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"All Hands on Deck": Administrator Perspectives on Managing COVID-19 Outbreaks in U.S. Nursing Homes

RESEARCH

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ABSTRACT

Context: Managing COVID-19 outbreaks at U.S. nursing homes highlight the structural weaknesses of pre-pandemic long-term care emergency preparedness protocols.

Objective: To understand how nursing home administrators managed staffing and facility operations during an active COVID-19 outbreak.

Methods: This descriptive qualitative study conducted semi-structured interviews with administrators at 40 U.S. nursing homes from July 2020–December 2021. Interview questions focused on the impact of COVID-19 on nursing home operations and staffing, among other topics. Interview transcripts were qualitatively analysed to identify overarching themes using modified grounded theory and thematic analysis.

Findings: Four major themes emerged from analysis. (1) Administrators described the rapidity of viral infection of staff and residents as overwhelming and long-lasting; (2) a COVID-19 outbreak had an immediate impact on staffing levels; (3) administrators implemented short-term compensatory strategies to manage staffing shortages during COVID-19 outbreaks; and (4) administrator and staff roles and responsibilities expanded in order to maintain facility operations during, and post-COVID-19 outbreak.

Limitations: Findings may not be generalizable to all U.S. nursing homes and may not reflect current COVID-19 mitigation protocols and perspectives as interviews concluded in December 2021.

Implications: U.S. nursing home administrators used crisis-management strategies to sustain facility operations during active COVID-19 outbreaks. This approach highlights on-going weaknesses in the long-term care infrastructure at U.S. nursing homes. Learning from administrator experiences during the COVID-19 pandemic is critical for the development of robust emergency preparedness plans and the improvement of state and federal resource coordination efforts to support U.S. nursing homes during future public health emergencies.

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INTRODUCTION

The COVID-19 pandemic has significantly impacted nursing homes in the United States. By September 2023, a reported 1.70 million residents and 1.67 million staff members had confirmed COVID-19 (Centers for Medicare and Medicaid Services, 2023). Of those residents who contracted COVID-19, 167,000 have died (Centers for Medicare and Medicaid Services, 2023). Since the start of the pandemic, staff at all levels of care have left the industry due to fear of infection, retirement, furloughs, and COVID-19-related illness or death (Denny-Brown et al., 2020, Paulin, 2022; Chatterjee, 2022; Ochieng, Chiambraum & Musumeci, 2022). U.S. federal labour data support these findings indicating that the nursing home industry has lost 13% of its workforce since March 2020 (Telesford et al., 2023). With staff turnover and burnout long associated with negative resident outcomes (Kennedy & Mohr, 2023; Franzosa et al., 2022), the ongoing staffing shortages in nursing homes is of significant concern (Ouslander & Grabowski, 2020).

Early in the pandemic before vaccines were available, the widespread shortages of personal protective equipment (PPE), and extremely limited overall testing capacity expedited viral transmission (Blackman et al., 2020). Research has since shown that community virus prevalence is one of the strongest predictors of COVID-19 cases and deaths in nursing homes (Konetzka et al., 2021; McGarry et al., 2022) – a predictor found to be consistent globally (Rabilloud et al, 2022; Tan & Seetharaman, 2021). Once inside the nursing home, the virus spread rapidly, and often asymptomatically, in the congregate care environment where staff and residents must be in regular close contact to provide needed care (Ouslander & Grabowski, 2020). For example, in early April 2020, one Massachusetts nursing home completed state-recommended universal testing of their residents with no reported COVID-19 symptoms and found 83 out of 97 (85%) residents tested positive for COVID-19. By mid-April 2020, 30 of these residents had died from COVID-19 (Goldberg et al., 2021).

The Centers for Disease Control and Prevention (CDC) define a nursing home COVID-19 outbreak as starting with a single incident case of a staff member or resident in a facility and ending after there have been no new cases for 14 days (CDC, 2023). Since March 2020, U.S. nursing homes have experienced significant and recurrent COVID-19 outbreaks, with 94% reporting multiple COVID outbreak occurrences. (U.S. Government Accountability Office, 2021). Over the course of the pandemic, increased availability of PPE, effective infection control protocols, and improved COVID-19 testing capacity, combined with the distribution of vaccines beginning December 2020 (CDC, 2023), helped mitigate the severity of COVID-19 outbreaks (McGarry, Gandhi & Barnett, 2023). However, COVID-19 outbreaks have continued to occur, often repeatedly, which has taken a significant toll on staff and residents (Grebbin, 2023, Shen et al., 2022; Gorges & Konetzka, 2020; Kovner et al., 2021; Denny-Brown et al., 2020).

Few studies have examined the immediate impact of a COVID-19 outbreak on nursing home staffing and facility level processes (Doyle, Louw & Corry, 2023). This descriptive qualitative study presents administrator experiences balancing staffing levels with facility operations to meet regulatory requirements for providing care to residents during an active COVID-19 outbreak. Although the long-term consequences of COVID-19 on the U.S. nursing home workforce are still being evaluated, findings from this study highlight the tenuous stability of staffing and facility processes at nursing homes during a significant health emergency. Policy makers and industry specialists should take the findings from this study into consideration as they develop policy and practice recommendations for health emergency preparedness in long-term care settings.

METHODS

This descriptive qualitative study conducted repeated, semi-structured interviews with administrators at 40 nursing homes in eight U.S. health care markets from July 2020–December 2021. This project followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guidelines for qualitative research and was approved by the Brown University Institutional Review Board (IRB) which determined it to not be human subjects research because no personally identifiable information (PII) or personal health information (PHI) was collected.

MARKET SELECTION

Eight U.S. healthcare markets which varied based on U.S. region and nursing home utilization patterns were identified using the Hospital Referral Region (HRR) table from the Centers for Medicare and Medicaid Services (CMS) 2017 Geographic Variation Public Use file. These utilization patterns identified areas with varying rates of nursing home use and divided them into four categories: low utilization, which ranged from 1.36% to 4.03% of nursing home use per hospital referral region, low-moderate utilization (4.04% to 4.67%), moderate utilization (4.68% to 5.37%), and high utilization (5.38% to 7.44%). Using 2018 data from the Certification and Survey Provider Enhanced Reporting (CASPER) system, a list of every licensed nursing home in the eight selected markets was generated. The number of nursing homes per market ranged from 38–223, with an average of 106 nursing homes per market. Our sample included 40

of the 850 total facilities that existed within the eight healthcare markets.

Within each healthcare market, five nursing homes were selected to participate in the study. Nursing homes varied by quality rating (1–5 star with 5 being the highest rating) as established by CMS, facility size by bed count, payer mix (payment received from out-of-pocket payments or private insurance, Medicare, and/or Medicaid), and ownership type (for profit or non-profit) as measured in Nursing Home Compare and LTCFocus (LTCFocus, 2023). Additional market and nursing home selection details were recently published (Gadbois et al, 2023).

PARTICIPANT RECRUITMENT

U.S. nursing home administrators are credentialed and licensed in compliance with U.S. federal and state regulations, and occupy a senior role separate from directors of nursing, medical directors, and other roles at nursing homes. Administrators for this study were recruited using purposive sampling by email and telephone to participate in four semi-structured interviews. Interviews were repeated at three-month intervals between July 2020–December 2021 to capture administrator perspectives on the impact of COVID-19 on nursing home operations over time.

INTERVIEW DESIGN, PROTOCOL, AND ANALYSIS

An interview guide was developed in collaboration with content experts to examine administrator perspectives on the impact of COVID-19 on U.S. nursing home operations and staffing (among other topics) over time. Three cognitive interviews and three pilot interviews were conducted to test and iteratively improve question clarity, comprehension, and flow. The finalized interview guide was used as a baseline across all four participant interviews. Interview questions were modified, added or discontinued to gather follow-up data based on the previous interview (e.g., Interview 2 and 3), or as a reflection on the year-long study timeframe (e.g., Interview 4). Prior to the third interview, participants were sent a summary report describing preliminary findings and emerging themes. Feedback on the summary report was solicited to confirm and refine preliminary findings and emerging themes. (See Supplementary Materials for interview guides 1 and 4.)

Interviews were conducted by four, female research team members with 5–35 years of experience conducting qualitative research. Two were PhD-level faculty members and two were Master's level research staff. Neither researchers nor interview participants had relationships prior to the first interview. The purpose of the research was shared with participants during recruitment and at the beginning of each interview.

Interviews were conducted virtually using the ZOOM platform or by telephone (depending on participants' preferences) from July 2020–December 2021. Study participation included four interviews per participant with each interview lasting approximately 60 minutes. Consent to audio record was obtained at the start of each interview. Audio recordings were obtained through the ZOOM platform record function or on a portable recorder device. Two team members were present at each interview, with one leading the interview and the other taking detailed notes to flag follow-up questions and note emerging themes. Participants received a stepwise increase in compensation in the form of e-gift cards for each completed interview.

Interview audio files were professionally transcribed verbatim, then reviewed, cleaned, and de-identified by research team members. Participants did not receive the transcript of their interview. Four research team members independently coded interview transcripts. They met weekly to reconcile coding differences and identify over-arching themes.

To best understand preliminary themes and emerging data from the longitudinal interview design of this study, data collection (interviews) and analysis (transcript coding) were conducted concurrently for 10 months. Interviews were conducted from July 2020 to December 2021; coding analysis of transcripts was conducted from March 2021 to April 2022, and thematic analysis of coding reports from April 2022 to December 2022.

Transcripts were qualitatively analysed using modified grounded theory (Alnsour, 2022) to develop a preliminary coding scheme based on interview questions, and data emerging from interviews (*a priori* codes). The coding scheme was iteratively adjusted by adding and removing codes and refining the associated code definitions as *de novo* concepts emerged throughout data collection. Using thematic analysis (Braun & Clark, 2006), each identified theme was subjected to re-analysis for content relevance and depth.

Given the unique, longitudinal nature of this study design, data were regularly checked throughout analysis for saturation. As interviews were conducted at different time points, new data were emerging during the study timeframe of July 2020–December 2021 which reflected the rapidly shifting dynamics of the pandemic on nursing home staff and facility operations. Post hoc, during the thematic analysis of coded interview transcripts, it was determined that saturation on the topic of COVID-19 outbreaks was achieved. A comprehensive audit trail (Ritchie & Lewis, 2012) was kept to record team decisions, questions and comments, code definitions, and emerging themes. Coded data were entered into the qualitative software package NVivo Version 12 Plus (QSR International) to facilitate comparative analyses across themes.

RESULTS

Semi-structured interviews with administrators of 40 nursing homes in eight U.S. healthcare markets were conducted over an 18-month study period of July 2020–December 2021. Nursing homes varied by U.S. region, quality rating (1–5-star), ownership type (non-profit/for profit), size (bed count), and percent of residents paid for by Medicare (a U.S. federal health insurance program). Facilities were replaced when there was administrator turnover, and the new administrator was not willing or able to participate. A replacement facility was marked as 'not found' after repeated outreach to other facilities in the market was unsuccessful. Four administrators did not complete the entire interview sequence and were lost to follow-up, resulting in a total sample of 156 interviews. Data from all 156 interviews was used in analysis and reporting.

Participant demographic information was not formally gathered; however, participants were licensed nursing home administrators who self-reported a range of education levels and backgrounds, including nursing, social work, business administration, healthcare administration, public administration, finance, and marketing. Their experience in nursing homes ranged from several months to over thirty years. Characteristics of the nursing homes are presented in Table 1.

FACILITY ID	U.S. REGION	SIZE (BED COUNT)	OWNERSHIP TYPE (FOR- PROFIT STATUS)	% RESIDENTS WITH MEDICARE* AS PRIMARY PAYER	QUALITY RATING** (1–5 STARS)
S1N1rep1	Northeast	126–150	Yes	0–9.9%	1
S1N2	Northeast	100–125	No	10–19.9%	3
S1N3	Northeast	100–125	Yes	10–19.9%	5
S1N4	Northeast	<100	Yes	10–19.9%	2
S1N5	Northeast	<100	Yes	10–19.9%	4
S2N1	Northeast	<100	No	10–19.9%	4
S2N2	Northeast	100–125	Yes	10–19.9%	5
S2N3	Northeast	151+	Yes	10–19.9%	1
S2N4	Northeast	151+	No	10–19.9%	3
S2N5	Northeast	100–125	No	0–9.9%	2
S3N1	South	151+	Yes	10–19.9%	1
S3N2	South	100–125	No	30%+	5
S3N3	South	126–150	Yes	0–9.9%	2
S3N4	South	<100	Yes	10–19.9%	3
S3N5	South	<100	Yes	30%+	4
S4N1	Midwest	126–150	Yes	10–19.9%	2
S4N2	Midwest	<100	No	30%+	5
S4N3	Midwest	100–125	Yes	10–19.9%	1
S4N4	Midwest	151+	No	0–9.9%	3
S4N5	Midwest	151+	No	10–19.9%	4
S5N1	West	<100	Yes	10–19.9%	2
S5N2	West	100–125	Yes	10–19.9%	3
S5N3	West	<100	Yes	10–19.9%	5
S5N4	West	126–150	Yes	10–19.9%	2
S5N5	West	<100	Yes	0–9.9%	4
S6N1	South	126–150	No	30%+	4
S6N2rep4	South	100–125	Yes	30%+	5
S6N3	South	100–125	No	0–9.9%	2

(Contd.)

FACILITY ID	U.S. REGION	SIZE (BED COUNT)	OWNERSHIP TYPE (FOR- PROFIT STATUS)	% RESIDENTS WITH MEDICARE* AS PRIMARY PAYER	QUALITY RATING** (1–5 STARS)
S6N4	South	100–125	Yes	10–19.9%	1
S6N5	South	100–125	Yes	30%+	3
S7N1	South	<100	No	30%+	4
S7N2	South	126–150	Yes	30%+	1
S7N3	South	<100	Yes	30%+	2
S7N4	South	151+	Yes	20–29.9%	3
S7N5	South	<100	No	20–29.9%	5
S8N1	West	<100	Yes	10–19.9%	3
S8N2	West	151+	Yes	10–19.9%	2
S8N3	West	151+	Yes	20–29.9%	5
S8N4	West	151+	Yes	10–19.9%	4
S8N5	West	<100	Yes	30%+	2

Table 1 Facility Characteristics.

Note: *Medicare is a U.S. federal health insurance program to help older and disabled Americans pay for their medical expenses. **Quality Rating was established by the U.S. Centers for Medicare and Medicaid Services to help consumers compare nursing home quality: 1 = much below average quality; 5 = much above average quality.

Four major themes emerged from qualitative analysis of interviews with nursing home administrators and reflect their experiences managing facility staffing and operations during an active COVID-19 outbreak. First, nursing home administrators described the rapidity of viral infection of staff and residents as overwhelming and long-lasting; second, a COVID-19 outbreak had an immediate impact on staffing levels; third, administrators implemented short-term compensatory strategies to manage staffing shortages during COVID-19 outbreaks; and fourth, administrator and staff roles and responsibilities expanded in order to maintain facility operations, during and post-COVID-19 outbreaks. These themes are further explored and supported with representative quotes below.

THEME 1: NURSING HOME ADMINISTRATORS DESCRIBED THE RAPIDITY OF VIRAL INFECTION OF STAFF AND RESIDENTS AS OVERWHELMING AND LONG-LASTING

Nursing home administrators described COVID-19 outbreaks as overwhelming their facilities due to the rapidity of viral transmission. One administrator compared the speed of COVID-19 transmission to "a glitter project because once it starts, it spreads" (S4N3.1_October 2, 2020). For many nursing homes, an outbreak lasted for an extended period of time before the facility was considered COVID-19 free (i.e., no positive staff or resident cases for 14 consecutive days). Noted one administrator, coping with an outbreak was "the worst month of my life" (S4N5.3_May, 20, 2021). See Table 2 for supportive concepts and quotes.

Administrator descriptions of outbreaks at their facilities showed the speed with which COVID-19 was transmitted to staff and residents, as well as the extended length of time during which the facility was considered to be in an outbreak. As is further described in Theme 2, a COVID-19 outbreak had an immediate impact on facility staffing levels.

THEME 2: ADMINISTRATORS REPORTED HOW A COVID-19 OUTBREAK HAD AN IMMEDIATE IMPACT ON STAFFING LEVELS AT THEIR FACILITIES

Administrators described a number of staffing challenges that emerged with the onset of a COVID-19 outbreak, including staff leaving their jobs due to reported fear of the virus, and the need to pull staff who tested positive off duty and into quarantine. For many nursing homes, local, state, and federal regulations required an immediate freeze on new admissions which, as one administrator noted, meant that "many facilities have had to reduce or furlough staff" (S6N1.1_August 19, 2020). See Table 3 for illustrative concepts and quotes.

As nursing home administrators reported, COVID-19 outbreaks at their facilities had immediate implications for staffing. Nursing homes pivoted to manage acute staffing shortages using various short-term strategies to maintain staffing levels throughout the immediate crisis. This theme is explored further below.

THEME 3: ADMINISTRATORS REPORTED IMPLEMENTING SHORT-TERM COMPENSATORY STRATEGIES TO MANAGE STAFFING SHORTAGES DURING COVID-19 OUTBREAKS

Administrators noted that during a COVID-19 outbreak, it was "all hands on deck" (S1N5.3_April 14, 2021), with

CONCEPT	REPRESENTATIVE QUOTE (ID, DATE)
A COVID-19 outbreak overwhelms	I will tell you, we got so overwhelmed in December [2020] with COVID positives, that we had COVID positive residents throughout the facility. It wasn't only one unit, because we couldn't accommodate them. (S1N1.rep1.1_April 8, 2021)
	Not just my residents got COVID, but a lot of my staff got COVID. The week between Christmas [2020] and New Year's [2021] was probably one of the worst weeks … not one of, as far as operations and everything with that business, that *was* the worst week, pretty much ever. Between all the patients that tested positive, all my staff that tested positive, trying to get coverage. (S1N5.2_January 13, 2021)
	It was January 1st [2021] when our outbreak started, so January was the worst month of my life. We started getting cases on January first, we ended up with a total, in January, of 104 cases, 31 deaths, 48 staff got COVID in January. (S4N5.3_May 20, 2021)
	We had a major outbreak, unfortunately, in July and August [2021]. We had gone a year with no COVID-positive patients so we had a good experience, but then the delta variant really hit us hard and we had 80 residents who tested positive. Virtually almost the whole facility, and then 29 staff. (S6N2rep3_September 9, 2021)
Rapid rate of COVID-19 transmission among residents and staff	We did a really good job for quite a while keeping COVID out of the building, and I heard somebody once describe it as like having glitter, doing a glitter project because once it starts it spreads. (S4N3.1_October 2, 2020)
	Right around Christmas [2020], we started to see a little peppering of increasing in our numbers and then it very quickly shot up to we had almost 40–48 cases that one time. We were creating an entire COVID unit, moving people to that neighborhood, trying to get staff and at the same time losing many staff. We had about 30 staff members out at one time as well. (S1N2.3_February 2, 2021)
	We had an outbreak here, so the most impactful way that it affected us is it ran rampant through our facility. We ended up with a situation where we had a good 75–80% of folks here infected. That's a combination of residents and staff, so we unfortunately, we lost a fair number of our residents during that time. We had, I think, 10 or 11 deaths in total that we attributed to COVID. (S5N5.1_February 10, 2021)
	Well, we had a large outbreak. So like I said, we have a two-story building and pretty much our whole second floor was positive. So it was in a very short period of time, it just spread like wildfire. It really does. So probably in about a two week timeframe, we went from one to almost 70 residents. (S8N4.1_January 29, 2021)
A COVID-19 outbreak could affect a nursing home for an extended period of time	In the end of July [2020], we had our first staff case of COVID, and then by September we had a full facility outbreak, which we ended probably by the end of October by the time we flushed everything out. And then we've had small cases here and there since then. So staff positive, or patient positive. (S5N3.1_December 9, 2020)
	We were outbreak free all year long until October 26th [2020]. We got our first COVID and then from there it just made its way through our building, and it lasted until… We kind of got it under wraps, under control, towards the end of November, beginning of December. (S4N1.3_February 9, 2021)
	Our outbreak was from March 13th, through May 5th of 2020. And we had a total, I believe, of 57 patients, and 25 staff members. (S2N2.2_January 15, 2021)

Table 2 Theme 1: Nursing home administrators described the rapidity of viral infection of staff and residents as overwhelming and long-lasting.

Note: In the U.S., nursing competency varies by licensure requirements. Registered Nurse (RN) typically has a baccalaureate degree or higher in nursing from an accredited college or university; Licensed Practical Nurse (LPN) requires completion of an accredited certificate program usually offered through a community college; Certified Nursing Assistant (CNA) must complete a state-approved training program usually offered through a community college, vocational school or local hospital.

CONCEPT	REPRESENTATIVE QUOTE (ID, DATE)
Staff fearful of the virus left the job	We went from zero to 60 in one day. We had no COVID, and then we had 11 [cases]. My charge nurse, who was the main LPN* on that day, after seven years with us or something, six years, quit. She didn't want to be around it. Her fear, I couldn't believe it. I couldn't believe it. That hurt. I mean, I just still don't understand it, today. (S7N5.1_February 11, 2021)
	I had one person that quit once we got COVID in, which I don't know why because it's everywhere in health care, but they decided they were going to quit abruptly. (S5N2.1_January 21, 2021)
	Of course, when COVID first hit, any home that had a positive COVID, you had some employees basically throw in the towel and leave, panic. Did a bunch of unorthodox things…They would just quit without notice or come up with excuses. Get the doctor [to] sign forms so they'd be out. So, it was things that was not usual. (S1N1.1_July 14, 2020)
	I operate in an area where on a good day we have staffing issues and this has just really been the perfect storm of just bad operations during COVID. Not only did we have openings before COVID hit, we've lost people because of fear who literally left the building… (S2N3.3_April 23, 2021)

(Contd.)

CONCEPT	REPRESENTATIVE QUOTE (ID, DATE)
COVID-19 positive staff pulled off duty and quarantined	That's essentially how it worked. We would get those test results back and if staff were testing positive, we pulled them from the floor immediately and then found the coverage. (S5N5.1_February 10, 2021)
	If staff had to be out [due to testing positive], they had to be home for 14 days. They had to be asymptomatic when they came back. (S1N1rep1_April 8, 2021)
	And a lot of staff members had COVID too and had to stop working. So not just staff left, staff who was positive had to go home. (S7N3.1_November 10, 2020)
	On August the 12th [2021], we had three cases. We were doing a routine test, and then we had three residents test positive. From there, it was pretty much every time we tested, we would have three more, four more, five more. At the end, we ended up with 33 residents testing positive. Staff, yes, also … It was pretty much around the same time, we were having not only staff, but residents test positive, so staff needed to be removed from schedule. (S6N4.4_September 27, 2021)
COVID outbreak admissions freeze impacts staffing	My capacity for admissions and to help the hospitals keep their beds open has been significantly deteriorated because I don't have the resources or the labor resources to properly disinfect areas … a good example is, if I had a semi-private room and two residents using the bathroom, every time the bathroom is used, it has to be completely disinfected. I just don't have the labor and the resources to effectively do that. From our perspective, we've had to learn how to operate under these new guidelines and it's been challenging to say the least. We've been bed-locked a number of times. (S2N3.1_10-22-20)
	Because at times if there is a positive, you may quarantine the entire building, which means no admissions. No discharge… You don't want to bring someone brand new into a building that may be contaminated. So there'll be periods of time when there's no admissions. And so that affects the census** which then affects the labor. (S6N1.1_August 19, 2020)
	Obviously, when an outbreak happens, the Department of Health shuts us down to admissions. (S1N2.3_February 2, 2021)
Furlough staff due to reduced census	We actually ended up doing a furlough for some nurses, specifically licensed. We're bringing one or two back. But we have had to adjust for lower census like everyone else. (S4.N1.4_May 6, 2021)
	COVID has been impactful in many, many ways. As you know, a lot of businesses and organizations, not just healthcare organizations, that they either have to furlough people, or downsize. And across the board for healthcare industries, it's affected, hospitals, too, it's affected their census or their occupancy rates. So the census will typically drop, especially if you have an outbreak or you have a lot of caretakers that are quarantined. (S6N1.2_November 6, 2020)
	Because my census dropped, I lost a lot of residents [who] were sent to the hospital. The hospitals weren't really sending a lot of people to skilled nursing centers. They were encouraging people to go home, so that there are less chances of catching something in this setting. For my staff, I've had to furlough probably half of my staff. (S8.N2.1 October 5, 2020)

Table 3 Theme 2 Administrators reported that a COVID-19 outbreak had an immediate impact on staffing levels at their facilities.

Note: *LPN = Licensed Practical Nurse; **Census refers to number of residents residing at the nursing home facility on any given day.

Note: In the U.S., nursing competency varies by licensure requirements. Registered Nurse (RN) typically has a baccalaureate degree or higher in nursing from an accredited college or university; Licensed Practical Nurse (LPN) requires completion of an accredited certificate program usually offered through a community college; Certified Nursing Assistant (CNA) must complete a state-approved training program usually offered through a community college, vocational school or local hospital.

staff and administrators alike contributing towards off-setting the staff shortages caused by the outbreak and ensuring continuity of care for residents. Some administrators reported that they "had no staff at all to work" (S7N3.1_November 10, 2020) and assigned COVID positive staff to work with COVID positive residents to provide care. Other administrators reported relying on state resources such as the U.S. National Guard for assistance or brought in agency staff to fill staffing gaps. See Table 4 for illustrative concepts and quotes.

To meet the quickly changing dynamics of COVID-19 outbreaks in their nursing homes, administrators employed ad hoc strategies which were urgently implemented. Although these short-term strategies were used primarily to mitigate the immediate crisis of staffing shortages during COVID-19 outbreaks at nursing homes, the impact of the outbreak had lasting effects on staff roles and responsibilities. This theme is explored further below.

THEME 4: ADMINISTRATOR AND STAFF ROLES EXPANDED IN ORDER TO MAINTAIN FACILITY OPERATIONS DURING AND POST-COVID_19 OUTBREAKS

Administrators reported that to compensate for loss of staff, many administrators "added duties we might not normally do" to their own, and their staff responsibilities (S2N2.1_October 9, 2020). Staff covered tasks and roles that normally fell under the job responsibilities of colleagues; administrators "wore multiple hats" (S3N5.2_May 6, 2021) to ensure the nursing home continued to operate; and new roles, such as COVID screeners, were created and staffed to comply with infection control protocols. Additionally, administrators described the

CONCEPT	REPRESENTATIVE QUOTE (ID, DATE)
All hands on deck	I just think when we had the outbreak, it was all hands on deck, and I can honestly say that everybody just threw themselves into it 110% and everybody gave their all. It wasn't one specific thing that we did, everybody pitched in, everybody did what they had to do, everybody took a piece, everybody ran with it. I kind of say it as you know, you have a bunch of people in a boat, if everybody's rowing the same way, the same time, in the same direction, the boat's going to get through those choppy seas. And that's what we had. (S1N5.3_April 14, 2021)
	We basically rolled up the sleeves and we got right in there and helped out. Putting our rear end on the line just as much as we expected the other folks to be on the line...Therapy and therapy assistants were working as CNAs** and nurses were working as CNAs and housekeepers were working as dietary. We did what we had to do. (S2N3.1_October 22, 2020)
	If staff had to be out, they had to be home for 14 days. They had to be asymptomatic when they came back. We *had* to cover. The management team, meaning my nurse managers, my director of nursing, my assistant director, my day supervisor, my QA*** nurse, myself, the vice president of operations, we just had to cover for them. We had to cover. I mean, there were times when we'd be one nurse on a unit that's 40 or 50 people, and only a couple of CNAs. Just taking our time, but taking care of the residents the best we could. (S1N1rep1_July 14, 2020)
	Our staff has done a really, really great job of everybody pitching in to help. Even managers, our social workers, people that normally wouldn't necessarily be involved [have] really stepped up to make sure [mealtime] trays are getting delivered and going to check in on residents. (S7N1.3_April 6, 2021)
COVID-19 positive staff working with COVID-19 positive residents	It got so bad with staff [that] positive staff had to work with positive residents, because we had no staff at all to work. (S7N3.1_November 10, 2020)
	And then for the ones who were asymptomatic, there were some areas on the unit that they could work as long as they're away from the non-positive staff. So there wasn't very many, I want to say myself, my ADON‡ and one of our CNAs, we came down with [COVID] about the same time. And then we came back to work before our 10 days and were able to stay upstairs on the unit, away from everybody to help and work. (S8N4.1_January 29, 2021)
State resources and U.S. National Guard	By the middle of December [2020] we had a total of 28 staff members and 28 residents that tested positive for COVID. Unfortunately, I was one of the staff that tested positive. So I spent 10 days at home trying to manage from my isolation quarantine. So with that being said, we had a lot of state involvement. (S5N1.3_March 3, 2021)
	Our staffing was really, really compromised, and we brought in the National Guard, and I heard a lot of stories about that, and I think every facility's experience is radically different, based on the personalities of the guards, people that you bring in. (S4N5.2_February 11, 2021)
	We worked with the Health Department and they, actually, had to relocate all of our residents to the hospital at that time, that were COVID-positive. (S6N2.1_September 11, 2020)
Agency staff use	I actually didn't start using the agency probably until towards the end of December [2020], when a lot of the management team got COVID, and I was really in a pickle. Because, they were helping when the regular staff were out. People would trickle back. You know, when you're asymptomatic and you felt better after the two weeks, you would come back and you'd work. But, it was a long two weeks in between everybody getting COVID. (S1N1rep1_April 8, 2021)
	I think as we started to experience more positives, it really, really put the hurt on us. One week, in July [2020], we had 14 staff that tested positive. So we had to quarantine and we were in big trouble. Our overtime, we try to budget it around 4% and we were close to 16%. We were bringing in agency staffing. We were using a number of different agencies to help us with that. I think they were five. One of them, which was the most reliable was called [Agency], but they cost $100 an hour. And we spent probably $60,000 in July just on agency staffing. (S4N5.1_November 5, 2020)
	We went 13 months without any patients getting COVID, and then on April 9th [2021], we identified nine residents as of that date that had COVID. That had ripple effects ... things I guess eroded as far as staffing goes. So we just have not had the staff that we've needed... we had to contract with [a] staffing agency to provide temporary staffing and they could not keep us staffed even though we were paying roughly double the rate that we would normally pay for staff. Because of that, we haven't been able to admit patients like we normally would, so we've been having to cap admissions and cap the census really at around anywhere from 105 to 109 over the last probably 30 to 45 days or more. (S6N2rep2_June 11, 2021)
	I can tell you, at my last facility, and I was there a year, it was hard on the staff. They got tired because at one time we had, my last place, 17 employees test positive one day. So, that 17 staff off the floor, in an already tight market. Which brought in a bunch of agency which brings a whole another layer of chaos. Your management staff just pretty much parked themselves there because you're afraid not to. And it's exhausting. (S6N5.1_February 25, 2021)

Table 4 Theme 3 Administrators implemented short-term compensatory strategies to manage staffing shortages during COVID-19 outbreaks.

Note: **CNA = Certified Nursing Assistant; ***QA = Quality Assurance; ‡ADON = Assistant Director of Nursing.

Note: In the U.S., nursing competency varies by licensure requirements. Registered Nurse (RN) typically has a baccalaureate degree or higher in nursing from an accredited college or university; Licensed Practical Nurse (LPN) requires completion of an accredited certificate program usually offered through a community college; Certified Nursing Assistant (CNA) must complete a state-approved training program usually offered through a community college, vocational school or local hospital.

extra burden required to comply with testing, infection control protocols, documentation, and reporting. See Table 5 for representative concepts and quotes.

DISCUSSION

Findings from this descriptive qualitative study reflect U.S. nursing home administrators' experiences managing staffing and operations during active COVID-19 outbreaks in their facilities. As our qualitative analyses showed, once a single, positive COVID-19 case was discovered in a nursing home, rapid transmission of the virus among residents and staff often followed. A COVID-19 outbreak triggered immediate staffing shortages as nursing home staff left due to fear of the virus or were pulled off duty and quarantined if they tested positive for COVID-19. Staff furloughs also occurred as facilities with COVID-19 outbreaks were required to impose a freeze on admissions per order of the state Department of Health. Admissions freezes reduced resident census which, in turn, affected staff to resident ratios required for compliance with regulatory bodies (Harrington et al., 2020). Administrators responded to staffing shortfalls caused by a COVID-19 outbreak by prioritizing continuity of care for residents. It was "all hands on deck" (S8N4.1_

CONCEPT	REPRESENTATIVE QUOTE (ID, DATE)
Expanded roles and responsibilities to maintain facility operations	I actually had to increase staffing in medical records to assist the Director of Nursing based on the fact that even though I have some nursing management people in this building, we've had to pull them to the floor so much to help with the nursing crisis right now. (S8N1.3_February 22, 2021)
	We don't get a break. I was supposed to be off today because I'm at the cap of my PTO[‡‡], and if I don't take days off I lose them, so I was going to take a PTO day off on Wednesday in the middle of the week. I said, "This will be fine." Well, we had a positive patient yesterday, so I'll have to be in the building for at least a little while today. (S5N3.1_December 9, 2020)
	I actually have to do [the] administrator position, the human resources position [which] consist[s] of all the interviewing, hiring, filing, sending all the paperwork to the state, working directly with corporate human resources, and then [I] also do accounts payables and [I] do a lot of the business office manager stuff because she's been out with COVID and pneumonia. All that. Then I also work [as] the front door screener, I also do all the vending machines … So my resume has really grown since COVID. (S3N5.1_February 4, 2021)
	It varies now, week to week. You know, I have an excellent management team and we've all been, we help each other out. For example, we did have to reduce staffing as well on some of the non-nursing departments due to our census declining. So before I used to have two people in admissions and they'd alternate weekends and now I alternate weekends with the admissions director to cover. So we all have had to take on some added duties we might not normally do. (S2N2.1_October 9, 2020)
Expanded workloads to accommodate testing, infection control protocols, documentation, and reporting	There's something we call a PPD. It's patient per day hours… That's a formula for staffing, so we allocate about four to five hours per day for a resident from a staff. We've had to increase that because with all the donning and doffing of PPE, I know it takes time. And in between residents, you have to remove, you have to sanitize. So it takes about 10–15 minutes from one patient to another, and that adds to the day. (S4N2.1_ September 17, 2020)
	[Staff say] "We're just too busy. We're just too busy. We're too short. We can't get the documentation done." Well, it's required. We've tried to provide some resources for [the staff], like here the managers will go out on the floor and help for a half hour, an hour, so you can get your documentation done. (S2N4.4_August 24, 2021)
	I can't believe the amount of hours between testing and documentation, where they're handwriting everybody's name and medical record number over and over and over and over. (S8N1.3_February 22, 2021)
	The vaccine reporting is very tedious. And so each week, I mean, we have to report on the people coming into the building, the residents themselves, what stage and the vaccine process they are [at] and all of that. So it's very cumbersome. (S6N2rep4_December 9, 2021)
	I'm running on fumes. We're back into this thing of, you don't have a weekend off, because if you get a positive test you've got to come in and you've got to jump through all the hoops, and you've got to do all the reporting. There's not enough staff to offload some of the stuff that I'd like to. Because all the staff are pulling double duty in multiple ways. (S3N2.4_August 17, 2021)

Table 5 Theme 4: Administrator and staff roles and responsibilities expanded in order to maintain facility operations during and post-COVID-19 outbreaks.

Note: [‡‡]PTO = paid time off.

Note: In the U.S., nursing competency varies by licensure requirements. Registered Nurse (RN) typically has a baccalaureate degree or higher in nursing from an accredited college or university; Licensed Practical Nurse (LPN) requires completion of an accredited certificate program usually offered through a community college; Certified Nursing Assistant (CNA) must complete a state-approved training program usually offered through a community college, vocational school or local hospital.

January 29, 2021) with administrators and staff sharing duties; COVID positive staff worked with COVID positive residents not only to provide care coverage but also to prevent spread of infection; state resources such as the National Guard were used; and, for many nursing homes, agency staff were brought in to fill staffing shortages. After the acute crisis of a COVID-19 outbreak had passed, administrator and staff duties frequently expanded to cover for ongoing staff shortages, and workloads increased to accommodate infection control protocols, testing, documentation, and reporting.

Research has shown that in addition to high community viral prevalence, large facilities both in the U.S. and internationally were more likely to have a COVID-19 outbreak than small facilities early in the trajectory of the pandemic (Walsh et al., 2023; Konetzka et al., 2021). As reported in a prior paper (Meehan et al., 2023), our study sample support these findings as 67% of the large (>151 beds) nursing homes participating in this study, experienced a COVID-19 outbreak by July 2020 as compared to 20% of small facilities (<100 beds). Further, our findings add to the literature indicating that U.S. nursing homes experienced significant impacts on their staffing during a COVID-19 outbreak (Brazier et al., 2023, Shen et al., 2022; Gorges and Konetzka, 2020). As administrators noted, an outbreak of COVID-19 at a nursing home had an immediate effect on staffing levels which, in turn, required an instantaneous adjustment in available staff to cover gaps in coverage and maintain resident continuity of care. This short-term, stop-gap strategy solved an acute staffing crisis as a COVID-19 outbreak occurred. However, the repercussions of a COVID-19 outbreak on nursing home staff and administrators were more long-lasting. The expansion of staff and administrator roles and responsibilities to fill staff shortfalls and comply with increased infection control protocols to mitigate COVID-19 outbreaks continues to strain the nursing home workforce. This raises concerns for not only the long-term financial sustainability (American Health Care Association, 2020; Gadbois et al., 2021) of the nursing home industry but also the quality of care at nursing homes, as staff burnout, and staff turnover are associated with poor resident outcomes (Thomas et al., 2013; White, Aiken & McHugh, 2019; Zimmerman et al., 2002).

In the context of the broader pandemic, our study time frame of July 2020–December 2021 reflects nursing home administrator discussions of COVID-19 outbreaks which occurred both pre- and post-vaccine. This distinction is noteworthy as the COVID-19 vaccine significantly reduced the morbidity and mortality of the virus for nursing home residents (Yilmaz et al., 2023; McGarry, Gandhi and Barnett, 2023, McConeghy et al., 2022; Mor et al., 2021). Yet, even after the deployment of vaccines, administrators acknowledged experiencing overwhelming COVID-19 outbreaks (with fewer deaths) at their facilities once the Delta variant became dominant (Dykgraaf et al., 2021; LaFuente-LaFuente et al., 2022). With new COVID-19 variants (such as EG.5, EG.5.1, XBB.1.5 and XBB.1.16) emerging late summer/early fall 2023 and causing an uptick in community transmission rates as indicated by rising COVID-19 related hospitalizations and deaths in the U.S. (CDC, 2023) and globally (World Health Organization, 2023), nursing homes are facing continued impacts from this highly infectious virus.

LIMITATIONS

This study had several limitations. Although a robust study sample for qualitative analyses, our findings from a sample of 40 nursing homes in eight U.S. healthcare markets may not be generalizable to all nursing homes throughout the country. Additionally, our interviews were conducted between July 2020–December 2021 and reflect administrator perspectives of nursing homes' experiences during that time window. These perspectives may not reflect current viewpoints on staffing levels or infection control mitigation protocols in 2023. Lastly, our interviews captured nursing home administrator perceptions which may not represent staff and resident experiences at nursing homes during the study time period. Despite these limitations, the longitudinal design of repeated interviews with nursing home administrators in the midst of a global health crisis is a strength of the study as our data captured not only the experience happening at the time of the interview, but also administrator reflections on the time elapsed between interviews. These findings provide depth and context on the impacts of a COVID-19 outbreak at a nursing home.

CONCLUSIONS AND IMPLICATIONS

Findings from this qualitative study have significant implications for future research and policy. First, further research is needed to better understand the long-term impacts of COVID-19 on nursing home staffing levels and continuity of resident care, both in the U.S. and globally. The various short-term solutions used by U.S. nursing home administrators such as temporarily expanding job roles and responsibilities, shifting staff to cover for those who were out on leave, or having COVID positive staff work with COVID positive residents, are not viable long-term solutions in the post-pandemic era as increased workloads lead to staff fatigue and burnout (White, Aiken & McHugh, 2019; Zimmerman et al., 2002). Similarly, the services of the U.S. National Guard are time-limited, and provide only a crisis-level,

short term solution for staffing shortages. Although, many nursing homes chronically use agency/contract staffing during periods of staffing shortfalls, this approach does not solve the long-term issues of care coordination, increased costs for use of agency/contract staff, supervision of temporary staff, and long-term staff recruitment retention (Stulik, 2022).

Second, the stop-gap strategies nursing home administrators used to sustain basic operations and provide continuity of care during COVID-19 outbreaks at their facilities highlight the many weaknesses of the pre-pandemic public health infrastructure for long-term care in the U.S. Policy makers and industry experts should be concerned about the viability of an industry significantly impacted by the COVID-19 pandemic. Coordinated efforts are needed to develop robust emergency preparedness plans for U.S. nursing homes and improve coordination efforts for U.S. federal and state resources to support nursing homes during future public health emergencies.

Finally, future policy needs to address the ongoing, substantial staffing shortages in the U.S. nursing home industry, and emergency preparedness plans need to be developed that prioritize nursing home staff and resident health and well-being. Protocols should include staff cross-training and staff reserve pools to ensure sufficient staffing levels throughout a crisis so that disruption to resident care and staff burnout are minimized, emergency financial supports to compensate for increased staff workloads, strategies to address mitigating risk from surrounding communities, infection control education and training for residents, families and staff, and effective communication channels between nursing homes and local, state and federal bodies for the timely delivery of critical information. Training staff, educating the community, assessing existing resources, and making comprehensive emergency preparedness plans are all critical actions necessary to ensure that nursing home residents receive high quality care during future public health crises.

ADDITIONAL FILES

The additional files for this article can be found as follows:

- **"All Hands on Deck":** Administrator Perspectives on Managing COVID-19 Outbreaks in U.S. Nursing Homes DOI: https://doi.org/10.31389/jltc.237.s1
- **Supplementary Material.** Interview Guides 1 and 4. DOI: https://doi.org/10.31389/jltc.237.s2

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