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Original Study - Brief Report

COVID-19 Preparedness in US Home Health Care Agencies



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A B S T R A C T

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Objectives: In the United States, home health agencies (HHAs) provide essential services for patients recovering from post-acute care and older adults who are aging in place. During the COVID-19 pandemic, HHAs may face additional challenges caring for these vulnerable patients. Our objective was to explore COVID-19 preparedness of US HHAs and compare results by urban/rural location.

Design: Cross-sectional study.

Setting/Participants: Using a stratified random sample of 978 HHAs, we conducted a 22-item online survey from April 10 to 17, 2020.

Methods: Summary statistics were computed; open-ended narrative responses were synthesized using qualitative methods.

Results: Similar to national data, most responding HHAs (n = 121, 12% response rate) were for-profit and located in the South. Most HHAs had infectious disease outbreaks included in their emergency preparedness plan (76%), a staff member in charge of outbreak/disaster preparedness (84%), and had provided their staff with COVID-19 education and training (97%). More urban HHAs had cared for confirmed and recovered COVID-19 patients than rural HHAs, but urban HHAs had less capacity to test for COVID-19 than rural HHAs (9% vs 21%).

Most (69%) experienced patient census declines and had a current and/or anticipated supply shortage. Rural agencies were affected less than urban agencies. HHAs have already rationed (69%) or implemented extended use (55%) or limited reuse (61%) of personal protective equipment (PPE). Many HHAs reported accessing supplemental PPE from state/local resources, donations, and do-it-yourself efforts; more rural HHAs had accessed these additional resources compared with urban HHAs.

Conclusions/Implications: This survey reveals challenges that HHAs are having in responding to the COVID-19 pandemic, particularly among urban agencies. Of greatest concern are the declines in patient census, which drastically affect agency revenue, and the shortages of PPE and disinfectants. Without proper protection, HHA clinicians are at risk of self-exposure and viral transmission to patients and vulnerable family members.

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In the United States, home health care, defined as care delivered in a patient's home by health care professionals,¹ plays an important role for post-acute and chronically ill patients. Most home care patients are older adults with multiple chronic conditions.² During the COVID-19 pandemic, caring for this group of vulnerable patients at home is complicated and issues may differ in urban and rural settings. Our objective was to explore the COVID-19 preparedness of US home health care agencies (HHAs) and examine any urban and rural differences.

Methods

We used a stratified random sample of 978 HHAs with available e-mail addresses drawn from a national survey conducted in 2019 ($n = 1502$). The original sample was drawn from US Medicare-certified HHAs in the June 2018 Provider of Services file, stratified by census region, ownership, and urban/rural location. After receiving institutional review board determination, we used Qualtrics CoreXM (Provo, UT) software to e-mail a 22-item survey (including 2 open-ended questions) on April 10, 2020. Our COVID-19 preparedness survey was adapted from one recently conducted in Michigan nursing homes.³ After 2 e-mail reminders, we closed survey data collection on April 17, 2020.

For national comparisons, we merged the survey data with the 2019 (the most current) Provider of Services, Home Health Compare, and Home Health Care Consumer Assessment of Healthcare Providers and Systems (HHCAPHS) data. Summary statistics were computed, and open-ended narrative responses were synthesized using qualitative methods and exemplar quotes are provided.

Results

A total of 121 HHAs completed the survey (12% response rate). Similar to national Medicare-certified HHAs, most responding HHAs were located in the Southern census region and had for-profit ownership (Table 1). Our sample had more rural HHAs (27% vs 14%) than the nation, given that rural agencies were oversampled in the original sample. Approximately 15% of responding agencies were affiliated with a hospital. Average quality ratings for respondents were similar to national averages of the Quality of Patient Care and HHCAPHS Summary Star Ratings. The Star Ratings range from 1 to 5 stars (measured in increments of 0.5 and 1, respectively, for Quality of Patient Care and HHCAPHS); most HHAs in the United States receive 3 stars, which indicates they provide “good” quality of care.⁴

Table 1
Home Health Agency Characteristics, by Survey Respondents and the Nation

	National Home Health Agencies, $n = 11,189$	Survey Respondents, $n = 121$
	n (%)	n (%)
Agency characteristics		
Census region		
Northeast	1035 (9.3)	13 (10.7)
Midwest	2894 (25.9)	31 (25.6)
South	4763 (42.6)	46 (38.0)
West	2461 (22.0)	31 (25.6)
Puerto Rico	36 (0.3)	0 (0.0)
Rural	1611 (14.4)	33 (27.3)
Urban	9578 (85.6)	88 (72.7)
Ownership		
For-profit	9223 (82.4)	82 (67.8)
Nonprofit	1586 (14.2)	26 (21.5)
Government	380 (3.4)	13 (10.7)
Value-Based Purchasing Program Participation	2005 (17.9)	18 (14.9)
CMS Program Participation		
Medicare only	2500 (22.3)	24 (19.8)
Medicare/Medicaid	8689 (77.7)	97 (80.2)
Hospital Affiliation	702 (6.3)	18 (14.9)
	Mean (SD)	
QoPC Star Rating*	3.28 (1.01)	3.14 (0.97)
HHCAPHS Summary Star Rating [†]	3.50 (0.90)	3.75 (0.84)

CMS, Centers for Medicare and Medicaid Services.

Totals varied due to missing data:

*From February 2020 Home Health Compare file: n (total) = 8412, n (respondents) = 103.

[†]From February 2020 Home Health Compare file: n (total) = 5483, n (respondents) = 68.

Survey results are in Table 2. Most respondents cared for patients in assisted living facilities (79%), and fewer than 30% of HHAs cared for nursing home patients. Most respondents had infectious disease outbreaks included in their agency's emergency preparedness plan (76%), and some had specific COVID-19 plans (60%). Most HHAs had a staff member in charge of outbreak/disaster preparedness (84%), and half had conducted outbreak simulations in the past 2 years. Most agencies have the capacity to admit patients with COVID-19 requiring a lower level of care (69%), but only a few have capacity to test patients for COVID-19 (12%). Rural HHAs (compared with urban) had more COVID-19 testing capacity, but were less likely to have COVID-19-specific preparedness plans.

Almost all responding HHAs (97%) had provided their staff with education and training on COVID-19. Furthermore, most had new protocols and procedures in place regarding personal protective equipment (PPE) donning and doffing and using protective barriers while in patients' homes, which are critical to reducing SARS-CoV-2 transmission. In a text response, 1 staff member at an urban for-profit HHA in Pennsylvania highlighted the importance of early and ongoing education to protect staff: “[We provided] education for all staff regarding how COVID-19 is identified, plus daily temp checks for all staff since the beginning, and daily screening of all patients prior to home visits ... screening of all new patients prior to admission to home care, and infection control reeducation.”

Most responding HHAs (61%) had already cared for patients with suspected, confirmed, and/or recovered COVID-19. Urban HHAs had cared for more patients with confirmed (31% vs 18%) and recovered (24% vs 6%) COVID-19 than rural HHAs. Most respondents (58%) had increased their use of telehealth, whereas some (17%) still did not have telehealth capacity. A staff member at an urban, for-profit agency in North Carolina explained how telehealth helped: “We are not discharging patients, instead we are performing virtual visits and phone visits. This is to ensure our patients are at least being monitored for any signs and symptoms. We are trying to prevent trips to the doctor and hospital.” Even with telehealth capabilities, difficulties exist with remote visits and monitoring, as described by an urban, for-profit HHA in Texas: “[We've had] difficulty in reaching/communicating with patients who have no phone or signal or Wi-Fi connection.”

Despite increased telehealth usage, most responding HHAs (69%) had experienced a decreased patient census; rural agencies were affected less than urban agencies (61% vs 73%). A staff member at a rural, nonprofit HHA in Kentucky explained: “The hospitals have cut out most surgeries and other services, which has greatly decreased our census and also, patients are requesting no services due to the fear of the virus.” The consequences of a declining census to agency revenues was described by an urban, for-profit HHA in Texas: “We have lost 30% of our census to patients not wanting visits in their homes, and due to the lack of scheduled procedures that result in home health utilization. We will have staff layoffs in the next 14 days if we are not approved for the Paycheck Protection Program.” Another staff member at a rural, for-profit agency in Hawaii explained: “Our agency [discharged] many patients to reduce the risk of exposing them to COVID-19... [We] had to furlough 50% of [our] field staff. It's been heartbreaking.”

Current and/or anticipated supply shortages were widespread among respondents. Urban HHAs, more than rural HHAs, lacked N95 respirators (66% vs 52%), gloves (23% vs 15%), and eye protection (50% vs 33%). More urban HHAs anticipated shortages in eye protection in the next 2 weeks, compared with those in rural locations (35% vs 21%). A staff member from a rural, nonprofit agency in New Mexico lamented: “PPE is highly needed to ensure the safety of our patients and staff. All of our orders were taken by the government. Just does not seem fair to take away PPE that has always been ordered by our agency and leave us without. We have purchased material to make disposable gowns and have volunteers and staff making these, and face masks.” Another staff member from an urban, for-profit agency in Colorado explained

Table 2
Measures of COVID-19 Home Health Preparedness by Location

	Total n (%)	Location	
		Rural	Urban
		n (%)	n (%)
Emergency preparedness			
Components in current preparedness plan			
Infectious disease outbreaks	92 (76.0)	25 (75.8)	67 (76.1)
Specific COVID-19 plan	73 (60.3)	16 (48.5)	57 (64.8)
Other IPC components	25 (20.7)	4 (12.1)	21 (23.9)
Has staff member responsible for outbreak/disaster preparedness*	100 (84.0)	27 (84.4)	73 (83.9)
Outbreak simulations conducted in past 2 years	62 (52.1)	16 (50.0)	46 (52.9)
Agency capacity			
Ability to test patients for COVID-19	15 (12.4)	7 (21.2)	8 (9.1)
Access to laboratory for surveillance/detection	67 (55.4)	21 (63.6)	46 (52.3)
Surge capacity			
Agency could admit patients with COVID-19 requiring a lower level of care	84 (69.4)	26 (78.8)	58 (65.9)
Agency could admit hospital patients without COVID-19 requiring a lower level of care	82 (67.8)	22 (66.7)	60 (68.2)
Cares for patients in residential care settings			
Nursing homes	32 (26.4)	8 (24.2)	24 (27.3)
Assisted living facilities	96 (79.3)	25 (75.7)	71 (80.7)
Changes due to COVID-19 pandemic			
Has patients with COVID-19			
Suspected	66 (54.5)	17 (51.5)	49 (55.7)
Confirmed	33 (27.3)	6 (18.2)	27 (30.7)
Recovered	23 (19.0)	2 (6.1)	21 (23.9)
Patient census			
Increased	10 (8.3)	2 (6.1)	8 (9.1)
Decreased	84 (69.4)	20 (60.6)	64 (72.7)
No change	24 (19.8)	10 (30.3)	14 (15.9)
Telehealth usage			
Increased	70 (57.8)	19 (57.6)	51 (57.9)
No change	27 (22.3)	9 (27.3)	18 (20.4)
No telehealth usage at agency	21 (17.4)	5 (15.2)	16 (18.2)
New procedures/protocols			
Aerosol-generating procedure policies	36 (29.7)	9 (27.3)	27 (30.7)
Barriers when in patient homes	62 (51.2)	16 (48.5)	46 (52.3)
PPE donning and doffing in patient homes	98 (81.0)	28 (84.8)	70 (79.5)
Not applicable	10 (8.3)	2 (6.1)	8 (9.1)
COVID-19 staff training and education provided [†]	114 (97.4)	32 (100.0)	82 (96.5)
Challenges due to COVID-19 pandemic			
Supplies currently without			
N95 respirators	75 (62.0)	17 (51.5)	58 (65.9)
Masks (surgical)	54 (44.6)	15 (45.4)	39 (44.3)
Gloves	25 (20.7)	5 (15.1)	20 (22.7)
Eye protection	55 (45.4)	11 (33.3)	44 (50.0)
Gowns	67 (55.4)	16 (48.5)	51 (57.9)
Cleaning supplies/disinfectants	62 (51.2)	15 (45.4)	47 (53.4)
Hand soap or alcohol-based hand sanitizer	59 (48.8)	14 (42.4)	45 (51.1)
Supplies anticipated to be without in next 2 weeks			
N95 respirators	48 (39.7)	13 (39.4)	35 (39.8)
Masks (surgical)	52 (43.0)	15 (45.4)	37 (42.1)
Gloves	25 (20.7)	6 (18.2)	19 (21.6)
Eye protection	38 (31.4)	7 (21.2)	31 (35.2)
Gowns	56 (46.3)	14 (42.4)	42 (47.7)
Cleaning supplies/disinfectants	49 (40.5)	14 (42.4)	35 (39.8)
Hand soap or alcohol-based hand sanitizer	50 (41.3)	14 (42.4)	36 (40.9)
Currently experiencing staffing shortages*	38 (31.9)	6 (18.7)	32 (36.8)
Primary reason for staffing shortage[‡]			
Staff at risk, or with family members at risk for COVID-19	12 (31.6)	1 (16.7)	11 (34.4)

(continued)

Table 2 (continued)

	Total n (%)	Location	
		Rural	Urban
		n (%)	n (%)
Staff infected with/quarantined from COVID-19 exposure	8 (21.0)	0 (0.0)	8 (25.0)
Child care issue due to school closings	9 (23.7)	0 (0.0)	9 (28.1)
Other	9 (23.7)	5 (83.3)	4 (12.5)
Anticipated staffing shortages during current pandemic [§]	19 (23.7)	4 (15.4)	15 (27.8)
Mitigating strategies for COVID-19 pandemic challenges			
Addressing staffing shortages			
Remaining staff volunteering to work extended hours	23 (19.0)	2 (6.1)	21 (23.9)
Remaining staff mandated to work extended hours	7 (5.8)	2 (6.1)	5 (5.7)
Contracted temporary staff	13 (10.7)	1 (3.0)	12 (13.6)
Nonclinical staff filling different roles	16 (13.2)	3 (9.1)	13 (14.8)
Accessing supplemental PPE			
State or local resources	77 (63.6)	25 (75.8)	52 (59.1)
Private/community donations	63 (52.1)	24 (72.7)	39 (44.3)
Do-it-yourself efforts	73 (60.3)	25 (75.8)	48 (54.5)
Not applicable	2 (1.6)	2 (6.1)	0 (0.0)
Current PPE usage strategy			
Use expired PPE supplies	17 (14.0)	8 (24.2)	9 (10.2)
Extended use	67 (55.4)	23 (69.7)	44 (50.0)
Limited reuse	74 (61.2)	19 (57.6)	55 (62.5)
Rationing	83 (68.6)	25 (75.8)	58 (65.9)
Not currently having to use a strategy	13 (10.7)	3 (9.1)	10 (11.4)

IPC, infection prevention and control.

Other IPC components included influenza, tuberculosis, multidrug-resistant *Staphylococcus aureus*. Other reasons for staffing shortages included employee fear and competition from other health care facilities. Totals varied due to missing data or skip patterns.

*n = 119.

†n = 117.

‡n = 38.

§n = 80.

their situation: “We are hampered most by not having enough PPE... That will be our most limiting factor in the next 2 weeks. We have the staff but the PPE is the problem.”

Despite challenges with sourcing PPE from established vendors, many responding agencies accessed PPE from other avenues: state/local resources (64%), private/community donations (52%), or do-it-yourself efforts (60%). Rural HHAs appeared to have more access to these sources than urban HHAs. Many HHAs have followed new Centers for Disease Control and Prevention guidelines⁵ for extended (55%) or limited (61%) use of current supplies. Despite the high need, 1 staff member from a rural, for-profit agency in Ohio grieved over the guideline changes: “It is appalling [the CDC] would change the standards of proper disinfection, make our non-reusable PPE now reusable.”

Most responding HHAs (62%) had not or were not anticipating significant staffing shortages due to COVID-19. Of those with staffing challenges (38%), more urban than rural HHAs reported that those challenges were due to both not wanting to put staff at risk or staff not wanting to put family members at risk. Other agencies noted in their text responses: “staff fear” or “competition from nearby [agencies/facilities/hospitals] for qualified health care providers.” A staff member at an urban, for-profit agency in California described their situation: “We have a significant reduction in staff due to childcare issues, as well as staff members who are in high-risk populations themselves and are now on leave of absence.” Of those experiencing staffing shortages, some HHAs (19%) had remaining staff volunteer to work extended hours. More urban HHAs (than rural) used this mitigating strategy (24% vs 6%). At 1 urban, for-profit agency in Connecticut, a staff member explained how taking early action preserved staffing: “[Our] clinicians have a designated area—whether that is a sector of community or an assisted living building—and they have remained in only that community... Most of my

team decided to only work for our agency through this. They understood if they were to moonlight in another SNF, hospital, etc. they would be putting people at risk.” Another staff member at a rural, for-profit agency in Ohio indicated: “We actually did not take any steps [to preserve staff]. We had a handful of aides who also worked at dentist and doctors’ offices and since they are closed temporarily these aides picked up more shifts. So, we just got lucky.”

Discussion

Most HHAs had an emergency preparedness plan in place, and despite regional differences in COVID-19 cases, most responding agencies were caring for (or had cared for) suspected, confirmed, or recovered patients with COVID-19. Urban HHAs appeared to be struggling more than rural HHAs, with less capacity to test patients for COVID-19, larger decreases in their patient census, shortages of PPE, not having additional sources for PPE, more staffing challenges, and caring for more confirmed and recovering patients with COVID-19. With the density of urban areas, this is not unexpected but is alarming. For rural agencies, prior relationships or partnerships with local health departments and hospitals may be aiding them in accessing supplemental PPE supplies and COVID-19 testing for their patients. In rural locations, there are also fewer health care providers, and, thus, less competition for PPE supplies than urban agencies are facing.

The decreased patient census of HHAs is also concerning. Home health patients receiving care before COVID-19 may not be currently receiving care due to fear, staffing shortages, or lack of access to telehealth visits. For smaller HHAs, declining revenue resulting from a decreased census may jeopardize their financial viability. Even for agencies with telehealth capabilities, difficulties with reimbursement for telehealth services adds to the financial issues. On March 30, 2020, the Centers for Medicare and Medicaid Services did add more flexibility to provide services to Medicare beneficiaries via telehealth,⁶ but receiving reimbursement still remains problematic, and any such visits must be physician-ordered.⁷ Because of the decreased census and revenue, some HHAs need to terminate or furlough staff; these agencies may have a diminished ability to assist with any future surge capacity.⁸

The current/anticipated shortages of PPE and other supplies remain the largest concern. During the week of April 10, 2020, most responding HHAs were already lacking N95 respirators, gowns, and cleaning supplies or disinfectants. The lack of PPE has been reported at length in hospitals and nursing homes,⁹ but rarely for home health agencies.¹⁰ As in other health care sectors, most HHAs have struggled to secure more supplies because of intense competition. A survey conducted in late March 2020 of organizations serving the home and community-based care needs of New Yorkers found that 80% of respondents were having difficulties in obtaining PPE supplies.¹¹ Because of this, most HHAs are rationing PPE and several agencies are extending the use of current PPE supplies or implementing limited reuse guidelines. This is of great concern because, lacking proper protection, home health clinicians are at high risk for self-exposure and have additional challenges in preventing viral transmission to other patients and vulnerable family members.

Limitations

Of note, this is a relatively small sample and may not represent the entire population of US HHAs. To obtain a quick response and reduce the burden to responding staff, our survey included only 22 items, was open for one week, and, therefore, captured what HHAs were experiencing at that specific point in time during the pandemic.

Conclusions and Implications

Nevertheless, our survey provides a first glimpse of HHAs during the COVID-19 outbreak and shows that there may be important

differences in the ability of an agency to respond to the pandemic. In the United States, home health care is a vital service for patients who are recovering from acute care, as well as for adults who are aging in place. However, this health care sector has not received the attention that hospitals and nursing homes have. This survey sheds light on the problems this crucial sector is having in responding to the current pandemic and highlights the potential for long-term problems in the industry. Furthermore, HHAs were already facing challenges related to the Patient-Driven Groupings Model, which is considered the largest payment overhaul in the US home health industry since 2000.^{12,13} In the future, researchers will need to disentangle how HHAs respond long-term to the COVID-19 pandemic and Patient-Driven Groupings Model to understand the capacity that HHAs have to deal with future public health crises.

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