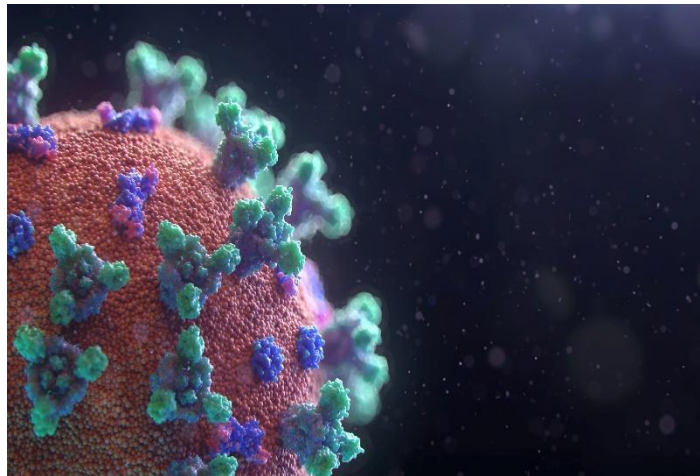


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Nursing Home Pandemic
Understanding and Responding to
COVID19 infection
in North Carolina's nursing homes:
A preliminary report



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The purpose of this study, undertaken at the behest of Friends of Residents in Long Term Care, was to determine if the spread of the COVID19 virus infection in North Carolina's nursing homes is related to the overall quality of care found in those homes. Further, the study sought to identify specific factors related to overall quality that might suggest how to address the substantial threats posed by this pandemic to nursing homes residents and staff as it rages through North Carolina. To answer this important question, we needed two types of data: (1) information about the existing patterns of care in NC nursing homes; and (2) information about the actual rates of COVID19 infections in each nursing home. For the first type of data, there is Nursing Home Compare-- a long established and widely available resource the federal government makes available to the general public.

For the second type of data—COVID19 infection rates—accurate, complete, and timely information is more difficult to obtain from official sources like state agencies for many reasons. Further, official reports that are available appear to vary by county—with some counties identifying facility specific outbreaks while other counties do not report infections or do not identify facilities by name. Hence, we chose to develop data based on public news reports, recognizing such data are limited, preliminary, and quickly out of date.

Constructing a data file for analysis

In this report we started with the number of nursing homes located in NC reported as having a COVID19 case or outbreak identified in media reports (N=31). We narrowed this to those rated by Nursing Home Compare (N=30), and further narrowed this to those nursing homes where the number of cases was also reported (N=21). These included reports from late March to April 21, 2020. Clearly this is a moving target---more cases have already been reported in the facilities we identified and new cases are discovered every day as new outbreaks are reported with cases and facilities rapidly growing.






These data we were matched and merged with information from the most recent Nursing Home Compare database last updated on March 31, 2020. (Data available at <https://data.medicare.gov/data/nursing-home-compare>.) Case rates are reported as percentages and were calculated using the number of COVID-19 cases (i.e., numerators) from news reports and resident census counts (i.e., denominators) from Nursing Home Compare. The tables and graphs in this preliminary report reveal important and sobering correlations between what we have known about nursing homes' prior performance and the contours of the emerging pandemic. As more data become available, we will re-run our analyses and provide conclusions and recommendations to the media and general public.

Research Question 1:

Is the COVID19 Infection rate in NC nursing homes associated with their overall Quality Measure (Nursing Home Compare Star Rating)?

Despite the limitations noted earlier, available data in the table below reveal a clear gradient showing a correlation between CMS's publicly reported Star Ratings (from Nursing Home Compare) --meant to index overall quality of care in nursing homes-- and the rate of infection in those nursing homes where media reports have quantified an outbreak of COVID 19. This ranges from a high of 55% average COVID-19 rate across one-star nursing homes, to a low of 2% average COVID-19 rate across the five-star nursing homes.

What type of nursing homes with COVID-19 infections seem to have *higher rates* of infections?

Star Rating* of Nursing Home	Average Rate of COVID-19 infections	Number of Nursing Homes
	55%	6
	41%	5
	21%	5
	10%	3
	2%	2

Of the 31 nursing homes identified in news reports as having COVID-19 cases, rates could be calculated for only 21 cases.
 * Five stars represents the best rating possible. SOURCE: Nursing Home Compare data last updated March 31, 2020.

Research Question 2: Is the COVID19 Infection rate associated how well nursing homes are staffed?

The Nursing Home Compare overall star rating is a composite of three types of indicators. One type of indicator measures adequacy of staffing using information solely related to the nursing staff: registered nurse hours per resident per day and total staffing hours (registered nurse and licensed practical nurse) per resident day. These scores were aggregated into 5 ordered categories and the 21 nursing homes were arrayed according to those 5 levels of staffing adequacy. As shown in the table below, the nursing homes in the bottom two categories had an average COVID-19 rate of 41%, with rates over 80% in some of the homes. Thus, it appears that nursing homes in the bottom two categories seem to have less capacity to control the spread of the infection. The pattern appears quite different in 5 nursing homes in the middle range of staffing adequacy where on average 10 percent of residents are infected. Finally, in the top two (better) staffing categories, only one nursing home was found with cases and its infection rate was quite low. Despite that fact, it is disturbing to note that only 17% (72/419) of North Carolina's nursing homes have achieved this better level and pattern of staffing.

Adequate Staffing is Important

..and North Carolina could have better staffing profiles in its nursing homes

CMS Staffing Rating of nursing homes	Mean COVID-19 Rate	Mean No. COVID-19 Cases	Range of COVID-19 cases in a nursing home	Number of Nursing Homes...	
				...with any COVID Cases	... with this staffing profile statewide
Bottom category	40.6%	46.7	13 to 96	3	71
Near Bottom category	41.0%	40.3	3 to 86	12	170
Middle Range category	10.0%	9.0	1 to 20	5	106
Top Two Categories	1.4%	7.0	--	1	72
Total with information→					419

Conclusion

This study is preliminary and has limitations– the main limitation is that we do not have actual data on testing, or test results from nursing homes, only media reports. Even as more cases emerge, we need to learn more about how testing was targeted across and within nursing homes to better interpret what is going on and where to go next. However, it would make it easier for us to understand what is happening if state and federal authorities would collect, verify, and compile the number of COVID19 infections of residents and staff and counts of deaths in each nursing home and publicly report it in a timely manner. It seems likely that the consequences of poor levels and patterns of staffing in so many of North Carolina's nursing homes will become more evident as the pandemic unfolds. *This is a longstanding problem that will need to be addressed and overcome if our loved ones in these settings can ever be safe again*

Recommendations

Based on our analysis of the available data, FOR recommends the following actions as an immediate top priority for those engaged in providing, regulating, and paying for care in North Carolina's nursing homes.

1. **Rapid Reporting:** *The North Carolina Department of Health and Human Services* should collect, verify, and compile the number of COVID19 infections of residents and staff and counts of deaths in all long-term care facilities (nursing homes and assisted living) and publicly report this information in a timely manner.
2. **Focused Testing:** *The NC Department of Health and Human Services* should provide or arrange for COVID19 testing of all staff and residents in nursing homes, starting with those with the lowest ratings (one and two stars) and those with the worst staffing problems (bottom two categories).
3. **Increase Funding for Staff:** *The NC General Assembly* should provide immediate funding to train existing and new staff in nursing homes and supply Personal Protective Equipment (PPE), COVID19 testing, case isolation, and more rapid implementation of vigorous infection control regimens.