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COVID Challenges and Adaptations Among Home-Based Primary Care Practices: Lessons for an Ongoing Pandemic From a National Survey

Christine S. Ritchie MD, MSPH^{a,b,c,*}, Naomi Gallopyn MS^{a,b}, Orla Sheehan MD, PhD^d, Shanaz Ahmed Sharieff MS, MBA^{a,b}, Emily Franzosa DPH^e, Ksenia Gorbenko PhD^e, Katherine A. Ornstein PhD^e, Alex D. Federman MD^e, Abraham A. Brody PhD, RN^f, Bruce Leff MD^d

^aMassachusetts General Hospital Department of Medicine, Division of Palliative Care and Geriatric Medicine, Boston, MA, USA

^bMassachusetts General Hospital Mongan Institute, Boston, MA, USA

^cHarvard Medical School Center for Palliative Care, Boston, MA, USA

^dJohns Hopkins University School of Medicine, Baltimore, MD, USA

^eIcahn School of Medicine at Mount Sinai, New York, NY, USA

^fNYU Rory Meyers College of Nursing, New York, NY, USA

ABSTRACT

Keywords:
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Objectives: Approximately 7.5 million US adults are homebound or have difficulty accessing office-based primary care. Home-based primary care (HBPC) provides such patients access to longitudinal medical care at home. The purpose of this study was to describe the challenges and adaptations by HBPC practices made during the first surge of the COVID-19 pandemic.

Design: Mixed-methods national survey.

Setting and Participants: HBPC practices identified as members of the American Academy of Homecare Medicine (AAHCM) or participants of Home-Centered Care Institute (HCCI) training programs.

Methods: Online survey regarding practice responses to COVID-19 surges, COVID-19 testing, the use of telemedicine, practice challenges due to COVID-19, and adaptations to address these challenges. Descriptive statistics and *t* tests described frequency distributions of nominal and categorical data; qualitative content analysis was used to summarize responses to the open-ended questions.

Results: Seventy-nine practices across 29 states were included in the final analyses. Eighty-five percent of practices continued to provide in-person care and nearly half cared for COVID-19 patients. Most practices pivoted to new use of video visits (76.3%). The most common challenges were as follows: patient lack of familiarity with telemedicine (81.9%), patient anxiety (77.8%), clinician anxiety (69.4%), technical difficulties reaching patients (66.7%), and supply shortages including masks, gown, and disinfecting materials (55.6%). Top adaptive strategies included using telemedicine (95.8%), reducing in-person visits (81.9%), providing resources for patients (52.8%), and staff training in PPE use and COVID testing (52.8%).

Conclusions and Implications: HBPC practices experienced a wide array of COVID-19–related challenges. Most continued to see patients in the home, augmented visits with telemedicine and creatively adapted to the challenges. An increased recognition of the need for in-home care by health systems who observed its critical role in caring for fragile older adults may serve as a silver lining to the otherwise dark sky of the COVID-19 pandemic.

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* Address correspondence to Christine S. Ritchie, MD, MSPH, Division of Palliative Care and Geriatric Medicine, Department of Medicine, Massachusetts General Hospital, Harvard Medical School, 100 Cambridge St, Suite 1600, Boston MA 02114, USA.

E-mail address: csritchie@mg.harvard.edu (C.S. Ritchie).

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111 Approximately 2 million adults in the United States are home-
112 bound; another 5.5 million have some difficulty or need the assistance
113 of another person to leave their homes.¹ People who are homebound
114 often are costlier to health care systems because of a combination of
115 unmet medical, functional, and social needs.²

116 Home-based primary care (HBPC) provides a mechanism for such
117 patients to access longitudinal medical care in their homes. Multiple
118 studies^{3,4} have demonstrated that HBPC improves person- and
119 caregiver-centered outcomes and saves money.^{5,6}

120 HBPC practices and the patients they care for have received
121 increased attention during the current COVID-19 pandemic.^{7–9} HBPC
122 has been promoted to reduce emergency department (ED) visits,
123 minimize iatrogenic COVID-19 exposure, augment COVID-19 testing,
124 and ensure that urgent and chronic medical issues are addressed to
125 prevent escalation. In 2 Italian regions during the pandemic, the re-
126 gion that utilized home-based clinical services more aggressively had
127 lower COVID-19 mortality rates.¹⁰

128 Despite the value of HBPC in the COVID-19 era, unique challenges
129 also emerged in the provision of HBPC. Understanding these chal-
130 lenges and eliciting strategies for navigating them is essential to
131 provide ongoing support to practices and patients as the pandemic
132 continues and as new pandemics threaten to appear.

133 The purpose of this study is to describe the challenges and adap-
134 tations experienced by HBPC practices across the country during the
135 first surge of the COVID-19 pandemic with the aim to support other
136 HBPC practices as they navigate subsequent COVID surges, plan for
137 future pandemics, and prepare for other public health emergencies.

139 Methodology

141 Study Design, Setting, and Participants

142 We conducted a mixed methods study of HBPC practices' response
143 to the early phase of the COVID-19 pandemic by distributing a national
144 survey that included quantitative and open-ended questions. The
145 online survey was open to all HBPC practices in the United States and
146 was distributed to members of the American Academy of Homecare
147 Medicine (AAHCM) and the Home-Centered Care Institute (HCCI)
148 training programs.

151 Recruitment

152 The survey was distributed via the list servers of AAHCM and HCCI.
153 The AAHCM, the professional society of home-based medical care
154 professionals, includes approximately 1000 individual members. The
155 HCCI is a national nonprofit organization focused on advancing HBPC
156 and has about 3800 people on their list server. Because the AAHCM
157 and HCCI list servers are person-based and not practice-based, and
158 individuals may be on both list servers, the total number of distinct
159 practices that the survey was sent to cannot be determined; thus, a
160 practice-level survey response rate cannot be calculated.

163 Data Collection and Analysis

164 The survey was iteratively developed, informed by issues raised by
165 HBPC clinicians and implemented via an online Qualtrics survey tool.
166 The final survey consisted of 31 close-ended questions regarding
167 practice characteristics, practice responses to COVID-19, practice
168 strain from COVID-19 ("Is the current status of COVID-19 in the US
169 putting unusual strain on your practice?" "How much strain?"), the
170 use of telemedicine (video care and telephone care) and 5 open-ended
171 questions related to (1) challenges with personal protective
172 equipment (PPE), (2) COVID-19 practice adaptations, (3) work with
173 community partners to address patient needs, (4) barriers to tele-
174 medicine implementation, and (5) an invitation to describe any other
175 aspects of their experience of providing HBPC in the midst of the
176 pandemic (see [Supplementary Material 1](#)).

177 Responses were collected between May 25, 2020, and June 10,
178 2020. Responses from 79 practices met completeness criteria for
179 analysis (2 responses from one practice were combined). We used
180 descriptive statistics to determine frequency distributions of nominal
181 and categorical data. Chi-squared tests, Student *t* tests, and Fisher
182 exact tests were used, as appropriate, to compare the differences in
183 COVID adaptation strategies between larger (practices with an average
184 daily census [ADC] of ≥ 501 patients) and smaller HBPC practices
185 (those with an ADC of ≤ 500 patients) to see if any specific COVID
186 responses were more likely in larger or smaller practices. We chose
187 this ADC threshold because previous work has suggested differences
188 in practice patterns at this threshold.¹¹ We also evaluated whether
189 COVID responses were different between practices with a higher
190 proportion of ALF patients ($\geq 20\%$ vs $< 20\%$), between practices affil-
191 iated and unaffiliated with larger health systems, or by region of the
192 country. All analyses were conducted using SAS, version 9.4.

193 For the 5 open-ended questions, the responses ranged from several
194 words to several sentences. With the exception of the fourth question,
195 "Describe barriers to telemedicine implementation," where all re-
196 spondents reported no barriers to telemedicine implementation, up to
197 66 practices (84.0%) provided responses to the other open-ended
198 questions. Participants from larger and smaller practices responded
199 to open-ended questions at an equal rate. We used qualitative content
200 analysis to summarize responses to the open-ended questions related
201 to PPE access challenges, adaptations, and community partnerships.
202 Most of the responses to describe HBPC practice experiences fell
203 within the domains of the first 3 questions related to PPE, practice
204 adaptations, and community partners; we combined non-PPE chal-
205 lenges and PPE challenges answers to create an overall challenges
206 theme. We created a preliminary codebook based on inductive coding
207 of the data set. Two investigators (T.T. and U.U.) reviewed and coded
208 all data. All codes were reviewed with 2 additional investigators (V.V.
209 and X.X.) and discrepancies addressed to achieve consensus. Consent
210 to participation was given at the beginning of the survey; the research
211 protocol was approved by the relevant institutional review board.

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212 Results

220 Survey Response and Practice Characteristics

221 We received 123 individual responses to the survey. Two practices
222 submitted 2 responses that answered different aspects of the survey;
223 their responses were combined to reflect 1 response from that prac-
224 tice. Our final sample represented responses from 79 practices across
225 29 states. Thirty percent represented practices from the northeast, 19%
226 from the midwest, 30% from the south, and another 19% from the west.
227 Four practices were part of the Veterans Health Administration.

228 Demographic characteristics of the respondents and practices are
229 presented in [Table 1](#). Survey respondents were primarily physicians
230 (42.5%) and nurse practitioners (28.8%). Some survey respondents
231 reported having more than one role in their practice. Most practices
232 (68.4%) reported having 10 or fewer full-time equivalent billing clin-
233 ianians, and 57.0% reported having 500 or fewer active patients
234 enrolled in their practice at the time of the survey. Close to two-thirds
235 (64%) of practices were affiliated with a larger health system. Most
236 practices (54%) reported that 20% or fewer of their patients lived in
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Table 1
Respondent Demographics and Practice Characteristics (Total N = 79)

	n (%)
Role of survey respondent (n = 80)*	
Physician	36 (45.6)
NP	24 (30.3)
Behavioral health provider	4 (5.0)
PA	5 (6.2)
Social worker	2 (2.50)
Other [†]	5 (6.30)
No response	12 (15.0)
Practice Location (n = 79)	29 states [‡]
Northeast	24 (30.4)
Midwest	15 (19.0)
South	24 (30.4)
West	15 (19.0)
No response	1 (1.8)
FTE (n = 79)	
1-10	54 (68.4)
11-20	14 (17.7)
21-50	4 (5.1)
51-100	2 (2.5)
>100	4 (5.1)
No response	1 (1.3)
Patient census (n = 79)	
<100	11 (13.9)
101-500	34 (43.0)
501-1000	12 (15.2)
>1000	22 (27.8)
Affiliation	
Affiliated with a health system	51 (64.5)
Unaffiliated/Independent	27 (34.2)
Unknown	1 (1.26)
Percentage of patients provided care in an assisted living facility (n = 78)	
<20%	42 (53.8)
≥20%	36 (46.2)
Average % (range) of patients in a domiciliary facility (n = 78)	29 (1-100)

FTE, full-time equivalent; LPN, licensed practical nurse; NP, nurse practitioner; PA, physician assistant.

*Some survey respondents had more than 1 role in their practice.

[†]“Other” included administrator, director, owner, LPN–nurse navigator.

assisted living (ALF) or other domiciliary facilities. Only 2 practices reported that 100% of their patients were in ALFs.

HBPC Practice Responses to COVID-19

Table 2 presents quantitative findings pertaining to HBPC practices and their responses to COVID-19. Nearly two-thirds of practices (63.3%) had capacity for COVID-19 testing in the time frame of the survey (May through June 2020). On average, practices reported that 3.8% of their patients were COVID-positive (range 1%-25%). Close to three-quarters (73.1%) of practices accepted new patients known to be COVID-19 positive into their practice, and most (84.8%) reported seeing patients in their homes. Practice size influenced the likelihood of providing care to COVID-positive patients but otherwise did not affect workforce issues, supply chain issues, or the ability of practices to see patients in the home. There were no differences in COVID response between practices caring for a higher proportion (≥20%) of ALF patients vs lower, between practice affiliated with large health systems and those that were unaffiliated, or by region of the country.

Twelve practices (15.2%) stated they were not seeing patients in the home at the time of the survey. Of these 12 practices, two-thirds reported a lack of access to PPE or being prohibited by an institutional policy (such as from an ALF) as the main barrier; close to one-quarter reported inadequate staffing. Other reasons given for not seeing patients in the home included a perception that telehealth was sufficient, patients' fear of clinicians potentially bringing COVID-19

with them, and practice concerns about transmitting COVID-19 between homes.

The majority of practices described pivoting to telephone or video visits. Most practices (80.3%) started to use videoconferencing or remote patient monitoring (gathering of patient data such as oxygen saturation through technology); most (57.9%) also reported substituting telephone visits for in-person visits. Just under a quarter (23.7%) reported already having video visits in place prior to COVID-19 and expanding the number of video visits during the pandemic.

COVID-19–Related Practice Challenges—Quantitative

Practices reported being under considerable strain due to COVID-19. Of 62 practices who responded to the strain question, 22.6% reported “severe strain or impact” and 64.5% reported “some strain or impact” due to COVID-19. More than half of the practices reported experiencing shortages of personnel, social supports, or other service and resource challenges. Of practices reporting shortages experienced by patients, they described shortages in access to home health aides (74.5%), home nursing (42.6%), durable medical equipment (27.7%), Meals on Wheels (23.4%), hospice care (17.0%) and access to medications (10.6%). More than 80% of practices reported navigating personnel loss because of COVID-19 positivity and having to reassign staff (52.3%) or recruit new staff (18.5%). Practices also managed personnel loss by involving quarantined staff in the conduct of video visits, working with reduced staffing, and canceling patient appointments.

Among COVID-19 practice-related challenges, more than half of practices reported challenges with patient lacking familiarity with video care (81.9%); patient anxiety about COVID-19 risk (77.8%); clinician anxiety about COVID-19 risk (69.4%); technical difficulties reaching patients, for example, due to connectivity challenges (66.7%); practice supply shortages (55.6%); testing for COVID-19 status (54.2%); underpreparedness for use of telemedicine (52.8%); and clinician strain (51.4%) (Table 2). Less common, but prevalent, challenges included lack of clinician familiarity with telemedicine (45.8%); COVID-19 testing shortages (44.4%); overall challenges of accepting new patients (40.3%); screening patients and families for COVID-19 symptoms or exposure (41.7%); communicating with patients (37.5%); communicating with families (33.3%); managing financial issues (33.3%); screening clinicians for COVID-19 symptoms or exposure (29.2%); and staff shortages (25.0%). Practices described severe financial strain due to lost revenue, inability to access patients in domiciliary facilities, unavailable mental health resources for clinicians, and the stress of working from home (often in the presence of their children).

COVID-19–Related Practice Challenges—Qualitative

Qualitative content analysis elucidated similar challenges (Table 3). Providers reported difficulty accessing supplies of all kinds, including PPE and sanitation products, because of supply chain issues. One practice reported: “We had to put all home visits on hold due to lack of proper PPE and training. For now, we have all the PPE we need, but are starting to save N95's again for potential re-use. We are also likely to have to start making our own wipes. The face shields we first got were awful—fell apart and were cloudy—what we have now is better. It has and continues to be a learning curve.” Staff experienced strain from adopting new workflows and fulfilling new training requirements, the demands of video care (including providing technical support to patient, navigating hearing impairment, etc), and the loss of at-risk staff or senior volunteers. Patient care challenges ranged from patients', caregivers', or ALFs' unwillingness to see a clinical team member due to fear of contracting COVID-19, to challenges in patient-provider communication due to lack of patient digital literacy, dementia

Table 2
Home-Based Primary Care Practices and Response to COVID-19

Variable	Total, n (Column %)	More than 500 Patients, n (Column %)	Less than 500 Patients, n (Column %)	P Value
Capacity for COVID-19 testing	78			.19
Yes	50 (64.10)	24 (72.73)	26 (57.78)	
No	25 (32.05)	8 (24.24)	17 (37.78)	
Unsure	3 (3.85)	1 (3.03)	2 (4.44)	
Percentage of COVID-19–positive patients in practice	78			.35
Yes	59 (75.64)	24 (72.73)	35 (81.40)	
Unsure	17 (21.79)	9 (27.27)	8 (18.60)	
No Response	2 (2.56)			
Accepting new COVID-19 patients	78			.01
Yes	57 (73.1)	30 (90.01)	27 (60.00)	
No	21 (26.9)	3 (9.09)	18 (40.00)	
Continuing home visits	78			.96
Yes	66 (84.61)	28 (84.85)	38 (84.44)	
No	12 (15.34)	5 (15.15)	7 (15.56)	
Seeing COVID-19 patients in the home	66			.66
Yes	38 (57.57)	17 (60.71)	21 (55.26)	
No	28 (42.42)	11 (39.29)	17 (44.74)	
Use of video or telephone care instead of in-person visits in the context of COVID-19	75			.62
Began use of video visits or remote patient monitoring	59 (78.66)	25 (45.45)	34 (51.52)	
Expanded existing video visits capability	18 (24.00)	10 (18.18)	8 (12.12)	
Substituted telephone visits for in-person visits	44 (58.66)	20 (36.36)	24 (36.36)	
Strain/impact on practice	60			.46
Some to severe strain, impact	54 (90.00)	20 (90.91)	32 (84.21)	
No to minimal strain, impact	8 (13.33)	2 (9.09)	6 (15.79)	
Service and resource shortages	46			.90
Meals on wheels	11 (23.91)	3 (9.38)	8 (13.11)	
Home nursing	19 (41.30)	6 (18.75)	13 (21.31)	
Home health aides	34 (73.91.3)	12 (37.50)	22 (36.07)	
Access to opioid/nonopioid medications	8 (17.39)	2 (6.25)	6 (9.84)	
Durable medical equipment	13 (28.26)	5 (15.63)	8 (13.11)	
Hospice	8 (17.39)	4 (12.50)	4 (6.56)	
Navigating loss of personnel	65			.82
Reassigning staff	33 (50.07)	16 (45.71)	17 (38.64)	
Recruiting new staff	12 (18.46)	5 (14.29)	7 (15.91)	
Other (please explain)	34 (52.30)	14 (40.00)	20 (45.45)	
Top COVID-19–related practice challenges				.51
Supply shortages	40 (11.05)	17 (10.83)	23 (11.22)	
Testing for COVID-19 status	39 (10.77)	17 (10.83)	22 (10.73)	
Clinician strain	36 (9.94)	21 (13.38)	15 (7.32)	
Clinician anxiety	49 (13.54)	24 (15.29)	25 (12.20)	
Patient anxiety	56 (15.47)	25 (15.92)	31 (15.12)	
Preparedness for use of telemedicine	37 (10.22)	13 (8.28)	24 (11.71)	
Patient lack of familiarity with telemedicine	58 (16.02)	23 (14.65)	35 (17.07)	
Technical difficulties reaching patients	47 (12.98)	17 (10.83)	30 (14.63)	
Common strategies used to navigate COVID-19 challenges				.98
Reducing in-person visits	58 (28.86)	23 (27.38)	35 (29.91)	
Staff training	38 (18.91)	16 (19.05)	22 (18.80)	
Using telemedicine	68 (33.83)	29 (34.52)	39 (33.33)	
Providing resources for patients	37 (18.41)	16 (19.05)	21 (17.95)	

status, or the inability to hear providers through masks. One practice stated: “The assisted living facility had video for patients but not staffing to provide the volume of visits we needed. ... That was relevant to a dementia population.” Practices saw more functional decline and death in the home and more challenges in particular in the care of persons living with dementia. Financial concerns imbued many of the comments around challenges, including frustration with constantly changing billing regulations, amplified financial uncertainty and constraints, leading at times to reductions in staff. One practice stated: “Prior to COVID we had an avg census of 580 but lost approximately 130 patients primarily in facilities and have had to shrink our care team to keep the program financially viable.”

Practice Adaptations

Despite uncertainty and innumerable changes, most practices (91.1%) described multiple adaptations to navigate the challenges they

were facing. Practices reported using telemedicine (95.8%), reducing physical visits (81.9%), providing staff training (52.8%), and bringing needed resources such as groceries and medications for patients (52.8%). Many practices restricted their in-person visits to patients (45.8%), reassigned staff (47.2%), engaged in new approaches to triage patients (40.3%), conducted inventory to ensure sufficient supplies (40.3%), worked with community partners to provide supportive services and resources for patients (38.9%), provided additional support services to patients (34.7%), collaborated with palliative care, infectious disease, and other consulting clinicians (25.0%), and recruited new staff (19.4%). Practices adapted to supply chain shortages by securing supplies through other channels including state departments, health systems, other HBPC practices, and industrial avenues. One respondent described how she “had to go outside the supply chain and procure PPE from construction teams.” Another stated, “We had run out of hand sanitizer and our local distillery made it for us.”

Table 3
Challenges and Adaptations for Home-Based Primary Care Practices During COVID-19: Themes from Qualitative Content Analysis

Themes	Examples	Number of Responses (N = 64)
Challenges		
Supply chain issues	Normal supplier unable to provide supplies Concerns about counterfeit/poor-quality supplies Supplies available but not sufficient or difficult to obtain Unpredictable availability or inflated costs Engagement in creative supplies procurement, including purchasing from other practices	49
Workforce	Overall care provider strain Targeted staff for COVID patients Staff concerns and training Staff challenges with video care Need for patient visit prioritization due to workforce issues Workforce issues leading to suspension of house calls Loss of senior volunteers	37
Access to masks	No access to surgical or N-95 masks No access or difficulty with fit testing	27
Inadequate access to other PPE affected ability to deliver care (face shields, gowns, shoe covers, gloves, etc)	Lack of PPE necessitated cessation of in-person home visits Reuse of equipment designed for single use Poor-quality supplies, eg, face shields Need to make own supplies, eg, face shields and wipes	13
Communication and patient care	Challenges communicating with patients about PPE Exacerbation of sensory concerns (eg, hearing and seeing) with video care or PPE use Concerns about digital literacy of patients Resistance from assisted living facilities and patients to receiving care Patient distrust or fear and unwillingness to see clinical team members Negative impact of social isolation/loneliness More decline and death at home More challenges with dementia care	9
Financial	Constant change of billing regulations and frustrations with reimbursement Urgent need for more financial resources Amplified financial uncertainty	9
Adaptations		
Telemedicine	Initiation or expansion of video or telephone-based care	55
Changes in processes of care	COVID testing New patient triage/risk stratification strategy New patient monitoring approaches, including the use of remote patient monitoring Targeted staff/care teams for COVID patients Group visits Driveway calls to ensure infection precautions in the home Medication refill or prepour for longer intervals Augmented attention to advance care planning Changes in documentation practices Shorter visits or reduction in overall home visits Initiation of patient triage systems Initiation of COVID-19 screening calls Changes in infection control re to PPE/sanitation Monitoring of staff for COVID	36
Engagement with community partners to optimize patient care	Engagement with community to fund raise on behalf of patient needs (eg, groceries, PPE, TP, etc) Partnership with community organizations (eg, food pantries, meals on wheels, and other nutrition support programs)	23
Collaborations within the health care ecosystem and with payers	Communication with hospital physician groups Supportive contracts for staffing Engagement with medical service businesses Engagement with local health departments Outreach to assisted living facilities, residential care facilities for the elderly, skilled nursing facilities (SNFs), and other home care organizations Risk/capitated payment programs more flexible and supportive	23
Increased recognition of the value of home-based care and focus on provision of HBPC by leadership and health systems	Home care seem as more prepared than office-based care More home care because of fear of hospitals, clinics, and SNFs Recognition of the overall benefit of home care in the context of COVID	20
Practice changes	Billing for telemedicine Restrictions on which clinicians could provide in-person care (eg, due to age and comorbid conditions) Increased team meetings, huddles, and support Personnel layoffs Use of remote staff Staff rotation, reassignment, or redeployment Reduction in program size Suspension of home visits	16
Proactive patient and caregiver outreach	Proactive patient outreach to assess for and address caregiver burnout, food insecurity, and isolation Drop-off of medications and equipment Distribution of digital tablet devices to facilitate remote communication Goals of care and end-of-life care communication	8

Table 3 provides additional illustrations of practice adaptations. Practices started engaging in more video care and integrating new infection control directives into their home-based services. They used more remote staff, developed policies regarding who could and could not engage in in-home care (eg, providers aged ≥ 65 years were assigned to conduct video visits), and increased the number of their team huddles and support activities. Very few practices completely suspended home visits.

Practices proactive outreached to patients and to community partners (eg, Departments of Health, Meals on Wheels, Area Agency on Aging) to address the needs of their patients. One practice described “tracking resources available in the community on Aunt Bertha and other resource sites.” Practices began assessing for food insecurity, caregiver burnout, and feelings of social isolation. They worked with community organizations to fund raise on behalf of patients’ needs. They also engaged in more goals of care conversations with their patients and their caregivers. When in-home visits did occur, workflows were adapted to minimize time inside the home including pouring medications outside the front door or in the garage, dropping equipment curbside, and calling from the driveway to gather information before entering the house. Practices reported engagement with health systems and payers and noted a general sense that health care systems and payers were increasingly recognizing the advantage in-home medical care offered because of widespread concern about COVID-19 infection risk for their patients in hospitals, clinics, and skilled nursing facilities. In total, the qualitative comments offered by practices revealed predictable patient care challenges experienced in this pandemic while describing agility, silver linings through new partnerships and processes, and ongoing dedication to patient care.

Discussion

In a large, geographically diverse sample of HBPC practices, we identified significant challenges faced due to COVID-19 and the rapid adaptation of processes, staffing, and workflow to accommodate these challenges irrespective of practice size. The pandemic led to more than 87% of practices reporting being under some level of strain. The majority of practices continued to see patients in the home.

The Challenges and Adaptations

Practices reported limited access to patients (self-imposed, access prevented by facilities, patients, or caregivers); workflow disruptions (work from home); adoption of new care modalities (telehealth); increased patient vulnerability (isolation, reluctance, heightened sensory issues); and emotional impact on staff (COVID-related fears, death of patients, understaffing, burden of new modalities of work). The most impactful practice challenges were technical difficulties reaching patients, managing both patient and clinician anxiety, and navigating supply chain shortages. Practices adapted quickly to the new challenges by reducing the number of in-person visits while increasing the use of telemedicine, adopting new infection control measures, and addressing the needs of both patients and staff with creative sharing of health system resources, tapping community-based services to support the nutritional and social needs of patients, and providing new training and support for staff. Findings from our study mirror many of the adaptations described by HBPC providers in New York City.^{9,12} The emotional toll of the pandemic on both practice staff and patients was high. Clinician anxiety was reported by more than 69% of practices, and perceptions of patient anxiety by clinicians was even higher. Home-based clinicians used to adapting to the unpredictable work environment of the home now faced new workflows, loss of staff and the pressure of patient visit prioritization amid personal concerns of getting or transmitting COVID-19. Practices

observed increased social isolation, loneliness, and fear compounded by a reluctance to allow people into their homes. Sensory issues were exacerbated by the use of PPE and video communication. Clinicians reported increases in rates of decline and death at home and highlighted the additional challenges faced by patients and caregivers of those with dementia.

Silver-Linings

Despite the clear negative impact of the pandemic, many COVID-19 “silver linings” emerged. Although not a comparison between home- and office-based care, HBPC may have been better positioned than traditional office-based care to pivot and adapt to COVID-19 because of an established access-path to patients, strong pre-existing interactions with the community, and connections with community-based service providers. Some practices reported a new recognition by health system leadership of the critical role HBPC care plays in caring for vulnerable older adults and keeping them out of the ED or hospital. Indeed, recent literature advocates for a more integrated role for home-based medical care.^{13,14} The expansion of telemedicine may allow some HBPC clinicians to increase patient panels by reducing travel time to and between visits. Collaborations with health systems and health departments increased, fostering better access to supplies and workforce and targeted outreach to at-risk groups. Partnerships with health departments and health systems have the potential to foster ongoing benefit to patients if they result in increased access to vaccines and a natural delivery channel for vaccine distribution.¹⁵ Increased partnerships with community organizations facilitated identification of those at risk of food insecurity, caregiver burnout, and medication shortages and resulted in shared efforts to better support homebound patients. Although health system affiliation could have contributed to less agility to COVID-19 response, we did not see these differences among those who responded to the survey.

Study Strengths and Limitations

A major strength of the study is the national sample of HBPC practices surveyed. HBPC practices varied greatly in practice size, leadership, provider type, and geography. A limitation of the study was our inability to ascertain the response rate for clinical practices because we surveyed individual providers. The larger proportion of practices with 500 or more patients and the smaller number of practices with more than 50% of patients in ALFs also suggest some limitations in overall HBPC representativeness; nevertheless, the 79 practices included all regions of the United States. Further, the use of mixed-methods approach is a study strength. Our study was conducted in mid-2020. The impact of COVID-19 was felt differently at different time points across the country based on when particular regions experienced surges. It is likely that some practices had already experienced their first COVID-19 surge; for others, the worst was yet to come.

Conclusions and Implications

HBPC practices experienced profound disruption during COVID-19. At the same time, they nimbly adapted their approach to care. Despite a wide array of difficulties experienced by their patients, they engaged in creative approaches to address them, from driveway medication delivery to fundraisers with community organizations to provide food and other resources to patients. In the midst of staff strain, they described efforts to build team resilience and reduce burnout through increased team meetings and huddles, staff rotation, and increased staff support. These adaptations continue to be relevant, not only for COVID-19, but also for future pandemics and disasters likely to be faced by HBPC practices. Future studies of larger numbers of practices

are needed to better understand the long-standing impact of the pandemic on HBPC and whether changes initiated during the pandemic persist.

Supplementary Data

Supplementary data related to this article can be found online at <https://doi.org/10.1016/j.jamda.2021.05.016>.

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