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Nursing home leader response during COVID-19: a qualitative descriptive study about use of external resources during the pandemic

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Abstract

Background US nursing homes were ground zero for COVID-19 and nursing home leaders faced multiple challenges to keep residents and staff safe. Understanding the leader's role and their use of external resources to rapidly respond to the pandemic is important to better prepare for the next infectious disease outbreak emergency. The purpose of this study is to describe Missouri nursing home leaders' use of external resources to manage challenges encountered during the pandemic.

Methods This qualitative descriptive study uses data from semi-structured interviews conducted with leaders from 24 Midwestern nursing homes between March 2022 and March 2023. Interviews were transcribed verbatim and analyzed using Dedoose software. Directed content analysis, guided by Donabedian's Structure, Process, Outcome framework, was used for analysis. Interviews were conducted as part of a larger mixed-methods study focused on developing knowledge and recommendations to improve US nursing homes' capacity to respond to infectious disease outbreaks.

Results Forty-three interviews were conducted across the 24 homes. Participants included administrators ($n=24$), nurse leaders ($n=19$), and infection preventionists ($n=16$). Six sub-categories of external resources/support were used by leaders to manage challenges during the pandemic:1) corporate support and communications, 2) statewide resources, 3) community-based resources, 4) health care coalitions focused on emergency response planning, 5) existing affiliations with local organizations i.e., hospitals, and 6) community members and families. Corporate support was a primary resource; however, it was limited to chain-based homes. Leaders from standalone homes seemed most reliant on statewide agencies, existing affiliations, and other community-based resources due to their lack of corporate connections. Health care coalitions were few, but when available, helped nursing homes prepare for the pandemic onset. Family and community members were vital despite being off-site from nursing homes at the pandemic onset.

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Conclusion Leaders played a pivotal role in accessing and using external resources to manage challenges during the pandemic. Statewide and community-based agencies and existing affiliations were particularly critical for standalone homes who otherwise had little to no means of support. Federal, state and local agencies must consider opportunities to build multi-agency regional collaborations, local health care coalitions and community-based partnerships that include nursing homes as member. Finally, community members and family were important in providing support, thus closing visitation is a double-edged sword that needs careful, future consideration.

Keywords COVID-19, Infectious Disease, Nursing homes, Long term care, Nursing home leaders, External resources, Community resources, Statewide resources, Health care coalitions, Emergency response

Background/introduction

Nursing homes were ground zero for COVID-19 [1]. The first nursing home case of COVID-19 was detected in the United States (US) in February 2020 [2], and by November 2020, over 100,000 residents and staff in long term care facilities had died [3]. Although nearly five years have passed, the impact of COVID-19 on US nursing homes remains. By September 2024, there were over 2.1 million residents, and 1.9 million nursing home staff reported as COVID-19 positive, and over 172,000 residents have died since the pandemic began; the numbers continue to rise [4].

The COVID-19 pandemic exposed the vulnerabilities of US nursing homes to manage widespread viral outbreaks including an ill prepared/under-resourced workforce, a physical environment intentionally designed for congregate living including open dining and group activities thus not conducive to infection prevention or management, and isolation from community emergency response planning [5]. Leaders faced multiple challenges including implementing frequently changing state and federal guidelines such as mandated visitor restrictions, isolation requirements, and personal protective equipment (PPE) use, managing resident care within those guidelines often without adequate staffing, and procuring scarce supplies like PPE to prevent spread of the virus [6, 7]. Amidst these early challenges, nursing home leaders, many of whom were fearful and confused about COVID-19 [8], had to prioritize preventing the spread of a life-threatening virus to both residents and staff while simultaneously assuring residents were safe and routine care needs were met.

Nursing home leaders play a pivotal role in implementing systematic change including buy-in for the need for change and engagement with staff and external stakeholders [9–11]. However, successful change takes time, and time is what nursing home leaders did not have when preparing for and responding to the pandemic. Rapid deployment of evolving guidelines amidst multiple organizational challenges [6, 12, 13] left leaders feeling frustrated, and overwhelmed when relying on their own internal resources [13]. Moreover, nursing home leaders experiencing job stress from the pandemic i.e., ongoing staffing challenges, have been found to have a higher intent to leave their positions [14]. Understanding the role of leadership and their successful use of external resources to rapidly respond to the pandemic is important to better prepare for the next infectious disease outbreak emergency. Therefore, the purpose of this study is to describe Missouri nursing home leaders' use of external resources to manage challenges encountered during the COVID-19 pandemic.

Methods

Setting, sample and procedures

We conducted semi-structured interviews between March 2022 and March 2023 with leaders from 24 Missouri nursing homes. The interviews were conducted as part of a larger mixed-methods study entitled, Developing Improved Guidelines for Nursing Home Associated Viral Respiratory Infections: Learning from COVID-19, to understand nursing homes' response to the COVID-19 pandemic. The 24 nursing homes were purposively selected using a maximum variation sampling strategy to assure a range of COVID-19 experiences. Sampling variables included nursing home COVID-19 rate, county COVID-19 rate, and geographic location. Nursing home COVID-19 rates were obtained from the National Healthcare Safety Network (NHSN) [15] and county COVID-19 rates were obtained from the Centers for Disease Control Covid Tracker [15]. The median COVID rate as of September 30, 2020, for all nursing homes in the state as well as median county rates were used to calculate high versus low. The date of September 30, 2020 was selected by the team to identify nursing home COVID rates and county COVID rates because it reflected approximately six months since the pandemic onset. Geographic location was determined using Urban Influence Codes and organized into rural, urban, and suburban designations [16].

To be eligible for inclusion, each nursing home had to be in Missouri, dually certified to accept Medicare and/or Medicaid as a government payor and have at least one leader employed in that nursing home at the time of the pandemic onset. A state database listing administrator and director of nursing names and dates of employment was used to screen for leader employment and was confirmed at the time of nursing home recruitment. Prior to

recruitment, all eligible nursing home names and leader contact information were placed into an excel database grouped by sampling variables (nursing home COVID-19 rate, county COVID-19, and location). Recruitment began with members of the study team contacting nursing home leaders either by phone or email, to identify interested participants. Once enrolled, each nursing home was assigned a unique identifier i.e., NH101, to assure confidentiality. Recruitment was ongoing between February 2022 and March 2023 until all 24 nursing homes were recruited and interview data were collected.

Interviews were conducted in a private location in the nursing home, either in person or by videoconference and were led by one or both PIs (AV, LP). A semi-structured interview guide (Fig. 1) was used with questions focused on each nursing home's initial preparation for COVID-19 and their response over time. Each interview had one to three participants and lasted between 60 and 90 min. Interviews were audio-recorded, transcribed, and reviewed for accuracy before uploading into Dedoose software for analysis [17].

Analysis

The analysis team consisted of four PhD-prepared nursing home researchers with qualitative experience, the project coordinator, and PhD students. Hsieh and Shannon's procedure for directed content analysis was followed [18]. Prior to coding, the PIs (AV, LP) and project coordinator (SM) developed an a priori codebook based on Donabedian's Structure, Process, Outcome framework whereby structure is defined as characteristics of the setting, process is defined as clinical processes performed in care delivery, and outcomes are the result of care [19, 20], existing research on COVID-19, and previous interviews conducted with key stakeholders. Transcripts and initial codes and categories were then entered into Dedoose [18]. Analysis began by reading transcripts and assigning codes using the established codebook. Where no code existed, one was added. Initially, three transcripts were jointly coded by the team to establish consistency. The remaining transcripts were coded independently by the project coordinator (SM), then reviewed by a PhD student (LY) to assure agreement. When disagreement in coding occurred, a third member (AV) reviewed to adjudicate. Final coding resulted in 44 parent codes assigned within 4 categories (internal structure, external structure, processes to prevent spread/mitigate isolation, and resident/staff outcomes).

For this analysis, coded excerpts for the category "external structure" were downloaded into an excel spreadsheet ($n=276$). All excerpts describing external resources and support used by leaders to manage pandemic challenges were retained ($n=245$) and grouped by the PI (AV) into sub-categories specific to type of resource/support used. Findings were then reviewed by the team to assure agreement.

Three analytical strategies were used to ensure findings were credible, dependable, and confirmable [20]. Strategies included: (1) member checking during the interviews to ensure a valid reflection of participant perceptions (2), maintenance of a detailed audit trail to ensure data dependability and stability, and (3) participation of nursing home experts during analysis to ensure findings were consistent and objective. Findings were also reviewed with nursing home stakeholders for confirmability. Stakeholders included nursing home clinical experts, corporate leaders, long-term care association directors, and

Semi-structured Interview Guide

1. How did your nursing home initially prepare for the pandemic?
2. What was your role?
3. What concerned you most about preparing for this pandemic?
4. What do you recall about [staffing, PPE, access to testing, vaccinations] that affected your initial response? How did that change over time?
5. What practices did your nursing home use to prevent spread; manage ill residents?
6. What impact do think [isolating residents, restricting activity & restricting visitors] had on [residents, families, staff]?
7. What strategies seemed to work best to manage these restrictions?
8. What strategies concerned you the most?
9. What resources, if any, did you access to help you during the pandemic? Were those resources helpful? Not helpful? If so, how?
10. What challenges did you encounter when accessing external resources?

Fig. 1 Semi-structured interview guide

Table 1 Nursing home characteristics

Nursing Home (NH) Characteristics	*N* = 24 (%)
NH COVID Rate	
High	11 (46)
Low	13 (54)
County COVID Rate	
High	14 (58)
Low	10 (42)
Geographic Location	
Urban	10 (41)
Suburban	5 (20)
Rural	9 (37)
Profit Status	
For Profit	14 (58)
Not-For-Profit	10 (42)
Corporate Status	
Corporate	14 (58)
Not Corporate	10 (42)
Bed Size	
1–60	5 (21)
61–120	16 (67)
> 120	3 (13)
Average % of Occupancy by Bed Size (% range)	
1–60	84% (68–98)
61–120	68% (35–91)
> 120	45% (42–49)

state regulators who convened quarterly as an advisory group to the grant.

Findings

Nursing home characteristics and participant demographics

There were 210 nursing homes that met inclusion criteria; 86 were contacted for enrollment before reaching our sample of 24 (28% response rate). The majority of nursing homes did not respond to recruitment calls (n=42) and the remainder (n=20) declined due to short staffing, high turnover, being "too busy", or not interested. Only one nursing home leader declined stating it would be too difficult to relive the experience. Among the 24 nursing homes enrolled, 11 (46%) had high COVID-19 rates and 13 (54%) had low rates, 14 (58%) resided in high COVID-19 counties and 10 (42%) in low COVID-19 counties. Geographically, nursing homes were a mix of urban (10, 42%), suburban (5, 21%) and rural (9, 38%). The majority were for-profit (14, 58%), corporate owned (14, 58%), and had a bed size between 61 and 120 (16, 67%). Data specific to percent of occupancy, defined as the number of residents in the nursing home divided by the total number of beds, was collected at the time of the interview. Average percent of occupancy was highest for homes with less than 60 beds (84%) and lowest for homes with more than 120 (45%). See Table 1. Nursing Home Characteristics.

Table 2 Participant demographics

Participants Total *N* = 59	Administrative leaders *N* = 24 (41%)	Nursing leaders *N* = 19 (32%)	Infection Preventionists *N* = 16 (28%)
Education			
Masters	4 (17)	2 (11)	2 (13)
Bachelors	12 (50)	3 (16)	3 (19)
Associate	4 (17)	12 (63)	7 (44)
Some college	4 (17)	1 (5)	4 (25)
Vo-tech	0 (0)	1 (5)	0 (0)
Race			
White	23 (96)	17 (89)	14 (87)
Black	0 (0)	2(11)	2 (13)
Native American	1 (4)	0 (0)	0 (0)
Sex			
Female	20 (83)	19 (100)	16 (100)
Male	4 (17)	0 (0)	0 (0)
Years at NH			
< 1	1 (4)	3 (16)	4 (25)
1–3	3 (13)	4 (21)	3 (19)
4–7	2 (8)	4 (21)	2 (13)
> 7	18 (75)	8 (42)	7 (44)
At NH before pandemic	20 (83)	15 (79)	9 (56)
Mean age in years (range)	48 (26–73)	46 (28–66)	49 (33–60)

Forty-three interviews were conducted across the 24 nursing homes. Fifty-nine leaders participated including administrators, assistant administrators, and administrators in training (n=24), directors of nursing (DON), assistant directors of nursing (ADON) and other nursing leader roles (i.e., Minimum Data Set (MDS) coordinator, staff development) (n=19), and infection preventionists (n=16). Administrators and/or nursing leaders were typically interviewed together whereas the 16 infection preventionists were most often interviewed separately due to their role. The majority of participants were employed in their nursing home prior to the pandemic (n=44, 75%). See Table 2. Participant Demographics.

External resource/support categories

The six sub-categories of external resources/support used by leaders to manage challenges during the pandemic included: (1) corporate support and communications, (2) statewide resources, (3) community-based resources, (4) health care coalitions/emergency planning groups, (5) existing affiliations, and (6) community members and families. Findings are organized according to each subcategory with salient quotes included below. See Supplemental Table. Participant Responses by Sub-category for additional participant responses.

Corporate support and communications

Most nursing homes were corporate owned ($n=14$; 58%). Leaders in all but one corporate-owned home shared examples about working with their corporate offices to provide onsite support. Examples of support included corporate leaders assuming responsibility for interpreting multiple and frequently changing guidelines, drafting policies needed to implement guidelines, securing PPE, and assuming the burden of mandated reporting. Other support included providing a structured communication network among their corporate homes. One leader described the importance of daily conference calls,

> *…at 10:30 every day, we had a conference call where all six facilities were on that call along with corporate…it was a good way to say, Hey guys, we did this, or we tried this and it worked here…I've got 4 boxes of gloves, you need them, come get them. NH102.*

Leaders also described corporate support for ongoing staffing challenges including sharing staff between corporate owned homes, providing quarterly bonuses, or offering incentive pay for receiving vaccinations. Staffing support, including incentives, were perceived as an important sign of staff appreciation.

> *[Corp] has done incentives and COVID pay back to the employees…incentives to get vaccinated…we get $500 quarterly bonus gifts. So, it's kind of more of just wrapped up into staff appreciation. NH602.*

Statewide resources

There were three statewide resources used by leaders, the Quality Improvement Program for Missouri (QIPMO), the Missouri Department of Health and Senior Services (MO DHSS), and the Missouri Telehealth Network Extension for Community Healthcare Outcomes (ECHO) National Nursing Home COVID-19 Action Network, referred to by participants as ECHO. QIPMO, established in 1999 and remains in existence today, is a cooperative program between the Sinclair School of Nursing and the MO DHSS and includes a team of gerontological nursing home experts who provide free on-site consultation and technical assistance to Missouri nursing homes [21, 22]. In addition, QIPMO contracted with the Missouri DHSS in December of 2020 to conduct Infection Control Assessment and Response [ICAR] surveys which were part of the Centers for Disease Control and Prevention program to systematically assess infection control practices within healthcare settings including nursing homes [23]. The MO DHSS is the licensure and regulatory agency for long term care facilities in the state. The Nursing Home COVID-19 Action Network ECHO was a partnership between the Missouri Telehealth Network at the University of Missouri, the Agency for Healthcare Research and Quality, Project ECHO, and the Institute for Healthcare Improvement with the goal to advance improvements in COVID-19 preparedness, safety, and infection control in nursing homes. The ECHO, designed as a virtual community of practice using Zoom technology brought together nursing home leaders and staff, and experts in nursing home practice, quality improvement, and COVID-19, for an all teach, all learn strategy designed to share experiences and knowledge allowing for real time discussion and advice [24, 25].

Most nursing homes ($n=17$, 71%) received QIPMO support such as delivery of PPE, webinars for practice updates, and access to an up-to-date website with tools and resources. QIPMO also conducted ICAR surveys to identify gaps in practice, and then advised and coached leaders on infection prevention and management practices. QIPMO also coordinated monthly leader support group meetings for networking and information sharing. One leader stated,

> *Guidance itself is confusing. We had conference calls with QIPMO…[webinar] training where multiple administrators and DONs were involved in those support groups so that we could kind of all figure out what we needed to be doing. …and then we could share with other administrators while we were on there because we could ask questions. NH302.*

QIPMO was a particularly important resource to non-corporate nursing homes as noted by one participant, "We're standalone so we don't have like anybody from corporate or that we could call." NH802.

One-third of nursing homes ($n=8$, 33%) received support from MO DHSS. Like QIPMO, leaders described the benefit of MO DHSS conducting infection prevention and control surveys to identify gaps in practice. Others described reaching out to DHSS during times of outbreak that included access to much needed PPE and access to emergency resources i.e., Disaster Medical Assistance Team (DMAT).

> *Actually, when we had that major outbreak, we got in touch with [MO DHSS]…they actually sent a whole bunch of gowns…N95s, some gloves and…for a couple of weeks sent DMAT [Disaster Medical Assistance Team] staff to help fill in for our staff that was all going out. NH101.*

A few leaders described receiving guidance from MO DHSS in terms of interpreting ever-changing rules and regulations, yet this support was not consistent across nursing homes. Some shared frustration with the lack of

assistance provided by the State, at times being referred to other agencies for guidance. One leader stated,

> *[MO DHSS] told me to contact our local public health department. [They] were never that helpful. So, I would just look at the guidance from the CDC and be like, well, this is what I think we're doing. NH804.*

Leaders from five nursing homes participated in the Missouri Telehealth Network Nursing Home COVID ECHO and found the ECHO "helpful" and "informative" about what practices to implement and how. One leader described the ECHO as a "huge source of information for me …not being a corporate home, I had no support…it was up to me to educate myself on what to do on how to protect everything." NH502.

Community-based resources

In addition to statewide resources, some leaders described relying on local, community-based resources like their local public health departments ($n=10$, 42%) where they were provided PPE and other supplies like vaccines. Some also described how their local public health department set up vaccine clinics on site in their nursing homes; vaccine clinics that were maintained over time. One leader shared,

> *We've been working closely with [City] public health department ever since [pandemic onset]. They not only were a resource at times for PPE, they were able to tap into disaster stock…[they] continue to provide routine vaccine clinics [at their nursing home] for residents, staff, and families. NH0103.*

Two nursing homes described challenges within their community that required support from local agencies such as law enforcement and the public health department. For example, one nursing home contacted the city police to help manage families who were trying to bypass visitor restriction rules and enter their building during lockdown (NH701). Another leader stated,

> *"We had a bank in town that posted a sign that said, if you work at [nursing home name redacted], please do not enter our building… And I called the [local public] health department, and they said they would call and talk to 'em. …that hurt. NH102.*

Whereas many nursing homes shared positive examples about support from their public health department, others described little support because they believed the health departments to be overwhelmed or that nursing homes were not prioritized in county-wide efforts. Some also described the public health department as merely a "sounding board" only providing guidance when asked and in some instances not giving guidance at all but suggesting other resources. In one example, a leader shared being referred to another agency when requesting guidance.

> *I can remember throughout, even to this day calling and saying, hey, I have a COVID positive staff or resident or whatever. And our local public health department would refer me to the Department of Health and Senior Services (MO DHSS). NH804.*

In addition to local public health departments, nearly one-half of nursing homes ($n=11$, 46%) described receiving assistance from other community-based agencies. Healthcare providers such as local hospitals, emergency medical services, and physicians' clinics provided PPE and medications, and assisted with testing and administering vaccines. One leader relied on their local ambulance district to set up a crash cart because the nursing home was expected to have one onsite during the pandemic.

> *I needed help setting up our crash carts…including like ambu bags which we had none. And where are you gonna get an ambu bag in the middle of a pandemic? I called up to the ambulance district and said, hey, I need IVs, I need fluids, I need an ambu bag, I need oxygen tubing…And they dropped off a care kit…because again, all the equipment was going to the ambulance districts or the hospitals, not to us<laugh>. NH403.*

Another example included nursing homes helping each other. One leader described how they collaborated with other nursing homes, including standalone homes in their community to share information and problem solve.

> *There's four skilled facilities in this town. We were friends or had dealt with [each other] before and we get together and talk…And we try to use each other and bounce things off…what we were learning from [our NH] corporate, then we were able to disseminate that to them as well. NH301.*

Health care coalitions

Only five (21%) nursing homes were part of organized community-based health care coalitions, also referred to by participants as "emergency planning groups", each with a goal toward emergency planning and response, and each in existence prior to the pandemic. In addition to nursing homes, these coalitions or groups typically

included local hospitals, emergency services, and other agencies. Leaders described convening routinely prior to the pandemic, from monthly to twice yearly, participating in training, and conducting live and tabletop drills. One leader stated their group had most recently prepared for a pandemic, "we had been to a tabletop exercise in our community [fall 2019] related to a pandemic…it wasn't COVID…just different [pandemic] scenarios…so it was fresh in our minds…it hasn't started back up full-fledged since COVID" NH803.

Four of the five homes stopped participating in the coalitions. According to NH501 leader, "When this all first started happening in March [2020] we met quite often via, you know, technology that died out pretty quick when this gentleman [from the health department leading the coalition] retired…" According to NH705 leader, "When COVID hit, that group stopped meeting<laugh>. Because we weren't able to all get together [in person]" NH705. NH802 stated not having been to a meeting in a while. Only one nursing home leader described how their coalition continued to meet.

> *We are part of the [redacted Health care] Coalition … nursing homes and long term [and] acute care hospitals… Just kinda share information that we have, if we're having any shortages of equipment…I think now it's, it kinda changes…now it's like maybe monthly zoom meetings…we were doing 'em weekly for a while when COVID was real big and anytime there's a problem we kind of all get online… a few weeks ago we all took part…[in] hazard vulnerability analysis training. That kind of helped prepare me [because] I kind of got thrown into emergency management as well as my [IP] role. NH402.*

Existing affiliations

Three nursing homes (13%) described relying on affiliations with other organizations whereby they had an existing relationship prior to the pandemic. For example, one rural nursing home was governed by a community board that also governed a nearby "sister-facility" with whom they networked and shared supplies. This leader stated,

> *I think going back to like being non for profit and… that influence of that you're a community home, you know, in a small rural area. Our [district] board made sure we [each home] had equipment needed, you know, like they bought ultraviolet machines, they bought a negative airflow machine. They bought barrier doors that you can put up and down, um, the sprayers that sprayed. NH502.*

A medical director for one nursing home also served as medical director for a local hospital and assured access to needed medications such as "infusions" and connected the nursing home administrator with the hospital's infection preventionist (NH801). A third nursing home (NH501) was part of a rural hospital-system. The hospital "instituted incident command" and the nursing home administrator participated in daily meetings with hospital leaders including the hospital's infection preventionist to "decipher through these ever-changing rules and reg[ulations]".

Community members and families

Despite the few stories about community and/or family members being disgruntled with nursing homes during the pandemic, most leaders described heartfelt stories about how local businesses, churches, individuals, and families were a strong support. Local businesses and others provided PPE and hand sanitizers, and community members provided handsewn masks and gowns. There were volunteers who worked in the nursing home when allowed and others that organized activities such as setting up parades, sending cards, or putting posters in the nursing homes' yards; many provided food, beverages, and snacks. In one nursing home, a resident's family supplied three meals a day for all residents and staff for several months because food shipments were limited (NH102). The community/family support not only provided much needed resources, but also a morale boost for residents and staff. One leader shared,

> *Restaurants were always bringing lunches or snacks or cookies or donuts, you know…school kids were, you know, sending cards and uh, people were coming and putting posters in the yard that says you're our heroes. So, there was a lot of community support. N803.*

Discussion

During the COVID-19 pandemic, nursing homes faced multiple challenges in an already under-resourced setting. Consistent with existing evidence about the role of leaders during times of change [9–11], our study highlights how nursing home leaders worked with others external to their homes to provide resources to manage challenges. Corporate leaders from all but one home in this study rose to the occasion and worked to assure that nursing homes obtained accurate information and guidance, assisted with drafting policies, and secured supplies. In a study of nearly 11,000 unique facilities, non-chain-affiliated nursing homes (e.g., stand-alone) were more likely to report shortages of PPE and supplies likely due to limited financial resources [26]. We

found that leaders from standalone nursing homes often felt at a disadvantage without corporate support to help access critical supplies and navigate constantly changing guidance and rules. It was interesting to hear about the self-organization that evolved, specifically nursing home leaders within communities helping each other. For example, when a corporate-owned nursing home worked with other standalone homes in their community to share information and problem solve in the evolving situation suggests collaboration replaced competition within their nursing home community. In essence, nursing homes relied on each other and in future epidemics may find ways to harness this collective support early in an event.

Moreover, nursing home leaders with corporate support seemed to fare better regarding staffing [8], a critical problem during the pandemic [6, 12, 13, 27]. In our study. staffing support was often provided by corporate offices to include not only access to shared staff across nursing homes, but also provide incentive pay like bonuses and shift differential for extra hours worked. Corporate leaders also reduced the burden on staff time by taking on tasks such as developing policies and conducting mandated reporting to external agencies.

Leaders' reliance on outside agencies has been important for navigating the ever-changing guidelines including what best practices to implement and when [8, 27]. Nursing homes in our study, particularly standalone homes, relied on state agencies to provide desperately needed material resources that were unavailable to them. Statewide agencies or programs in this study included QIPMO, MO DHSS, and the ECHO program targeted toward COVID-19. In general, homes found statewide support, particularly QIPMO helpful, however, a few, primarily standalone homes found it essential for survival. For example, rapidly changing guidance was overwhelming and challenging which made QIPMO support and the ECHO essential because they were providing evidence-based support in real time. Only a few homes cited support from MO DHSS in comparison to QIPMO, which may reflect concern about a punitive response due to their regulatory role [27]. Additionally, there was frustration when leaders were bounced around between agencies. For example, when a local health department would not assist a home with clarifying guidelines, they would be sent to MO DHSS, or vice versa. Being referred between agencies may have added to delays such as appropriately managing COVID positive residents or staff.

Importantly, health care coalitions seemed most in line with emergency response planning and preparation. The U.S. Department of Health and Human Services defines a healthcare coalition as having both a preparedness and a response element where local healthcare and emergency responder organizations work together to improve emergency preparedness for the health and safety of the community [28]. Based on our findings, there were five health care coalitions in existence within our sample of 24 homes, and only one remained active throughout the pandemic. While most were no longer used as a resource after the pandemic onset, either because the coalition disbanded for lack of support or nursing home leaders no longer attended, one nursing home continued to participate. Although it is unclear why, perhaps they continued participation because the coalition adjusted to meet the nursing home's need for support. The few leaders who reported belonging to and valuing these local health care collaborations expressed these groups contributed to early emergency planning, but also highlighted the failure of these collaborations in the response phase to an emergency. Strengthening the response phase of these coalitions and assuring sustainability could improve outcomes for future pandemics. For nursing homes to have the capability to plan and prepare for and respond to emergencies, they must be included as integral partners in emergency management planning, preparedness, and response on the national, state, and local levels [5]. Statewide resources such as QIPMO are viable options for providing much needed support, however, this program is limited to a single state [21].

Community resources such as health care coalitions or local community-based healthcare providers become critically important because they offer the flexibility for support in a timely and efficient manner [24–26]. To our knowledge, there is no best practice yet for what these partnerships should look like, how they should function, and how they prioritize need. What first must be recognized is that nursing homes are an integral part of the healthcare continuum [5]. The pandemic exposed how they were ignored in the early phases. They languished without robust support for several weeks, lacking supplies, and expert support to manage the pandemic [5]. That was the strength of having a program like QIPMO that could provide technical guidance to nursing homes when other agencies may have been overwhelmed.

Family and community members' support was also noteworthy. Historically, family members and volunteers are a key source of support for nursing home residents. Families commonly assist with meals and personal care, communicate care needs to staff, and identify declines in health [29, 30]. Their onsite absence exacerbated existing staffing shortages by preventing them from assisting staff in meeting resident care needs. Although not a solution for staffing, this study revealed their support continued in a radically different way. Family and community members experienced restrictions on visitations throughout the pandemic. When visitation was entirely halted, they continued to offer support for residents and staff by providing food, supplies, and moral support. In

essence families and community members were doing what they were allowed to do given the restrictions. Two homes reported a negative experience with the community—in part perhaps driven by negative publicity about nursing homes and public discourse at the time [31]. In future responses, the role of the family as essential to resident well-being and organizational functioning needs to be considered in the public safety response to limiting disease spread.

Limitations

There are limitations to this study. First, the study was limited to 24 nursing homes residing within a single Midwestern state, however the maximum variation sampling approach was structured to assure diversity. Second, it is possible that nursing homes with greater access to internal resources may have been less reliant on external resources for support. It is also possible that external resource use varied by nursing home characteristics such as infection rates or bed size. Other studies cited differences in COVID-related processes and outcomes and nursing home characteristics, particularly early in the pandemic [32]. For the purposes of this paper, we did not analyze data according to specific characteristics beyond corporate affiliation. Our sampling strategy in part was based on nursing home and county COVID-19 rates reported during the first 6 months of the pandemic; however, our interviews including probes about the use of external resources covered the entire pandemic period and not just the pandemic onset. Additionally, most nursing homes in our sample had a bed size of 61 to 120 beds reflecting limited variation. Moreover, based on actual census data collected at the time of the interview, we noted variation whereby census in some homes was very low suggesting analysis based on bed size may add little to our overall findings. Third, nursing homes volunteered to participate therefore potential self-selection bias likely existed. Fourth, participants may have both had response bias since they represented a leadership role and may not have responded in ways that accurately reflected their frustrations or lack of support with resources such as their corporate office or state regulators. Finally, we asked leaders to recall detailed experiences that were two to three years after the pandemic onset resulting in possible recall bias. However, the way participants openly shared their stories by recounting vivid details likely reflected their true lived experiences during an unusual and unprecedented time.

Conclusion/implications

Nursing home leaders played a pivotal role in accessing and using external agencies as a mechanism for information sharing, networking, and assuring guidance to rapidly changing guidelines. External resources were particularly critical for leaders in standalone homes who otherwise had little to no means of support QIPMO is an important example of a flexible agency available to provide nursing homes support. Though QIPMO only currently exists in one state, it could serve as a national model to provide nursing homes' much needed support. This study identified the importance of existing affiliations within communities. Nursing home leaders, particularly those from standalone homes who often have limited resources, should build relationships with local hospitals and other area nursing homes with the goal to sustain relationships over time. By having these relationships established, nursing homes will be better positioned to support themselves and each other when future emergencies arise.

This study also identified an opportunity to build multi-agency regional collaboration to address both preparation and response stages of emergencies such as future pandemics or global outbreaks. Beyond emergency planning and response, it is also an opportunity to recognize nursing homes as an integral part of the health care continuum [5]. Federal, state and local agencies must consider opportunities to build multi-agency regional collaborations, local health care coalitions and community-based partnerships that include nursing homes as members.

Finally, families are an integral part of the nursing home care team, and recognition of their roles in any future emergency response should be capitalized. Though infections were higher in nursing homes with higher rotating staff who could potentially introduce infections, closing visitation is a double-edged sword that needs careful, future consideration. The absence of families serving as the eyes and ears and unofficial non-medical support team members increases the risk that a resident illness will go unnoticed, or care will not be provided. Even in the face of necessary lockdowns, nursing homes could benefit from dedicated programs involving families in teams that provide material and moral support for residents, staff, and families. Overall, a multi-pronged approach recognizing and building upon multiple external support structures, local, state, federal, and familial, holds promise for improving emergency nursing homes responses in the future, not if, but when the next pandemic arrives.

Supplementary Information

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Supplementary Material 1.

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Authors' contributions
AV was responsible for study design, data collection and analysis, manuscript design, first draft, drafting of tables and figures, and for primary revisions; AV serves as the corresponding author. LP was responsible for study design and data collection, assisted with analysis, and primary revisions. AHJ assisted with data collection, analysis, and manuscript revisions. SM assisted with data collection, analysis, and manuscript revisions. LY assisted with data analysis and manuscript revisions. RT assisted with data collection, analysis, and manuscript revisions. LM assisted with review of findings and manuscript revisions. MR assisted with study design, review of findings and manuscript revisions. DM assisted with study design, review of findings and manuscript revisions. All authors approved the final manuscript prior to original submission and approved the final revised manuscript along with response to reviewers.

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Availability of data and materials
The datasets used for this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
The University of Missouri Health Sciences Institutional Review Board provided ethical approval for this study (IRB NO. 2058402). The study was exempt status and a waiver of documentation of consent was used due to the low-risk nature of the study. Each participant provided verbal informed consent before the interview started. Participants' names and all identifying information were redacted from the transcripts. The 24 nursing home names were changed to unique identifiers i.e., NH101, NH102, NH103. All methods were performed in accordance with the relevant IRB guidelines and regulations.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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