Received: 30 March 2022 | Revised: 31 May 2022 | Accepted: 3 June 2022

DOI: 10.1111/jnu.12795

Journal of Nursing Scholarship

Nursing perspectives about the critical gaps in public health emergency response during the COVID-19 pandemic

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Abstract

Introduction: The purpose of this qualitative study was to synthesize frontline U.S. nursing perspectives about the current state of U.S. public health emergency preparedness and response. The study findings may inform public health policy change and improve future national pandemic planning and responses.

Design: We conducted a secondary thematic qualitative analysis using grounded theory methodology.

Methods: Data collection occurred through semi-structured, in-depth focus groups between July and December 2020, from 43 frontline nurses working in hospitals in four states (Ohio, California, Pennsylvania, and New York). Data were analyzed deductively, aligned with Khan et al.'s Public Health Emergency Preparedness Framework and inductively for emergent themes.

Results: Three themes emerged: (1) Validation of the presence of health disparities and inequities across populations; (2) Perceived lack of consistency and coordination of messaging about pandemic policies and plans across all levels; and (3) challenges securing and allocating nursing workforce resources to areas of need.

Conclusion: From a frontline nursing perspective, this study demonstrates the critical need to address health inequities and inequalities across populations, a consistent national vehicle for communication, and national plan for securing and allocating nursing workforce resources.

KEYWORDS
communication, COVID-19, emergency medicine, health disparities, nursing practice, public policy

Sigma Theta Tau International Chapter: Alpha Zeta.

INTRODUCTION

Since early 2020, the world has experienced an unprecedented COVID-19 pandemic, that has taken millions of lives, caused enormous mental and emotional suffering, exhausted healthcare workers, shut down the world economy, and changed work and home life routines (Wilensky, 2021). On many levels, the United States (U.S.) was prepared with a strong public health infrastructure, recognized by some as the strongest in the world (GHSA, 2021). State-specific public health disaster and emergency plans were widely established with varying degrees of depth, breadth, and accessibility (Romney et al., 2020). Further, the Institute of Medicine (IOM) issued recommendations for Crisis Standards of Care, and in 2009, the International Council of Nurses (ICN) created a Framework of Disaster Nursing Competencies (Altevogt et al., 2009; Hertelendy et al., 2021; Hutton et al., 2016; ICN, 2009). Yet, the scale of the COVID-19 pandemic overwhelmed the security and wellbeing of populations around the world, illuminating significant gaps in preparedness and thus warranting further investigation to inform policy revisions needed to mitigate future public health risks.

The U.S. public health response to COVID-19, led by the Centers for Disease Control and Prevention (CDC), included early steps to mitigate harmful effects of the COVID-19 virus and prevent a national crisis (Patel & Jernigan, 2020; Wilensky, 2021). An Incident Management Structure, established in early 2020, screened international airline passengers, implemented quarantine and isolation recommendations, supported laboratory testing development, and prioritized distribution of personal protective equipment (Patel & Jernigan, 2020). Yet, the duration and severity of the ongoing pandemic shows that some of the population's public health needs have been inadequately addressed, and some say that changes in existing public health policy and efforts are warranted (Norful et al., 2021; Shechter et al., 2020).

Global disaster management and emergency planning efforts have existed for decades, with one of the earliest initiatives and public health policy plans implemented in the U.S. (Khan et al., 2018). Disaster planning first emerged in the 1800s in the U.S. when Congress acted to secure resources needed for national emergencies (Jackman et al., 2017). In 1979, former President Jimmy Carter signed an executive order to establish the Federal Emergency Management Agency (FEMA) with the dual mission of emergency management and civil defense. After several natural disasters, the Disaster Recovery Reform Act provided FEMA with expanded authority in 2018 (Schroeder, 2018). Most state-developed disaster management plans include phases of preparedness, mitigation, response and recovery, communication, knowledge of resources, use of technology and protocols, and healthcare leadership involvement (Romney et al., 2020). Yet, the past 2 years have illuminated detrimental gaps in public health emergency disaster preparedness and subsequently contributed to suboptimal public health and population outcomes. Therefore, it has become critical to examine the impact of existing public health efforts and emergency preparedness at the national, state, and local level.

Nurses have been on the frontlines of the pandemic response and make up the largest healthcare workforce globally (WHO, 2020). Nurses experience, first-hand, the ramifications of local, state, and federal public health policy, which substantially impacts their scope of practice, the resources available to deliver care, and the overall health and wellbeing of the populations they serve. Frontline nursing perspectives about public health preparedness, including policy and infrastructure during the pandemic, may provide unique knowledge that can inform pivotal public health policy change to meet population demands and mitigate future public health threats. Thus, the purpose of this study was to synthesize nursing perspectives about U.S. public health emergency preparedness and infrastructure during the COVID-19 pandemic. We explored local, state, and national systems approaches for public health emergency readiness and response from the perspectives of nurses working during the COVID-19 pandemic. The potential significance of this work is to help identify public health needs for future pandemic and disaster crises and move forward with an agenda that addresses population needs.

DESIGN

We conducted a secondary thematic qualitative analysis using grounded theory methodology.

MATERIALS AND METHODS

In April 2020, we assembled a nationally representative team of clinical researchers, academics, and nurse scientists from four U.S. States (California, New York, Ohio, and Pennsylvania) to study nurses' experiences working in hospitals during the COVID-19 pandemic. Details about the parent study have been previously reported (Kelley et al., 2021) but are summarized here. Each site obtained Institutional Review Board approval. We conducted seven virtual (Zoom platform) focus groups of 43 registered nurses between July 7, 2020, and December 10, 2020. All nurses who delivered patient care during the COVID-19 pandemic were eligible to participate. Each session began with obtaining participants' verbal informed consent. Next, the moderator used an open-ended interview guide to ask participants to describe their experiences. The focus groups were video recorded (with participant consent) and sent to a professional transcriptionist. The transcripts were de-identified, checked for accuracy against the video recordings, and uploaded to NVivo software for analysis. For the secondary analysis three researchers independently coded the transcripts and then met weekly to perform thematic analysis. Our study team used a codebook to ensure consensus of terms for the first 10% of transcripts. Our analysis was guided by Khan et al.'s Public Health Emergency Preparedness Framework (Khan et al., 2018) (Table 1) which consists of 12 elements representing the complex adaptive systems approach to public health emergency readiness. We extracted rich quotes aligned with each of the theoretical elements

TABLE 1 Nursing perspectives of COVID-19 public health emergency response guided by Khan et al.'s emergency preparedness framework

Element	Definition	*Quote exemplars*
Governance and Leadership	Reflects integrated structure, with clear and accountable leadership	• *I continue to be extremely angry at the level of incompetence and the level of vial lying by people in positions of power and the consequences that we on an individual basis and as a society. I cannot entertain the people who persist in this lying. Generally going forward, a little bit anxious in retrospect, just pissed at the level of leadership nationally that led us into the extent of this pandemic* • *I think a really useful creative adaptation was the governor's executive order that lifted the charting requirements. I think because we had to have so many critically ill patients, if we had to chart everything that would have been normally been required of us, and provide stellar care to the patients, it would have been next to impossible. And having that order, I know for me, it was like a huge sigh of relief that I can spend more time at the bedside providing direct care*
Planning Process	Planning accomplished through collaboration	• *I think the constant changes in policies and what we were supposed to do. You walk into a shift and by the end of a shift, you were told to do something entirely different than what you were told to do in the beginning* • *That idea of the changing policy and the revolving door policy and then the unknown. we are trying to make policies about the unknown. It's so difficult because you are executing those policies and sometimes they do not always make sense*
Collaborative networks	Collaboration aimed at developing strong networks	• *I think staying aware and being informed [via effective communication], that is something that I guess not everybody has [access to]. But the vast majority of people should. And the people you work should at least have somewhat of an understanding of where you are, what you need to do. And then we are good in a crisis. I hope everyone is reevaluating the definition of what a crisis is now. Understanding how to sort of deal with that emergency a little bit better*
Community engagement	Engagement with community stakeholders	• *How to get loved ones in contact with patients, whether it was coming up with using technology and doing Zooms and special HIPAA stuff and pulling them down the hall and letting them stand in a window so that they could talk to their family that's in the ground outside. It was just to connect*
Risk analysis	Understanding of risks associated with crisis	• *We make an effort to risk stratify people as they arrive and to identify their potential COVID risk and literally anyone coming through the door, patient and/or visitor, could be COVID positive. That's stressful for everyone. It's particularly stressful when people feel as if they have called it right and thought the patient was low risk and then the test comes back positive*
Surveillance and monitoring	Efforts at early detection, situational awareness and establishment of formal surveillance systems	• *I think as a nurse, we are so driven by protocols and treatment plans and evidenced-based practice. And we were thrown into a situation where we did not, there was so much unknown. We did not know how to treat these patients. We did not know what to expect. Not sure that this quote supports this element*
Practice and experience	Establishment of expertise through practice and testing	• *The CDC came out saying that there is evidence of cases of airborne transmission of infected people who are in enclosed spaces for longer than 30 min. That's a hospital room. I brought this up a couple weeks ago to our director, 'With this information that's come out from the CDC, does this change anything about our policy? 'Cause you are still telling us to wear surgical masks and not N95s.' These patients aren't going into negative pressure rooms* • *It felt like you were in the middle of a war zone to be honest. That took a while to get used to because it was not our norm. We did not have supplies there. There were so many issues in the beginning with that area. We just felt like we were totally out of our comfort zone in our practice because we wanted to follow up on these patients. We could not. It was just a mess, to be honest. The volume was just so high* • *It has just totally changed the entire way that we nurse. A lot of nurses go into nursing because they like to care for people, spend time with people, make them feel better. Being in COVID, it means you cannot do that because you have to get in, do your stuff, and then get out. It's very bare minimum nursing and I think a lot of nurses do not like that. I think that it goes against what we believe in and how we have always cared for people. It's much less supportive*
Resources	Resources inclusive of physical, structural, financial and workforce	• *If we had more resources, we would have been able to take better care to give people the care they needed. We'd have been able to give everybody the best trained nurse, the most appropriate nursing care; everybody would get an individual ICU room, but we did not have all those resources*
Workforce capacity	Knowledgeable and well-trained workforce	• *I had to be one of the resource nurses for all the travel nurses that are not part of [hospital] They all say they are ICU nurse, but we…ICU level was totally different from our patient population. That was also one of the changes that was very…made me more anxious*
Communication	Communication plans that reflect clear, comprehensive messages across networks and public	• *Media was certainly a strong factor where we are constantly being flooded in our personal lives with media and what we are supposed to do and how the pandemic's going, but then being in the hospital setting and being in the midst of it, you are trying to focus on what's being said in that setting and that setting alone and some of it was very contradicting. It was interesting and frustrating in that sense*
Learning and evaluation	Clear strategy for learning and evaluation	• *Every day you get a new email … these are the new protocols. And these are the new rules. And these are the new PPE recommendations. And these are the new visiting recommendations. And it's a lot to keep up with all of that stuff* • *Being in a learning institution, some things have changed. Now we have information. How we act on the information. It makes dealing with whatever's coming now a lot better. We have a lot more planning. I'm aware of the planning. I'm aware of what I need to do in the planning to make it work*

of the framework. Next, we performed an inductive analysis which allowed the study team to group codes into categories and, through iterative discussion, determine overall emergent themes about critical gaps in multi-level public health emergency preparedness during the initial COVID-19 surges as perceived by frontline nurses.

RESULTS

Three themes emerged: (1) Validation of the presence of health disparities and inequities across populations; (2) Perceived lack of consistency and coordination of messaging about pandemic policies and plans across levels of organizational and government sectors; and (3) Need for inclusion of nursing workforce supply and allocation in emergency response plans.

Validation of the presence of health disparities and inequities across populations

Longstanding health disparities and inequities underlie the public health discourse, particularly among historically underserved U.S. communities. Frontline nurses perceived that the COVID-19 public health response exacerbated existing health disparities and inequities exposing disparate access to quality healthcare services and constraints in resource allocation and utilization. Moreover, they reported that under-resourced communities experienced a disproportionate burden of morbidity and mortality. *"The disparity in healthcare access; medications, treatment, are reasons why certain populations die above other populations."*

The widening gap of available resources to support care and management of patients with COVID-19 at the local and state level amplified geographic disparities.*"The county that we are in is so limited in the resources compared to the city. [Patients] come because they're seeking help, but we don't have the resources to properly and successfully set them up for success outside of the hospital."*

The COVID-19 pandemic further perpetuated racial, ethnic and socioeconomic vulnerabilities respective to health. Frontline nurses highlighted challenges with diminished hospital resources and supplies, and unexpectedly transformed their workplace from resource-rich to resource-limited environments. *"We've kind of resorted back to… a low-income urban hospital with a lack of resources. It becomes a challenge."* Moreover, nurses drew attention to the historical and contemporary context by which the COVID-19 crisis posed an additional challenge to deeply rooted structural disparities within vulnerable communities. *"The poor, the minorities, they live in communities sometimes that don't have the best supermarkets. They grow up eating the wrong foods. And I feel that things have not been put in place to help certain populations to break away from certain diets and certain lifestyles. And to top it off with being underserved, being underinsured, not being given all the treatments that are available, helped to make certain populations more vulnerable during this time."*

Nurses also discussed unequal access to healthcare facilities and health care providers with appropriate treatment for COVID-19, particularly in low-income communities. *"In New York, you can go to [any hospital]. But there are some communities that don't have access to treatments. It should be fair and equitable."* Notably, nurses expressed concerns about the long-term negative consequences stemming from barriers to and reduced access to care and lack of chronic condition management. *"[Patients] are not seeing their physician because their offices are closed or not taking in-person appointments, and they're not getting their medications adjusted."*

A priority focus for nurses was dismantling significant barriers that fuel the growth of vulnerable, underresourced, and marginalized communities. Specifically, second-order effects of the COVID-19 pandemic such as reduced commerce, job loss, and economic stability accelerated economic and social inequities with implications for long-term recovery and survival.*"If we had to continue to survive it, I'd want to make it happen in a way that not so many people were suffering severely economically who are surviving through this but are losing jobs and losing careers and losing homes and moving into poverty. I think it's one thing to deal with the consequences and effects of the disease if one has it. That's devastating enough if someone's very sick, but all of these other effects secondary to the disease are overwhelming and long-lasting."*

Perceived lack of consistency and coordination of messaging about pandemic policies and plans across levels of organizational and government sectors

Nurses perceived some lack of clarity and consistency of the messaging coming from the national leadership for an effective pandemic response. *"What about when the next pandemic shows up? You've got to have some systems in place, personally and of course, country-wide… having some kind of method of managing all aspects."* A perceived inadequate response at the national level appeared to be related to a lack of coordination across governing bodies, which impacted local and organizational policy, preventing effective handling of patient volume. Mobilization of patients with COVID-19 across the health continuum was at the forefront of discussions. *"I want to say lessons learned. I want to say first, making sure your expectation and the expectation of the people that you're working with jive, that we're working towards the same goal…at least have somewhat of an understanding of where you are, what you need to do…I hope everyone is reevaluating the definition of what a crisis is now."* Nurses viewed the lack of policy on patient handling and transfers between institutions as a personal health threat to the nursing workforce. *"[The patient] transferred to us from outside the hospital not as a known COVID positive yet…he was admitted with all these signs and symptoms, so they swabbed him, and he turned out positive. He was already here probably a day or two in the unit. Three days in without a N95. That was, I think, the most stressful, knowing that you were exposed."*

Lack of clarity surrounding mask mandate policies also emerged. Nurses described unclear public health-driven mask policies in the community to prevent the transmission of the COVID-19 virus. Confusion existed about managing patients who

refused to wear a mask. *"The question arose about how would we manage a patient who presented to the emergency department refusing to wear a mask. Most of the staff felt very strongly that we should refuse to treat them. Unfortunately, that's a violation, and we can't do that. We'd need to bring them directly into a triage room, circumvent the system, so this person who was refusing to comply would now be taken ahead of everyone else and immediately placed into a room."* The rapid and constant change in public health policy recommendations appeared contradictory, and nurses felt their safety was threatened. *"I understand that we didn't know a lot, and that science was evolving, but in the beginning, don't wear your mask; only wear it in this instance, only wear it in that instance, and that obviously dramatically changed. We took it upon ourselves…now we're going to wear it all the time even if people tell us not to…we just kind of defied instructions for our own safety."*

Need for inclusion of nursing workforce supply and allocation in emergency response plans

Nurses perceived that securing a sufficient healthcare workforce and allocating staff based on skillset needs to be at the forefront of public health policies. The surge of patients with COVID-19 coupled with limited hospital beds in some regions fueled a migration of nurses to COVID-19 epicenters ("travel nurses"). Some primary employers sought volunteers to assist in areas with COVID-19 surges. The promise of higher salaries within suboptimal workforce supply areas motivated travel nurses. Despite the extra help, nurses reported difficulties embedding travel nurses into some clinical settings. Participants emphasized that not all nurses have the same required training or experience, such as the clinical skills necessary to manage patients in intensive care settings, potentially contributing to poorer patient outcomes. *"Yes, we needed more nurses to take care of all of these patients, but unfortunately, the big bucks attracted a lot of nurses that were not supposed to be there…The travel nurses that were not ICU nurses. This was too stressful for me because I always felt for the patient knowing that we could of taken care of them in our medical ICU, unfortunate that we were full already, that they had to be on the ICU extension, being taken care of by …incompetent nurses, and also doctors because the doctors that were managing them, that wasn't their specialty either."*

Nurses shared two promising approaches to securing a sufficient nursing workforce. First, a nurse described a workforce training mechanism, "infectious disease champions." These champions were responsible for ensuring adequate preparation of both internal and external travel nurses. One nurse explained that*"Every unit…has champions that are trained in Ebola, MERS, [etc.], …they would be the team that would be called. Because this was so large scale, everybody got trained all of a sudden. They were our main group that in the beginning took a lot of the patients and then walked around and helped train everybody else."*

A second noteworthy approach to strengthening the nursing workforce supply required the relocation of nurses outside of their homes and closer to the clinical setting. Available public housing, hotels, and hospital dormitories served as housing infrastructure. It reduced the likelihood of transmissions of COVID-19 to family members and reduced commute time for extended shift durations to meet the demands for care. A nurse shared her personal experience, *"I moved into one of the [hospital] dorms… the commute was impossible. I usually stay with my mother-in-law when I work… she's 93. I didn't want to expose her. And so I took that offer. I was there for three months."*

DISCUSSION

This study characterized gaps in public health emergency preparedness during the COVID-19 pandemic from the perspectives of frontline nurses. Nurses perceived challenges with current public health emergency preparedness systems at the national, state, and local levels. More specifically, three themes emerged: (1) Validation of the presence of health disparities and inequities across populations; (2) Perceived lack of consistency and coordination of messaging about pandemic policies and plans across levels of organizational and government sectors; and (3) Need for inclusion of nursing workforce supply and allocation in emergency response plans.

Nurses make up the largest health care workforce in the country, with roughly 4 million registered nurses (Smiley et al., 2018). Public health response policy and nursing public health emergency preparedness policy must be interconnected. The pandemic spread rapidly and led to a national shut-down of daily operations, inadequate healthcare resources to manage the number of very sick patients or mitigate frontline workforce exposure, and significant financial and business losses affecting many Americans. Despite decades of disaster preparedness planning, many lessons for future public health and frontline healthcare workforce response, especially nurses, remain. Our results align well with the recent review by Romney et al. (2020) who identified many well-established crisis standards of care plans across states. Still, not all states had plans, and many existing plans did not address all the IOM standards for crisis care. Moreover, our findings are congruent with the disconnect between national standards and state-level responses. The general public and frontline workforce need a coordinated response to protect and support local communities and organizations.

Specific disaster plans addressing more common situations (i.e., fire, evacuation, etc.) exist on every nursing unit, and employers expect nurses to be versed in public health emergency preparedness. Yet, nurses report being insufficiently prepared and do not feel confident responding effectively to disasters (Labrague et al., 2018). Furthermore, nursing educational programs on disaster and emergency management vary widely. Some programs may not be evidence-based despite the availability of the Framework of Disaster Nursing Competencies (ICN, 2009; Veenema et al., 2017). The *Future of Nursing 2020–2030* reports that 78% of nurses have little or no emergency and disaster preparation knowledge (National Academies of Sciences & Medicine, 2021). While not every nursing role needs all competencies, it is evident with the COVID-19 pandemic that nurses need a minimum knowledge standard surrounding public health emergency preparedness. We recommend that leaders fund, advance and refine academic curricula and continuing

education programs to increase nursing competency in public health emergencies. Nurses must feel equipped to respond to meet the needs of the communities they serve. Clear roles and responsibilities are essential in public health emergency preparedness to promote the safest, highest quality, and judicious care in a disaster or emergency (Kelley et al., 2021). Moreover, as nurses play a substantial role in public health emergency response on the frontlines and across the health continuum, nursing professionals must be included in disaster planning at the highest level and be engaged in prevention, response, and recovery phases (Veenema et al., 2017).

Our results align with Khan's Public Health Emergency Preparedness Framework (Khan et al., 2018). This framework provided a robust lens through which the resiliency of the public health system can be evaluated at the local, national, and international levels. The diminished public health response was well articulated by our participants (Table 1). The perspectives of nurses in our study align with public health recommendations that call for improved national policy and planning to streamline communication, deploy resources to manage staffing shortages, promote standards of practice, and ensure health care equity among all citizens (Hatef et al., 2020; Nicola et al., 2020; Schroeder et al., 2020). The lessons gleaned from frontline nurses working during the pandemic include areas of needed change and potential solutions.

Overall, there are three public health implications and recommendations stemming from the findings in this study. First, we recommend increasing public health policies and initiatives to strengthen the infrastructure that mitigates inequities and inequalities in underserved populations. Examples include improving access to health care services and community-based providers, and ensuring services to support people during quarantine such as efforts to combat food insecurity. The nurses in our study described disproportionate challenges for underserved communities.

Second, the U.S. needs a central national resource to communicate consistently reliable messaging to help coordinate disaster management. Healthcare workers and the public need easily accessible evidence, offered in varying formats, with clear recommendations for the local level. Further, state and local governing bodies should allocate resources to adequately train teams who can implement national public health guidelines locally, to meet the needs of local communities.

Third, the U.S. needs to prioritize central national nursing workforce planning, allocating nurses with varying skill sets to meet specific care demands during emergencies. Adequate numbers and appropriate skills are needed. The participants in our study stressed that not all nurses are prepared or experienced in managing a crisis. Moreover, the supply of nurses, even before the pandemic, was not adequate to meet the demand for care in the U.S. or in the world. A central repository of nursing expertise and specialties could help deploy nurses to areas of need, supported by demographics data and nursing workforce trend monitoring. Recent efforts to measure nursing workforce demographics and skillsets such as the National Sample Survey for Registered Nurses may be a useful resource in assisting nursing workforce allocation at the national level (Smiley et al., 2018). Public health and nursing policymakers should coordinate efforts toward securing a response plan for optimizing nursing workforce capacity (Rosa et al., 2020; Stucky et al., 2021). The American Hospital Association urged immediate modification of state laws and regulations to enhance health care workforce capacity (AHA, 2020). Similarly, the Centers for Medicare & Medicaid Services (CMS) made sweeping regulatory changes to strengthen workforce capacity and expand telehealth delivery (CMS, 2020). Policymakers should consider adopting permanent legislation that removes all restrictive nursing scope of practice regulations that impede an ample nursing workforce supply and capacity to deliver care, especially with the looming and growing nursing shortage.

Several limitations to this study exist. First, our 43 participants across 4 U.S. States are a small subsample of the 4 million nurses in the country. Other nurses working on the frontlines in different U.S. states may have different perspectives. A second limitation of our study is only using focus groups for data collection. Persons who had a dissenting perspective from the group may have been less inclined to speak. On the other hand, focus groups can provide safety for people in vulnerable situations, especially when discussing sensitive issues such as health disparities in underserved communities. Additionally, as a secondary analysis, we were unable to conduct member checking to verify our findings with our participants.

CONCLUSION

This study examined frontline nursing perspectives about care delivery, public health policy and planning, and subsequent impact on patient and nursing workforce populaitons. The findings demonstrate the critical need to address health inequities and inequalities across populations, a consistent national vehicle for communication, and national plan for securing and allocating nursing workforce resources.

CLINICAL RELEVANCE

This study presents evidence of the critical gaps in care delivery during the COVID-19 pandemic from the perspective of frontline registered nurses working in hospitals in the US. Recommendations for public health policy change to reduce health disparities, improve the coordination of information sharing and secure an ample workforce supply to meet the demands for care during the pandemic are presented

CLINICAL RESOURCES

1. CDC Foundation COVID-19 Public Health Toolkit https://www.cdcfoundation.org/covid-19-public-health-resources
2. Center for Disease Control and Prevention's Health Departments: Information on COVID-19 https://www.cdc.gov/coronavirus/2019-ncov/php/index.html

ACKNOWLEDGMENTS

None.

CONFLICT OF INTEREST

The authors declare no conficts.

DATA AVAILABILITY STATEMENT

Data are available upon reasonable request.

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How to cite this article: Norful, A. A., Tucker, S., Miller, P. S., Roberts, H., Kelley, M. M., Monturo, C., O'Mathúna, D., Smith, J., Zadvinskis, I. M., Zellefrow, C. & Chipps, E. (2022). Nursing perspectives about the critical gaps in public health emergency response during the COVID-19 pandemic. *Journal of Nursing Scholarship*, *00*, 1–7. https://doi.org/10.1111/jnu.12795