

# Data from new CDC study reveal key trends in US healthcare personnel COVID-19 exposures

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A study conducted by researchers from the U.S. Centers for Disease Control and Prevention (CDC) provides the first assessment of reported

COVID-19 exposures over time among U.S. healthcare personnel (HCP) during the global pandemic. Findings from the study, published today in the *American Journal of Infection Control (AJIC)*, suggest that HCPs diagnosed with COVID-19 were most likely to be exposed to SARS-CoV-2 in their workplaces as COVID-19 cases increased in their communities, and offer insights for reducing HCP exposures and risk during future outbreaks.

"Previous reports hypothesized that COVID-19 incidence among HCPs was primarily a result of non-occupational exposures, because HCP who lived in [communities](#) with higher COVID-19 incidence were more likely to become infected with SARS-CoV-2," said Rachael M. Billock, Ph.D., CDC COVID-19 Response Team, and first author on the published study. "Our findings suggest that, particularly during periods of high community incidence of COVID-19, HCP exposures occur both at the workplace and outside of it, with the workplace being a major driver of infections. These results emphasize the continued need for improved infection prevention and [control measures](#) in occupational settings, as well as the need for improved surveillance to identify and reduce occupational exposures to SARS-CoV-2 among HCPs and all workers."

HCPs experienced significant SARS-CoV-2 risk during the COVID-19 pandemic. Through May 2021, 500,000 COVID-19 diagnoses and 1,653 deaths among U.S. HCPs were reported to the CDC, and HCP cases and deaths are known to be undercounted. The study conducted by Dr. Billock and colleagues was designed to identify the settings in which HCPs were exposed to COVID-19 over time, and the relationship between community incidence of COVID-19 and HCP case exposure settings.

Using national, de-identified COVID-19 surveillance data for HCPs diagnosed with COVID-19 who reported COVID-19 exposure between March 1, 2020, to March 31, 2021, the researchers evaluated a range of

variables, including exposure setting (healthcare associated/workplace, home, or community), exposure trends over time, the correlation between COVID-19 incidence in communities and HCP exposure setting, and impact of the national vaccination program. Key findings include:

## **COVID-19 Case Trends Over Time**

- During the specified period, 83,775 HCP diagnosed with COVID-19 with known COVID-19 exposure settings were reported to CDC.
- Reported COVID-19 cases and deaths among HCPs increased rapidly in March 2020. Case counts peaked in early April, July, and December 2020.
- Similarly, deaths were most frequent among HCP cases with earliest associated dates in April 2020 and reached a secondary peak in December 2020-January 2021.

## **COVID-19 Exposure Setting**

- Between March 2020 and March 2021, HCPs with COVID-19 were more likely to report known exposures to SARS-CoV-2 in the workplace (52%), compared to their household (30.8%) or community (25.6%).
- The proportion of HCP cases reporting healthcare-associated (i.e., workplace) exposures peaked in April 2020 at 84% and declined in May and June 2020.
- Approximately two-thirds of HCPs with COVID-19 who reported exposure on the job and specific exposure type/s reported exposures to patients with COVID-19 and to other HCPs with COVID-19, respectively. This finding underscores the importance of improved infection prevention and control

(IPC) measures to address transmission through all healthcare-associated routes, including co-worker to co-worker, during future outbreaks.

- The largest reductions in workplace exposures were observed early in the pandemic (June 2020) following the introduction of improved IPC measures and later in December 2020, following initiation of the national COVID-19 HCP vaccination program.

## Correlation Between Workplace Exposure and Community Prevalence

- The CDC study revealed that heightened community incidences of COVID-19 were associated with greater numbers of HCPs with COVID-19 reporting workplace exposures and fewer reporting household or community exposures.
- HCP cases were more likely to report healthcare exposures (aPR = 1.31; 95% CI: 1.26-1.36) and less likely to report household and/or community exposures (aPR = 0.73; 95% CI: 0.70-0.76) under the highest vs lowest community incidence levels.
- Despite researchers' hypothesis that there would be a [positive association](#) between community incidence and healthcare-associated exposure prevalence at the start of the pandemic, but that this trend would reverse over time as healthcare workplaces implemented improved IPC measures and some community [preventive measures](#) were relaxed, the proportion of HCPs diagnosed with COVID-19 who were exposed to COVID-19 at work continued to trend with community COVID-19 incidence. This association was maintained until vaccination programs began in December 2020, emphasizing that even improved IPC measures were not wholly sufficient to protect HCPs from [occupational exposures](#) during periods of high community incidence.

## Impact of National Vaccination Program

- Following initiation of the national HCP COVID-19 vaccination program in mid-December 2020, researchers observed a sharp decline in HCPs diagnosed with COVID-19. From December 2020 through March 2021, healthcare-associated exposures flipped from the most commonly reported exposure type among HCP to the least.
- These findings suggest that HCPs, regardless of personal vaccination status, may have experienced reduced workplace exposures due to early vaccination among coworkers and some patient populations.

"This study provides important insights to guide infection prevention and control practices in healthcare settings so that we can better protect HCPs and their patients," said Linda Dickey, RN, MPH, CIC, FAPIC, and 2022 APIC president. "Additionally, it reiterates the importance of collecting data on HCP work-related variables, such as industry, occupation, and [workplace](#) exposures, in infectious disease surveillance."

**More information:** Reported exposure trends among healthcare personnel COVID-19 cases, USA, March 2020-March 2021, *American Journal of Infection Control* (2022). [DOI: 10.1016/j.ajic.2022.01.007](https://doi.org/10.1016/j.ajic.2022.01.007)

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