








# Should we avoid colleagues in leisure time during the coronavirus disease 2019 (COVID-19) pandemic?

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*To the Editor*— Coronavirus disease 2019 (COVID-19) is a significant occupational threat for healthcare workers (HCWs).<sup>1</sup> The high number of infected HCWs has been explained with occupational exposure to severe acute respiratory coronavirus virus 2 (SARS-CoV-2). Hospitals have implemented infection control measures including proper personal protective equipment (PPE), universal masking in hospitals, and safety distance between coworkers to reduce the transmission.<sup>2,3</sup> However, studies of HCW exposure to COVID-19 outside the workplace have not been published.

We examined HCW occupational and nonoccupational exposures to SARS-CoV-2 in tertiary-care hospitals (Uusimaa, Finland) during the first wave of the COVID-19 pandemic through July 15, 2020. Of 1,072 HCWs enrolled in our study, 866 nurses, midwives, and doctors from the Helsinki University Hospital answered questionnaires by July 15, 2020, regarding their infection symptoms, workplace, exposure to COVID-19, and use of PPE. All participants presenting any COVID-19-related symptoms were tested using standard reverse-transcriptase polymerase chain reaction (RT-PCR) methods.<sup>4</sup> Participants' medical histories were reviewed in July 2020 for SARS-CoV-2 RT-PCR and antibody results. The demographic backgrounds of the participants were similar to those of Helsinki University Hospital (HUS) personnel overall.<sup>5</sup>

All infected participants were contacted, and the results were confirmed and analyzed. COVID-19 exposure was divided into workplace exposure, outside the workplace exposure, or unknown exposure and further into colleague-related exposure, patient-related exposure, or other exposure. The statistical analysis was performed using the Fisher exact test with SPSS version 27 software (IBM, Armonk, NY).

Overall, 41 participants had COVID-19 and presented either a SARS-CoV-2-positive RT-PCR or antibody test. Of these 41 HCWs, 22 were likely infected at a workplace and 15 were likely infected outside the workplace; the rest remained unclear. The source of infection was likely nonpatient exposure for 21 infected participants (51%). The absolute risk for colleague-origin COVID-19 in

this sample was 1.4%, whereas overall regional risk was 0.3%.<sup>5</sup> Also, 7 workplace-related infections (32%) and 5 infections originating outside the workplace (33%) were transmitted by colleagues.

In our sample, if the source of COVID-19 infection was not a patient, the infection was more likely to be from a colleague ( $P < .001$ ), and 42% of infections from a colleague occurred during leisure time. Notably, participants who treated COVID-19 patients (outside the ICU) had an increased risk for COVID-19 overall (OR, 2.6; 95% CI, 1.4–5.2;  $P = .003$ ), but even then, 5 of 26 COVID-19 cases (19%) were transmitted by colleagues outside the workplace.

Although it may seem self-evident, meeting with other HCWs outside the workplace could introduce an independent risk for a COVID-19 infection, especially among those working with COVID-19 patients. Given the close work communities in health care, where social interactions at work and leisure are traditionally easily mixed, the risk of free-time interactions between workers who work with COVID-19 patients should be carefully considered. In this study, we were unable to provide enough evidence for the authoritative guidance to employees because the sample size was limited. Also, it is likely that some asymptomatic SARS-CoV-2-positive participants were not recognized. Nonetheless, it is imperative to observe social distance in collegial interaction in leisure time until there is an effective vaccine against COVID-19.

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## Missed vaccine opportunities for *Streptococcus pneumoniae* and influenza in patients admitted during the coronavirus disease 2019 (COVID-19) pandemic

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*To the Editor*—Detroit, Michigan, and its surrounding counties emerged as a hot spot for the coronavirus disease-2019 (COVID-19) pandemic in March and April of 2020. A number of hospitalized patients had numerous comorbidities, which increased the risk of acquiring the infection: age >65 years, heart or lung disease, lung disease, and diabetes. These comorbidities are also associated with other infections, including invasive *Streptococcus pneumoniae* infection. Our institution follows a standing order for nurses to vaccinate adults aged >65 years who meet the Advisory Committee on Immunization Practices (ACIP) criteria for the 23-valent pneumococcal polysaccharide vaccine (PPSV23) to reduce *S. pneumoniae* infections<sup>1,2</sup> and against influenza during flu season. During the COVID-19 pandemic surge, the pneumococcal vaccine and influenza vaccine nurse-driven protocols were determined to be nonessential on March 23, 2020, and April 2, 2020, respectively. In this study, we aimed to characterize missed vaccine opportunities among patients hospitalized with COVID-19 during this surge.

We performed a cross-sectional study of PCR-positive COVID-19 patients admitted to an inner-city tertiary-care health system and discharged alive between the dates of March 23 and April 21, 2020. Patients under the age of 65 were excluded. Data were collected retrospectively and included patient age, gender, race, length of stay, comorbidities that would indicate a vaccine opportunity, prior vaccinations, and whether there was a vaccine opportunity for PPSV23 and influenza defined by ACIP indications.<sup>2</sup> The indications included age >65 years, chronic lung disease, chronic kidney disease, cardiomyopathy or heart failure, human immunodeficiency virus (HIV), solid-organ malignancy or multiple myeloma, immunosuppressed (ie, on immunosuppressing drugs, long-term steroids, or solid-organ recipient), and other (eg, cochlear implant, cerebrospinal fluid leak, post-splenectomy,

sickle-cell disease, or alcohol-use disorder). Vaccine history was evaluated using the electronic medical record (EMR) and Michigan Care Improvement Registry (MCIR). If there was a vaccine opportunity, we documented whether or not a vaccine was given prior to hospital discharge. In addition, the total numbers of vaccines given for the same periods in 2019 and 2020 were collected from the EMR for comparison. Descriptive analysis was utilized.

Overall, 100 patients over the age of 65 were included. The median age was 71 years; most patients (66%) were of African American race; and 87% of patients received antibiotics during hospitalization. We identified 52 patients as having an opportunity to receive PPSV23, and none patients received the vaccine. Furthermore, 37 patients were eligible to receive influenza vaccine, and none received the vaccine. The median length of stay was 4 days, and 18 patients were readmitted within 30 days.<sup>3,6</sup> Additional results are summarized in Table 1. According to the EMR, the total numbers of pneumococcal vaccinations given per nurse-driven protocol at our institution were 238 for March, 216 for April, and 218 for May. However, these numbers dropped to 123 for March, 11 for April, and 29 for May, corresponding to a percentage decrease in the number of vaccinations given to between 48% and 94%. Similarly, the total numbers of influenza vaccinations given per nurse-driven protocol at our institution were 399 for March, 228 for April, and 38 for May. For the same period in 2020, these numbers dropped to 316 for March, 14 for April, and 0 for May, corresponding to a percentage decrease again as high as 94%.

Due to prioritization of potential staffing shortages and clustering nursing care, a nursing-by-designated-authority protocol for immunization was deemed nonessential during the COVID-19 pandemic surge. As a result, opportunities to vaccinate patients with pneumococcal and influenza vaccines were missed despite an average hospitalization of 4 days to provide the vaccine(s). Of the 52 patients who had an opportunity for pneumococcal vaccination, most (67.3%) had >1 indication for PPSV23, with 7.7% having 4 or more indications. These patients, due to numerous comorbidities, are at high risk for severe pneumococcal disease. The Centers for Disease Control and Prevention (CDC) has offered guidance that during the pandemic, confirmed positive COVID-19 patients should defer routine immunization.<sup>3</sup> Although a febrile

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