Intentions for uptake of the coronavirus disease 2019 (COVID-19) vaccine booster in healthcare workers

Tyler D. Stone MPH[1], Cerina Lee MPH[2], Jacqueline Bannon PhD, RN[3,4], Thanh-Huyen T. Vu MD, PhD[5], Lisa R. Hirschhorn MD, MPH[3,6], John T. Wilkins MD, MS[5,6,7] and Charlesnika T. Evans PhD, MPH[4,5,8]

[1]Program in Public Health, Northwestern University, Chicago, Illinois, [2]Center for Education in Health Sciences, Institute for Public Health and Medicine, Northwestern University, Chicago, Illinois, [3]Department of Medical Social Sciences, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, [4]Center for Health Services and Outcomes Research, Institute for Public Health and Medicine, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, [5]Department of Preventive Medicine, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, [6]Ryan Family Center for Global Primary Care, Robert J. Havey Institute of Global Health, Chicago, Illinois, [7]Division of Cardiology, Department of Medicine, Feinberg School of Medicine, Northwestern University, Chicago, Illinois and [8]Center of Innovation for Complex Chronic Healthcare, Department of Veterans' Affairs, Edward Hines, Jr., VA Hospital, Hines, Illinois

To the Editor—Healthcare workers (HCWs) are at high-risk for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) infection.[1,2] They are influencers in vaccination for the public, and some have demonstrated hesitancy in receiving the coronavirus disease 2019 (COVID-19) vaccination.[3] As of June 2022, 17% of HCWs in the United States had not been vaccinated.[4] In addition, little is known of HCW receipt of booster vaccinations. In the face of SARS-CoV-2 becoming endemic, it is important to understand facilitators and barriers to booster uptake. Thus, we conducted an analysis describing HCW perceptions on and intentions to get the booster vaccine using data from a prospective cohort of HCWs August 2021 to April 2022 at Northwestern Medicine.[1–3]

Our study's methodology has been previously described.[1–3] Briefly, HCWs from 10 hospitals, 18 immediate-care centers, and 325 outpatient practices in the Chicago area and suburbs originally provided consent in May 2020–June 2020 to participate in a cohort study assessing the risk of COVID-19. Individuals completed baseline and follow-up surveys capturing demographics and risk factors including occupational tasks and COVID-19 vaccination. This analysis used questionnaires completed between August 2021 and October 2021, and a follow-up survey conducted in April 2022.

We used descriptive statistics for participants' self-reported demographics (age, race or ethnicity, living situation), occupation, and exposure risks for COVID-19. Due to the small sample size, the responses to the question on intentions to get a COVID-19 booster were combined (Yes: 'Yes, I have already gotten the shot', 'Yes, I plan to get the shot'; No: 'No', or 'Unsure') to form a binary outcome of intention or receipt of the booster vaccine. The χ^2 analyses (unadjusted associations) and logistic regression (adjusted associations) were performed between respondent factors and intention or receipt of the COVID-19 booster vaccine. Previous research on COVID-19 risk and sample size drove classifications for occupation and race and ethnicity.[3] The final model was selected based on variable significance and the literature showing associations with vaccination.[1–3] Statistical significance was determined using the adjusted odds ratios (AORs) or $P < .05$.

Overall, 2,600 (72.8%) of 3,571 enrolled completed the baseline survey. Respondents were older and more likely to identify as female and White race than nonrespondents and were more likely to work in non–patient-facing administrative positions and less likely to work as physicians or registered nurses. After excluding 152 respondents due to incomplete data, the final analytical sample was 2,448. Overall, 82.8% of HCW respondents indicated they would get or had already received the booster vaccine, and 17.2% were not willing to get or unsure about getting the booster vaccine. Unadjusted analyses showed booster vaccine intentions or receipt were highest in physicians (93.5%), Asian HCWs (92.7%), men (88.4%), and HCWs who had been in patient rooms (85.0%).

Logistic regression showed physicians continued to have 2.8 times higher odds of intending to get or having received the booster compared to administrative staff (Table 1). Compared to Asian HCWs, all other race and ethnicity groups had lower odds of intention to get or having received the booster. Respondents aged 30–49 years had lower odds of intention to get or receipt of a booster compared to those aged <30 years.

The following reasons were most frequently selected (>10% endorsed) for willingness to get or having gotten a booster vaccine: data showing additional protection (43.7%), not seeing a downside to getting another shot (24.8%), and recommendation by provider (19.1%). The following reasons were most frequently given for not wanting a booster vaccine (>10% endorsed): needing more data on the vaccine (32.4%), feeling that they do not need the booster (26.0%), fear of possible side effects (20.0%), and concern that other countries have not gotten enough shots (11.9%). Respondents were asked about willingness to get annual COVID-19 vaccine; most (86.4%) gave a positive response, but 13.6% were unsure or not willing. Most of those unwilling to get an annual COVID-19 shot (n = 335), were also not willing to get a booster (77.6%). The follow-up survey in April 2022 showed that of those 1,778 who completed this survey, 85.0% had received at least 1 booster vaccine. Of those 313 who reported no intentions to receive a vaccine booster in August 2021–October 2021 survey, fewer than half had received at least 1 booster vaccine (42.5%).

Most HCWs (82.8%) in this sample planned or had received the COVID-19 vaccine booster August 2021–October 2021, and 85% had received the booster by April 2022. This willingness or receipt was higher than the uptake rate for US adults (51.5%) as of August 2022,[5] for US healthcare personnel (67.1%) in the 2021–2022 season,[6] and for Chicago adults (47.3%) as of November 21,

Author for correspondence: Charlesnika T. Evans, E-mail: Charlesnika-evans@northwestern.edu

Cite this article: Stone TD, *et al.* (2023). Intentions for uptake of the coronavirus disease 2019 (COVID-19) vaccine booster in healthcare workers. *Infection Control & Hospital Epidemiology*, 44: 690–692, https://doi.org/10.1017/ice.2022.307

Table 1. Participant's Intention to Get or Receipt of COVID-19 Booster Vaccine

Characteristics	Overall No.	Intention to Get or Had Received the Booster			Adjusted Odds Ratio (95% CI)[c]
		Yes, No. (%)	No, No. (%)[a]	*P* Value[b]	
No.	2,448	2,026	442		
Age category					
18–29 y	353	300 (85.0)	53 (15.0)	.10	Reference
30–49 y	1,342	1,096 (81.7)	246 (18.3)		**0.69 (0.49–0.95)**
50–59 y	490	401 (81.8)	89 (18.2)		0.73 (0.50–1.06)
60+ y	263	229 (87.1)	34 (12.9)		1.10 (0.66–1.69)
Sex					
Male	447	395 (88.4)	52 (11.6)	**<.001**	Reference
Female	2,001	1,631 (81.5)	370 (18.5)		0.76 (0.55–1.06)
Race or ethnicity					
Asian	204	189 (92.7)	15 (7.3)	**<.001**	Reference
Hispanic/Latino	137	105 (76.6)	32 (23.4)		**0.36 (0.18–0.69)**
Non-Hispanic Black	46	36 (78.3)	10 (21.7)		**0.38 (0.15–0.92)**
Non-Hispanic White	1,992	1,643 (82.5)	349 (17.5)		**0.45 (0.26–0.77)**
Multiracial/AI/AN/NP/PI/ Other/NA[d]	69	53 (76.8)	16 (23.2)		**0.31 (0.14–0.68)**
Occupation					
Non–patient-facing administrative	435	354 (81.4)	81 (18.6)	**<.0001**	Reference
Physician	458	428 (93.5)	30 (6.5)		**2.85 (1.80–4.48)**
Registered nurses	748	619 (82.8)	129 (17.2)		1.10 (0.79–1.48)
Other occupations[e]	807	625 (77.5)	182 (22.5)		0.77 (0.57–1.03)
Are you living with any children who are under the age of 12?					
No	1,286	1,062 (82.6)	224 (17.4)	.29	
Yes	693	559 (80.7)	134 (19.3)		
Since July 2021, in your job, have you interacted with patients face to face?					
No	393	315 (80.2)	78 (19.8)	.14	
Yes	2,055	1,711 (83.3)	344 (16.7)		
Since July 2021, have you been in the room during a patient examination or procedure?					
No	1,058	844 (79.8)	214 (20.2)	**<.001**	
Yes	1,390	1,182 (85.0)	208 (15.0)		

[a]Due to smaller sample size and similar responses, 'No' and 'Unsure' responses were grouped together, and 'Yes' responses were grouped together to form a binary outcome of intention or receipt of the booster compared to no or being unsure about getting the booster.
[b]Bolded items were statistically significant at $P < .05$ in unadjusted χ^2 analyses.
[c]The final parsimonious logistic regression model only included factors that remained significant in the model (95% confidence interval does not include 1). These factors were age, race/ethnicity, and occupation.
[d]AI/AN/NH/PI/Other/NA/Multiracial:s American Indian/Alaska Native/Native Hawaiian/Other Pacific Islander/other/did not answer.
[e]Other occupation: clinical education staff, high risk respiratory therapist, laboratory personnel, medical assistants, mental health consoler, PT/OT/speech pathologist, pharmacy, phlebotomist, radiology-radiograph technician, sonographer, patient care technician, and support services.

2022.[7] This higher rate of actual or planned booster uptake in our cohort is encouraging given the toll of COVID-19 among HCWs and the need for HCWs to be trusted purveyors of health information. High booster uptake rates in physicians and specific HCW populations are consistent with previous data showing higher vaccination rates in physicians than other HCWs including nurses and by age and race.[3,6,8]

This study had several limitations. The survey was self-reported. There were differences in respondents versus nonrespondents. We were unable to distinguish between vaccine refusers ('no') and those who are hesitant ('unsure') due to low numbers endorsing these responses. The generalizability of our results may be limited because attitudes and political beliefs are associated with COVID-19 vaccination and vary by geographic location.[9]

Reflecting our results on most common reasons for booster hesitancy or refusal, more data and effective communication are key for continued efforts to improve COVID-19 vaccination overall and booster uptake. This is specifically important for those who still had not received a booster vaccine as of April 2022. Continued understanding of hesitancy in HCWs and providing clear communication as vaccine guidelines change is necessary to encourage uptake in the population.

https://doi.org/10.1017/ice.2022.307 Published online by Cambridge University Press

Acknowledgments. The opinions, results, and conclusions reported are those of the authors. No endorsement by Northwestern Medicine or any of its funders or partners is intended or should be inferred.

Financial support. This work was supported by the Northwestern University Clinical and Translational Sciences Institute (grant no. UL1TR001422), the Northwestern Memorial Foundation, and the Peter G. Peterson Foundation Fund.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

References

1. Wilkins JT, Hirschhorn LR, Gray EL, *et al.* Serologic status and SARS-CoV-2 infection over 6 months of follow up in healthcare workers in Chicago: a cohort study. *Infect Control Hosp Epidemiol* 2022;43:1207–1215.
2. Wilkins JT, Gray EL, Wallia A, *et al.* Seroprevalence and correlates of SARS-CoV-2 antibodies in healthcare workers in Chicago. *Open Forum Infect Dis* 2020;8(1):ofaa582.
3. Evans CT, DeYoung BJ, Gray EL, *et al.* Coronavirus disease 2019 (COVID-19) vaccine intentions and uptake in a tertiary-care healthcare system: a longitudinal study. *Infect Control Hosp Epidemiol* 2021. doi: 10.1017/ice.2021.523.
4. Gu M, Taylor B, Pollack HA, Schneider JA, Zaller N. A pilot study on COVID-19 vaccine hesitancy among healthcare workers in the US. *PLoS One* 2022;17:e0269320.
5. CDC COVID data tracker. Centers for Disease Control and Prevention website. https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total. Accessed August 23, 2022.
6. Razzaghi H, Srivastav A, de Perio MA, Laney AS, Black CL. Influenza and COVID-19 vaccination coverage among healthcare personnel—United States, 2021–2022. *Morb Mortal Wkly Rep* 2022;71:1319–1326.
7. COVID-19 vaccine coverage. Chicago Department of Public Health website. https://www.chicago.gov/city/en/sites/covid19-vaccine/home/covid-19-vaccine-coverage.html. Accessed November 23, 2022.
8. Huang Q, Gilkey MB, Thompson P, Grabert BK, Dailey SA, Brewer NT. Explaining higher COVID-19 vaccination among some US primary-care professionals. *Soc Sci Med* 2022;301:114935.
9. Dhanani LY, Franz B. A meta-analysis of COVID-19 vaccine attitudes and demographic characteristics in the United States. *Public Health* 2022; 207:31–38.

Hepatitis A virus transmission in a dental clinic setting

Adi Vinograd MD[1], Debby Ben-David MD[2,3], Yael Gozlan PhD[4], Orna Mor PhD[3,4], Zohar Mor MD[5,6], Rivka Sheffer MD[1] and Michal Savion MD[1]

[1]Tel Aviv Department of Health, Israel Ministry of Health, Tel Aviv, Israel, [2]National Center for Infection Control, Israel Ministry of Health, Tel Aviv, Israel, [3]Sackler Faculty of Medicine, Tel-Aviv University, Tel Aviv, Israel, [4]Central Virology Laboratory, Ministry of Health, Sheba Medical Center, Ramat-Gan, Israel, [5]Central Department of Health, Israel Ministry of Health, Ramle, Israel and [6]School of Health Sciences, Ashkelon Academic College, Ashkelon, Israel

To the Editor—Hepatitis A virus (HAV) is a major cause of acute hepatitis, transmitted by the fecal–oral route.[1,2] Nosocomial HAV outbreaks usually involve undiagnosed disease of an index patient and poor hygiene practices of healthcare personnel (HCP).[3]

In this report, we describe the results of a contact investigation of a distinctive HAV transmission route in a dental clinic.

Methods

In 2021, the epidemiology department of the Tel-Aviv district of the Israel Ministry of Health (MOH) received a report of a case of hepatitis A. An investigation was initiated. The reported case and 2 additional patients were interviewed using a standardized questionnaire, and their medical records were reviewed. The MOH conducted a site investigation of a dental practice based on the questionnaire findings to assess knowledge and implementation of infection control practices.

Serum specimens from the 3 cases were tested for anti-HAV IgM antibodies and HAV RNA by real-time PCR technology. All HAV RNA-positive samples were sequenced to determine the viral genotype as previously described.[4]

This research was exempted from the institutional ethics committee review requirements.

Author for correspondence: Dr. Adi Vinograd, E-mail: Adigold12@gmail.com

Cite this article: Vinograd A, *et al.* (2023). Hepatitis A virus transmission in a dental clinic setting. *Infection Control & Hospital Epidemiology*, 44: 692–693, https://doi.org/10.1017/ice.2023.16

Results

Case descriptions of infected patients

A 64-year-old woman was admitted to a hospital with fever, weakness, anorexia, and painless jaundice. She was diagnosed with acute hepatitis A and the case was reported to the MOH. The epidemiological investigation revealed that the patient had had a superficial routine dental exam including exposure to sterile instruments and the dentist's hands a month before her admission. A few days after this procedure, her dentist informed her that he had been diagnosed with acute hepatitis A. Because all cases of HAV must be reported to the MOH with a subsequent epidemiological investigation, his case was known to local health authorities. Nevertheless, his work as a dentist was not known to the MOH until the patient's case was reported. The epidemiologic investigation of the dentist found that his spouse had been diagnosed with HAV 54 days prior to the report of the dental patient's HAV infection. The dentist had not been vaccinated against HAV in the past, and after a serological test found him negative for IgM antibodies, he was given a dose of HAV vaccine as post-exposure prophylaxis (PEP) 8 days after the spouse was diagnosed with HAV. Nevertheless, he became symptomatic and was diagnosed with HAV 3 weeks after receiving the HAV vaccine. As a result, he stopped working and immediately informed his colleagues and patients who had had procedures the week before his symptoms began. Other than the 64-year-old patient, no other cases of HAV among his patients were reported to the MOH. The dentist's spouse had been diagnosed in a hospital while she was