


# A framework for delivering nursing care to older adults with COVID-19 in nursing homes

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## Abstract

Public health emergencies threaten the lives of U.S. citizens, often in disproportionate ways. Hardest hit are vulnerable populations of older adults (OAs) residing in nursing homes (NHs), who comprised nearly 43% of all deaths from COVID-19 in NHs in 2020. New Jersey (NJ) ranks #2 nationally behind New York with the highest numbers of resident deaths; more than 50% of all COVID-19-related deaths in NJ have occurred in NHs. This public health emergency has prompted investigators to evaluate existing structural, resident, process of care, regulatory, and policy characteristics that have impacted the delivery of nursing care within NJ NHs. In this manuscript, we discuss data from NJ NHs during COVID-19, drawing from publicly available data, state reports, and the geriatric literature to offer recommendations. Based on evidence-based practices (EBPs), we present a series of recommendations to modify existing contextual factors in NHs to best prepare for the next health disaster.

## KEYWORDS

aged, evidence-based practice, geriatric nursing, nursing homes, public health nursing practice, safety

## 1 | INTRODUCTION

Public health emergencies threaten the lives of U.S. citizens, often in disproportionate ways. Vulnerable populations, such as older adults (OAs), are at higher risk of morbidity and mortality during natural disasters, such as hurricanes Katrina and Irma, as they comprised nearly 50% of all deaths (Adams et al., 2011; Benson & Aldrich, 2020; Dosa et al., 2020). This high incidence of mortality has continued and is most recently evidenced in the COVID-19 outbreak that has been responsible for over 43% of deaths among long-term care (LTC) residents within the U.S. nursing homes (NHs; Centers for Medicare and Medicaid Services [CMS], n.d.d). At the state level, the COVID-19 outbreak resulted in over 50% of LTC resident deaths in New Jersey (NJ; Manatt Analysis Report, 2020). Compared to the 43% of deaths nationally, NJ ranks #2 nationally behind New York with the highest

numbers of resident deaths per 1,000 residents (122.6 deaths per 1,000 deaths; Centers for Medicare and Medicaid Services, n.d.a) due to COVID-19 (Centers for Medicare and Medicaid Services, n.d.b). Geographically, NJ's most northeastern counties are in the frontline of "hot spots" with close proximity to New York City, although every one of the 21 counties in NJ has NHs with OA residents testing positive for COVID-19 ([https://www.state.nj.us/health/healthfacilities/documents/LTC\\_Facilities\\_Outbreaks\\_List.pdf](https://www.state.nj.us/health/healthfacilities/documents/LTC_Facilities_Outbreaks_List.pdf)).

As national COVID-19 rates continue to plateau, the pandemic has exposed underlying disparities and inequities influencing the health of the LTC OA population in NJ. The reality of spread and infection from COVID-19 in NJ's LTC communities and NJ's response is important to understand, as many of the underlying disparate factors will continue to plague the LTC community's risk of additional mortality and morbidity among OAs with the next health disaster, if

appropriate response is not taken. Moreover, reducing health-related infection outcomes and associated morbidity and mortality is an evidence-based quality metric recognized by public health officials, agencies, and professional societies across the world (Agency for Healthcare Research and Quality, 2015; American Geriatrics Society [AGS], 2020; American Nurses Association, n.d; Centers for Disease Control and Prevention [CDC], 2020; Centers for Medicare and Medicaid Services, n.d.; World Health Organization [WHO], 2020). The broad aim of this narrative review was to analyze evidence on COVID-19 incidence in NJ NH's from the geriatric literature, policy papers, and databases, and then to utilize this information to illustrate the impact of the virus on the delivery of nursing care to OAs within these NHs and to offer tangible recommendations.

health care system, such as safety standards, inspection deficiencies and reimbursement rates which impact systems and process of care factors are presented and discussed within the modified QHOM (refer to Figure 1). The outcomes of the delivery of care are noted to be interdependent on the surrounding multidimensional contextual factors. Factors present include: (a) the demographic and health characteristics and disparities of older NH residents' increasing risk for infection; (b) system characteristics within the NHs influencing the delivery of professional nursing care, such as nurse practice environment, skill mix and staffing ratios, health care workforce, and NH characteristics, such as building structure and living conditions, infection prevention, and control education; (c) process of care characteristics, (d) external regulatory policy parameters influencing nursing care delivery and, (e) adverse outcomes including readmission rates and quality of life.

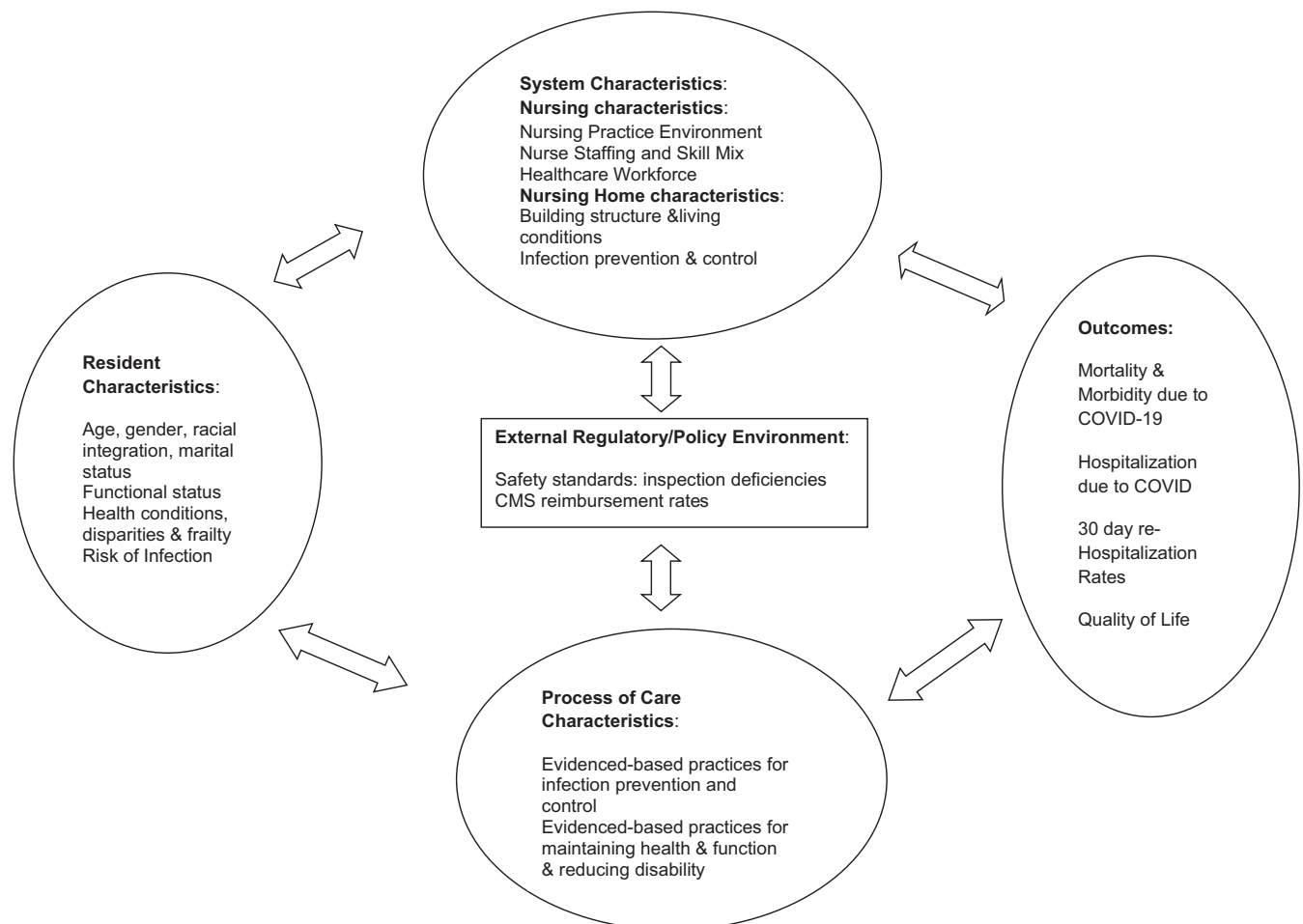
### 1.1 | Conceptual framework

This paper is organized utilizing the modified Mitchell's Quality Health Outcomes Model (QHOM), a dynamic, multidimensional model of contextual factors operative within health care systems which impact the delivery of care, that is, nursing and health care (Mitchell et al., 1998; refer to Figure 1) to NH residents. Operant factors external to the

### 1.2 | Resident characteristics

#### 1.2.1 | Demography

Resident characteristics include the demography of the population (e.g., age, gender, and racial integration), health conditions, risk of



**FIGURE 1** Modified Quality Health Outcomes Model (Mitchell et al., 1998): Conceptual Relationship Among Contextual Factors Impacting the Delivery of Nursing Care to Older Adults in Nursing Homes

infection, functional ability, frailty, and emotional, mental health and social status.

Although only a small proportion of persons over age 65 (1.2 million persons) in the United States reside in a NH (U.S. Census Bureau, 2017), the percentage of persons receiving assistance in NHs increases dramatically with age. Evidence shows most persons living in NHs are the old-old, over age 85 years (38.6%), and female (Harris-Kojetin et al., 2019). NHs are racially integrated facilities (Harris-Kojetin et al., 2019; refer to Table 1), but health disparities related to race and ethnicity have long been noted among LTC residents. Early investigations have found an estimated 9% of all White NH residents reside in lower-tier NHs, compared to 40% of all Black residents, who are three times more likely to reside in one of the poorer, lower-tiered NHs than Whites (Smith et al., 2007; refer to Table 1). More recently, the NH industry is described as a “2-tier system, with the lower-tier consisting of Medicaid-reliant NHs” (Chisholm et al., 2018). Experts have noted that Medicaid-reliant NH disproportionately serves Black residents and that they are associated with lower quality of care (Chisholm et al., 2013). Evidence has shown NHs with fewer proportions of Medicaid residents were high culture change adopters (Miller et al., 2014). The demography of residents within NHs as it relates to proportion of Medicaid residents is an important characteristic which has been associated with culture change practices and investment in meaningful adoption of practices (Shield et al., 2014). National data indicate over 90% of NH residents have greater disability requiring assistance with activities of daily living compared to noninstitutionalized OAs (U.S. Census Bureau, 2017; refer to Table 1). A NH resident's need for physical assistance is related to a higher incidence of multiple chronic health conditions, that is, multimorbidity (refer to Table 1), which include progressive, irreversible disorders such as Alzheimer's disease.

### 1.2.2 | Health conditions and disparities

Overall, OAs living in NHs are less healthy than those in the community. NHs are comprised of the oldest residents with the greatest functional limitations and highest degree of disease burden, poorer health, and frailty compared to noninstitutionalized OAs (Harris-Kojetin et al., 2016; Moore et al., 2012).

NH residents have chronic conditions and often complex health conditions and multimorbidity, including high rates of Alzheimer's disease or depression (48%); hypertension (71.5%), heart disease (38%), diabetes (32%), and arthritis (26.2%), among others (Harris-Kojetin et al., 2019, 2016; refer to Table 1). Alzheimer's disease causes cognitive impairment with memory loss rendering the resident unable to safely or adequately care for themselves. As diseases progress, these health conditions lead to functional impairment and disability as well as the new onset of geriatric syndromes, such as urinary incontinence, delirium, dehydration, pressure sores, polypharmacy, falls, and immobility (Inouye et al., 2007). Other conditions, such as dehydration, are

preventable, but acute medical emergency, which effects OAs cognition/mentation, has been observed in up to 38.5% of NH residents (Paulis et al., 2018). Dehydration due to a loss of free water also impacts the pharmacodynamics of prescriptive medications. Less circulating free water easily results in drug toxicity because medications are not properly absorbed or eliminated. The presence of dehydration along with polypharmacy increases susceptibility to illnesses and can affect cognitive function as well as self-care ability. Because cognition/mentation can effect emotional processes, it is not uncommon for depression to occur: depression can be reduced through proper screening and treatment (The John A. Hartford Foundation (JAHF), Institute for Healthcare Improvement, American Hospital Association, and the Catholic Health Association of the United States, Age-Friendly Health Syst 4Ms Framework, 2020). Engagement in health promotion and health maintenance is a mainstay to counteract the adverse health outcomes associated with geriatric syndromes. Health promotion activities, for instance, seek to reduce the development of geriatric syndromes and preventable infections, conditions that are disproportionately seen among minority NH residents (Cai et al., 2011; Li et al., 2011; refer to Table 1).

Another prevalent health condition observed among NH residents is frailty. Frailty is widely recognized as a state of reduced reserve and resilience to stressors leading to multisystem physiologic decline (Fried et al., 2001; Mitnitski et al., 2001). Hallmark characteristics of frailty include slowness in movement and reduced gait speed and muscular strength, which influence the time required to deliver nursing care to OAs, who may also possess functional impairments. Frail NH residents are at increased risk of complex and multimorbidity, hospitalization, death, disability, and poorer health outcomes (Bergman et al., 2004; Ferris et al., 2010; Fulop et al., 2010; Walston et al., 2006; Woo et al., 2012). Additionally, a recently published study involving 1,427 community-dwelling OAs age 65 and older in the United Kingdom over a 22-year period (1995–2017) found that OAs who met the criteria for frailty and who were lonely or socially isolated had a higher risk for mortality compared to OAs without frailty (Hoogendijk et al., 2020; refer to Table 1).

### 1.2.3 | Risk of infection

Pre-COVID-19, mortality from pneumonia and influenza was high in the United States and in NJ, where they ranked as the eighth leading cause of death in persons 65 years and older (CDC, 2020; NJ State Health Assessment Data, 2018; refer to Table 1). Additionally, among all of the potentially preventable emergency department visits from NH residents in the United States, 12% are due to pneumonia (Caffrey, 2010). NH residents are prone to nosocomial infections not only because of their advanced age, comorbidities, disabilities, and frailty superimposed on age-related physiological changes in lung structure and function (Meyer, 2005), but also because of the close proximity in which they share space, allowing airborne pathogens to spread. Additionally, age-related

**TABLE 1** Supportive evidence of contextual factors and modifiable issues influencing the delivery of nursing care to OAs

Contextual factor identified within QHOM	Modifiable issue(s)	Supportive evidence
Resident Characteristics: Demography	Complexity of NH residents: Advanced age; Poorer Health, Disability; Geriatric syndromes; Frailty; Risk for Infection	<p>NH residents have increased functional impairments and disability with 96.7% required bathing assistance, 92.7% required dressing assistance; 90% required toileting assistance, and 92% required ambulation/walking assistance. The percentages for individual disabilities in the noninstitutionalized populations ranged from 22% with an ambulatory disability to 8% having some type of self-care difficulty and 14% having an independent living difficulty (U.S. Census Bureau &amp; American Community Survey, 2017). Higher incidence of geriatric syndromes such as pressure ulcers: Higher risk-adjusted rates of pressure ulcers have been observed among elderly Black NH residents (Li et al., 2011). Frailty is more common among females, being unmarried, without a caregiver, having cognitive impairment (including all types of dementia), functional impairment, diabetes mellitus, stroke, and Parkinson's disease and being in a long-term care facility.</p>
Resident Characteristics: Demography and Health Conditions	Racial integration of NH residents & Health disparities for Black Residents	<p>NHs are racially integrated facilities occupied by non-Hispanic Whites (75.1%), non-Hispanic Blacks (14.3%), non-Hispanic others (5.1%), or Hispanic (5.4%) residents (Harris-Kojetin et al., 2019).</p>
Resident Characteristics: Demography	Challenges to the detection of Infection in NH residents and altered physiology	<p>Signs of infection, such as fever in response to a bacterial infection, may be absent or altered, atypically presenting, aging structural and functional changes in the lung result in increased risk for pneumonia (Esme et al., 2019; Gray-Miceli et al., 2012; Meyer, 2005). Experts have found a dysregulation of the immune and inflammatory systems, most of which is associated with changes in T cell-mediated immunity, contributing to increase incidence of infectious diseases (Meydani, 2010).</p>
Resident Characteristics: Demography: Susceptibility	Risk of preventable illnesses (infection, geriatric syndromes)	<p>Pneumonia and influenza (combined) rank as the 8th leading cause of death in older adults (CDC, 2015), in the United States with most deaths due to pneumonia (CDC, 2018). 8% or 123,600 NH residents had an emergency department visit within the past 90 days of which 40% were deemed "potentially preventable" (Caffrey, 2010). Of these preventable conditions, 12% were due to pneumonia.</p>
System Characteristics: Nurse Staffing & Skill Mix	Adherence to Minimum Staffing Requirement Recommendations to provide quality and evidenced-based care to NH residents with complex care needs	<p>The CGNO recommends: (a) a registered nurse be present in the nursing home at all times for oversight of resident care, resident assessment, supervision of licensed nursing staff, and delegation to certified nursing assistants; (b) the Director of Nursing be either prepared at the baccalaureate level or certified in nursing administration by one of the CGNO associations; (c) the hours of direct nursing care for each resident be at least 4.1 hr per resident day with minimum 30% of that consisting of licensed nurses; (d) administrative RN positions such as the Director of Nursing and Assistant Director of Nursing not be counted as direct nursing hours for resident care; and (e) skilled nursing facility residents have licensed staffing based on clinical acuity, which may necessitate more than the 4.1 hr per resident minimum (CGNO, 2014).</p>

(Continues)

TABLE 1 (Continued)

Contextual factor identified within QHOM	Modifiable issue(s)	Supportive evidence
System Characteristics: NH-related characteristics: Healthcare Workforce and Circumstances of Work conditions for Essential workers	Disparities in the work environment for healthcare minority and immigrant workers who work in "volatile high risk for grave illness situation"; NH not getting requested PPE	Disparities exist for health care workers who are largely from racial or ethnic minorities, > 50% immigrants; 91% women, earning low average wage of \$15.00 per hour for CNAs and working more than one job, sometime across multiple NHs, between hospital and NHs, 13% have no health insurance; have same childcare responsibilities and obligations during pandemic worsened with school closures, as frontline "essential" responders, they cannot work from home (Manatt Analysis Report, 2020). Immigrants geographically residing in close proximity to known "hot spots" (northern NJ and New York City; Manatt Analysis Report, 2020)
System Characteristics: NH-related characteristics: Building stability & living conditions	Building capacity and infrastructure	Antiquated NHs in NJ are older structures compared to other regions of the country (Manatt Analysis Report, pg. 9, 2020) composed of private, semi-private, and three- and four-bedded rooms. State regulations vary with room sizes averaging from 80 to 100 square feet for one-bedded rooms to up to 220 square feet for double occupancy (American Planning Association, 2020)
System Characteristics: NH-related characteristics: infection prevention and control education	NH Safety Culture	For unlicensed personnel such as nurse's aides, candidates must successfully complete the Nurse Aide in Long Term Care Facilities Training and Competency Evaluation Program (NATCEP) in which 12 hr are devoted to infection control.
Process of Care Characteristics: Infection Control Practices & Access to Specialists	Adherence to Federal and State Regulatory Standards, and Evidence-based Practices	According to the 42 Code of Federal Regulations 483.80(a) (1)-(4), 2019, NHs at a minimum must have a system to prevent, identify, report, investigate, and control infections and communicable diseases for all residents, staff, volunteers, visitors, and others providing services in the NH; have written standards, policies, and procedure for infection prevention and control; have antibiotic use policies and a system to monitor antibiotic use and have a system for recording incidents identified in the NH programs and any corrective action undertaken (42 C.F.R. 483.80 (a), 2019). Workforce shortages of geriatricians, infection disease specialists; certified geriatric nurses, advanced practice nurses with certification in geriatric nursing; and respiratory therapists (IOM, 2001)
Process of Care Characteristics: Use of evidence-based practices to improve function and mobility	NH Staff adherence to EBPs	Long-standing barriers to implementation of evidenced-based practice in NHs exist (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001; Stevens, 2013) Use of evidenced-based nursing practices improves function, mobility, and promote health (Boltz et al., 2020)
External Policy Environment: Payer Mix for Delivery of Care to Residents in NHs: CMS Reimbursement rates	Medicaid versus Medicare beneficiaries in NHs driving the delivery of care through allocation of staff	In NJ, approximately 45,000 persons, or 0.5% of the state population reside in a NH (Manatt Analysis Report, pg. 10, 2020). For residents receiving Medicaid, the average daily census is 26,570 with a 365-day average length of stay while Medicare beneficiary's average daily census is 6,823 with a 31 day average length of stay.
Outcomes: Morbidity & Mortality	Prevention of excess mortality and morbidity	NJ ranked second nationally behind New York in cases and deaths (122.6 deaths per 1,000 deaths, CMS, August 10, 2020)

(Continues)

**TABLE 1** (Continued)

Contextual factor identified within QHOM	Modifiable issue(s)	Supportive evidence
Outcomes: 30-day Hospitalization rates	Care of Vulnerable, at-risk NH Residents	The incidence of adverse, potentially avoidable events are frequent in NH residents, evidenced by the rates of overnight hospitalizations. In 2015–2016, about 23.8% of short-stay residents of NHs had an overnight hospitalization and about 8.7% of long-term stay residents of NH had an overnight stay (Harris-Kojetin et al., 2019) The CDC has developed a universal form which requires closer scrutiny of NH residents with acquired infections from returning to the NH without clearance (refer to interfacility form found at: <a href="https://www.cdc.gov/hai/pdfs/toolkits/Interfacility-IC-Transfer-Form-508.pdf">https://www.cdc.gov/hai/pdfs/toolkits/Interfacility-IC-Transfer-Form-508.pdf</a> ). Following this form would allow NH facilities time to determine if their facility can accept the resident back given their current infection.
Outcomes: Quality of Life	Patient autonomy-right to choose Risk for loneliness and social isolation during COVID-19 crisis in NHs	Federal regulations and state ombudsman provide authority and support the Patient's Bill of Rights for self-determination. Researchers reported hazard ratios of 1.83 for mortality for OAs with frailty and loneliness and 1.77 for mortality for OAs with frailty and social isolation (Hoogendijk et al., 2020).

physiological changes cause atypical presentation of illness (Esme et al., 2019; Gray-Miceli et al., 2012; refer to Table 1) making infections difficult to detect. A dysregulation of the immune and inflammatory systems also increases incidence of infectious diseases (Meydani, 2010; refer to Table 1).

### 1.2.4 | Impact of chronic and acute illnesses, frailty, and risk of infection on the social needs of OA residents

Given the prevalence of chronic complex and acute illnesses, geriatric syndromes, frailty as well as normal physiological age-related changes effecting body, mind, spirit, and sensory function among NH residents, it is critical that their individualized plan of care addresses their emotional, mental health, and social needs. Fundamental and basic human needs include maintaining social interactions, relationships, and intimacy. The social need for proximity has been impeded by isolation mandates imposed by COVID-19 and infringed on the development and/or maintenance of a social support network of relationships with family and friends and health care caregivers that in normal times provides comfort, connectivity, and feelings of safety (Bruggencate et al., 2018; McMaster Optimal Aging Portal, 2018).

## 1.3 | System characteristics

System characteristics of LTC include: (a) the delivery of nursing care in the practice environment, (b) nurse staffing and skill mix, (c) characteristics of the health care workforce, (d) the building structure

and living conditions, and (e) infection prevention and control education. NJ has 375 licensed NH facilities (74% for-profit and 23% nonprofit ownership) with an average bed size of 145 beds, 82% occupancy, and an average of 119 residents cared for daily (Manatt Analysis Report, 2020). NHs in NJ are similar to NHs throughout the United States in terms of their occupancy rates, ownership type, and average number of beds (CDC, 2020).

### 1.3.1 | Delivery of nursing care in the practice environment

Delivery of safe, quality health care is a practice standard and goal of professional nursing in any nurse practice environment (Flynn et al., 2010). Nurses are concerned with delivering which is needed for “the protection, promotion, and optimization of health and abilities, prevention of illness and injury, facilitation of healing, an alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, groups, communities, and populations” (ANA, 2015). Among other elements within the practice environment, nursing care delivery is influenced by workplace culture for patient safety, teamwork, nursing leadership, and autonomy and nurse staffing (ANA, 2015).

### 1.3.2 | Nurse staffing and skill mix

In NJ, NHs were underprepared for the threat of a widespread infection and under-resourced due to long-standing staffing shortages or low staffing ratios (Manatt Analysis Report, 2020). According to the ANA, staffing is defined as a match of registered nurse (RN)

expertise with the needs of the recipient of nursing care services in the context of the practice setting and the situation (ANA, 2012). Staffing issues have long plagued U.S. LTC, especially NHs, as noted by the seminal work of Dr. Harrington who has compared each state's nursing care workforce to the federal staffing requirements, noting a need for higher minimum staffing standards to provide resident care (Harrington, 2010). Moreover, the provision of appropriate nurse staffing is necessary to reach safe, quality outcomes and is achieved by multifaceted decision-making processes that must consider a wide range of variables (ANA, 2012). Additionally, research has shown that failure to resuscitate, cardiac arrests, and hospital-related mortality are all lower when professional nurse staffing is higher (Kane et al., 2007), specifically, when staffing included a higher proportion of nurses educated at the baccalaureate level or higher (Aiken et al., 2003; Clarke & Donaldson, 2008). The Coalition of Geriatric Nursing Organizations (CGNO), representing over 28,700 nurses who provide geriatric care in a variety of clinical settings, including NHs, posit the need to provide safe, high-quality, necessary, and cost-effective care. This requires avoiding and removing barriers that are imposed by insufficient numbers of licensed nurses or restrictions on the total hours of nursing care provided. Accordingly, the CGNO proposes minimum staffing levels to be adopted, funded, implemented, and publicly reported for NHs (refer to Table 1). In 2016, about 1,460,400 nursing employee FTEs—including RNs, LPNs, or LVNs, and aides—and about 35,000 social work employee FTEs were working in the LTC sector (Harris-Kojetin et al., 2019). Of these nursing and social work employees, 63.3% (945,700 FTEs) worked in NHs.

With regard to skill mix, defined as the proportion of RN hours compared to CNA hours, NH care is largely delivered by licensed practice nurses (LPNs) and direct care staff (certified nurses' aides [CNAs]) and less by RNs. The average staff hours per resident per day and staff type in the United States in 2016 included: RNs providing 0.54 hr, LPNs providing 0.85 hr, and CNAs providing 2.41 hr (Harris-Kojetin et al., 2019). Thus, CNAs compose the largest proportion of staffing in most states across the country, and in NJ, the minimum staffing standard of CNAs for skilled nursing or NH facilities is 2.5 hr per resident day (Harrington, 2010). In fact, CNAs provide most of the care in NHs with 90% of direct care, including bathing, lifting, toileting, and assistance with daily activities to residents (Manatt Analysis Report, 2020). Prior to COVID-19 in NJ, CNAs on average were caring for eight residents during the day, 10 residents during the evening, and 17 residents at night (de Cordova, P., authors tabulation from this data from the NJ Health Care Quality Assessment, Nurse to Patient Staffing, 2020). When comparing the staffing ratio for LPNs, the LPN on average cares for 26 residents during the day, 32 residents during the evening, and 45 residents per LPN during night shifts (de Cordova, P., authors tabulation from this data from the NJ Health Care Quality Assessment, Nurse to Patient Staffing, 2020).

In NJ, RNs provided 0.83 hr per resident per day, LPNs provided 0.87 hr, and CNAs provided 2.06, and collectively the total hours for all licensed staff were 3.76 (refer to Table 1; de Cordova, 2020, tabulation of public data). This trend of an increase in LPN labor compared

to RN labor is also observed nationally, and dates back to a finding of the Bureau of Labor Statistics in 1995 (Institute of Medicine (US) Committee on the Adequacy of Nurse Staffing in Hospitals and Nursing Homes, 1996), representing a shift in the composition and skill mix of the licensed nursing staff (Corazzini et al., 2015). Additional issues created by changes in the recommended skill mix include quality of care delivered (Institute of Medicine (US) Committee on the Adequacy of Nurse Staffing in Hospitals and Nursing Homes, 1996). Less professional RN staff in NHs equate to fewer opportunities for comprehensive nursing assessments and plans of care, initiating care plans, evaluating the effectiveness of the care plan, and delegating to unlicensed nursing personnel (CGNO, 2014). The insufficient number of RNs in NHs, averaging 30–38 min direct care per resident in a 24-hr period of time (Harrington et al., 2011), increases the risk of residents experiencing poor quality outcomes (Castle & Engeberg, 2005; Institute of Medicine (US) Committee on the Adequacy of Nurse Staffing in Hospitals and Nursing Homes, 1996), which includes increased susceptibility for COVID-19. Seminal research has illustrated for NHs to achieve good resident outcomes, and they must have nursing leadership which is provided by professional nurses (Rantz et al., 2004). In summary, given the current number of hours provided per day to residents compared to the recommended 4.1 hr per resident, current NJ NHs appear to be providing about 60% of the recommended amount of hours per resident for care. Thus, they are falling short of national recommendations and violating the minimum federal requirements for RN staffing, further increasing susceptibility for COVID-19.

### 1.3.3 | Characteristics of the health care workforce

As of June 24, 2020, of the data available nationally, 729 deaths occurred due to COVID-19 among the health care workforce in the United States (CDC, 2020). Disparities in the work environment for qualified health care workers exist as these jobs are disproportionately taken by minorities, women, and legal immigrants who are compensated at low wages. As "essential responders," CNAs work with COVID-19-positive OAs, which increases their own risk for COVID-19 and their risk for exposing their families to COVID-19 (Manatt Analysis Report, 2020). The physical and emotional toll on frontline health care workers caring for OAs during the COVID-19 pandemic is substantial. Other significant factors impacting the health of the health care workforce have included the lack of availability of personal protective equipment (PPE), which was in short supply to NJ NHs (Manatt Analysis Report, 2020) as "the focus on hospitals prompted prioritization of the distribution of supplies, PPE, and other resources to that sector" (Manatt Analysis Report, 2020), as well as insufficient and ineffective testing of health care workers in the early phases of COVID-19 (Manatt Analysis, 2020). As noted by Ouslander and Grabowski (2020), another significant issue driving COVID-19 viral infections in the NH facilities studied (Abrams et al., 2020; Li et al., 2020; White et al., 2020) was "the prevalence of the virus in the surrounding community" (Ouslander & Grabowski, 2020).

### 1.3.4 | Building structure and living conditions

The Code of Federal Regulations (38 CFR 59.140) regulates NH care requirements in regards to the size, location, and number of residents per room, among other features (American Planning Association, 2020). Overall, many of the NJ NH building structures are antiquated, containing more four-bedded rooms for residents to share living and sleeping space compared to NHs in other regions of the country (Manatt Analysis Report, 2020) where room capacity is lower. Because of the structural characteristics, including the numbers of beds per room, size of resident's rooms, and congregate meals in dining rooms, infections can spread more easily. The physical building structure leaves little opportunity for social distancing and/or the ability to maintain isolation.

### 1.3.5 | Infection prevention and control education

NHs require mandatory annual safety and infection control prevention training to all employees. Using Civil Penalty Monetary funds imposed on NHs due to deficiencies, monies are dedicated to educating NH staff in infection prevention and control through a partnership with NJ Hospital Association and the Northern & Southern NJ Chapters of Association for Professionals in Infection Control and Epidemiology (Available on the Internet at: <http://www.njha.com/media/550704/EDU-1915-PPT-Infection-Contr ol-J-Arias.pdf>). The Infection Control Assessment and Response (ICAR) team, which is deployed through the NJ Department of Health, is led by a nurse infection preventionist who provides resources and support services to NH facilities in NJ to reduce infection.

## 1.4 | Process of care characteristics

The process of care characteristics include the availability of—and access to—resources to provide appropriate health care delivery (infection control practices and policies and access to infectious disease and geriatric specialists; refer to Figure 1).

### 1.4.1 | Infection control practices

Infection control practices and processes of care are governed by professional nursing and medical practice, adhering to evidence-based practice (EBP) guidelines. Therefore, each NH facility must have adequate skill mix, appropriate practice environment for nurses to practice to the full scope of their licensure, a prevailing safety culture, and access to trained medical specialists to implement EBP guidelines. Educational efforts provided by NJ's IFAC team have a direct impact on influencing nursing practice or precedence at each NH facility, to lower infection rates and prevent unnecessary hospitalizations due to infections.

### 1.4.2 | Access to specialists

Access to infectious disease specialists and geriatricians in the NH improve the delivery of care as they direct and recommend implementation of EBPs for infection prevention and control, among which include consultation/referral for respiratory infection by respiratory therapists. Historically, there has been a work force shortage of trained, competent professional, and paraprofessional personnel specialist available to provide LTC services in facility-based settings (National Commission for Quality Long Term Care [NCQLTC], 2007). As of 2018, there were 7,298 certified geriatricians in the United States, among which only 255 were located in NJ to provide care to OAs (American Board of Medical Specialties, 2019). When specialists are involved in oversight and surveillance of infection among residents, they also can provide infection control protocol for improved care management. The addition of a full-time dedicated nurse infection preventionist in each NH is needed in the early identification and treatment phase of care as well as to provide needed oversight and surveillance.

Long-standing workforce shortages exist for all levels of nursing professionals, particularly with respect to certified or trained nurses in geriatric nursing practicing in LTC (Institute of Medicine (US) Committee on the Future Health Care Workforce for Older Americans, 2008; National Commission for Quality Long-Term Care, 2007). Citing high turnover and/or issues with recruitment and retention, the most recent data suggest an estimated 96,000 new nurses are needed to fill current vacancies (NCQLTC, 2007) to care for older residents in LTC. The shortages in the supply of the professional nursing workforce in part reflect the lack of geriatric nursing content in baccalaureate programs in nursing, where many baccalaureate nursing programs have no full-time faculty certified in geriatric nursing (Berman et al., 2005; Kovner et al., 2002). With less than 1% of RN workforce in the United States certified in geriatric care, and few physicians specializing in geriatric care, experts agree that a greater emphasis on geriatric care education is needed; “every health care worker must have some education in geriatrics and access to geriatrics care experts” (Kovner et al., 2002).

### 1.4.3 | NH staff adherence to EBP

Twenty years ago, the IOM called for health care to adopt EBP as a vehicle to fill the gap between “what we know and what we do in care of patients” (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001). Yet, despite these recommendations to adopt EBP guidelines, significant barriers to EBP persist in NHs, such as lack of models for delivery of care and resources to effectively adopt these practices. Use of EBP is needed to not only improve the delivery of health care to NH residents, but to also to transform health care (Stevens, 2013). Among many of the health conditions and circumstances evident among OAs living in LTC settings, EBP interventions do exist for improving older residents' physical function and reducing disability and immobility, through physical therapy and exercise, functional mobility programs, function-focused



care, interprofessional rounds, and leadership commitment to rehabilitation values (Boltz et al., 2020). These interventions can support a social climate conducive to the promotion of function (Boltz et al., 2020). Even the architecture of the care environment can have positive health benefits for residents (Brereton et al., 2012; Zadeh, 2020) by improving dignity, self-confidence, and quality of life. As noted by Boltz et al. (2010), the physical environment is one of the standing criteria in aging-friendly care models and environments by which care providers and upper-level management can unite to redesign space to benefit residents (Boltz et al., 2010; Zadeh, 2020). New models, such as culture change (Hartmann et al., 2013; Robert Wood Johnson Foundation [RWJF], 2012; Shield et al., 2014), “Green Houses™” (Brown, 2007), and the Wellspring-Eden Alternative models (Perna, 2012), show promising results related to person-centered care and quality of life outcomes of OAs requiring LTC assistance.

## 1.5 | External regulatory and policy environment

Policy and regulatory parameters affect both system and process characteristics. They include inspection deficiencies and CMS reimbursement rates for the delivery of care. The provision of safety standards for NH residents with the LTC industry is enacted through federal regulations, state agencies (such as state licensing and inspection), and requirements imposed to health care facilities caring for Medicare and Medicaid beneficiaries who receive CMS reimbursement. These safety standards influence NH organizations in their mission to protect the health of the public, which are independent of contextual factors operating within the NH.

### 1.5.1 | Enforcement of safety standards in NHs: Inspection deficiencies and response

The most current evidence, derived from CMS data, demonstrates that 82% of all surveyed NHs, that is, 13,299 facilities in the United States, had an infection prevention and control deficiency cited in 1 or more years from 2013 to 2017 (<https://www.gao.gov/assets/710/707111.pdf>). Likewise, of the 334 NHs surveyed in NJ in 2017, 31.4%, or close to one-third, had reportable deficiencies (<https://www.gao.gov/assets/710/707111.pdf>). As reported in *The U.S. News and the Annals of Long-Term Care, Clinical Care and Aging* in March 2020, the Kaiser Health News analysis of federal records found that “53% of homes with the most nurses and aides—which CMS awards five stars for staffing on its Nursing Home Compare website—had been cited for infection-control violations in the past 3 years, while 65% of homes with the fewest staff—garnering only one star—were cited for the same type of failing” (Rau, 2020). Additionally, the most recent analysis of characteristics and quality of U.S. NHs with COVID-19 facilities by the Leonard Davis Institute [LDI] for Health Economics, University of Pennsylvania found that facilities with COVID-19 have, on average, more health deficiencies (67.0% vs. 56.2%) and more emergency preparedness deficiencies (3.9 vs. 3.2),

but the same quality ratings as facilities without COVID-19 (available on the Internet at: <https://ldi.upenn.edu/researchsnapshot/characteristics-us-nursing-homes-covid-19-cases>). Moreover, Ouslander and Grabowski’s (2020) reported in their seminal review, a few studies in which the acquisition of the virus was “blind and not associated with the quality ratings and the average number of cases being lower in facilities with higher quality ratings and higher nursing staffing”. This finding underscores the notion “better quality NHs with higher levels of nursing staffing are better prepared to contain the spread of the virus once it is in the facility” (Ouslander & Grabowski, 2020). Other models for improved infection control practice available include the CDC’s COVID-19 Module for LTC facilities. This module offers a customized system to track infections and prevention process measures (CDC, National Healthcare Safety Network [NHSN], 2020).

### 1.5.2 | CMS reimbursement for care delivery

NH staff supervise the delivery of constant care to OAs whose care needs are complex, and often do so without adequate reimbursement for services provided or resources. CMS, through the Medicare and Medicaid programs, is the primary source of funding for NHs (Medicaid.gov available on the Internet at: <https://www.medicaid.gov/medicaid/long-term-services-supports/institutional-long-term-care/nursing-facilities/index.html>). In NJ, Medicaid, covers more than 60% of all NH residents and roughly 50% of costs for LTC services and support (The Center on Budget & Policy Priorities, 2020). Experts have noted that Medicaid pays below the cost of caring for these frail and medically complex individuals (American Health Care Association, 2020a, 2020b; Grabowski & Mor, 2020). Officials of AHCA report “many NHs operate on a ‘razor-thin’ profit margin or net loss” (available on the internet at: <https://www.mcknightsseniorliving.com/home/news/business-daily>). When NHs cannot afford to provide sufficient resources than what is compensated through CMS, NH residents may suffer as the delivery of EBP by professional nurses can be impacted, thus increasing their risk to COVID-19.

## 1.6 | Outcomes of care

Outcomes of care for NH residents who have survived COVID-19 include quality of life and risk of additional co-morbidities or rehospitalization, especially if symptoms are unrecognized or poorly managed. Many, if not all of these outcomes are modifiable and potentially preventable, but they depend on adequate RN staffing and skill mix to properly assess NH residents and to appropriately intervene using EBPs.

### 1.6.1 | Quality of life living with COVID-19 in a NH facility

Current state regulations have prohibited families and loved one’s direct contact with NH residents unless the resident was receiving

end-of-life care. The loss of contact with family caregivers can influence resident's quality of life causing loneliness and isolation. This decision may have created unnecessary fear, anxiety, and depressive symptoms where there was no normalcy in daily living. Additionally, the new onset of co-morbidities, such as depression, anxiety, or increased confusion, among persons with cognitive impairment is possible when normalcy in daily living is disrupted by uncertainty and other emotional strains. Of the 375 NH facilities in NJ, nearly all facilities have had individuals with COVID-19 ([https://www.state.nj.us/health/healthfacilities/documents/LTC\\_Facilities\\_Outbreaks\\_List.pdf](https://www.state.nj.us/health/healthfacilities/documents/LTC_Facilities_Outbreaks_List.pdf)). In response to these family restrictions for visitation, CNAs and professional staff demonstrated much compassion as "caring companions" to assist NH residents to use their own personal telephone devices so that residents could communicate with loved ones. There is an urgent and unmet need to develop interventions aimed at addressing issues influencing quality of life related to isolation and loneliness.

### 1.6.2 | 30-day rehospitalization rates

The complexity of the health care needs of the NH resident is reflected in the high incidence of transfers from Skilled Nursing Facilities (SNF) to emergency departments nationwide for preventable illnesses, such as infections. CMS estimated that, approximately 20% of patients admitted to SNFs were readmitted back to the acute care hospital within 30 days, and a substantial percentage was readmitted within 2 days of the SNF admission (Ouslander et al., 2016). Reasons cited for readmissions included inappropriate monitoring and management of symptoms after discharge, among others (Hughes & Witham, 2018; Koekkoek et al., 2011). Analysis of SNF data from 2006 Medicare claims merged with the Minimum Data Set (MDS). Mor et al., (2010) revealed that the average Medicare payment for each readmission was \$10,352 per hospitalization, for a total of \$4.34 billion (Mor et al., 2010). Adjusting for inflation, these costs in 2019 dollars would be at least 30% higher (U.S. Bureau of Labor Statistics [BLS], 2020; <https://www.bls.gov/cpi>). Notably, of these rehospitalizations, 78% were deemed potentially avoidable. In the current environment, it is plausible that more readmissions to the hospital may occur as residents are exposed to COVID-19. Notably, infections were among the primary diagnoses for 63% of the hospital readmissions (Ouslander et al., 2011). Thus, infections are associated with substantial rehospitalization costs for NH residents.

The quality of care received by long-stay Medicaid residents and short-stay Medicare SNF patients, regardless of payer, is linked to factors associated with the facility's administration, staffing, culture, and other shared features (Intrator et al., 2007). Significant improvements in care have been noted by advanced practice nurses in the provision of care to residents in LTC facilities, including reduction in hospitalization rates and improved patient outcomes (Mileski et al., 2020) as well reducing emergency room transfers to NH patients (Christian & Baker, 2009).

An important outcome realized by the COVID-19 health disaster in NHs, affecting the delivery of quality care to NH residents, is the

quintessential role and added value of professional nurses, particularly those trained in geriatrics, who historically have been in short supply in the LTC industry. Professional nurses are interprofessional team leaders and play a very important role in the health of the public, especially NH residents with complex care needs. This is evidenced by their commitment to improve the quality of patient care and patient safety through the use of safe, efficacious, effective, and timely EBPs. Additionally, "high-reliability organizations that have cultures of safety and capitalize on EBP offer favorable working conditions to nurses and are dedicated to improving the safety and quality of care" (Hughes, 2008). Investment in sufficient numbers of professional nurses within the LTC industry will have a positive impact on *quality* by meeting the health care needs of NH residents while also having an impact on *costs*. As care quality improves, cost savings to NH facilities can be realized through reduced rates of initial hospitalization and rehospitalization. Thus, professional nurses are an asset to the NH for their commitment and contributions to quality metric performances regulated by the industry, but must contribute to both aspects of the "value = outcomes/cost equation" (Yakusheva et al., 2020) to secure their stake in the health of the public.

Based on the analysis of evidence presented within each of the operant contextual factors within the modified QHOM, we have developed nine policy recommendations along with supportive rationale to improve quality of care to NH residents and the delivery of nursing care to residents with COVID-19 in NHs.

## 2 | RECOMMENDATIONS, RATIONALE, AND SUPPORTIVE EVIDENCE TO IMPROVE QUALITY OF CARE TO NH RESIDENTS

### 2.1 | System factors influencing the safe delivery of nursing care: professional nurse staffing and staff skill mix

#### 2.1.1 | Recommendation 1: Increase and diversify nursing staffing and staff skill mix

All NH residents deemed at high risk to develop frailty or who are currently frail, possessing high acuity due to chronic complex illnesses, and/or experiencing superimposed acute illnesses require an increase in the number of hours devoted to the provision of their daily care needs to meet the minimum recommendations outlined by the CGNO (4.1 hr per resident day) and to allow NH staff to reasonably and safely perform care activities. The high proportion of long-stay residents deemed disabled and requiring assistance will continue to need additional assistance over their years remaining at the NH facility.

#### 2.1.2 | Recommendation 1a: Increase and diversify nursing staffing and staff skill mix

Increase in the skill mix ratio to include a greater proportion of professional nursing staff (RNs) within each NH facility who are solely

engaged in clinical roles and not solely engaged in joint clinical/administrative roles (in joint positions, nursing administrators are also engaged in clinical assessments). The skill mix of staffing and the assigned roles and duties must reflect accepted standards of care as well as being diversified. A greater proportion of professional nursing staff (RNs) within each NH facility who are solely engaged in clinical roles and not in joint administrative roles is warranted to perform needed assessments, create plans of care, and direct staff. Increases are needed in the skill mix ratio to include a greater proportion of professional nursing staff (RNs) within each NH facility who are solely engaged in clinical roles and not solely engaged in joint clinical/administrative roles. It is well accepted that an RN-rich practice environment, especially with baccalaureate prepared nurses [BSN] (Aiken et al., 2011), is a mediating factor influencing the delivery of quality care and the reduction in patient mortality within acute care settings (Aiken et al., 2008, 2017; Tourangeau et al., 2006) These outcomes are likely to also occur within NHs; however, additional studies are warranted. Furthermore, although the trend in a decreased RN workforce in NHs is troubling, strong evidence warrants incentives to attract and retain more professional RNs, especially BSN prepared nurses to care for NH residents. Attracting and retaining RNs to LTC require adequate education in care of OAs in basic programs (provided by gerontological nursing experts) and opportunities to understand the complex nursing needs of OAs in the setting, as well as development of leadership skills to improve outcomes.

### 2.1.3 | Recommendation 1b: All NHs must employ a full-time professional RN who is specialty trained as an infection preventionist in their facility

The presence of a nurse infection preventionist fills the long overdue gap in practice and clinical care which exists related to the assessment and management of OAs who are at risk for or who have contracted COVID-19. This person would oversee compliance training and surveillance and report directly to appropriate officials of the NJ Department of Health. They would also provide and respond to educational training initiatives using appropriate resources and work within interprofessional teams to develop new models for care delivery.

### 2.1.4 | Recommendation 1c.: Diversification and retooling of the CNA workforce

The health care workforce in NHs needs to be diversified and retooled by training nursing staff to assume various roles that maintain and improve health and wellness. Examples of ways to achieve this include increasing the amount of restorative nurses' aides trained to assist with ambulation programs; including aides to provide continence care; increase the amount of trained volunteer aides who assist with hydration and the provision of additional fluids; and increasing the number of aides trained in infection prevention and control. Increasing opportunities for NH residents to engage in restorative nursing can maintain

their levels of functioning through activity reinforcement such as exercise, walking, and mobility programs. Training CNAs as restorative aides, walking aides, hydration aides, and continence care aides fills a needed clinical gap that helps to prevent geriatric syndromes, which have high case morbidity and associated mortality.

## 2.2 | System characteristics: Disparities among health care workers in the NH industry

### 2.2.1 | Recommendation 2: Increase the minimum wage compensation for CNAs to a competitive wage

The current \$15.00 per hour minimum wage compensation for CNAs must be increased to be commensurate with the expectation for the provision of quality care to all NH residents, many of whom are frail. In addition to increasing wages for CNAs, they should also receive fringe benefits so that compensation is commensurate with the expectation for the provision of quality care to OAs. The current minimum wage represents a noncompetitive wage for persons in the workforce who provide the backbone of care needed to maintain OA's functional independence, wellness, and health. Furthermore, working in NHs amidst COVID-19 is a job associated with great risk. Compensation in the hourly wage and fringe benefits should be commensurate with the risks associated with the job performance and the necessity of saving lives, particularly in comparison to peer counterparts in acute care and home care.

## 2.3 | System characteristics: Access to specialty care

### 2.3.1 | Recommendation 3: Encourage and offer incentives for professional nurses to seek certification in geriatric nursing

All professional nurses caring for frail NH residents must be skilled and competent to do so. The high prevalence of geriatric syndromes and frailty in the NH setting requires a nursing workforce trained in geriatrics. Basic certification training in geriatric nursing for all RNs can improve the quality of nursing care delivered to these highly specialized populations of at-risk individuals. NH administrators should hire and seek to retool the nursing workforce by providing incentives for professional RNs to be trained and certified in geriatric nursing.

### 2.3.2 | Recommendation 3a: Increase access to specialist in infection control, pulmonary care, and geriatrics and geriatric nurse practitioners

All NH facilities should seek to retain consultant infectious disease physicians/medical directors, pulmonologists, geriatricians,

and nurses certified in infectious diseases and geriatric nursing. All NHs require access to specialist in infection control and geriatrics, either remotely or through face-to-face consultation, to provide safe, quality care to residents with complex and challenging health issues. The shortage of available specialists to consult NH residents in each state requires a re-thinking of use of remote technology, so that NH residents can be evaluated and treated as needed for their health issue (NCQLTC, 2007). This is possible based on existing academic NH partnerships with medical and nursing schools in the RWJF-funded Teaching NH Project. In addition, all NH facilities should seek to retain consultant staff in respiratory therapy to provide essential services needed to manage NH residents with pulmonary infections or respiratory illness at risk for infection, as well as to develop, along with the infection preventionists, comprehensive models of coordination of care, consultation, and infection control protocols.

## 2.4 | System characteristics: improve overall safety standards and CMS star rating

### 2.4.1 | Recommendation 4: Incentivize the NH industry to achieve 5-star ratings across all NH facilities

Achieving a 5-star CMS rating should be the gold standard of care for all NHs caring for the most vulnerable population of frail elders. Given the strong evidence showing infection control deficiencies exist regardless of the CMS star rating (low -1-star rating or high 5-star rating (Leonard Davis Institute for Health Economics, 2015, 2017; Rau, 2020)), and the spread of COVID-19 to NH residents, all NHs must not only achieve 5-star ratings, they must go beyond to achieve zero deficiencies in infection control and prevention. Additionally, maintaining NH resident's functional independence reduces the provision of custodial care and thus is a quality-of-care metric which should be accomplished in all licensed NH facilities and considered by CMS to incentivize NH facilities. Strong evidence links loss-of-functional independence, such as in ambulation, to immobility and associated hazards such as pressure sores and infections which lead to hospitalization and greater costs to CMS, as well as impact on resident quality of life.

## 2.5 | System characteristics: re-design building capacity and infrastructure

### 2.5.1 | Recommendation 5: Build infrastructure and re-design of interior living conditions for disaster preparedness

All NHs caring for vulnerable populations as vested stakeholders must work with state, local, and federal agencies to design units within the NH to build structural and procedural capacity for caring for individuals at high risk for infection. Additional focus includes: (a)

converting a percentage of semi-private rooms to single rooms; (b) downsizing three- and four-bedded rooms to double-bedded rooms; (c) adding single bed isolation rooms; (d) re-designing units so that there are sanitary stations available which contain needed sanitizers, and PPE; and (e) adding a single family visitation room for caregivers. Development of task forces and steering committees using a LOGIC model (<https://www.socialsolutions.com/blog/the-importance-of-logic-models-and-theories-of-change/>), which captures the organizations, and stakeholders' goals and plan for change is paramount to accomplishment of this recommendation. Re-design of the structural unit must include private room capacity building for isolation of NH residents and also rooms to accommodate visitation of family and significant others, which requires collaboration with building inspectors and financial institutions.

## 2.6 | System characteristics: Line item budget expansion for health disasters

### 2.6.1 | Recommendation 6: Increase emergency line items on budget from federal sources and CMS

NH administrators should work with their stakeholder constituents to request from CMS emergency line item funds to be used to purchase needed equipment and resources to manage care during a health disaster/pandemic. The financial crisis experienced by many NHs has led to their inability to appropriately care for NH residents and ultimately filing for receivership and/or bankruptcy. The COVID-19 pandemic resulted in many NHs having to replace ill NH staff with agency or per diem staff at very high costs with facilities with a high percentage of Medicaid reimbursement suffering most. Additionally, many facilities paid out of pocket for PPE which resulted in reduced cash flow. Emergency funding is appropriate so that the constant care provided by essential health care workers remains uninterrupted. Disaster planning in the nation must include NHs as essential health care facilities.

## 2.7 | Process of care characteristics

### 2.7.1 | Recommendation 7: Assess NH residents for infection every shift and more frequently as needed

All NH residents should be considered at high risk for infection and thus monitored daily for signs of infection and atypical signs of infection. Reduced immunity to fight infection, advanced age, physiological changes in pulmonary function, coupled with reduced mobility, and close congregate living places all NH residents at high risk for infection. RNs must assess older NH residents every shift for infection and intervene according to EBP protocols which include all of the following: (a) nonproductive cough; (b) signs of mental status change, such as acute confusion; (c) rapid or increased respiratory rate (RR) at rest (tachypnea with RR greater than 26 breathes per min); (d)

alteration in behavior, such as increased restlessness or agitation; (e) failure to eat or drink normal quantities of fluid or food; (f) increased urinary frequency or signs of cellulitis of the skin, and (g) monitoring temperature. Knowing the OAs baseline temperature is important for early identification of a temperature elevation which may be of significance. For example, if an individual's baseline temperature is 96 degrees, a three-degree increase to 99 degrees is of significance and requires immediate attention.

### 2.7.2 | Recommendation 7a: All NH residents, unless medically contraindicated or unable to follow commands, should be encouraged to participate in supervised coughing and deep breathing exercise

Reduced mobility, advanced age-related changes in pulmonary function, and reduced function place all NH residents at high risk for lung atelectasis, reduced vital capacity, and increased risk for pneumonia (Lowery et al., 2013). One of the most potent bronchodilators is a deep breath as deep inspirations provide physiologic protection against airway narrowing (Slats et al., 2007), which is an integral part of a restorative nursing program. Encouraging residents to cough and deep breathe, and or use of a bedside pulmonary spirometer, is known to expand the rib cage and increase pulmonary vital capacity, and can be effective in the prevention of orthostatic and other types of pneumonia.

### 2.7.3 | Recommendation 7b: All NH residents should be assisted out of bed as much as possible and as tolerated into sitting positions to eat, or to ambulate to the dining room for meals including ambulation to the bathroom whenever possible

Reduced mobility and reduced fluid intake increases the risk for functional decline (loss of functional independence in ADL's), lower extremity thromboembolism (blood clot), and delirium (a preventable geriatric syndrome). These interventions can strengthen NH immunity and reduce resident susceptibility to COVID-19.

### 2.7.4 | Recommendation 7c.: All elderly residents demonstrating signs and symptoms of infection or atypical presentation of infection must be isolated from other residents in order to avoid spread of an infection and assessed immediately by a health care professional, either at the facility within the shift or transferred to the emergency department for evaluation

Time is of the essence when assessing and managing a NH resident thought to have an infection. There is high case fatality among NH residents due to pneumonia even when treated with a receptive antibiotic and aggressive pulmonary hygiene (Meyer, 2005).

### 2.7.5 | Recommendation 8: Regularly assess NH residents for functional decline and institute restorative nursing

Given the high rate of complex, chronic illnesses along with the propensity for development of geriatric syndromes and/or acute illnesses, NH residents are at high risk for functional decline and immobility if not engaged in restorative nursing. NH residents must therefore be regularly assessed for changes in condition that lead to reduced mobility and function and receive interventions to maximize function and mobility. Nursing care must include active range of motion exercises and participation in regular mobility programs to maintain ambulation, and referral to physical, occupational, and recreational therapists as warranted. The benefits of function-focused care and restorative nursing (Boltz et al., 2014, 2020) are great and thus must remain a high activity priority. Refer all OAs at risk for immobility for a physical therapy evaluation to include focused exercise and participation in functional mobility programs. Engage NH residents in function-focused care and restorative nursing care programs (Boltz et al., 2020). RNs should lead interprofessional rounds on their units—such as walking rounds. Organizational nursing and administrative leadership need to commit to rehabilitation values to support a social climate conducive to promotion of function (Boltz et al., 2020).

## 2.8 | Outcomes of care: Quality of life

### 2.8.1 | Recommendation 9: Improve NH resident's quality of life whenever possible

All residents living through the COVID-19 pandemic in NHs should receive individualized care targeted to meet their physical, social, emotional, and mental health needs, and to optimize their health outcomes. OAs living in facilities with COVID-19 are likely to experience both subjective and objective social vulnerability (Hoogendijk et al., 2020). Given COVID-19 effects on OA's emotional and mental health well-being, it is paramount for nursing assessment to include a focus on social isolation, loneliness, fear, anxiety, and other emotional responses. Because quality of life among OAs is influenced by their physical living environment of care (Zadeh, 2020), it is very important to have an in-depth discussion with the OA, and/or significant other to discuss the room arrangement, which can maximize function as well as placement of items which bring them comfort. Additionally, nurses must follow EBP recommendations for the architecture of the care environment in order to improve quality of life (Boltz et al., 2010; Brereton et al., 2012; Zadeh, 2020).

## 2.9 | Conclusion

In closing, many opportunities exist to improve the delivery of care to OAs with chronic complex illnesses and a high propensity for

development of geriatric syndromes and/or acute illnesses and to deliver care that meets EBP recommendations. The premise behind the use of EBP relates to the quote “unacceptable gap of what we know and what we do in care of patients” (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001). Countless professional societies and organizations (AGS, CGNO, ANA) and health service researchers have for many decades identified quality care issues influencing care delivery in LTC which are cyclical, recursive, predictable, preventable, and fixable, pointing to the need for a closer look at provider staffing to vulnerable, frail NH residents who possess high acuity.

Our current and future NH residents all require the best care which entails use of EBP as the standard of care to prevent another catastrophe as the COVID-19 pandemic, which impacted NHs especially hard. EBP can be accomplished when levels of staffing, skill mix, resources, services, and financial remuneration are adequately appropriated and health care facilities mission, vision, and value statements are aligned with this goal. Remuneration for care provided to NH residents in the current health care delivery system can be improved when all the outstanding contextual factors presented are viewed as gaps in good clinical care and practice and deviations from EBP. Lastly, when EBP guidelines are 100% adhered to, outcomes related to mortality, morbidity, emergency room transfers, hospitalization, 30-day rehospitalization, and quality of life are all likely to improve. To effectively adopt and disseminate, EBP requires nurse leaders to work in NHs, which allow them to engage fully within their scope of licensure and practice. As nurses improve the quality care for older NH residents, other costs associated with care are likely to decrease, creating opportunities for additional cost savings to the NH industry. Thus, investment in the infrastructure capacity of NHs by building RN-rich environments provides a win-win for all concerned, improving OA's care, RNs ability to meet their oath to provide quality care, and CMS incentive to reduce adverse patient outcomes and improve the patient experience while reducing costs. While we looked closely at NJ in this manuscript, the same issues occur nationally in other states to effect the delivery of quality care to OA residents in NHs.

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## DATA AVAILABILITY STATEMENT

The data presented in this manuscript have been tabulated by the author (de Cordova, P., July, 2020) and are derived from public domain resources, available from the New Jersey Health Care Quality Assessment resources, Nurse to Patient Staffing, available in the public domain: <https://www.nj.gov/health/healthcarequality/health-care-professionals/nurse-to-patient-staffing/background/nhstafing.shtml>.

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