



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



JAMDA

journal homepage: [www.jamda.com](http://www.jamda.com)

## Original Study

# COVID-19 Vaccination in VA Home Based Primary Care: Experience of Interdisciplinary Team Members



Tamar Wyte-Lake DPT, MPH<sup>a,b,\*</sup>, Chelsea Manheim MSW<sup>c</sup>,  
 Suzanne M. Gillespie MD, RD<sup>d,e</sup>, Aram Dobalian PhD, JD, MPH<sup>a,f</sup>,  
 Leah M. Haverhals PhD, MA<sup>c,g</sup>

<sup>a</sup> Veterans Emergency Management Evaluation Center, North Hills, CA, USA

<sup>b</sup> Department of Family Medicine, Oregon Health & Science University, Portland, OR, USA

<sup>c</sup> VA Eastern Colorado Health Care System Denver-Seattle Center of Innovation, Aurora, CO, USA

<sup>d</sup> VA Finger Lakes Healthcare System, Canandaigua, NY, USA

<sup>e</sup> Division of Geriatrics/Aging, Department of Medicine, University of Rochester School of Medicine and Dentistry, Rochester, NY, USA

<sup>f</sup> Health Services Management and Policy, College of Public Health, The Ohio State University, Columbus, OH, USA

<sup>g</sup> Health Care Policy & Research, School of Medicine, University of Colorado Anschutz Medical Campus, Aurora, CO, USA

## A B S T R A C T

### Keywords:

Home based primary care  
 interdisciplinary teams  
 strategies  
 veterans  
 COVID-19  
 in-home vaccination

**Objectives:** Describe how Department of Veterans Affairs (VA) Home Based Primary Care (HBPC) team members discussed the COVID-19 vaccine with Veteran patients and their caregivers; describe HBPC team members' experiences providing care during the pandemic; identify facilitators and barriers to vaccinating HBPC Veterans during the COVID-19 pandemic.

**Design:** Online survey that included 3 open-ended COVID-19 vaccine-related questions.

**Setting and Participants:** HBPC Program Directors from 145 VA Medical Centers were invited to participate and share the survey invitation with team members. The survey was open from March to May 2021. We collected N = 573 surveys from 73 sites.

**Methods:** We analyzed demographic data using descriptive frequencies and open-ended questions using thematic analysis.

**Results:** Respondents from all HBPC roles were included in the study: Registered Nurses, Psychologists, Advanced Registered Nurse Practitioners, Social Workers, Dietitians, Occupational Therapists, Pharmacists, Physical Therapists, HBPC Program Directors, HBPC Medical Directors, MDs, Physician Assistants, Other. Qualitative thematic analysis revealed 3 themes describing VA HBPC team members' experiences discussing and administering the COVID-19 vaccine: communication and education, advocating for prioritization of HBPC Veterans to receive the vaccine, and logistics of delivering and administering the vaccine.

**Conclusions and Implications:** Our study findings highlight the multifaceted experiences of VA HBPC team members discussing and administering initial doses of the COVID-19 vaccine to primarily homebound Veterans. Although the VA's HBPC program offers an example of a singular health care system, insights from more than 70 sites from across the United States reveal key lessons around the internal and external structures required to successfully support programs and their staff in providing these key activities. These lessons include proactively addressing the needs of homebound populations in national vaccine rollouts and developing vaccine education and training programs for HBPC team members specifically aligned to HBPC program needs. These lessons can extend to non-VA organizations who care for similar homebound populations.

© 2022 AMDA – The Society for Post-Acute and Long-Term Care Medicine.

This portion of the study was funded by the Veterans Emergency Management Evaluation Center (VEMEC) through support from the Office of Patient Care Services, Veterans Health Administration, US Department of Veterans Affairs.

The authors declare no conflicts of interest.

\* Address correspondence to Tamar Wyte-Lake, DPT, MPH, Veterans Emergency Management Evaluation Center, 16111 Plummer St, MS-152, North Hills, CA 91343, USA.

E-mail address: [Tamar.wyte@va.gov](mailto:Tamar.wyte@va.gov) (T. Wyte-Lake).

<https://doi.org/10.1016/j.jamda.2022.03.014>

1525-8610/© 2022 AMDA – The Society for Post-Acute and Long-Term Care Medicine.

Health care systems have responded to the growing population of older adults who are homebound or have difficulty seeking care in traditional clinic settings by developing person-centered home-based primary care programs.<sup>1</sup> The Department of Veterans Affairs (VA) Home Based Primary Care (HBPC) Program, provides comprehensive, longitudinal primary care in the home to Veterans with complex, chronic, and disabling conditions when clinic-based care is not effective because of medical complexity, transportation challenges, or physical debility. The program, which uses an interdisciplinary team (IDT) model,<sup>2</sup> has expanded to serve 50,000 Veterans in more than 400 sites across the United States.<sup>3</sup> Similarly, year 6 of the Independence at Home Medicare demonstration project serves nearly 6400 people.<sup>4</sup> This model of care has decreased hospitalization, emergency department, and nursing home utilization through strategies deployed by HBPC teams to overcome obstacles.

The critical and unique role of VA's HBPC program in supporting its enrolled Veterans has been demonstrated in several recent large-scale disasters.<sup>5–7</sup> As of December 2021, 80% of all Veterans enrolled in the HBPC program had received either a single dose of the Johnson and Johnson vaccine or 2 doses of the Moderna or Pfizer vaccines (D. Davis, National HBPC Manager, Home Based Primary Care COVID-19 Vaccine Data, personal written communication, December 27, 2021). And yet, the process of COVID-19 vaccination brought with it specific challenges requiring teams to rapidly create new, and adapt existing, facility-based processes. When approved in December 2020, COVID-19 vaccines represented a new type of vaccination with limited availability and specific storage, transportation, and administration challenges. Studying how HBPC teams approached vaccination of their enrolled Veterans is important to defining best practices for ongoing and future vaccination efforts for this vulnerable population with limited access to support services.<sup>8,9</sup> The objective of this study is to describe how VA HBPC team members discussed the COVID-19 vaccine with their Veteran patients, describe team members' experiences, and identify facilitators and barriers of vaccinating HBPC Veterans during the pandemic.

## Methods

### Survey

To develop the survey, we convened a multidisciplinary research team including a physician, a PhD behavioral scientist/qualitative methodologist, a physical therapist, and a social worker experienced in studying HBPC. As this was a fairly new topic with no existing validated survey available for use, we relied on project team experience with the HBPC program as well as consultation with national HBPC program leadership to guide survey development and obtain feedback. Additionally, we pilot tested the survey with 4 HBPC team members from 2 HBPC sites. We pilot tested the survey to assess length of the survey to limit survey burden for respondents, to ensure relevance of questions to the spectrum of HBPC team members' roles, and to verify accuracy of language used. We made changes to the survey as a result of feedback received.

The survey included 5 domains, with a mix of open- and closed-ended questions: (1) HBPC telemedicine use pre-pandemic and due to the pandemic (mix of open- and closed-ended questions, with skip logic depending on whether respondents incorporated telemedicine into care delivery and what types of modalities they used); (2) how the COVID-19 pandemic affected HBPC care delivery (open-ended questions); (3) other nonclinical changes in HBPC practices related to the pandemic (open-ended questions); (4) experiences discussing and administering the COVID-19 vaccine (open-ended questions) (eg, "Please share your overall experience discussing the COVID-19 vaccine with your Veterans and/or their caregivers"; "Please describe any facilitators and/or barriers to providing or accessing the COVID-19

vaccine for your Veteran patients"); and (5) respondent demographics. Respondents completed the survey through the REDCap software program.<sup>10</sup>

### Recruitment and Data Collection

We described the study to HBPC Program Directors (PDs) during their February 2021 monthly virtual meeting; PDs from all VA Medical Centers (VAMCs) (n = 145) attend these meetings. PDs were invited to either (1) send a list of their HBPC team members to the research team so individual surveys could be sent directly to team members or (2) have the research team send a link to the survey to the HBPC PDs, who could then send to their HBPC teams. Immediately following the presentation, we emailed all HBPC PDs to request their participation, and 1 week later sent a reminder via the national HBPC PD. The survey was open from March 15 to May 13, 2021.

In the first few weeks the survey was open, we observed better response rates from HBPC team members receiving the survey link from their respective PD. Therefore, we followed up with the HBPC PD who sent team lists to our research team to ask that they notify their teams that a survey invitation would be arriving from our research team, and we sent a second invitation to them. Additionally, the lead national HBPC psychologist sent the survey link to the Mental Health HBPC email list (n = 381), which primarily includes psychologists and psychiatrists, but also includes HBPC social workers, former HBPC staff who requested to remain on the list, and VA Geriatrics and Extended

**Table 1**  
Characteristics of Survey Respondents (N = 572)

Role	n	%
Dietician	40	6.98
HBPC Medical Director	12	2.09
HBPC Program Director	20	3.49
MD	9	1.57
Advanced Registered Nurse Practitioner (ARNP)	67	11.69
Occupational Therapist (OT)	25	4.36
Other	20	3.49
Physician Assistant (PA)	6	1.05
Pharmacist	19	3.32
Psychologist	77	13.44
Physical Therapist (PT)	18	3.14
Registered Nurse (RN)	174	30.37
Social Worker (SW)	60	10.47
Missing	26	4.54
Length in role		
0–2 y	151	26.35
3–5 y	144	25.13
6–10 y	131	22.86
11–20 y	97	16.93
≥21 y	24	4.19
Missing	26	4.54
Age		
18–29 y	14	2.44
30–39 y	114	19.90
40–49 y	151	26.35
50–59 y	165	28.80
60–69 y	87	15.18
≥70 y	5	0.87
Missing	37	6.46
Veterans in program have contracted COVID-19		
0	18	3.14
<5	184	32.11
6–10	162	28.27
11–25	139	24.26
26–50	51	8.90
≥50	19	3.32
Personally cared for HBPC Veterans who contracted COVID-19		
No	271	47.29
Yes	301	52.53
Missing	1	0.17

Care leadership. In total, HBPC PDs sent ( $n = 677$ ) survey links directly to team members and the research team sent ( $n = 873$ ) individual links to team members. A total of  $N = 573$  ( $573/1931 = 30\%$  response rate) surveys were completed from 73 sites (Table 1). Because of the lead psychologist sending the link directly, we were unable to track from which sites those respondents came. In data reporting, all responses received through this link were categorized as coming from “site unknown.”

### Analysis

We focused the analysis on 3 open-ended vaccine-related survey questions designed to gather data on experiences of HBPC team members discussing and administering the vaccine to Veterans receiving care via HBPC. We completed analyses of these data using a qualitative software database (Atlas.ti version 9.0; Scientific Software Development, Berlin, Germany). The lead qualitative methodologist (L.M.H.) selected 2 HBPC sites (approximately 40 individual survey responses) for 5 research team members to independently code using an inductive approach (ie, allowing codes to emerge from the data) reflective of thematic analysis. The 5 team members met over a series of 5 meetings to reach consensus on code definitions. Three team members divided the remaining survey responses and coded them independently, meeting periodically between May–July 2021 to discuss codes and code definitions and develop themes from the data with the other 2 team members. Potential data queries and subsequent theme development were born out of team discussions and insights from the lead qualitative methodologist who queried data for team members to closely review. Ultimately, analyses yielded 3 themes reflective of experiences of HBPC team members discussing and administering the COVID-19 vaccine to Veterans they care for via their HBPC programs. All study participation was voluntary. This study is part of a multiphase VA Health Services Research and Development–funded study of HBPC that was approved by the Central VA Institutional Review Board (VA CIRB No. 14-28).

## Results

Based on our thematic analysis, 3 themes emerged: communication and education, advocating for prioritization of HBPC Veterans to receive the vaccine, and logistics of delivering and administering the vaccine (Table 2).

### Vaccine Communication and Education

#### Developing and identifying resources to prepare staff

Preparing HBPC teams to discuss the vaccine and disseminate information about vaccination to Veterans and their families acted as important initial steps in providing education about the vaccine. Some respondents described targeted educational outreach efforts at their facilities to prepare team members to discuss the vaccine and prepare materials that could be understood by Veterans and caregivers. Respondents shared that they tailored communication about the vaccine to each HBPC Veteran, especially those who were hesitant to get the vaccine and those with cognitive issues.

Other team members described challenges when speaking with vaccine-hesitant Veterans as they felt underprepared due to minimal guidance from their VA facility.

#### Veterans had a lot of strong political opinions about things

Some of it I felt fed into their fears and still does, but because politics is a subject that VA employees are not to discuss, it is pretty much an area where I can listen, try to be a concerned listener, but then be neutral in providing resources feedback.

Kind of a tough situation and we were given zero guidance on how best to manage these situations. [SW; site unknown]

In describing additional resources to reliably use as vaccine education materials, several other respondents expressed gratitude for regular updates and resources provided by their VA, which frequently included Centers for Disease Control (CDC) resources.

A few respondents shared how the personal views of some HBPC team members about the vaccine made conversations with fellow team members and Veterans more challenging. One respondent explained how strong and clear VA guidance helped ameliorate such issues with team members around vaccination.

“[it was] kind of like walking on eggshells with some staff. I was glad for the VA’s clear guidance” [Medical Director; site 22]

#### Team members discussed the COVID-19 vaccine with enrolled Veterans

Respondents from across HBPC disciplines discussed the vaccine during home and virtual HBPC visits. A small number of respondents deferred questions about the vaccine to other team members, like nurses and nurse practitioners, who more regularly provided in-home care.

At some HBPC sites, team members proactively volunteered to spend more time discussing issues around vaccine hesitancy.

I offered to have discussions with those that were reluctant or declined the vaccine to get a better sense of the reasons behind it. The PCPs [primary care providers] do not have time to have these types of discussions, especially if there are race-based trauma components. [Psychologist; site unknown]

#### Receptivity of Veterans to receiving the vaccine

Respondents noted most Veterans were highly receptive to receiving the vaccine. However, they also consistently described a subset of Veterans who voiced significant concern about safety. Personal beliefs and opinions about vaccination, as well as past experiences with racism related to vaccinations, emerged as barriers to vaccination and contributed to hesitancy. Respondents perceived some news and social media accounts to be vessels of misinformation that contributed to Veterans’ fear and misunderstanding. Veterans with a history of vaccine refusal generally also refused a COVID-19 vaccine.

#### Building on relationships between HBPC team members and HBPC-enrolled Veterans

The importance of the trusting relationships between HBPC team members and Veterans emerged as a key strategy to overcome hesitancy. Some respondents noted it did not matter how much evidence-based information they provided; personal stories most convinced Veterans and caregivers to be vaccinated. Several respondents described that having regular contact with Veterans in their homes as trusted health care advisors helped overcome hesitancy.

#### Advocating for Prioritizing HBPC Veterans’ Vaccinations

For HBPC-enrolled Veterans interested in receiving the vaccine, respondents described one major barrier to vaccination as their inability to come into the VA facility, where most Veterans had to receive their vaccines. HBPC team members had to strongly advocate for their primarily homebound Veterans to be prioritized to receive vaccinations in their homes.

“We are at the outskirts of the healthcare system. I have fought tooth and nail, pounded on every door and stood on every desk I

**Table 2**  
Quotations of HBPC Team Members Illustrating the Emerging Themes

Vaccine Communication and Education	
Developing and identifying resources to prepare staff	[PD; site 29] “We took great pains to present the materials in a way that offered hope as well as presenting it in a way that would be accepted and understood. We ensured everyone knew we are always here for more information.” [Psychologist; site 60] Our ID clinic has done a great job of providing education about the vaccine to all staff, with power-points that we then have shared with Veterans/caregivers who had questions. [OT; site 11] With the daily briefings from the VA, I felt well prepared with the most up-to-date information each day. [RN; site 48] The COVID-19 vaccine was scary to most of the veterans, because it happened so fast. Educated on the facts, per CDC guidelines. The experience was positive, once they were educated on the facts. [PT; site 8] Would have preferred more talking points be shared with staff to provide a more uniform front from VA staff to Veterans.
Team members discussed the COVID-19 vaccine with enrolled Veterans	[SW; site 55] As a Social Worker, I limited my interaction to inquiring if they were interested in getting the vaccine and when it was a yes, I would enter the COVID-19 interest note and add the HBPC RN to the note for awareness. Most of the Veterans I spoke with about it were interested and willing to get the vaccine. [Dietician; site 55] The vaccination and questions associated are largely out of my scope of practice therefore I defer questions to the RN or ARNP. [RN; site 50] Providers and pharmacy go into great detail with the COVID vaccine, so when it comes my turn I usually just verify what the veteran repeats from their previous education on the vaccine and I go over the COVID vaccine handout with them.
Receptivity of Veterans to receiving the vaccine	[Psychologist; site unknown] “We have some Veterans who historically refuse all vaccines who refuse this one as well. We have folks who have understandable vaccine hesitancy, which we talk about openly...that there are legitimate reasons for BIPOC [Black, Indigenous, and people of color] to be hesitant, and lingering resentment from some military members being forced to take vaccines they didn’t want or understand.” [Medical Director; site 9] The Veterans have been very grateful to obtain the COVID-19 immunizations, but about 20% have declined. However, these are the very same Veterans who never want to get the seasonal influenza, tetanus booster, shingles or pneumococcal vaccines.
Building on relationships between HBPC team members and HBPC-enrolled Veterans	[Psychologist; site unknown] Most people have been more interested in my own personal or anecdotal information about responses to the vaccine, rather than the data... Personal anecdotes have been the biggest facilitator. [Psychologist; site 50] “Beliefs that COVID is not real and/or worry about detrimental long-term effect[s] of vaccine were not often reduced with psychoeducation alone. It often required frequent repetition and [the] Veteran having had a long positive history with HBPC program and respect for providers and staff.”
Advocating for Prioritizing HBPC Veterans’ Vaccinations	[HBPC Program Director; site 10] The HBPC medical director initially got a little hesitancy regarding the staff vaccinating in the home but ended up being fully supported by the facility leadership and praised for such a seamless job.
Access: Teamwork and Attention to Vaccine Logistics	
Vaccine logistics	[Role not provided; site 55] [Our VA] Facility did not allow Pfizer to be given in the home so we had to get the Moderna vaccine which was stored at a different site about two hours away. This was very challenging to coordinate with limitations of the need for cold storage and time after opening a vial. Also, Pharmacy would not pre-fill vaccines therefore giving the entire vial to us so we also had to make sure we used the entire vial in 1 day (at least 10 doses needed to be coordinated within a 6-hour period), which meant the need for multiple staff to be used in order to drive to each Veteran’s home to administer vaccine. [NP; site 15] No barriers—vaccine readily available and I have vaccinated (both doses) every patient on my panel who wanted the vaccine. Our HBPC leadership really worked VERY well with pharmacy in getting the vaccines to the HBPC NPs early on so that we could go vaccinate our patients [RN; site 47] “The VA began to do vaccine clinics at the CBOCs so we could have the vaccine we needed for that day delivered to the CBOC.”
Pride in HBPC team’s success	[PD; site 27] Our program was the 1st in the nation to conduct in-home vaccinations. It was a combined effort from pharmacy, leadership, and my staff! [PD; site 11] This was a great opportunity to discuss what the VA was doing to protect them and their loved ones with the vaccines available and the value the Veteran/caregiver have for the team. The greatest is the opportunity to offer the vaccine in the home for the ones that have no ability to leave the home but have providers coming in and out—they may spread the virus to them unknowingly. [RN; site 46] We worked very closely with our support personnel to diagram which Veterans were to receive the vaccines due to the logistics of giving the vaccines within the time allotted. This was accomplished with no waste; however, it was certainly a TEAM effort.

ARNP, Advanced Registered Nurse Practitioner; CBOC, community-based outpatient clinic; CDC, Centers for Disease Control and Prevention; ID, infectious diseases.

could in order to obtain the vaccines and the ability to administer those vaccines in the homes of the Veterans we serve. I think it is fair to say that I am still fighting.” [Program Director; site 29]

Some HBPC teams had team members integrated into vaccination planning at their main VAMC, and this facilitated access to vaccine supply for HBPC Veterans. One respondent said they made sure to have “active HBPC leadership in constant dialogue with our VA Vaccine Roll-out Committee to advocate for our Veterans and our Leadership’s willingness to see the bigger clinical picture” [Psychologist; MH provider, site unknown].

#### Access: Teamwork and Attention to Vaccine Logistics

##### Vaccine logistics

HBPC sites that received approval to deliver vaccines in-home had to engage multiple team members and service groups within, and in

some cases outside of, HBPC programs. Teamwork extended beyond HBPC direct care providers to PD, pharmacists, and administrative assistants. Respondents described leadership playing an essential role in keeping teams abreast of evolving information and assistants helping Veterans and caregivers navigate complicated scheduling processes if they were going into a VA clinic. Respondents further described essential partnerships with HBPC team pharmacists and VA pharmacy departments when managing logistics of delivering the vaccine to Veterans’ homes. One noted, “Our pharmacists did an outstanding job of getting a protocol put in place so we could quickly vaccinate those Veterans in their homes that wanted it. We vaccinated close to 80% of our HBPC Veterans in the home” [Psychologist; MH provider, site unknown].

Because the vaccines had storage and distribution constraints, some HBPC teams faced critical considerations when delivering the vaccine.

These delivery logistics were especially challenging for HBPC sites in rural areas. When asked about barriers to vaccination, one nurse

practitioner noted, “I serve a very, very rural area and have not been permitted to bring it to the Veterans due to temperature and time factors” [NP; site 57]. Further, HBPC sites had different strategies to vaccinate rural Veterans. Some teams coordinated vaccinations with non-VA community-based clinics and county health departments, and others coordinated with VA community-based outpatient clinics (CBOCs) to deliver vaccines. HBPC teams also coordinated with multiple VA departments to ensure time for observation after rural Veterans received the vaccine in their homes, with one respondent describing that their team “moved mountains” to vaccinate Veterans. One HBPC team coordinated with a local ambulance company to be available in case a Veteran had a bad reaction.

#### *Inability to Vaccinate HBPC Veterans’ Caregivers*

Respondents described significant disappointment and frustration at the inability to provide vaccines to Veterans’ caregivers during initial vaccine distribution.

“Many of my Veterans and families are excited to get the vaccination, and voice disappointment that the spouses/family are unable to get the vaccine from the VA.” [Dietician; site 55]

Other respondents described the impact on Veteran safety by only vaccinating the Veteran.

“Understandably, the VA cannot justify vaccines for everyone. However...Veteran safety is not ensured if the caregiver has no access to vaccines.” [RN; site 56]

#### *Pride in HBPC Team’s Success*

Respondents described multiple facets of teamwork as contributing to the overall success. Several respondents explicitly referenced feeling pride in accomplishing what was initially a daunting task.

Respondents received accolades from facility leadership and appreciation from Veterans for delivering the vaccine in-home.

The HBPC medical director initially got a little hesitancy regarding the staff vaccinating in the home, but ended up being fully supported by the facility leadership and praised for such a seamless job. [Program Director; site 10]

## **Discussion**

As part of its natural service role, HBPC team members provide care in Veterans’ homes, interacting with both Veterans and caregivers. This often generates trusting relationships that allow HBPC team members to become acutely aware of Veterans’ needs and capabilities. Understanding that many of their Veterans were at high risk of contracting COVID-19, but could not easily travel to a VA facility to receive the COVID-19 vaccine, study respondents strongly advocated for their Veteran patients to receive the vaccine in-home as soon as it became available. Although older adults were prioritized across the United States because of higher risk of COVID-19 morbidity and mortality,<sup>9</sup> vaccinating primarily homebound individuals added layers of complexity to this process.

Our study showed that once vaccines became available, HBPC teams quickly mobilized to develop protocols to promote vaccine uptake and address distribution logistics. Many lessons can be learned from how teams collaborated within their teams, with their VA, and with broader leadership to vaccinate this vulnerable population. Although many respondents shared that successful vaccine rollout depended on the availability of evidence-based educational resources for team members and collaboration within teams and between teams

and leadership, not all respondents felt such support. Similarly, other studies have shown that a major challenge for home-based care providers during the COVID-19 pandemic has been accessing reliable information on shifting pandemic procedures and practices.<sup>11</sup> Our study showed that access to regular and reliable evidence-based information from the VA and other trusted sources helped health care professionals feel more confident when discussing the vaccine with Veterans and caregivers. Prioritizing the education of all HBPC team members about how to answer vaccine questions, and ensuring team members have the time to have these conversations, could further improve uptake and receptivity to vaccines.

In line with this desire for HBPC teams to acquire and disseminate current, evidence-based information to Veterans and caregivers, one key role HBPC team members played was fielding questions from Veterans and caregivers about the vaccine. In this way, the vaccine rollout placed HBPC team members, who Veterans and caregivers view as trusted advisors,<sup>3</sup> in roles of both public health communicators and direct care providers. Notwithstanding the evidence-based information that team members communicated to their Veterans and their families, our study also showed that personal stories from HBPC staff about their own experiences receiving the vaccine often were the most reassuring for educational exchanges for Veterans who were unsure about vaccine safety. This echoes past work on the importance and power of stories in health care decision making<sup>12</sup> and in vaccine receptivity overall.<sup>12–14</sup> Despite the existence of deep societal uncertainty and hesitancy toward the vaccine that was often sown through social media and news sources, personal stories from trusted HBPC team members sometimes made the difference in Veterans receiving the vaccine.

In parallel with education provided to HBPC teams and Veterans, HBPC teams navigated complicated storage requirements for the vaccines, especially in rural areas. Despite these complications and clear frustration by some HBPC team members regarding delivery logistics, HBPC teams vaccinated Veterans in their care with efficiency, including those living in rural areas. Recent research by Stall et al<sup>8</sup> in Canada detailed similar processes about overcoming challenges to delivering the vaccine to older, homebound adults. Stall and colleagues’ work highlights the importance of in-home COVID-19 vaccinations, and we found that obtaining the initial approval to vaccinate Veterans in-home proved critical to expediting vaccine rollout for this population. Further, our study found the importance of teamwork and collaboration in vaccinating homebound Veterans. Some have suggested that such collaborations should be expanded during future pandemics to include entities like faith communities and stronger collaboration with governmental health care preparedness coalitions.<sup>15</sup>

VA HBPC teams possessed 2 important advantages that many other systems did not have when administering the COVID-19 vaccines: specifically knowing which patients needed vaccines, and having the support of the larger VA health care system. Other health care systems faced difficulties identifying older adults who are primarily homebound and need help coordinating vaccine appointments or arranging for vaccines to be delivered to their homes. Some studies on in-home COVID-19 vaccination efforts have identified approaches to overcome such challenges,<sup>16</sup> including use of geospatial data to improve distribution.<sup>17</sup> These challenges underscore the value of establishing relationships with home-based primary care programs prior to future pandemics, in order to readily expand avenues available to identify and disseminate in-home vaccines.

Finally, other efforts studying vaccinating homebound patients and caregivers against COVID-19 noted the importance of not only vaccinating the individual older adult but the entire household,<sup>18</sup> which parallels our findings that respondents—and Veterans and caregivers—were frustrated that caregivers could not initially receive the COVID-19 vaccine, a policy VA ultimately did change.<sup>19</sup>

### Strengths and Limitations

This study has several strengths. Although there have been published discussions of the logistics of delivering vaccines to homebound populations, to date this is the largest known study of the experiences of health care workers in discussing the vaccine and providing in-home vaccinations. Additionally, this study includes perspectives of HBPC leadership and many service roles that make up HBPC teams, allowing for a broad understanding of various roles involved in vaccination efforts. There are also some limitations to this work. As has been mentioned, the size of the VA health care system brings with it certain advantages that cannot always be extrapolated to other health care systems. Specifically, the level and degree of resources a large, federal institution can bring to bear is often not found in smaller systems, which may need to find their own unique solutions. However, themes highlighted include challenges and facilitators that are relevant to any health care system delivering vaccines in the home. Additionally, because of the desire to capture data at the time of vaccine distribution, the survey was pilot tested, but not with the intention of validating the survey. Finally, since survey respondents primarily came from sites where PDs volunteered to participate, there may exist responder bias.

### Conclusions and Implications

Because of their unique position providing in-home care, HBPC team members become highly attuned to their patients' needs and capabilities and thus adept at identifying resources and solutions to meet these needs. During the initial period of the COVID-19 vaccine rollout, HBPC team members quickly identified the need for in-home vaccinations and strongly advocated within their medical centers for their Veteran patients to receive priority for in-home vaccinations. Once they obtained approval, implementation of in-home vaccination efforts required further creative efforts. Recognition of the unique needs of homebound Veterans and their caregivers in policy planning could better position medical centers to initiate early and effective in-home vaccine rollouts and provide proactive, supportive resources in the future.

Further, as health care providers, HBPC staff faced questions around the COVID-19 vaccine during home visits and served as an extension of the VA by providing education. Although the majority of Veterans were open to receiving the vaccine, the trusted advisor relationship that existed between HBPC team members and Veterans and their caregivers became a key to success when providing education, particularly for Veterans who expressed vaccine hesitancy. Team members at some sites felt more prepared than others to discuss the COVID-19 vaccine with their Veteran patients, and vaccine hesitancy sometimes placed HBPC staff in uncomfortable positions when discussing the vaccine. A number of respondents described their reliance on VA and other national resources to support their educational

strategies. Ensuring that these resources were distributed evenly throughout VAMCs and considering other education strategies to address team members' concerns would be beneficial. These lessons can extend to other, non-VA organizations who care for similar homebound populations.

### References

1. Klein S, Hostetter M, McCarthy D. *Commonwealth Fund Issue Brief: An Overview of Home-Based Primary Care: Learning From the Field*. The Commonwealth Fund; 2017.
2. Edes T, Tompkins H. Quality measure of reduction of inpatient days during home based primary care (HBPC) [abstract]. *J Am Geriatr Soc*. 2007;55(4 Suppl):S7.
3. Haverhals LM, Manheim C, Gilman C, et al. Dedicated to the mission: strategies US Department of Veterans Affairs Home-Based Primary Care Teams apply to keep Veterans at home. *J Am Geriatr Soc*. 2019;67:2511–2518.
4. CMS Innovation Center. Centers for Medicare & Medicaid Services. Independence at home demonstration performance year 6 results fact sheet. May 5, 2021. Accessed April 25, 2022. <https://innovation.cms.gov/media/document/iah-py6-fs>
5. Wyte-Lake T, Claver M, Johnson-Koenke R, Davis D, Dobalian A. Hurricanes Harvey, Irma, and Maria: exploring the role of home-based care programs. *Disaster Med Public Health Prep*. 2020;14:119–124.
6. Wyte-Lake T, Claver M, Johnson-Koenke R, Dobalian A. Home-based primary care's role in supporting the older old during wildfires. *J Prim Care Community Health*. 2019;10:2150132719846773.
7. Haverhals LM, Hernandez-Lujan D. Navigating disasters: a case study VA and non-VA home-based long-term care in Puerto Rico following Hurricane Maria. *Innov Aging*. 2019;3(Suppl 1):S276.
8. Stall N, Nakamachi Y, Chang M. *Mobile in-home COVID-19 vaccination of Ontario homebound older adults by neighbourhood risk*. Science Briefs of the Ontario COVID-19 Science Advisory Table. 2021.
9. Whiteman A, Wang A, McCain K, et al. Demographic and social factors associated with COVID-19 vaccination initiation among adults aged ≥65 years—United States, December 14, 2020–April 10, 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70:725.
10. Harris PA, Taylor R, Minor BL, et al. The REDCap consortium: Building an international community of software platform partners. *J Biomed Inform*. 2019; 95:103208.
11. Tyler DH, Melissa H, Mulmule N, Porter K. *COVID-19 Intensifies Home Care Workforce Challenges*. US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Behavioral Health, Disability, and Aging Policy. 2021.
12. Steiner JF. The use of stories in clinical research and health policy. *JAMA*. 2005; 294:2901–2904.
13. Gellin B. Why vaccine rumours stick—and getting them unstuck. *Lancet*. 2020; 396:303–304.
14. Larson HJ. *How Vaccine Rumors Start—and Why They Don't Go Away*. Oxford University Press; 2020.
15. Williams JT, Miller A, Nussbaum AM. Combating contagion and injustice: the shared work for public health and faith communities during COVID-19. *J Relig Health*. 2021;60:1436–1445.
16. Stern RJ, Rafferty HF, Robert AC, et al. Concentrating vaccines in neighborhoods with high COVID-19 burden. *NEJM Catal Innov Care Deliv*. 2021;2.
17. Lei Y. Hyper focusing local geospatial data to improve COVID-19 vaccine equity and distribution. *J Urban Health*. 2021;98:453–458.
18. Gliatto P, Franzosa E, Chavez S, et al. COVID-19 vaccines for homebound patients and their caregivers. *NEJM Catal Innov Care Deliv*. 2021;2.
19. *Save Lives Act, United States Congress, 117th Congress (2021–2022) Sess.* 2021.