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COVID-19 Vaccination Preparedness Policies in U.S. Hospitals

¹Susan E. Beekmann, RN, MPH; ²Hilary M. Babcock, MD, MPH; ³Mark S. Rasnake, MD;

⁴Thomas R. Talbot, MD, MPH; ¹Philip M. Polgreen, MD, MPH

¹University of Iowa Carver College of Medicine, Iowa City, IA

²Washington University School of Medicine, St Louis, MO

³University of Tennessee Graduate School of Medicine, Knoxville, TN

⁴Vanderbilt University School of Medicine, Nashville, TN

Corresponding author: Susan E. Beekmann

Department of Internal Medicine SW34 GH, 200 Hawkins Dr, Iowa City, IA 52245

Tel: 319-384-8622, Fax: 319-384-8860, Email: susan-beekmann@uiowa.edu

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ABSTRACT

We surveyed infectious disease specialists about early COVID-19 vaccination preparedness.

Almost all respondents' institutions rated their facility's preparedness plan as either excellent or adequate. Vaccine hesitancy and concern about adverse reactions were the most common anticipated barriers to COVID-19 vaccination. Only 60% believed currently that COVID-19 vaccination should be mandatory.

INTRODUCTION

The initial limited supplies of vaccines against 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 prevent the spread of vaccine-preventable illnesses in healthcare settings,^{1,2} vaccination rates for some diseases are suboptimal.³ 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 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.⁴ The survey was open between

December 10, 2020 and January 2, 2021; non-responding members were sent emailed reminders twice after the initial email. An opt-out answer option was provided for members who were not aware of COVID-19 vaccination plans at their hospital/institution. Respondents were not required to answer all questions, so total responses for individual questions varied. The survey asked about vaccine prioritization in members' healthcare institutions, 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 χ^2 test or Fisher's exact test (SAS v. 9.4, Cary, NC).

RESULTS

Seven hundred sixty-seven ID physicians responded among 1,837 active members (42%). One hundred seventy-eight respondents (23% of 767 respondents) indicated they were not aware of COVID-19 vaccine plans, although 30 of these respondents answered one of the survey questions. Five hundred eighty-nine respondents answered most of the survey questions. The total possible denominator for each question is 619.

Practice characteristics of the 767 respondents are shown in Table 1. Respondents were significantly more likely than non-respondents to have more than 14 years of ID experience ($p < 0.0001$). All U.S. Census divisions are represented, as are a variety of hospital types with 22% of respondents representing community hospitals.

Vaccine Prioritization

Five hundred seventy-one 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’ by 226 (40%). An additional 254 respondents selected ‘By hospital unit’ along with other option(s), resulting in 480/571 (84%) who reported that hospital unit/area (e.g., COVID wards, ICUs) would be the primary prioritization method. Other prioritization methods included: by job title or type of work (by 182, 32%), HCP at highest risk of severe illness due to age/comorbidities (175, 31%), lottery (24, 4%), first come – first served (20, 4%), other (19, 3%) and not sure (16, 3%).

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

Initial Vaccination Process

Only 12% (73/599) reported that their facilities planned to publicly vaccinate senior leadership as soon as possible, while 38% (227/599) said yes but only when there are sufficient supplies or when the “prioritization scheme” reaches them. Regarding workplace absences for expected vaccine side effects (e.g., fever, myalgias, headache), 354 (59%) reported that their facility had a plan to manage post-vaccination symptoms (e.g., differentiate COVID-19 from post-vaccine symptoms; determine which HCP need work restrictions), and 380 (63%) reported that their facility planned to stagger vaccinations within units to avoid staff shortages. Five-hundred eighty-eight rated their facility’s current preparedness for rapid vaccine rollout. Responses were: ‘excellent’ (278, 47%), ‘adequate’ (285, 49%), and ‘not ready’ (25, 4%).

Barriers to HCP Vaccination

Respondents were asked to select the top four barriers to COVID-19 vaccine rollout in their facilities, among ten listed options (Table 2). Among 566 respondents, the single option selected most often was “willingness of HCP to receive vaccine (hesitancy)” 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. Ninety percent believed that influenza vaccination should be mandatory while only 60% believed 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 the vast majority of these respondents rated their facility’s preparedness for a rapid vaccine rollout as either excellent or adequate. Vaccine hesitancy was the most common anticipated barrier to COVID-19 vaccination, and concern about adverse reactions was selected as the second most common barrier. Only 60% believed that COVID-19 vaccination should be mandatory.

Vaccine hesitancy is associated with vaccine-preventable disease outbreaks^{5,6} and, for COVID-19, may be a threat to increasing spread of COVID-19. Indeed, our respondents listed

vaccine hesitancy as the greatest threat to COVID-19 vaccination campaigns. Interestingly, while 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 increase vaccination rates.^{7,8} 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 improve vaccine uptake include using community leaders to reinforce the value of vaccination to protect the community and correct misinformation.^{9,10}

Our work has limitations. About 20% of U.S. ID physicians are EIN members, but must elect to join. Thus, these results may not be fully generalizable. We collected ID physicians' 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 the majority of healthcare institutions appear to have adequate plans for COVID-19 vaccination, but respondents expressed concerns about vaccine hesitancy and 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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Table 1. Practice Characteristics of Survey Responders

Practice type:

Adult infectious diseases	591 (77%)
Pediatric infectious diseases	176 (23%)

Region:

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%)

Years' experience since ID fellowship:*

<5 years	137 (18%)
5-14 years	241 (31%)
15-24 years	165 (21%)
≥25 years	224 (29%)

Employment:

Hospital/clinic	274 (36%)
Private/group practice	160 (21%)

University/medical school	2997 (39%)
VA and military	36 (5%)
Primary hospital type:	
Community	166 (22%)
Non-university teaching	206 (27%)
University	319 (42%)
VA hospital or Department of Defense	40 (5%)
<u>City/county (public)</u>	<u>31 (4%)</u>

*Respondents were significantly more likely than non-respondents to have more than 14 years of ID experience (p<0.0001)

Table 2. Barriers to HCP vaccination as reported by 566 infectious disease physicians.

Respondents were asked to select the top four barriers to COVID-19 vaccine rollout in their facilities. Numbers add to more than 100%

Willingness of HCP to receive vaccine (hesitancy)	326 (58%)
Concern about adverse reactions (e.g. 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%)