A Coordinated Response to the COVID-19 Pandemic in Missouri Nursing Homes

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In the United States, the first case of the novel coronavirus 2019 (COVID-19) was detected in January 2020 in the state of Washington.[1] By February 2020, COVID-19 was linked to 167 confirmed cases of staff and residents within a single nursing home in that same state, resulting in 34 deaths.[2] As of March 21, the Kaiser Family Foundation reported that 7732 long-term facilities in 43 state had known COVID-19–positive residents. In the 38 states that reported nursing home mortality data, COVID-19 is responsible for 42% of the deaths.[3]

Residents in long-term care facilities are especially vulnerable to the effects of respiratory-borne illness (eg, influenza),[4] which now includes COVID-19. However, the vulnerability of nursing home residents goes beyond age, physical condition, and frailty and includes their physical environment. Nursing home residents share common caregivers and reside in close, often shared, living arrangements. In addition, pathogenic spread can occur through exposure during transfers to/from the hospital as well as exposure to staff, visitors, and other health care workers who go in and out of the facility.[4]

Although the first US outbreak of COVID-19 was in a nursing home in Washington, there was little conversation about nursing homes in the news. The national narrative was focused on acute care and meeting the critical care needs of COVID-19 victims. Nonetheless, the nursing home story was beginning to unfold before our eyes, hidden from the national spotlight. It became apparent to those working in the nursing home industry that these organizations could quickly become overwhelmed by the demands of the pandemic response.

Nursing homes were built to be homelike environments and were not built to handle large numbers of infectious residents. Many nursing homes have large central spaces that facilitate ongoing socialization between residents, visiting family members, and staff. The clinical goal of nursing home care is to improve and/or maintain function, keep older adults healthy, help them manage expected decline, and support end-of-life care. Given the ease of transmission of COVID-19, these homelike environments with frequent physical contact in an enclosed physical space are especially susceptible to outbreaks and create significant barriers to performing daily clinical care.

When the first COVID-19 cases were reported in the United States, 2 University of Missouri Sinclair School of Nursing programs—the Quality Improvement Program for Missouri (QIPMO) and the Missouri Quality Initiative (MOQI)—working with the State of Missouri Department

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of Health and Senior Services began preparing a COVID-19 response for the state's 524 nursing homes. These 2 teams offered unique but complementary skill sets to support nursing homes statewide. Experience in Missouri can help inform the national discussion about what happened in long-term care in the COVID-19 pandemic and help change the national narrative about nursing homes' management of COVID-19. The purpose of this article is to describe the type of support given to Missouri nursing homes by the QIPMO and MOQI teams during this pandemic.

MISSOURI SUPPORT FOR NURSING HOMES

QIPMO employs gerontological nurse experts and nursing home administrators to improve care delivery and outcomes for nursing home residents throughout Missouri. QIPMO offers consultation and technical assistance for the Resident Assessment Instrument, Quality Measures, Certification and Survey Provider Enhanced reports, and Quality Assessment and Performance Improvement processes and Minimum Data Set support groups and workshops. QIPMO began in 1999 as a state-sponsored cooperative program between the Missouri Department of Health and Senior Services and the University of Missouri Sinclair School of Nursing.[5,6] In 2019 alone, the QIPMO team contacted 616 different facilities, organizations, and stakeholders and made 701 site visits in 379 different facilities to assist with quality improvement (QI) efforts. The QIPMO team is well regarded in the state and has developed good relationships with many of the leaders in the long-term care industry and individual nursing homes. Prior to the pandemic, QIPMO was already providing Centers for Medicare & Medicaid Services (CMS)–guided training and education for senior leaders and frontline staff about their role in infection prevention and control in nursing homes.

MOQI is a Centers for Medicare & Medicaid Innovation–funded Enhanced Care and Coordination Provider demonstration project (2012-2020) with the goal of reducing avoidable hospitalizations of nursing home residents and improving quality of care for long-stay residents. The Enhanced Care initiative is taking place in 6 states including Missouri. In MOQI, advanced practice registered nurses (APRNs) work as essential staff in 16 nursing homes in the St Louis area to provide clinical expertise to frontline clinicians and support for facility-level change efforts. Interventions used in the initiative include data feedback reports about hospitalizations and transfers, use of Interventions to Reduce Acute Care Transfers (INTERACT) tools, improved use of end-of-life discussions, care plans, and information exchange.[7-10] An operations team including project supervisor, medical director, QI coach, care transitions coach, and health information coordinator support the APRNs to meet the goals of the initiative. In addition, the MOQI team is supported by nurse scientists who are experts in long-term care clinical systems.[8] The MOQI team becomes a resource to the QIPMO team to vet materials and discuss emerging situations.

QIPMO/MOQI RESPONSE TO THE PANDEMIC

The first case of COVID-19 in Missouri was initially reported on March 7, 2020, in St Louis, nearly 1 month after the first COVID-19 case was reported in Washington State.[11] Recent news reports, however, suggest COVID-19 was in Missouri weeks earlier.[12] The first reported COVID-19 death occurred in Boone County, Missouri, on March 18, 2020.[13] As the COVID-19 pandemic rapidly unfolded in the state, problems with the nursing homes' COVID-19 response began to emerge. The QIPMO and MOQI teams collaborated to support each other's efforts in identifying and managing emerging problems. An immediate concern was supply chain management, specifically the shortage of personal protective equipment (PPE) throughout the state. A second primary concern was the overall challenge of infection prevention including limited training and resources available to infection preventionists. Other concerns included facility-level information overload as information began to be rapidly disseminated from the state and federal governments. Finally, resident and staff mental and physical health concerns began emerging as the pandemic was taking hold. Both physical and mental sequelae from isolation were a major concern for residents. Staff became increasingly fearful of becoming ill with COVID-19 and infecting both the residents and their own families.

PPE shortages

The immediate challenge was access to PPE. The PPE shortage was a well-known problem for nursing homes throughout the United States,[14] and Missouri was no different. Nursing homes in Missouri were initially not prioritized to receive PPE from the state warehouse and were attempting to order PPE from their suppliers. These suppliers quickly sold out of masks, gowns, and hand sanitizer, and there was not an alternative source available. One of the first cooperative ventures was to have MOQI and QIPMO staff contact organizations and people to solicit donations of PPE. For example, one of the MOQI nurse scientists worked with nonprofit organizations that were making face shields for health care workers to obtain donations for nursing homes. The QIPMO team then worked with these organizations to deliver the face shields to individual nursing homes. Other medical-grade face masks could not be produced by these organizations using 3-dimensional printing as those supplies must meet Food and Drug Administration standards.[15] Hand sanitizer was being produced by local distilleries.

QIPMO began locating and developing lists of producers for all PPE, hand sanitizer, and cleaning supplies so that nursing homes could more easily locate producers and order needed supplies. In addition, people willing to donate cloth masks were identified and added to the list—as cloth masks were being used when medical-grade PPE was not available. Over time, nursing homes became prioritized in the supply chain, but this did not occur until late April when the extent of the nursing home outbreaks was being nationally reported.[16]

Infection prevention challenges

Infection prevention has been a major concern in nursing homes and even more so in light of COVID-19. One study examining inspection reports from 181 facilities in 22 states found that 22% failed to meet infection control standards.[17] Effective November 28, 2019, the CMS mandated that each certified nursing home employ an infection preventionist. However, because of the limited number of RNs in nursing homes,[18] it unlikely the infection preventionist role is fulfilled by an RN and even more unlikely that a full-time RN is available to develop systems and guide staff in prevention measures. QIPMO and MOQI were able offer guidance and support to nursing home infection preventionists as they implemented COVID-19 infection control measures. Once PPE supplies were becoming available, ensuring appropriate PPE use also became a priority. Proper use of PPE was essential to protect staff and resident alike. In the MOQI nursing homes where APRNs continued to be on-site, they coached staff about the proper use of PPE and infection control practices. The APRNs in the facilities where active outbreaks were occurring did intensive training with the nursing home staff in PPE donning and doffing. The nursing home staff were not accustomed to wearing PPE for prolonged periods and required reminders to leave their masks on and not to touch their face. Similarly, the QIPMO nurses have advocated for a designated staff person to act as a spotter to observe staff donning and removing PPE so that mistakes could be corrected and proper procedures maintained.

The development of COVID-19 care units as directed by the Centers for Disease Control and Prevention (CDC)[19] was a complex endeavor, as nursing homes are not designed for isolating large numbers of residents. COVID-19 care units had to be physically separated from the rest of the nursing home and have a dedicated staff member. Residents positive for COVID-19 and residents who were newly admitted or returning to the facility and did not meet the criteria for discontinuation of transmission-based precautions were to be cohorted on this unit. This was particularly problematic if the nursing home had few unoccupied beds, as it was nearly impossible to identify a dedicated space for cohorting residents from those not exposed or infected. The APRNs in particular were involved in these complex conversations about how to manage cohorting and resident room placement within a facility. Over time, CDC guidance improved, but initially each facility had to individually decide how to keep infected and exposed residents separated.

St Louis, where the MOQI homes are located, had a major outbreak of COVID-19; nearly 50% of the cases and deaths in Missouri were in St Louis. The CDC guidelines stress social distancing: maintaining a 6-ft distance between you and others even while in your own home.[20] The MOQI medical director took this direction even further and stressed social isolation for nursing home workers when they left work, not just social distancing. COVID-19 is brought into the

nursing home from the outside, and nursing home workers could bring the disease to family and others outside the home. Social isolation was deemed the only way to prevent the spread for health care workers.

Information overload

The QIPMO team was uniquely suited to become an information conduit for Missouri nursing homes. On March 16, 2020, following CDC and Missouri Department of Health and Senior Services guidelines, QIPMO, originally designed to be on-site consultants, stopped making in-person visits and immediately changed its support efforts to virtual via Zoom meetings and telephone follow-up. Early in the pandemic the CDC, CMS, Missouri Department of Health and Senior Services, nursing home associations, and other health care organizations all began to generate guidelines and information regarding COVID-19. Initially, this guidance was updated nearly daily. Nursing home leaders received a barrage of e-mails from each of these organizations along with corporate communications and quickly became overwhelmed with information. The QIPMO and MOQI teams synthesized, summarized, organized, and prioritized this information for facilities with a focus on the practical application of the material to the facility. For example, the teams supplied a COVID-19 Situation, Background, Assessment, and Review (SBAR) document that could be used by nurses when evaluating ill residents.

A tool that helped facilitate access to practical information for the state is the school of nursing's established Web site (https://nursinghomehelp.org/) that is a clearinghouse for evidence to help guide nursing home care. This Web site is used throughout the state and nationally. To help support state and national needs for COVID-19 support, the QIPMO team developed a COVID-19 resources Web page with all the relevant information tools: https://nursinghomehelp.org/educational/important-information-helpful-links-on-corona virus-covid-19. This information was also shared with the MOQI team and distributed to the MOQI intervention facilities.

Resident/staff mental and physical health

Residents have been restricted to their rooms since early March without visits from their family or anyone from the outside community. This isolation has taken a physical and emotional toll on them. As previously mentioned, nursing homes are staffed on the basis of a social model of care delivery. When residents are isolated to their rooms, it takes more time and effort to provide care activities such as helping them to eat, exercise, and engage in social experiences and interactions. Everything falls to just a few staff members. Family members may only be limited to visit their loved one at end of life, but even that varies by nursing home. QIPMO and MOQI efforts attempted to reduce the effects of social distancing by sharing strategies adopted by individual nursing homes. For example, a MOQI facility had staff adopt a resident so that a consistent staff member was engaging with them every day and could identify signs of decline. It is anticipated that quality indicators for nursing homes over this time period will reveal weight loss, depression, worsening cognitive performance, worsening physical performance, problems with skin integrity, and more falls, which will require additional study over time. MOQI team members also created resources for the nursing home staff including social workers to help staff identify signs that resident mental health was declining and offered creative options for building resilience and recognizing indicators that professional mental health services were needed. These signs may be harder for staff to identify during times of social distancing, so additional resources were needed.

The psychological impact on health care workers was significant. Those in direct contact with infected patients had greater levels of both psychological distress and acute or posttraumatic stress.[21] Lai et al[22] noted that health care workers who directly engaged with COVID-19 patients reported symptoms of distress, depression, anxiety, and insomnia; this was the experience of MOQI APRNs as well.

CURRENT SITUATION

St Louis had rapid spread of the virus. Nearly 3 months after Missouri's initial case, 11 of the 16 MOQI nursing homes with the full-time embedded APRNs had residents positive with Covid-19; 8 of the homes have staff infected, and both residents and staff have died. The reality of working directly with residents infected with the virus or who could have the virus is now part of APRNs' daily work, and they have risen

to the challenge. They lead by example on the proper use of PPE, teach staff the best care practices, directly evaluate residents for signs of illness, and communicate with families, staff, and leadership. We began meeting weekly with the APRNs as a team to help mitigate their stress, and our project coordinator stayed in close daily contact and offered ongoing emotional and informational support. As with nurses throughout the United States, they continued to do their jobs every day and served as a role model to the nursing homes.

While the QIPMO staff were not physically in nursing homes due to visitor/vendor restrictions, they continued to be committed to helping nursing homes be efficient and effective in their response to this pandemic. As with MOQI, they began holding weekly meetings to identify emerging trends and communicate what is happening statewide. QIPMO leads weekly virtual support meetings for Director of Nursing and administrators. These meetings serve as a way to distribute relevant information including the latest best practices and as an emotional support group for overworked and stressed health care workers.

CONCLUSION

COVID-19 has exacted a heavy toll on the elderly who live in US nursing homes. Health care organizations and providers have been asked to do more than they could have imagined just a few months ago. Nursing homes were never designed to manage large numbers of residents infected with a deadly virus without an effective treatment option. In Missouri, the QIPMO and MOQI programs supported nursing home administrators and staff who needed help to marshal their capacity to give safe care to their residents and to protect staff and their own families. This crisis is far from over, and nursing homes will continue to be overwhelmed by the need to keep their residents and staff safe.

The work done through MOQI and QIPMO points to the importance of having APRNs onsite to evaluate ill residents, help develop infection management systems, train and monitor the use of PPE, and assist in the synthesis and interpretation of federal policy. In addition, access to clinical experts such as QIPMO and the MOQI operations team can provide large-scale support to state agencies, which have been stressed during the pandemic. As the impact of COVID-19 continues to unfold, it is essential to support the people and environments most vulnerable to the impact of the pandemic.

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