



## RESEARCH

# State Policy Responses to COVID-19 in Nursing Homes

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**Context:** COVID-19 has a high case fatality rate in high-risk populations and can cause severe morbidity and high healthcare resource use. Nursing home residents are a high-risk population; they live in congregate settings, often with shared rooms, and require hands-on care.

**Objectives:** To assess state responses to the coronavirus pandemic related to nursing homes in the first half of 2020.

**Methods:** An in-depth examination of 12 states' responses to the COVID-19 pandemic in nursing homes through June 2020, using publicly reported information such as government decrees, health department guidance, and news reports.

**Findings:** No state emerged as a model of care. All states faced difficulty with limited availability of testing and Personal Protective Equipment (PPE). State-level efforts to increase pay and benefits as a strategy to enable infected staff to quickly physically separate from residents were minimal, and other separation strategies depended on the ability to obtain test results rapidly and on state rules regarding accepting discharged COVID-19 patients into nursing homes. Visitor restrictions to reduce risk were ubiquitous, though based on a slim evidence-base.

**Limitations:** The information used was limited to that which was publicly available.

**Implications:** Overall, the results suggest that the states that handle the ongoing pandemic in nursing homes best will be those that find ways to make sure nursing homes have the resources to follow best practices for testing, PPE, separation, and staffing. Evidence is needed on visitor restrictions and transmission, as states and their citizens would benefit from finding safe ways to relax visitor restrictions.

**Keywords:** nursing homes; long term care; COVID-19; personal protective equipment; coronavirus

## Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused the coronavirus disease 2019 (COVID-19) pandemic. As of July 31, 2020 when our team completed the state case reports for this project, COVID-19 had caused 154,093 deaths in the United States (U.S.), ('JHU

COVID-19 Tracking Map,' 2020) and that number exceeded 400,000 by January 30, 2021, when this article was completed ('JHU COVID-19 Tracking Map,' 2020; The New York Times, 2020). A disproportionate number of cases, hospitalizations, and deaths in the United States occurred among Black, Latinx, and American Indian or Alaskan Native popu-

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lations compared to Whites. Death rates specifically were between 1.9 to 2.3 times higher for minority populations compared to white populations (Centers for Disease Control and Prevention, 2021). This highly contagious, novel disease has a high case fatality rate in high-risk populations and can cause severe morbidity and high health care resource use (Centers for Disease Control, 2020). Contrary to other countries, in which social distancing, expansive testing, and contact tracing led to lower transmission rates, the U.S. imposed inconsistent and limited social isolation policies for 6–8 weeks and began to reopen before infection rates stabilized. Federal funding from the CARES Act bolstered a state-level response (U.S. Department of the Treasury, 2020), including for skilled nursing facilities, but best practices at a federal level have failed to emerge. Consequently, cases rose exponentially. From California to North Carolina, all states but Hawaii have been classified as experiencing uncontrolled spread as of January 25, 2021 (Panchadsaram et al., 2020). Additionally, deaths in long-term care facilities totaled approximately 6,000 in the week of December 20, 2020.

The more than 1.4 million people living in nursing homes in the U.S. are a medically fragile population living with comorbidities and advanced age (Harris-Kojetin et al., 2013), which places them at heightened risk of severe illness when contracting COVID-19. Risk of infection is increased due to the nature of the congregate setting in which they live, often with shared rooms, and frequent physical contact with nursing home staff for hands-on custodial and skilled care (Coe & Van Houtven, 2020). Their heightened risk profile makes ensuring this population has the highest standards of care, support and protection of utmost importance, especially when cognitive impairment might mean the residents cannot advocate for or protect themselves. Along with experiencing high rates of severe COVID-19 symptoms and hospitalization, residents of nursing homes and assisted living facilities accounted for an estimated 39% of all COVID-19 deaths in the U.S. as 2020 came to a close (The New York Times, 2020). The high-risk nature of nursing homes was highlighted early in the pandemic when the first major outbreak occurred in Kirkland, Washington's Life Care Center in early March 2020 (Healy & Kovaleski, 2020). Like many other health care providers, nursing homes were ill equipped to meet this public health emergency. Lack of preparedness stemmed from multiple causes: the nature of the virus itself, with asymptomatic spread making early detection impossible without widespread testing; a lack of federal leadership and coordination resulting in shortages of testing and personal protective equipment (PPE); inconsistent information and recommendations from state and federal health officials; and pre-existing challenges in facilities that were exacerbated by COVID-19, such as inadequate planning and infection control procedures, compounded by insufficient staffing at many nursing homes.

It is imperative to study the early pandemic experience of states to identify best practices for nursing homes to inform future research, emergency preparedness for future pandemics, and help policy makers coordinate best practices across the nation to meet the ongoing challenge as the pandemic continues. A recent study using 45

years of state-level policy domains such as tobacco, environment, tax and labor data indicated that the individual authority among states—in general—has resulted in a 'hyperpolarization of policies across states' with commensurate disparities in life expectancy (Montez et al., 2020). With COVID-19, we found disparities in responses that thus far do not neatly fit into easy categorization, although some states appeared to react too late and none had all the necessary resources to formulate effective responses. Similarly, as the pandemic has disproportionately afflicted Americans who are Black and/or Latinx, we explore racial difference within the context of state policies. The COVID-19 pandemic has highlighted the ill-preparedness of the nursing home sector due to past underfunding and underinvestment (Spanko, 2020). Although distribution of COVID-19 vaccines had begun by January 2021, the initial supply was limited. Therefore, states could make a big difference in nursing home outcomes in the next year beyond vaccination planning, and a coordinated effort to support best practices across the states should be supported, because state policies matter in protecting the full population and marginalized groups (Montez et al., 2020). Additionally, as we do not yet know how long immunity may last, particularly given the rise in variants, supporting best practices has potential implications for future distribution efforts if booster shots are required. Understanding the failures and successes of patient-centered care during the pandemic in nursing homes is essential to ensure that future pandemics/outbreaks do not have such severe consequences. The best practices and recommendations that we cover in this article regard testing, personal protective equipment (PPE), visitation, physical separation of COVID-19 positive residents from those without infections, and staffing (Centers for Disease Control and Prevention, 2020c).

### Approach

The current project is unfunded and was undertaken as a volunteer effort of long-term care researchers and practitioners, with a depth of experience in nursing, geriatrics, internal medicine, physical therapy, pharmacy, social work, health care administration, management, health services research, health policy, and health economics. We reviewed the experience and policies in 12 states through the end of June 2020. States were chosen through a combination of using an initial list provided by LeadingAge to our affiliated health policy center, and with volunteers available to participate from our research networks. We relied on governor directives, government and health department decrees, news reports, and state and national data, and we used these data to create a detailed timeline of state responses in four categories: testing, PPE, separation, and staffing. We then used these data, along with our expert opinion, to make policy recommendations. In this paper, we focus primarily on nursing homes because they are the most common type of facility, the Centers for Medicare & Medicaid Services (CMS) regulates them, and data on them is more readily available. However, more broadly, there are 800,000 individuals in assisted living, independent living, memory care, and other such congregate care facilities, and some state and background data

combines nursing home and other long term care facility information (Harris-Kojetin et al., 2019). Each individual state report can be found at the journal website, and offer details of state responses beyond the four domains emphasized here (<https://ltccovid.org/reports-on-the-impact-of-covid-19-on-long-term-care-in-12-states-of-the-united-states-of-america/>). Below, we specifically present overall results and results regarding racial disparities and present the detailed data regarding the four categories of testing, PPE, physical separation, visitation, and staffing.

**Results**

Nursing homes are dangerous places during the COVID-19 pandemic: the percent of deaths occurring in nursing homes can be much higher compared to the non-nursing home population (The New York Times, 2020). For context, the case fatality rate of COVID-19 nationwide is 3%, yet among long-term care facilities with at least 50 cases as of July 30th ‘the median case fatality rate in long-term care facilities is 16%’ (The New York Times, 2020). Overall, the timing and severity of COVID-19 outbreaks varied nationally, with commensurate variation in concentration deaths in nursing homes within and across states. For example, approximately 21% of deaths in New York State were from nursing homes and assisted living facilities, compared to 81% of deaths in New Hampshire (The New York Times, 2020).

**Case Study States**

The 12 states in the study cover all regions of the country (see **Figure 1**). From west to east, we examined Washington, Oregon, California, Minnesota, Illinois, Michigan, Indiana, New York, Pennsylvania, North Carolina, Florida, and Massachusetts (**Figure 1**). The selected states experienced varied impacts of COVID-19 in nursing homes. **Figure 1** shows corresponding percentages of total deaths in each state attributed to residents and staff of long-term care facilities, including nursing homes and other residential care settings (The New York Times, 2020). Minnesota, Pennsylvania, and Massachusetts had the highest propor-

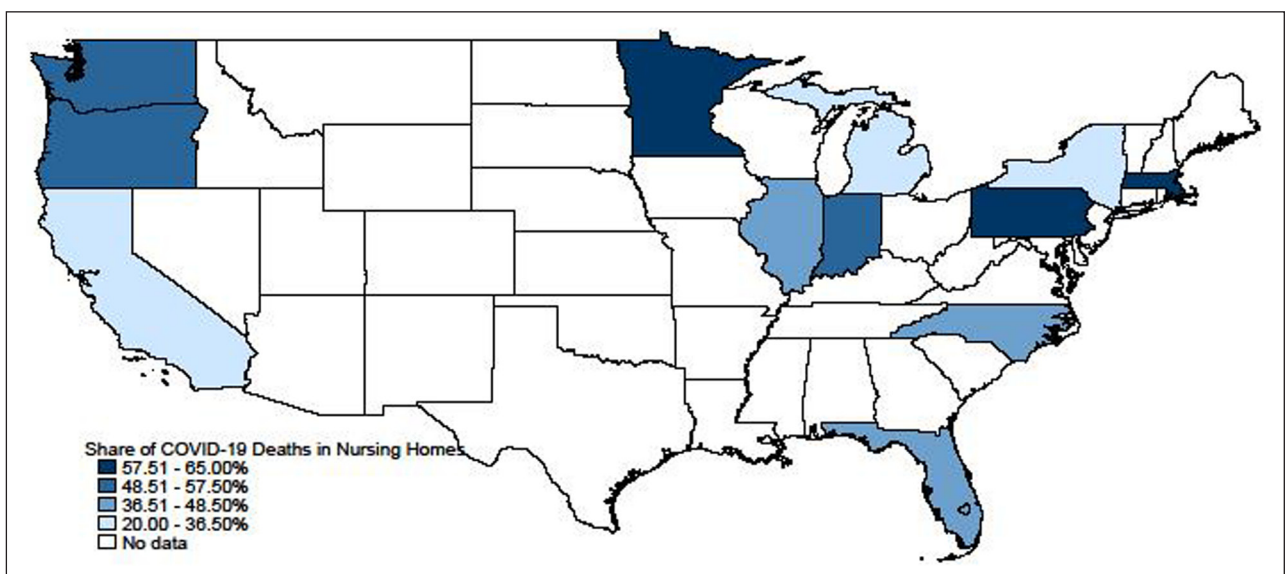
tion of total state COVID-19 deaths occurring among nursing home residents and staff, and residents make up vast majority of this category: 60% to 65% of total COVID-19 deaths in these states occurred in nursing homes. California, Michigan, and New York had the lowest proportion of total COVID-19 deaths occurring in nursing homes, between 21–34% (U.S. Department of the Treasury, 2020). To place our states in context with the full country, the mean was 39% of all deaths among nursing home residents and staff, with similarly wide variation not specific to region: New Hampshire and Rhode Island had the highest rates overall at 81% and 73% respectively, whereas New York and Nevada had the lowest, 21% and 19% of deaths respectively (The New York Times, 2020).

**Racial disparities in LTC mortality**

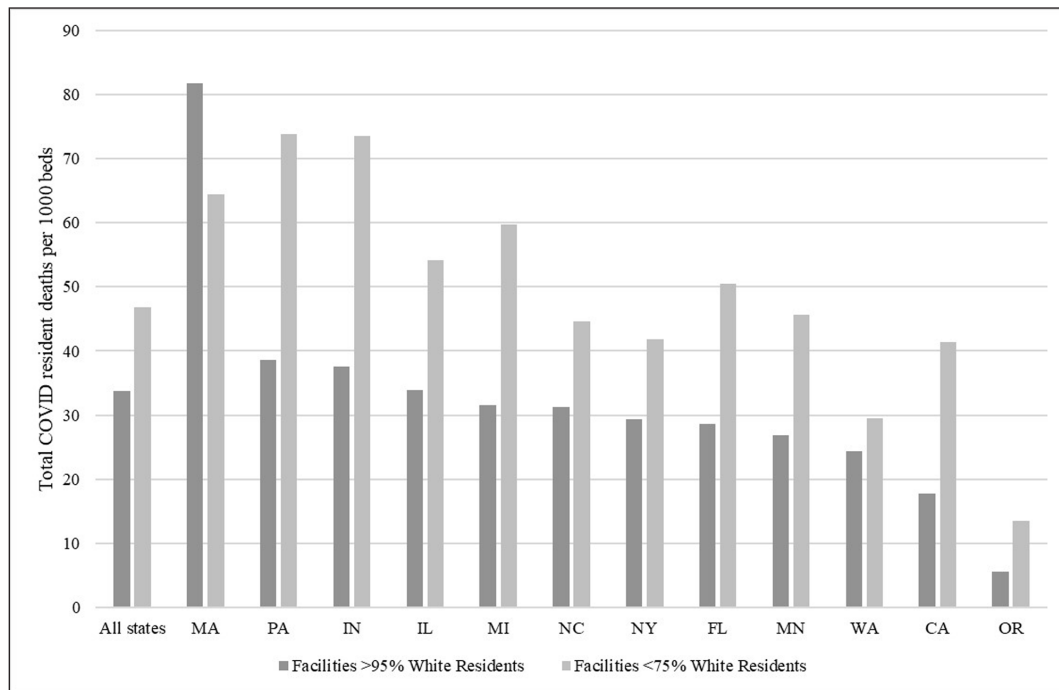
Long-term care (LTC) facility cases and deaths by race have not been reported by the Centers for Disease Control & Prevention (CDC). To better understand the racial disparities in COVID-19 LTC mortality, we compared death rates at high minority facilities (the percent of minorities is 25% or more) versus at low minority facilities (>95% white residents). Minority is defined as residents who are not white. Within each state, we calculated death rates per 1000 beds in LTC facilities for these two groups of facilities. With the exception of Massachusetts, high minority facilities had substantially higher death rates. **Figure 2** shows that on average across our study states and the nation, the death rate for predominantly white facilities was 33.69 per 1000 beds whereas it was 46.87 per 1000 beds in high minority facilities. Thus, the risk of dying in a facility with at least 25% minority residents is nearly 1.5 times higher as in predominantly white facilities (unadjusted for other factors).

**Testing, PPE, separation, and staffing**

State responses and specific issues regarding testing, person protective equipment (PPE), separation, and staffing varied greatly across the 12 cases, and we present state strategies and the general timeline these strategies were adopted for each of the risk mitigation categories.



**Figure 1:** Percent of total COVID-19 deaths. Twelve States in our case studies; shading indicates percent of total deaths occurring in long-term care facilities. Data Source: NYT data pulled on December 4, 2020.



**Figure 2:** COVID-19 Resident deaths by facility-level share of White residents.

Source: CMS COVID-19 Nursing Home Data Set. Released November 26, 2020. Nursing Home Compare Provider Info file Q1 2020. Deaths per 1000 beds = (Cumulative suspected+confirmed COVID-19 deaths among residents through week ending November 15)/number of certified beds \*1000.

### Testing

Early guidance focused on visitor restrictions and screening staff for symptoms because availability of accurate tests was limited nationally. Access to testing required pre-approval in many states, and testing was triggered by a report of symptoms, exposure to another COVID-19 positive person, or an ongoing outbreak. Initially, there was no routine testing of asymptomatic staff or residents.

As soon as they had access to tests, states employed multiple strategies for testing, which included executive orders mandating testing at a certain frequency, paying for tests, improving the market for test labs, providing information and training, and using the National Guard to administer testing. Nursing homes generally relied on state recommendations for testing in February through April and then, when CMS guidance rapidly issued, nursing homes followed CMS guidance.

#### March

Multiple states mandated acceptance of patients discharged from hospitals without COVID-19 testing (**Table 1** highlights that 5 of the 12 states had such a policy in March), creating confusion and resistance from nursing homes who did not feel they could safely accommodate new patients with unknown virus status. States continued to compete with one another for testing supplies. Nursing homes faced ongoing competition from other industries for testing. In response, states used various strategies to obtain tests.

#### May

In May, CMS recommended weekly testing for staff and residents of long-term care facilities, including those who appear asymptomatic (Center for Clinical Standards and

Quality/Quality, 2020). However, resources and guidance needed for implementing extensive and expensive testing recommendations were not provided. Professional associations and unions often provided practical strategies to facilities and staff (ACHA and National Center for Assisted Living, 2020b). Due to these challenges, a symptom-driven testing approach remained in place for weeks, as late as June 8 in Indiana, for example. Point of care testing devices were on the market but not yet widely available (ACHA and National Center for Assisted Living, 2020b).

#### June

Despite recommendations for weekly testing, outbreaks at nursing homes continued to grow into the summer of 2020, partially due to limited access to timely, accurate testing. Actual testing frequency and breadth in nursing homes prior to July was largely unknown.

The ability to act on test results was hampered by the delay in results. After a brief improvement in turnaround times in May, the delay began increasing again as demand increased. Lab processing time was still the primary barrier to testing, according to a national survey of nursing homes and assisted living facilities in June, with 87% of facilities reporting that obtaining test results back from labs took multiple days (ACHA and National Center for Assisted Living, 2020c).

In California, only 21% of nursing homes (256 sites) had submitted the results of baseline testing by June 17. Throughout June, a growing number of sites expanded capacity for routine testing; however, it was unclear who would pay for testing. An American Health Care Association (AHCA) directive issued on March 16th stated Florida Medicaid would cover all medically necessary services

**Table 1:** State Policies in Response to COVID-19, Including Policies Specific to the Nursing Facilities.

	COVID RESPONSE POLICIES FOR STATE				STATE COVID RESPONSE POLICIES SPECIFIC TO NURSING HOMES							
	Mask man-date impl'd	Gather-ing bans	Date of first case	Non-essential businesses closed	Non-essential businesses re-opening	CARES* ACT funds to SNFS	Visitor restrict. in nursing homes	Visitor restrict. relaxed	State man-dates nursing homes accept patients with-out testing	Temp. loosening of nurse staffing cert.	Medicaid reimburs-ment rate increases	Special COVID Units
First state to implement policy	NY	CA	WA	WA	MN	N/A	IL	IN/MA	PA	WA	WA/IL	MA
California	June 18	March 11	Jan. 26	March 19	May 8	\$356.2 million	March 11	June 26	March 30	April 5	May 1	May 11*
Florida	N/A	March 24	March 1	March 20	May 18	\$217.6 million	March 15	June 14	N/A	March 27	May 11	*
Illinois	May 1	March 13	Jan. 24	March 21	May 30	\$288.8 million	March 9	June 18	N/A	April 21	March 19	N/A
Indiana	July 24	March 12	March 6	March 24	May 5	\$126.8 million	March 15	June 3	N/A	March 21	March 1	N/A
Massachu-setts	May 6	March 23	March 3	March 23	May 18	\$112.2 million	March 16	June 3	April 29	May 12	April 27	March 27(Weisman, Andersen and Murphy, 2020; The Common-wealth of Massachusetts Executive Office of Health and Human Ser-vices, March 27, 2020)
Michigan	July 14	March 13	March 10	March 16	June 1	\$113.8 million	March 14	June 30	June 15	March 29	March 30	April 20
Minnesota	July 25	March 27	March 6	March 25	April 27 (Treisman, 2020)	\$78.4 million	March 31	June 16	N/A	May 11	March 25 (Health, 2020)	N/A
New York	April 17	March 22	March 1	March 22	June 13	\$394.1 million	March 13	July 10	March 25	April 4	N/A	N/A
North Caro-lina	June 24	May 8	March 3	March 30	May 8	\$117.8 million	March 23	June 26	N/A	March 10	March 30*	N/A
Oregon*	July 24	March 12	Feb. 28	March 23	May 15	\$32.9 million	Feb. 29	July 13	N/A	April 6	April 1	April 10
Pennsylvania	May 27	May 8	March 6	March 19	May 8	\$238.0 million	March 17	June 27	March 18	March 18	*	N/A
Washington*	June 26	March 23	Jan. 21	March 15	May 5	\$56.1 million	March 10	N/A	N/A	Feb. 29th	March 19	N/A

Note: \*\* Whereas CARES was a national law, we include the SNF disbursements to show the wide variation in amounts that went to skilled nursing facilities; this could affect the responses of nursing facilities in mitigating risk.

required to facilitate testing and treatment of COVID-19 (ACHA and National Center for Assisted Living, 2020a). Minnesota's Department of Health supported testing by establishing contracts with health systems to deploy a swabbing team and paying for tests not covered by insurance. The state has correspondingly high self-reports of access to testing for facilities. By mid-June 99% of MN and NY facilities reported having access to resident testing in the facility. In CA, some counties entered into private partnerships to receive tests, while others relied on federal emergency management funds. North Carolina DHHS announced it would partner with CVS Health-Omnicare to make facility-wide testing available to residents and staff in all North Carolina skilled nursing facilities and DHHS would cover costs not reimbursed by insurers. Indiana State Department of Health launched a statewide all-staff testing initiative on June 10, to provide a point-in-time view of asymptomatic positive staff and established a centralized contact tracing system for COVID-19 case investigation. Similarly, in Michigan, an inter-agency team incorporating local and state officials was created to provide technical assistance, education and training for nursing home staff. (Michigan Department of Health & Human Services, 2020) Multiple states received support from the National Guard with varying success (Massachusetts, Michigan, and Florida). For example, in Massachusetts many of the tests from assisted living facilities were improperly collected. Despite much progress, many of the plans were under-resourced. Specifically, Minnesota established a comprehensive approach to stem outbreaks, publicizing a Battle Plan, a resources web site, and a Toolkit for long-term care facilities (including nursing homes), but this plan was still hampered by low resources.

### July

For the week ending July 5, between 96% (FL) and 100% (MA and MI) of facilities among the case study states reported that residents could be tested while remaining at the facility (e.g., without going elsewhere). Additionally, it was common for states to use multiple types of labs to analyze the tests: 46% used state health department labs, whereas 90% used private labs (hospital, corporation, academic institution) and 9% used 'Other'. Forty-one percent used two or three types of locations (AHCA and National Center for Assisted Living, 2020c). By July, the coordination and communication between nursing homes and state and local health departments had improved. Per CDC guidelines, many states experiencing nursing home outbreaks were implementing baseline testing of all residents (Centers for Disease Control and Prevention, 2020e). Oregon's plan to test all nursing home and other residential care residents and staff prioritized the six counties with the highest rates of infection as well as memory care communities. Similarly, New York differentiated testing strategies based on the re-opening phase of a particular area.

To enable nursing homes to have an adequate supply of tests, the U.S. Department of Health and Human Services announced that it would distribute one round of point-of-care testing supplies for COVID-19 to all nursing homes in the country (U.S. Department of Health and Human

Services, 2020). High-risk facilities were prioritized, in response to the current racial and ethnic disparities in COVID-19 related mortality. Testing 3 million LTC staff and residents as extensively as recommended required a substantial investment, with estimates around four to five million tests per month nationally (Thomas, 2020).

### PPE

#### *Distribution and Quality of PPE*

Hospitals were prioritized for emergency PPE assistance in the early months of the pandemic (Brown and Berger, 2020). In early May, Federal Emergency Management Agency (FEMA) announced that a two-week supply of PPE would be shipped to all nursing facilities nationwide. However, into June, some facilities noted that PPE supplied with these shipments contained faulty or outdated PPE that could not be used safely or that shipments had yet to be received (Jacobs, 2020; Rau, 2020). This supporting role has been questioned by many stakeholders, including the NY and IL governors, who argue that it leaves health care facilities and localities competing with each other for scarce PPE, requiring substantial and redundant investment in procurement and driving up prices unnecessarily (Gross, 2020).

As a result of inadequate PPE supplies, several of the 12 states referenced media reports of health care workers at nursing facilities, who reported inadequate PPE and reuse of supplies or use of substandard supplies, such as makeshift gowns and cloth face coverings. CMS has issued guidance on how PPE should be conserved in the case of shortages, with guidance on extended use and reuse of PPE as necessary to slow burn rates during operations at 'contingency capacity' (expected future shortages due to supply uncertainty) and 'crisis capacity' (current shortages – supply is not able to meet current utilization rates) (Centers for Disease Control and Prevention, 2020b). States have also sought innovative solutions to the shortages.

#### *Tracking PPE Shortages*

In May, CMS began mandatory reporting of PPE shortages as part of the CDC National Healthcare Safety Network COVID-19 Module for Long-term Care Facilities. Facilities are required to report, at least once per week, whether they have any current supply and one-week supply of the following PPE items: N95 masks, surgical masks, eye protection, gowns, gloves, and alcohol-based hand sanitizer (Centers for Disease Control and Prevention, 2020a). The module instructions specifically note that supply should be determined based on normal operating capacity and procedures; if contingency or crisis strategies are expected to be used, then they are to report that the item is in short supply.

Among facilities in all 50 states, shortages vary by PPE type, with N95 masks being in shortest supply (11% report a shortage) and only 4% and 3% reporting shortages of gloves and hand sanitizer, respectively. The share of facilities reporting less than a one-week supply of one or more PPE item (**Figure 3**) has declined over the CMS reporting period, with 28% of facilities nationally



**Figure 3:** Nursing facilities reporting less than one-week supply of PPE.

Source: COVID-19 Nursing Home Dataset. Released November 26, 2020. Includes all facilities reporting with data that meets CMS quality standards the week of November 15.

reporting a shortage the week ending May 25 and only 13% experiencing a shortage by November 15 (authors' calculations from CMS COVID-19 Nursing Home Dataset). While the overall national trend has been the alleviation of shortages since late May, of the 12 states profiled, five (MA, MI, NY, NC, OR) experienced week-to-week increases in the share of facilities reporting shortages. Finally, some states mandated masks among staff earlier than others, which may have helped reduce spread.

#### **State Actions to Address PPE Shortages**

Examples of state actions varied across public/private partnerships to information systems, training in proper use of PPE, and using emergency stockpiles to meet needs. Specifically, California and Pennsylvania partnered with Battelle Memorial Institute to decontaminate N95 respirators using decontamination systems authorized by the FDA for emergency use (Centers for Medicare & Medicaid Services, 2020; California Department of Public Health, 2020). In addition, in California, individual facilities with shortages can seek PPE through the County Medical and Health Operational Area Coordination system. Indiana and Pennsylvania began including LTC facilities in their state PPE supply databases in order to detect shortages and respond more quickly to requests for supplies (Centers for Medicare & Medicaid Services, 2020; Ralph, 2020). Similarly, Massachusetts created a COVID dashboard that expanded the number of metrics shared to include nursing homes in early April, after COVID had entered 102 of the state's 380 nursing homes. This accelerated how nursing homes obtained information on hospital capacity utilization and PPE distribution, for example. Hospitals and nursing homes in Indiana report daily PPE supply levels and local health departments deliver PPE when shortages are detected in the system. This example is unique in that it coordinates cross-sectors, when usually health care systems and long-term care systems face interoperability problems in coordinating. Tracking across sectors also provides a means of putting both sectors on par with each other to meet each of their pressing needs for PPE. New York modified the state annual survey framework to

emphasize staff training and use of PPE to ensure that PPE is used properly (LeadingAge New York, 2020). Finally, the Oregon National Guard distributed PPE from the state's emergency stockpile to nursing facilities in late April (State of Oregon, 2020).

#### **Visitation**

##### **Visitation restrictions adopted early**

Of the 12 states profiled, the earliest to enact visitation restrictions was Illinois, initiating the policy on March 9, prior to the March 13 CDC guidance (**Table 1**). Ten of the 12 states quickly followed the CDC guidance, implementing the policy by March 17. North Carolina was the last to adopt a visitation restriction policy, waiting until March 23. As states re-opened, the indoor visitation restrictions usually remained in place. However, some states, such as Minnesota, began to allow 'open window' visits, with protective masks, and then outdoor visits.

One of the consequences of restricting visitation are the harmful effects of social isolation in the nursing home population (Simard and Volicer, 2020). To address this, many facilities adopted telephonic and video visits with family members during the pandemic. Florida, for instance, adopted Project VITAL (Virtual Inclusive Technology for All) to combat social isolation (State of Florida Department of Elder Affairs, 2020). The state allocated up to \$3,000 per facility from the Nursing Home Civil Money Penalty funds to purchase devices used to support social distancing and keep residents connected to their loved ones. Many other states recommended using technology for visits, but with staffing shortages also varying, it is unclear how widespread virtual visits were for residents, especially among residents who may have needed help to connect with family.

##### **Physical Separation**

Early CDC guidance suggested various separation policies, including visitation restrictions, resident cohorting (cohorting can include multiple strategies intended to keep negative patients together and positive patients together in a set group and not have crossover between

groups), and halting or limiting communal dining and activities (Center for Clinical Standards and Quality/Quality, March 4, 2020). However, states varied in their implementation of the CDC guidance.

#### ***Communal dining and activities halted***

In accordance with the CDC guidance, nursing homes also halted group activities and communal dining in an attempt to restrict resident movement throughout a facility. Illinois recommended limiting residents' movements and dining as early as March 9 and followed up with more detailed guidance later in the month. Pennsylvania stratified residents into three categories to limit communal dining; residents capable of feeding themselves, high-risk choking and/or aspiration residents, and residents who need assistance. Those capable of feeding themselves or at-risk of aspiration/coughing were provided meals in their rooms, with assistance if necessary. Those needing assistance, but not high-risk choking or aspiration were recommended to eat in a common area, but with six feet of separation and staggered mealtimes.

#### ***Resident cohorting interpreted and implemented differently***

While restricting visitation and ceasing communal activities were fairly uniform across states, resident cohorting had more varied implementation. Some states identified COVID-only facilities and attempted to steer patients to those facilities to safeguard residents that did not have a positive diagnosis (**Table 1**); other states adopted unique waivers during the pandemic to maintain isolation; and some states provided guidance only to allow for patient cohorting within facilities, for example, in dedicated units or wings.

Michigan developed a regional hub system in which 21 nursing facilities were identified to aggregate COVID-19 patients. However, evidence revealed that as of June 26, only 10% of cases were actually in the regional hubs. Massachusetts allocated \$30 million for nursing homes to volunteer to take on COVID-19 positive residents. This was met by resistance from families that did not want loved ones moved. In addition, at the time of implementation, the virus had already infected residents in non-COVID facilities. As of May 1, there were only six COVID-only facilities in Massachusetts, but 80 nursing homes with dedicated units/wings. Florida identified seven facilities as COVID-only isolation centers, for a total of 524 beds across the state. Florida also recommended that facilities convert patient rooms into temporary airborne infection isolation (TAII) rooms to help with resident separation prior to transfer to an isolation center. California identified some skilled nursing facilities that would become COVID-only facilities. San Luis Obispo County in California also opened an alternate care site in a recreation center. Indiana issued a blanket waiver allowing facilities to care for residents in unlicensed rooms to meet isolation requirements.

Identifying COVID-only facilities was met with mixed reviews. Transfers are stressful to individuals in poor health, and family members do not want their loved ones far away. The process of identifying and transferring patients was often challenging, as evidenced in

Massachusetts, where residents and families objected to the short notice and lack of choice surrounding transfers. There were additional concerns that facilities willing to be COVID-only could have been of lower quality, and generally choice for where to go upon discharge becomes limited for persons recovering from COVID-19 after a hospitalization. Some states, however, such as California, approved only designated skilled nursing facilities with previously high standards of patient care and expertise in infection control. The data thus far do not allow us to discern whether those willing to be COVID-19 only facilities varied on quality. Nevertheless, as more evidence pointed to community spread as the common denominator for a facility's infection risk, it was unclear if the dedicated facility strategy was optimal (Grabowski, Konetzka & Mor, June 25, 2020). Of course, even where there are clear state directives, their successful implementation is dependent on how well-resourced or coordinated the individual counties are. In California, for example, COVID-only facility designation went well, with facilities with strong track record being designated as COVID-only facilities, but in other counties, such as Los Angeles County, there are examples of facilities with very poor track records being designated as COVID-only facilities and then having large outbreaks. Finally, New York State received significant attention by initially mandating that facilities take COVID-19 patients being discharged from the hospital in order to alleviate hospital overcrowding. The policy was criticized (and soon rescinded) because not all nursing homes were set up to receive COVID-19 patients safely. Had nursing homes been assured of the resources needed to separate COVID-19 patients from others and if staff had full PPE and regular tests available, the policy may have been received differently. This example points to the importance of having the ability to test, separate, and protect residents and staff as the cornerstones of any strategy.

#### **Staffing**

##### ***Implementing key separation strategies challenged by staffing issues***

Starting on March 4, the CDC guidance included basic steps to take in the event staff are symptomatic, such as sending them home to quarantine (Center for Clinical Standards and Quality/Quality, March 4, 2020). On March 13, the CDC revised its guidance to include recommendations to screen staff at the beginning of each shift, which would help separate any staff with positive symptoms from residents (Center for Clinical Standards and Quality/Quality, March 13, 2020). However, given the extent of asymptomatic spread, screening was not adequate. In addition to resident separation, nursing homes were also advised to allocate dedicated staff to COVID-19 positive patients, and the CDC guidance even suggests those staff 'have a restroom, break room, and work area that are separate from staff working in other areas of the facility' (Centers for Disease Control and Prevention, 2020d).

Approximately 19% of facilities nationwide reported shortages of nursing staff, and about 21% of facilities reported shortages of aides. Minnesota reported that nearly 46% of facilities experienced nursing shortages, and about 50% experiencing aide shortages. California



reported the lowest percentage shortages at approximately 1% of facilities (Figure 4). California also made an effort to address financial burden faced by overworked facility workers, with establishment of the Skilled Nursing Facility Hero Awards (April 14, 2020), a one-time \$500 stipend for licensed vocational nurses (LVNs) and CNAs working in a SNF. The stipends, which were to be provided to the first 50,000 qualified applicants, were funded through a \$25 million financial donation from Facebook (Brown, 2020).

Even in the presence of staff shortages and staff strain, several states increased staff training to focus on infection control. For example, North Carolina provided a toolkit to support long-term care facilities in preparing for/responding to COVID-19 outbreaks in their facility -- infection control assessment, infection staffing worksheet, infection prevention educational resources/other tools. Yet, starting with Washington state, nearly all 12 of the states in our study took advantage of CMS waivers that temporary nurse aides only had to complete eight hours of training to work in a facility to meet staff shortages (Table 1). This was viewed as important to meet staff shortages, but it has been criticized as a means of potentially reducing quality of care provided, given minimal training requirements to begin with. This reduced training could be exacerbated in the states such as California that suspended minimum staffing hours per patient through an executive order, in part to reduce regulatory reporting requirements of facilities.

Several states and some individual facilities adopted other unique strategies to mitigate the risk of staff transmission and address staffing shortages. New York developed an on-line volunteer health worker portal with

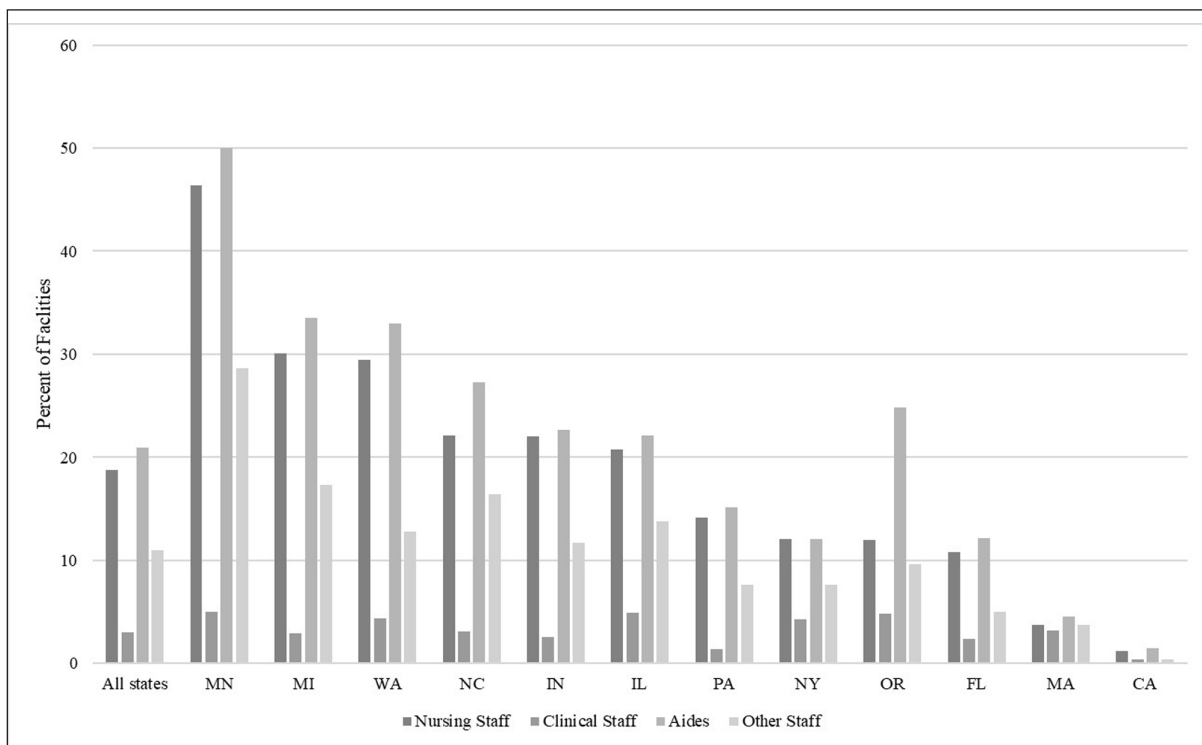
access to more than 95,000 health workers. The state also provided free access to the full suite of tools available on the Indeed.com recruiting site to nearly two-thirds of statewide nursing homes. Some nursing homes in Massachusetts that had no cases (as of June 2) were able to convince workers to commit to one facility until the crisis abated. Another facility stopped admitting new patients and offered a \$5 per hour pay raise for all staff. Pennsylvania recommended nursing homes ‘bundle’ tasks through cross training (e.g., conduct clinical care and deliver a meal), so residents would interact with fewer staff. Finally, a partnership between a university system (UNC) and the state Area Health Education Councils (AHEC) created a Workforce Surge Playbook to ensure volunteer health care providers could be identified and be ready to serve in nursing homes in the state (North Carolina Area Health Education Centers Program, 2020).

Nursing home staffing challenges, community spread, and asymptomatic transmission coupled with inadequate testing capabilities and lack of PPE certainly exacerbated the crisis in the long-term care environment. On July 14, HHS issued a press release announcing the shipment of point-of-care testing to high priority nursing homes (U.S. Department of Health and Human Services, 2020). At that point, more than 35,000 nursing home residents had already died as a result of COVID-19.

**Discussion**

**Case Study States**

State responses in term of strategies for testing, PPE, separation and staffing were greatly varied. Substantial variation in nursing home COVID-19 cases and deaths was observed across the case study states. Spread of COVID-19



**Figure 4:** Staffing Shortages across States.

Source: COVID-19 Nursing Home Dataset. Released November 26, 2020. Includes all facilities reporting with data that meets CMS quality standards the week of November 15.

in the community explains some of this variation, while nursing home quality plays little to no role (Abrams et al., 2020; White et al.; Chatterjee et al., 2020; Gorges & Konetzka). The effect of the variation in states responses on LTC cases and deaths is a gap in the evidence. Research evaluating the effects of state policies on resident and staff outcomes is critical for improving best practices and reducing the burden of COVID-19 in LTC nationally.

Finally, each state varied in their responses to the pandemic, which may also have impacted infection rates and responses in nursing homes. **Table 1** highlights each state's COVID-19 policies, including dates of adoption of key policies such as closing of non-essential businesses and including those specific to nursing homes, such as visitor restriction policies. We refer to this table throughout the remainder of the article to highlight state variation in timing and adoption across key policy decisions.

### **Racial Disparities**

One of the most troubling and devastating aspects of the COVID-19 pandemic has been the substantially higher cases and deaths in Black and Latinx populations compared to Whites reported across all age categories (Ford, Reber and Reeves, 2020; Li et al., 2020). The same has been observed in Native American and Alaska Native populations, but reporting has been incomplete for these groups. Specifically, a recent Brookings Institution report found that 'In every age category, Black people are dying from COVID-19 at roughly the same rate as white people more than a decade older' (Ford, Reber & Reeves, 2020). This disparity has proven true in the general population, and the reasons are multifactorial (Egede & Walker, 2020), including limited access to social services and societal and cultural barriers for equal health care (Alcendor, 2020) and many other factors including underlying risks of poor health outcomes due to systemic racism (Egede & Walker, 2020).

### **Policy Recommendations**

We focus our recommendations on what state decision makers can do to meet the continued demands of the COVID-19 outbreak specifically in LTC facilities and improve preparedness for future pandemics, drawing on strategies that emerged from our case studies of 12 states. Our recommendations are based on the results presented here and our expert consensus as long-term care researchers. The full continuum of long-term services and supports is vitally important (including the full spectrum of residential care and home and community-based services), but with most cases and deaths so far documented in nursing facilities, we limit our discussion to them. There are other excellent sources for what the U.S. overall can do with national reforms and what nations can do, such as in the recently published World Health Organization Policy Brief, articles on the LTCcovid.org website, and new publications among individual scholars (Dawson et al., 2021) December 3; Hirdes et al., 2020; International Long-Term Care Policy Network, 2020; Konetzka, May 21, 2020; Ouslander & Grabowski; Van Houtven, Boucher & Dawson, April 24, 2020; Werner & Van Houtven, 2020; World Health Organization, 2020).

### **Testing Recommendations**

In the 12 case studies, all states implemented LTC testing strategies and governance in a short amount of time with very little information or federal guidance. We observed multiple examples of states that developed innovative solutions to testing challenges. For example, a couple states used public-private partnerships to obtain tests (some counties in California) or cover testing not reimbursed by insurance (North Carolina Department of Health and Human Services partnered with CVS Health Omnicare). Additionally, some states were able to allocate state funds to support surveillance testing in nursing homes prior to federal distribution of supplies. However, no state succeeded in addressing all of the necessary components for an effective testing strategy to contain and reduce the transmission of COVID-19 in LTC facilities.

The spikes in cases and positivity across the country in January 2021 raised continuing concerns about sustaining testing capacity. Even with more vaccine availability, testing will remain an important mitigation strategy in 2021. As of January 2021, testing capacity has been severely limited in terms of both test availability and infrastructure for implementation in LTC settings. In the case study states, testing was reserved for symptomatic or exposed residents and staff until later in the pandemic when testing capacity increased. We now know that screening for symptoms is not effective way to target testing because, asymptomatic and pre-symptomatic transmission is common (up to 60% of cases) (Huff & Singh, 2020). As a result, relying on screening is problematic, and the CDCs guidance now recommends antigen tests for routine surveillance and screening among asymptomatic populations (Prevention, Updated Dec. 5, 2020). In September 2020, experts estimated a basic screening strategy would require approximately 200 million tests each month for schools and residents and staff at nursing homes for them to open safely (Silcox et al., 2020). Though testing capacity has been rising, the need for testing grows with the spread in the population (Silcox et al., 2020).

Throughout the pandemic, delays in testing results continued to hamper mitigation efforts in LTC facilities. As recently as September 2020, over one-third of nursing facilities reporting waiting three days or longer for lab-based results (McGarry et al., 2020). Ensuring faster turnaround times for results is vital to any testing strategy intended to control an outbreak (Silcox et al., 2020; McGarry et al., 2020). States can reduce delays in test results by supporting the expansion of lab testing capacity (e.g., through payment policies) and by prioritizing tests of nursing home residents and staff. Another way to extend limited resources for testing is to test a large number of individual samples at the same time, known as pool testing. If the pooled sample tests positive, then the samples can be tested individually to identify positive cases (Denny et al., 2020; Augenblick et al., 2020). Universities have successfully sampled sewers connected to specific buildings as a disease surveillance method to identify populations for further testing.

Delays in results can be prevented through increased use of point of care testing on-site at nursing homes; however, as community spread increases, tests with low specificity should be avoided. HHS is distributing rapid, point-of-care tests to LTC facilities support screening of nursing home and assisted living staff to meet CMS requirements (Abbott BinaxNOW™ COVID-19 Ag Card Point of Care SARS-CoV-2 Diagnostic Test, 2020). Distribution is based on the degree of community spread within the county where the home is located. For example, facilities in areas with greater than 10% positivity will be allocated testing supplies to support testing of all staff two times per week. Facilities in areas with 5–10% positivity will be allocated testing supplies to support testing of all staff one time per week (this follows current CMS guidance on community-spread and recommended testing frequency) (Director Center for Clinical Standards and Quality/Survey & Certification Group, August 26, 2020). Frequency of testing and turnaround time matter ultimately much more than the exact test characteristics and are two important domains on which states should focus decision making and planning. On December 10 the CDC recommended prioritizing POC antigen tests, with guidance tailored to symptomatic residents and staff (Centers for Disease Control and Prevention, Updated December 10, 2020).

Novel testing processes are needed to reduce burden on LTC facilities with limited resources. Despite increasing supply of testing supplies, facilities vary in their capacity to administer and analyze POC tests onsite. For example, facilities that have infrequent visits from medical directors or that are under-staffed may lack expertise or infrastructure to reliably implement POC testing. In late fall the U.S. Department of Health and Human Services (DHHS) began pilot testing portable, cartridge-based Covid-19 molecular test kits that provide rapid results, and these could be potentially powerful when staffing is a challenge.

Federal distribution of tests prioritizes facilities at high risk due to community spread, but testing and surveillance is needed in low-risk facilities as well. State governments support advance purchase contracts and centralized procurement processes to assure needed testing capacity is available for priority populations for the remainder of the pandemic (Silcox et al., 2020). Different COVID-19 tests range in accuracy rates, time to diagnosis, and cost. Finding the balance between accuracy, delays in processing, and expense can pose challenges for nursing home staff, nurses, and administrators. States can help by identifying and securing supply chains in order to increase the supply of testing and lower the price. Specifically, states can pay for tests (at the individual level) with Medicaid and can directly subsidize testing of staff. Private-public partnerships, such as private insurers and health systems partnering with departments of health, can increase the supply of tests.

Even as vaccine is distributed widely in LTC facilities in the first half of 2021, testing will remain a critical strategy in light of less vaccine efficacy against some variants, vaccine contra-indications among small proportions of residents/staff, and vaccine hesitance among staff.

### ***PPE Recommendations***

Even with expanded testing, staff and visitors must still consider the risk of potential infections due to vaccination rates, limitations in tests, and frequency of testing. Thus, the second vital strategy in managing the COVID-19 outbreak in LTC facilities is PPE. The most used types of PPE by nursing facilities consist of eye protection (face shields or goggles), face masks, N95 respirators, gowns, gloves, and hand sanitizer. As illustrated in **Figure 3**, states PPE shortages varied, with facilities in North Carolina reporting shortages in N95 masks at nearly 1.5 times the rate of the national average, and facilities in Oregon reporting only half as often.

Nursing homes experienced a surge in their PPE needs as they struggled to implement recommended infection control practices for the coronavirus pandemic. PPE is typically sourced by nursing homes themselves, but as states declared public health emergencies, local, state, and federal governments have played important roles in helping obtain adequate supplies. During the pandemic, across states, when facilities detect PPE shortages, they first contact the local department of public health to request assistance. If the local department cannot fulfill the request, then the state is contacted, and the state can use its access to federal resources to help obtain PPE. However, the federal government has been slow to address PPE shortages in nursing homes, largely taking on no more than a supporting role.

Federal and state governments need to commit to provision of PPE for the LTC sector on par with the hospital sector. The proportion of CARES Act funds (4.3%) that went to nursing homes by mid-July is tiny relative to the burden of disease and death rates in nursing homes (ACHA and National Center for Assisted Living, 2020). Staff in nursing homes must provide hours of hands-on care to COVID-positive patients and need to be protected, just like hospital workers. At the same time, nursing homes are highly reliant on low Medicaid reimbursement rates, with two-thirds of residents in a typical facility on Medicaid (Rau, 2017). Some large nursing home chains may be able to compete with hospitals to secure enough PPE, but smaller and independent homes cannot; therefore, external help is necessary. For example, in New York, the frantic push to procure supplies to address the rapid rise in cases highlighted the limited resources in nursing homes. There also have been reports of astronomical increases (~1000%) in costs of PPE to meet CDC requirements (Berkman, 2020). As hospitals with sophisticated supply chains and procurement departments, board members with extensive networks, or access to other network facilities were able to adopt novel and unique strategies to build PPE inventory, nursing homes were often left off the priority list (Berkman, 2020).

Nearly all states in the case studies reported inadequate supply of all types of PPE, and many typically had enough for only one week into the future. Having individual facilities or chains negotiate for PPE is not efficient, equitable, or socially desirable for preventing spread of COVID-19 and associated deaths, given that those facilities with less market power and resources will not be able to negotiate

well individually. In the absence of federal coordination, a state-level strategy is needed that is cohesive and does not force facilities to compete against each other. As with testing, states should consider seeking private-public partnerships for obtaining PPE. Similar to regulations of minimal capital reserves for banks, regulating the level of a state stockpile may be necessary to meet ongoing surges of the virus in the winter and beyond. These state policies would improve both the supply of PPE and the price paid by facilities for the supplies.

In addition to being able to obtain PPE at a reasonable price, facilities needed guidance on proper use. If not in operation, states need to establish new executive orders for guidelines on PPE and oversight, but such guidelines must be coupled with resources to be effective. With resources secured to implement best practices learned in the spring and summer by some states, clear guidance on PPE is needed at a Department of Health or State Executive level. For example, Illinois is a model state for publicizing best practices, but facilities were hindered by lack of resources to fully adhere to best practice guidelines. States should prioritize resources such that oversight focuses first on areas with greatest community spread and then to all facilities. Unscheduled inspections, which were temporarily halted in the spring but have resumed, will ensure PPE is being used and will entail consequences if not used, in order to incentivize best practices. Inspections should include a review of all the hazards plans required by CMS, as well as practice schedules for such plans.

States with Medicaid managed care contracts should evaluate the role of insurers in ensuring safety of plan members and potentially revisit contracts to ensure that the funds are used appropriately during the pandemic. For example, because the initial five months of the pandemic drastically reduced non-COVID-19 related utilization, managed care companies may have profited more than usual from their capitated payment rates, although this is less likely to be true for insurers participating in LTSS carve-outs. At the same time, providers have faced increased costs due to pandemic-related expenses such as PPE. Where windfall profits exist, states could consider requiring higher reimbursement to providers from managed care companies to facilitate adequate safety measures.

### **Separation Recommendations**

Separation is the third essential strategy to mitigate spread of COVID-19. Separation can include strategies to allow more space between residents, assign staff to either positive or negative residents to prevent cross-contamination, changes in staff to prevent bringing infection to residents (e.g., policies that staff can only work in one nursing home), and strategies that restrict outside visitors (family caregivers, delivery workers) to prevent resident infection from outside sources.

To inform visitor policies specifically, states desperately need to make decisions based on evidence, which so far is weak. During the summer all nursing homes barred visitors except for when death was imminent, and even then many family members said goodbye through video

or phone. There has been growing evidence of the distress and deconditioning caused by no visitor policies among residents. A few states surpassed visitor restrictions by deeming a new role for family and friends akin to a staff role as ‘compassionate caregiver’ (e.g., not just end of life care but for residents needing encouragement or help to thrive), and these caregivers had to have negative tests within seven days (Hardison, 2020; South Carolina Department of Health and Environmental Control, 2020). Yet, overall, visitors were rare in the first five months of the pandemic. In September 2020 CMS allowed visitation to reopen and by July, 26 states reopened nursing homes to visitors (Graham, 2020). That number grew to almost 48 states by end of November 2020, yet with variation in rules within states by facility with much ensuing confusion for families and administrators (Soergel, 2020). CMS provides specific guidance on visitor policies based on county positivity rates. Specifically, outdoor visitations are the preferred mode; however, indoor visitations may resume if there have been no new onsets of COVID-19 cases in the last 14 days and if the facility is not conducting outbreak testing. During high county positivity rates (>10%), CMS recommends only compassionate care visits be allowed. While a recent review found little support that visitors introduced COVID-19 into facilities, this is most likely due to most countries not allowing visitors during the first wave of the pandemic; the studies reviewed were not able to examine the effect of specific strategies to mitigate the spread of COVID-19 (Salcher-Konrad et al., 2020). Thus, rigorous studies on transmission between visitors and residents and visitors and workers (and considerations of indoor versus outdoor modes) are necessary to allow states to make informed choices about visitor policies.

In addition to building the evidence base, visitor policy decisions need to be informed by the preferences of relevant stakeholders: residents and nursing home direct care workers. Notably, there has not been a concerted effort to determine the risk preferences of residents and families, and this failure should be corrected by including resident and family perspectives on task forces to discern what approaches they prefer. Gathering these preferences is the respectful thing to do for members of these communities, as they are impacted by isolation, lack of exercise, and the absence of loved ones. Workers also need to have a voice. Advocates and many professional organizations are urging opening of facilities to visitors to all states. If a facility cannot resume visits safely with multiple family members, nursing homes could consider one primary family caregiver as a part of the health care team, and therefore they could be excluded from visitation restrictions. Caregivers would need to be screened, use appropriate PPE, and hand hygiene, and there needs to be oversight from staff, meaning staffing needs to be sufficient to support resumption of visits (Stall, 2020). Along with safe visits, community activities and communal dining could resume, as it is a benefit all residents, including those who will not have visitors. Safely masking among residents and resuming activities will also help reduce isolation among residents. In addition, creating pods of residents similar to the idea

of pods of school children, could be a fruitful strategy for activities and dining.

States also need to establish comprehensive plans to manage acceptance of discharged hospital patients into or returning to facilities and encourage flexible cohorting arrangements. Given initial discharge rules in some states regarding whether or not to take patients who are known positive (NY), or of unknown status (PA), facilities may need to presume patients are positive, engage in precautions until status is known, and bolster their ability to cohort new and existing residents. This could also help achieve rapid separation of residents as more and more positive asymptomatic residents are identified through routine testing. New York's policy of accepting positive patients from hospitals created substantial pushback, and was subsequently waived, at which time New York established a new requirement for hospital patients to test negative for the coronavirus before they could be discharged to nursing homes. Based on the New York experience, Michigan rescinded a similar policy, and with the backlash among families in Florida at the prospect of involuntary transfers to facilities farther away, it appears that the states that focused on more flexible cohorting arrangements were on the right track. These solutions ranged from cohorting within the same facility (NC), in a COVID-19-only wing in a local recreation center (CA), or through permission to use unlicensed rooms (IN). Moving forward, flexible cohorting policies will be needed given that more than 80% of NHs have had at least one case as of October 25, 2020 (authors calculations from CMS COVID-19 Nursing Home Dataset) ('COVID-19 Nursing Home Dataset,' June 25, 2020). COVID-negative facilities will be unlikely to avoid ever having a case.

### **Staffing Recommendations**

The process of separating staff from residents, and residents from other residents, is challenging in a high-contact environment like a nursing home where staff often have few benefits, such as sick leave, and in which staffing may often be inadequate to meet need (Rau, July 13, 2018). Further, nursing home staff may work in multiple facilities and hold multiple jobs including employment in other industries outside of long-term care, where they may or may not be following infection control protocols (Van Houtven, DePasquale & Coe, 2020). As a result, the presence of the virus in the surrounding community and the communities where the nursing home staff reside has a high correlation with facility risk (Harrington et al., 2020). Nurse staffing hours also appear to matter, but it is secondary to community spread (Gorges & Konetzka). Specifically, although higher nurse aide and total nursing hours are associated with modestly lower cases and deaths in facilities with at least one case, the per capita cases in the county remains the single strongest predictor of cases and outbreaks in nursing homes (Gorges & Konetzka). Additionally, pandemic-related staffing shortages (**Figure 4**) and the increased staffing burden from separation policies may have led to staff feeling pressured to report to work with mild to no symptoms, consistent with prior research (Van Houtven, DePasquale & Coe, 2020).

States need to use innovative means of providing hazard pay for staff to minimize spread of COVID-19 and to ensure adequate staffing. Just as some states have increased Medicaid rates to account for increased cost of COVID-19 (e.g., 10 of the 12 states in our case reports, see **Table 1**), other payers such as CMS, managed care plans, and health systems could specifically address gaps in pay for LTC direct care workers. Additional strategies are needed because it is not clear that Medicaid rate increases translated into higher worker pay. For example, Illinois is notably the only union-strong state in our analysis in which unions represent the LTC workforce, and the only state where we see evidence of workers experiencing pay or benefit increases. It is unconscionable that direct care workers in nursing facilities make low-hourly wages; the mean hourly wage for nursing assistances in nursing facilities is \$13 (U.S. Bureau of Labor Statistics, 2017) and yet may not be eligible for the Family Medical Leave Act due to the 'health care provider' exclusion (Leading Age, 2020). Such policies encourage, if not force, sick workers to bring COVID-19 into facilities. For states to have a role in the solution, they will need to consider innovative schemes to fund LTC and other essential worker pay and benefits, such as dedicating lottery funds or increases in excise taxes.

While some states are increasing payments for direct care workers in nursing homes through Medicaid waivers or State Plan Amendments (Musumeci, Dolan & Guth, 2020), these pay increases must be considered within the wider context of historical disinvestment and chronic underfunding of U.S. nursing homes (Grabowski, June 11, 2020); percentage increases in payments may therefore not have the intended impact on wages. More states should consider using and/or extending their Medicaid emergency authorization to directly fund worker pay increases. The federal government could also play a role. CMS could use its administrative authority to help increase wages in facilities that receive Medicare payments by tying payments to direct care wages. This approach could potentially cover over 97% of all nursing homes in the United States that are Medicare certified (Harris-Kojetin et al., 2019). As Medicare reimbursement rates vary by geographic region, CMS could directly link reimbursements to living wages across geographies (Harris-Kojetin et al., 2019). Additionally, CMS could increase payments to licensed or registered nurses or therapy positions to put upward pressure on other parts of the LTC workforce sector, which could create additional upward pressure for lower wage nursing home workers too (Spanko, 2020; Van Houtven & Dawson, 2020). CMS appears to be moving in the opposite direction, however. A recent CMS Final Rule cuts SNF therapy reimbursement rates by 9% for 2021, so one has to question the ramifications of reducing reimbursement in extremely hazardous work conditions when rehabilitation needs among persons recovering from Covid-19 are also very high. In general, CMS could wield its influence as a – if not the – major player in the U.S. health system by linking reimbursement rates to living wages by geographic region. Additionally, state and federal guidance statements have yet to make considerations regarding immunity for residents and staff, with the sole focus being on timing of return to work.

### Limitations

As best we could, the team tried to synthesize the experience of these states but were limited to summarizing the experiences given the varying quality of data sources. For example, the information in **Table 1** is limited to information that was reported publicly, and this information was sometimes inconsistently reported across sources and by date of extraction. Additionally, regarding health disparities, we also note that we have no direct measure of incidence of mortality by minority status of residents. This data gap needs to be filled to form a complete picture of case rates and mortality. In addition, our case reports were hampered by lack of data, for example, on race and ethnicity of cases and deaths in nursing homes, and by poor quality of data, for example, several sources have claimed the case and death data from nursing homes to CDC are inaccurate; furthermore, the CDC data relies on 'occupied beds' as the denominator by which to frame cases and deaths, rather than 'total residents'. State data transparency and reporting varied greatly, preventing analyses across all 12 states using state-provided data.

### Conclusion

In an in-depth examination of 12 state responses to the COVID-19 pandemic in nursing homes, no state emerged as a model of care. All states were put in the position of handling the crisis in the nearly complete absence of national efforts to improve the availability of testing or PPE, despite the essential need for more central coordination of supply chains and dissemination. This was not a challenge that should have been left to states to solve, and the case studies reflect this (<https://ltccovid.org/reports-on-the-impact-of-covid-19-on-long-term-care-in-12-states-of-the-united-states-of-america/>). Establishing mandates and guidelines in the absence of resources led to poor implementation of testing, PPE, and separation, and exacerbated challenges with staffing. Our policy recommendations that focus on the state as the decision-maker will not succeed without help from public health agencies at the local, state, and national level, from CMS and HHS, from private insurers, and from prominent health systems in the state. One possible partnership is for each hospital to identify a network of nursing homes that they can partner with for addressing staff shortages and sharing efforts to procure tests and PPE. This would be unique, and yet it is not without precedence, as the Hope Skilled Nursing Facility Collaborative in North Carolina, a group of 25 or more skilled nursing facilities in the Research Triangle area, acted as a resource for each other in how to obtain tests and best practices for administering them. Without such unique partnerships, resources, and assistance, even the most organized state departments of health will be hobbled to respond fully to the ongoing challenges of the pandemic, and will therefore fail to implement effective testing, secure adequate PPE, and implement appropriate separation policies in nursing homes to protect patients and staff. These problems could be compounded with vaccine distribution as one more task is added to facilities workload, so it is imperative that we develop solutions now.

States, policy makers, and researchers need better real-time data to form an accurate picture of the effectiveness of responses in nursing homes and to identify emerging problems. Finally, CMS has published toolkits for state actions to mitigate risk in nursing homes (released November 2020 with responses through October 2020) (Centers for Medicare & Medicaid Services, 2020). The toolkit was compiled using a diverse stakeholder group including Governor's offices and Governor's COVID Taskforces (diverse state offices, trade organizations, contractors of the QIO program, Area Agencies on Aging, etc.). In addition to the four hallmarks of a risk mitigation strategy that we focus on in this article, the toolkit documents state actions such as disinfection, transportation, transferring, and has added new sections on vaccinations. Importantly, it includes information on organizations by state that are available to help nursing homes. Given the fragmentation of care, knowing who administrators and state policy makers can contact could help improve information flow and coordination of responses.

Federal funding can also enable an effective state-level response but only 4.3% of the CARES act went to long-term care entities despite a heavy burden of disease and death in long-term care; \$4.9 billion went to skilled nursing facilities from the CARES Act, and nearly 44% of that went to the 12 included states in our case study (**Table 1**). The Act provided PPE, and also enabled states to use these funds in creative ways as state leadership directed. Additional funding will be needed to meet federal mandates for testing and to begin tackling the full long-term care sector – beyond the focus of this report – to the less regulated assisted living industry and home- and community-based services. Federal strike teams are one way to fund and target efforts, although to date they are only focused on CMS-regulated facilities (National Association of Counties, 2020). Strike teams could facilitate achieving better outcomes, especially by focusing on high infection areas and working to prevent deaths among Black, Latinx, and Native American populations.

The state case reports illustrated that some states made marginally better decisions on some, but not all aspects of risk mitigation (testing, PPE, and separation), and yet there is no possible playbook by which states can solve this alone. Some states led with early guidance on testing, PPE, and innovative funding models to distribute tests and minimize turnaround times of results. Others issued guidance on cohorting but gave facilities flexibility on how to achieve it. Other states provided strike teams to distribute tests and PPE, including use of State National Guard troops and State and private funding to increase access to the tests. A few states provided hazard pay and created innovative back-up staffing models to ensure that best practices could be followed. Overall, the results suggest that the states that handle the ongoing pandemic in nursing homes best will be those that find ways to make sure nursing homes have the ongoing resources to follow identified best practices for testing, PPE, and separation, including finding safe ways to relax visitor restrictions sooner rather than later. Assistance and resources from all levels of government, especially the federal level, from

private payers, and from health systems will be critical to enable states to meet the challenges in the long-term care sector.

Assistance and resources will also be critical in fostering efficient and fair vaccine distribution to nursing home residents and staff across the states in 2021, even with the vote December 2, 2020, to prioritize nursing home residents and health care workers first, especially in under-resourced and rural states (Huang, 2020). We focused on CMS-certified nursing homes in this report, where identifying and reaching upwards of 1.4 million residents should be possible, albeit a major challenge, given the common denominator is Medicare or Medicaid coverage. Coordinating with state decision makers will be critical for equitable vaccine distribution across all types of residential long-term care facilities voted for first priority distribution – those that are CMS-regulated and those that are not – and across all types of stakeholders who could be affected: residents, staff, family and essential visitors.

### Competing Interests

The authors have no competing interests to declare.

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