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## Concise Communication

# Coronavirus disease 2019 (COVID-19) vaccination preparedness policies in US hospitals

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### Abstract

We surveyed infectious disease specialists about early coronavirus disease 2019 (COVID-19) vaccination preparedness. Almost all responding institutions rated their facility's preparedness plan as either excellent or adequate. Vaccine hesitancy and concern about adverse reactions were the most commonly anticipated barriers to COVID-19 vaccination. Only 60% believed that COVID-19 vaccination should be mandatory.

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The initially limited supplies of vaccines against coronavirus disease 2019 (COVID-19) prompted the prioritization of high-risk groups. Healthcare personnel (HCP) were included because they are at risk of exposure, are critical to maintaining healthcare delivery systems, and because, if infected, they may infect their patients with COVID-19. Although vaccinating HCP is an important approach to preventing the spread of vaccine-preventable illnesses in healthcare settings,<sup>1,2</sup> vaccination rates for some diseases are suboptimal.<sup>3</sup> Given the morbidity and mortality associated with COVID-19, as well as its ability to spread in healthcare settings, low vaccination rates among HCP would pose a serious concern for public health.

Multiple challenges confront current campaigns to vaccinate HCP against COVID-19: addressing vaccine hesitancy, communicating about and managing potential side effects, scheduling multiple doses, prioritizing different groups of HCP, and unpredictable supply requiring staged rollouts of the vaccination. There are also logistical issues related to vaccine storage and handling. Infectious disease physicians may play an important role in informing this vaccination process, and they are likely to be asked questions about COVID-19 vaccination by their colleagues. The purpose of this survey was to learn more about plans to vaccinate HCP against COVID-19.

### Methods

A 10-question, web-based survey link was distributed to all 1,837 active infectious disease (ID) physician members of the Infectious Diseases Society of America (IDSA) Emerging Infections Network (EIN). The IDSA EIN is funded by the CDC to serve as a provider-based surveillance network for emerging infections and related phenomena.<sup>4</sup> The survey was open between December 10, 2020, and

January 2, 2021. Nonresponding members were sent e-mail reminders twice after the initial e-mail. An opt-out answer option was provided for members who were not aware of COVID-19 vaccination plans at their hospital or institution. Respondents were not required to answer all questions, so total responses to individual questions varied. The survey asked about vaccine prioritization in the member's healthcare institution, how the initial planned vaccination process was structured, barriers to HCP vaccination, and longer-term vaccination management strategies. Members' practice characteristics were obtained from the EIN member database. Categorical variables were compared using the  $\chi^2$  test or the Fisher exact test and SAS version 9.4 software (SAS Institute, Cary, NC).

### Results

In total, 767 ID physicians responded among 1,837 active members (42%). Moreover, 178 respondents (23% of 767 respondents) indicated that they were not aware of COVID-19 vaccine plans; 30 of these respondents answered 1 of the survey questions, and 589 respondents answered most of the survey questions. The total possible denominator for each question was 619.

Practice characteristics of the 767 respondents are shown in Table 1. Respondents were significantly more likely than nonrespondents to have >14 years of ID experience ( $P < .0001$ ). All US Census divisions are represented, as are a variety of hospital types; 22% of respondents represented community hospitals.

### Vaccine prioritization

In total, 571 respondents (95%) reported that their facilities had a plan for determining which HCP would be vaccinated first. Among a list of possible prioritization methods, respondents could select any that applied. The most frequent choice was 'by hospital unit,' which was indicated by 226 (40%). An additional 254 respondents selected 'by hospital unit' along with other option(s), resulting in 480 of 571

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**Table 1.** Practice Characteristics of Survey Responders

Characteristic	No. (%)
<b>Practice type</b>	
Adult infectious diseases	591 (77)
Pediatric infectious diseases	176 (23)
<b>Region</b>	
New England	67 (9)
Mid Atlantic	109 (14)
East North Central	103 (13)
West North Central	76 (10)
South Atlantic	129 (17)
East South Central	38 (5)
West South Central	57 (7)
Mountain	39 (5)
Pacific	142 (19)
Puerto Rico or Canada	7 (1)
<b>Years experience since ID fellowship<sup>a</sup></b>	
<5 y	137 (18)
5–14 y	241 (31)
15–24 y	165 (21)
≥25 y	224 (29)
<b>Employment</b>	
Hospital/clinic	274 (36)
Private/group practice	160 (21)
University/medical school	297 (39)
VA and military	36 (5)
<b>Primary hospital type</b>	
Community	166 (22)
Nonuniversity teaching	206 (27)
University	319 (42)
VA hospital or Department of Defense	40 (5)
City/county (public)	31 (4)

Note. ID, infectious disease; VA, Veterans' Affairs.

<sup>a</sup>Respondents were significantly more likely than nonrespondents to have >14 years of ID experience ( $P < .0001$ ).

(84%) who reported that hospital unit or area (eg, COVID wards, ICUs) would be the primary prioritization method. Other prioritization methods included by job title or type of work ( $n = 182$ , 32%), HCP at highest risk of severe illness due to age or comorbidities ( $n = 175$ , 31%), lottery ( $n = 24$ , 4%), first come–first served ( $n = 20$ , 4%), other ( $n = 19$ , 3%), and not sure ( $n = 16$ , 3%).

Respondents were asked about 4 possible exclusion criteria. HCP who had documented COVID-19 any time in 2020 were the least likely to be offered vaccine in the initial rollout ( $n = 370$ , 61%), followed by HCP who had documented COVID-19 in the last 90 days ( $n = 218$ , 36%), pregnant or lactating HCP ( $n = 224$ , 37%), and HCP with a history of anaphylaxis ( $n = 147$ , 25%).

### Initial vaccination process

Only 73 (12%) of 599 respondents reported that their facilities planned to publicly vaccinate senior leadership as soon as possible,

**Table 2.** Barriers to HCP Vaccination as Reported by 566 Infectious Disease Physicians<sup>a</sup>

Barrier	No. (%)
Willingness of HCP to receive vaccine (hesitancy)	326 (58)
Concern about adverse reactions (eg, allergic reaction)	318 (56)
Staff absences related to anticipated side effects such as fever	263 (46)
Sufficient occupational health staff to manage vaccination	214 (38)
Priority selection of first staff to receive vaccine	176 (31)
Cold storage requirement for vaccine	100 (18)
Physical space to vaccinate while maintaining social distancing	98 (17)
Recordkeeping/vaccination reporting to public health	90 (16)
Difficulty getting to vaccine administration location(s) for HCP	65 (11)
Other	0 (0)

Note. HCP, healthcare personnel.

<sup>a</sup>Respondents were asked to select the top 4 barriers to COVID-19 vaccine rollout in their facilities. Numbers add to >100%.

whereas 227 (38%) of 599 said yes but only when there are sufficient supplies or when the prioritization scheme reaches them. Regarding workplace absences for expected vaccine side effects (eg, fever, myalgias, headache), 354 (59%) reported that their facility had a plan to manage postvaccination symptoms (eg, to differentiate COVID-19 from postvaccine symptoms and to determine which HCP need work restrictions), and 380 (63%) reported that their facility planned to stagger vaccinations within units to avoid staff shortages. Also, 588 rated their facility's current preparedness for rapid vaccine rollout. The responses were as follows: 'excellent' ( $n = 278$ , 47%), 'adequate' ( $n = 285$ , 49%), and 'not ready' ( $n = 25$ , 4%).

### Barriers to HCP vaccination

Respondents were asked to select the top 4 barriers to COVID-19 vaccine rollout in their facilities, among 10 listed options (Table 2). Among 566 respondents, the single option selected most often was "willingness of HCP to receive vaccine (ie, hesitancy)," which was indicated by 326 (58%). There were 180 different combinations of responses, and the most frequent was "hesitancy" plus "staff absences" plus "adverse reactions" by 35 (6%).

### Long-term vaccine management strategies

Respondents were asked whether influenza and COVID-19 (after full FDA approval) vaccinations should be mandatory with medical exemptions for HCP. Moreover, 90% believed that influenza vaccination should be mandatory, whereas only 60% believed that COVID-19 vaccination should be mandatory. Finally, when asked how concerned they were about the potential for vaccine refusal or hesitancy among HCP in their own facility, 25% reported being very concerned, 63% reported being somewhat concerned, and 12% reported no concern.

### Discussion

Our results demonstrate that almost all respondents' institutions had a plan for vaccination in place prior to vaccine release, and most of these respondents rated their facility's preparedness for a rapid vaccine rollout as either excellent or adequate. Vaccine hesitancy was the most commonly anticipated barrier

to COVID-19 vaccination, and concern about adverse reactions was the second most common barrier. Only 60% believed that COVID-19 vaccination should be mandatory.

Vaccine hesitancy is associated with vaccine-preventable disease outbreaks<sup>5,6</sup> and, for COVID-19, may add to the risk of increasing the spread of SARs-CoV-2. Indeed, our respondents listed vaccine hesitancy as the greatest threat to COVID-19 vaccination campaigns. Interestingly, whereas 90% were in favor of mandatory influenza vaccination for HCP, only 60% were in favor of mandatory COVID-19 vaccination. For influenza, making the vaccine mandatory for HCP has been a highly effective approach to increasing vaccination rates.<sup>7,8</sup> As the COVID-19 vaccination campaign proceeds, experience with available vaccines grows, and vaccine supply increases, opinions about making it mandatory may shift. Other approaches to improving vaccine uptake include using community leaders to reinforce the value of vaccination to protect the community and to correct misinformation.<sup>9,10</sup>

Our study has several limitations. Approximately 20% of US ID physicians are EIN members, and they must elect to join. Thus, these results may not be fully generalizable. We collected ID physician opinions; responses were not validated by data collected from institutions. Finally, physicians who were involved in developing COVID-19 vaccination plans may have been more likely to respond and rate those plans as adequate.

Despite the limitations, our results indicate that most healthcare institutions appear to have adequate plans for COVID-19 vaccination, but respondents expressed concerns about vaccine hesitancy and the risk of side effects as barriers to vaccination. Our results highlight the need to monitor HCP vaccination rates and possible barriers.

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

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