vieira da Silva Escudero MSc, Thaysa Sobral Antonelli MD, Diogo Boldim Ferreira MSc and Eduardo Alexandrino Medeiros PhD

Division of Infection Control and Hospital Epidemiology, Hospital São Paulo, Universidade Federal de São Paulo, São Paulo, SP, Brazil

To the Editor—The sudden spread of coronavirus disease 2019 (COVID-19) increased the demand for personal protective equipment (PPE), resulting in shortages.[1,2] An observational compliance study regarding specific precautions for COVID-19 patients showed that among improper PPE use, 193 of 322 (60.%) were classified as wasteful practices that contributed to the shortage of these products.[3]

The lack of gowns has ignited a search for alternative PPE such as coveralls. The World Health Organization (WHO) guideline did not recommend coveralls as alternative PPE.[2] The Centers for Disease Control and Prevention mentioned coveralls as alternative PPE, but it did not recommend standardized donning and doffing techniques in the context of COVID-19.[4]

In this study, in a simulated healthcare environment, we proposed replacing the standard gown by a coverall PPE for healthcare professionals (HCPs) providing assistance to patients suspected or confirmed of COVID-19. We tested the safety of donning and doffing the coverall PPE, and we evaluated the opinions of HCPs regarding its use. This donning and doffing technique was based on and adapted from WHO PPE guidelines on filovirus disease outbreak response.[5]

This experimental study was conducted from July to September 2020 in a Brazilian public university. Researchers produced a video and an educational poster based on the technique proposed. The donning sequence was divided into 8 steps, and the doffing sequence was divided into 12 steps (Supplementary Material online).

The study population consisted HCPs in a teaching hospital who assisted patients suspected or confirmed of COVID-19 and consented to volunteer in the study. Overall, 12 professionals were included in the study: 4 were nurses, 4 were physiotherapists, and 4 were physicians. The tests were simulated at the Skills and Simulation Center of the Federal University of São Paulo, Brazil, on 6 different days.

The HCPs were instructed to wear a scrub suit and to watch the video produced to this study. Nurses simulated intimate hygiene and patient positioning; physiotherapists simulated bag squeezing and early mobilization; and physicians simulated cardiac massage and orotracheal intubation.

Before each experiment, a fluorescent marker was applied to the simulation dummy and bed surfaces. A poster showing the sequence of donning and doffing the PPE was placed on the wall of the simulation room.

Author for correspondence: Dayana Souza Fram, E-mail: dayana.fram@unifesp.br

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