


Prevention is Key to Reducing the Spread of COVID-19 in Long-Term Care Facilities

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Abstract: The novel coronavirus disease 2019 (COVID-19) pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has greatly affected the older people who live in long-term care facilities (LTCFs). Older people and those with underlying chronic conditions in LTCFs have experienced disproportionately high morbidity and mortality. COVID-19 vaccines plus a booster shot provide strong protection against severe illness, hospitalizations, and deaths, but new COVID-19 variants, such as Omicron, have a remarkable ability to evade immunity from vaccines, past infection, or both. Prevention is key to reducing the spread of COVID-19 in LTCFs. This study aims to investigate a prevention approach for protecting residents and staff from COVID-19. This paper first presents a case study of massive coronavirus outbreaks at a big nursing home facility and demonstrates how the facility incorrectly responded to COVID-19. It further investigates prevention measures, such as improving vaccination, early detection, isolation and intervention to prevent the spread of COVID-19. It concludes by discussing the implications of the study and directions of future research.

Keywords: COVID-19, SARS-CoV-2, long-term care facilities, prevention, vaccination, early detection, early isolation

Introduction

The novel coronavirus disease 2019 (COVID-19) pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has greatly affected the older people who live in long-term care facilities (LTCFs) all over the world.¹ In the United States, more than 1.3 million old people live in 15,600 LTCFs. From May 2020 through January 2021, 94% of LTCFs experienced more than one COVID-19 outbreaks and 85% of the LTCFs had an outbreak lasting 5 or more weeks.² COVID-19 vaccines plus a booster shot provide strong protection against severe illness, hospitalizations, and deaths, but new COVID-19 variants, such as Omicron, have a remarkable ability to evade immunity from vaccines, past infection, or both.³ As COVID-19 cases continue to rise, prevention is key to protecting LTCF residents and staff from COVID-19.

LTCFs are high-risk settings for outbreaks of SARS-CoV-2. Residents in LTCFs are usually older people with chronic diseases and impairments.^{4,5} Older age and the presence of comorbidities are associated with increased risk of mortality in the COVID-19 pandemic.⁶ Older people living in crowded, congregate settings are at high risk of being infected by highly transmissible coronavirus.⁷ When residents live in close rooms with one another, it is difficult to move or quarantine residents once they are infected.⁴ Likewise, health care workers who are infected or who do not consistently wash their hands move from room to room assisting residents and thereby spread the virus. Making the risk worse, many workers do not have paid sick leave, so they may continue to work even while they are sick.⁴ In addition, staffing shortages and staff turnover, high resident-to-staff ratios, supply shortages, and inadequate infection prevention and control (IPC) measures are well documented in the LTCF settings, but solutions are still unclear.⁸

The coronavirus is highly contagious and spreads between people through direct and contact transmission. The symptomatic phase manifests with fever, tiredness, cough and myalgia to severe respiratory failure.⁹ Management of COVID-19 is mainly by antiviral and monoclonal antibody therapy along with mechanical ventilation in severe cases.^{9–11}

Prevention and early intervention is key to protecting LTCF residents and staff from COVID-19. While the vulnerability of living with chronic diseases and impairments and the need for COVID-19 preparedness, coordination and monitoring in LTCFs are well recognized by prior research,^{4,6–8} the literature on prevention strategies is quite limited. This study aims to investigate a prevention approach for protecting residents and staff from COVID-19. This paper first presents a case study of massive COVID-19 outbreaks at a New Jersey nursing home and identifies epidemiological deficiencies of its IPC measures. It then investigates a prevention approach to reduce the spread of coronavirus in LTCFs. The paper concludes by discussing the implications of the study and directions of future research.

Large COVID-19 Outbreaks in a Long-Term Care Facility

Woodland Behavioral and Nursing Center, previously known as Andover Subacute and Rehabilitation Center, is a long-term care facility located in Sussex County, New Jersey. The facility has 543 beds and 475 staff members, according to data filed with Sussex County. Recently, a major outbreak of COVID-19 occurred in this facility.¹² As of January 8, 2022, the facility had 449 occupied beds with at least 213 residents (attack rate: 49.4%) and 114 employees (attack rate: 24%) who were COVID-19 positive amid the Omicron wave, by far the highest number of any LTCFs in the State of New Jersey.¹³ Three residents died. By that date, both the facility's vaccination rates and boosters lagged the state's nursing home vaccination rates and boosters. 83.44% of residents (the state's resident vaccination rate: 92.8%) were fully vaccinated, and only 52.38% (the state's resident booster: 79.1%) received boosters. 64.47% of staff (the state's staff vaccination rate: 87%) were fully vaccinated, and no facility staff (the state's staff booster: 42.1%) received boosters.¹³

The New Jersey Department of Health (NJDOH) investigated Woodland and released a “blistering report” detailing Woodland's failures and licensure violations.¹⁴ Based on observations, interviews, and review of pertinent facility documentation, New Jersey surveyors reported that Woodland continued to struggle with basic COVID-19 infection prevention and control protocols as staff did not wear proper protective equipment and failed to keep infected residents in masks or separate from healthy people. The surveyors found that the facility no longer tested staff and residents regularly for COVID-19 and stopped any contact tracing to identify other people at the facility, who were in close contact with an infected person, or who might have been exposed to COVID-19. The surveyors also found that even the cases that were diagnosed at the facility were sometimes mishandled. For example, two residents who contracted COVID-19 in fall 2021 were hospitalized and died within weeks of being sick, despite having been prescribed early outpatient treatments—infusions of monoclonal antibodies—that could have saved their lives. In one case, the medications were even delivered to Woodland, but staff never administered them. Finally, the surveyors found serious staffing shortages that would have left overloaded workers scrambling to bathe, feed, and clean patients. During a two-week period from late December to January, not a single day went by when there were enough certified nurse aides on duty to care for more than 450 residents.¹⁴

Sadly, this is not the first time Woodland was exposed for its infection-control issues. In April 2020, the deficiencies of infection prevention and control at the facility led to hundreds of residents testing positive for COVID-19 and killed 83 of the 539 residents in total. Most dissonantly, during the height of the crisis, a police inspection of the facility found 17 corpses piled in a tiny makeshift morgue next to gardening equipment.¹⁵ The national guard had to be deployed at that time to the home to help with infection control. Following these developments, the US Centers for Medicare & Medicaid Services (CMS) completed an Immediate Jeopardy complaint survey at the facility. In a follow-up inspection report, Federal Surveyors found that there were missing temperature logs for residents; lack of documentation for residents' symptoms; broken thermometers; insufficient use of protective equipment; and rooming of COVID-positive patients with those who were asymptomatic. CMS subsequently imposed a Civil Money Penalty accruing a total of \$220,235 and required the facility to submit a Plan of Correction (PoC) within ten days.¹³

Woodland was sued by the families of residents who died at the facility.¹⁵ The lawsuit purported that the facility permitted employees and/or visitors to interact with residents without first taking their temperature or requiring them to wear protective masks. Management only provided masks to registered nurses and not to others who interacted with residents, including nursing assistants, housekeepers, and recreation therapists. The suit also claimed that the medical professionals failed to timely diagnose the residents' condition, failed to apprise them of the risk and options available to them, and failed to properly treat their conditions.

The former workers at the Andover Subacute and Rehabilitation Center complained about the IPC issues at the facility.¹⁶ First, the facility did not follow health codes or regulations for cleaning and disinfection. For example, there would be urine and fecal matter on the floor, in the hallway, in the bedroom. With the coronavirus spreading, things got much worse because the pandemic had imposed anxiety, grief, and fatigue on staff. Second, the facility would ask staff to come in to work even if they had been symptomatic for COVID-19. Third, face masking is not required because the facility did not provide staff with any of the proper personal protective equipment (PPE) when working while more and more residents were getting sick.

Facing a destroyed reputation, the owners of the facility rebranded Andover Subacute and Rehabilitation Center as Woodland Behavioral and Nursing Center and resumed collecting funds from CMS after the April 2020 outbreak. But the management is the same, the ownership is the same, and the same thing has happened now because they are not following protocols for infection prevention and control correctly – in some cases there are no protocols.¹²

After NJDOH suspended admissions at Woodland in February 2022, the state wanted a judge to appoint a receiver to oversee Woodland's daily operations and finances and to address the "patterns and practice of habitual violations", with the current owners footing the bill. On May 26, CMS notified the facility that its Medicare provider agreement will be terminated on June 25, 2022.¹⁷ On May 27, the state suspended Woodland's nursing home license, just hours before a Superior Court judge appointed a team of restructuring experts to take control of the operations.¹⁸

Discussion

LTCFs have struggled with infection-control and staffing issues for years, but these problems were exposed publicly during this severe pandemic. The most important message from this story is how critical it is that LTCFs adhere to infection prevention and control protocols that protect vulnerable residents and staff from COVID-19. The elderly and frail people who live in LTCFs got hit hard and fast by COVID-19, never before seen in humans. As shown in the Woodland case, once the virus got into LTCFs that operated in reactive mode, it was difficult to change the trajectory. Prevention is key to protecting residents and staff from COVID-19. Recognizing the high risk associated with LTCFs, the Centers for Disease Control has released interim guidance for the prevention and control of COVID-19. CDC recommends education and training of staff regarding recommended practices to prevent spread of SARS-CoV-2, including reminding them not to report to work when ill. LTCFs must provide supplies necessary to adhere to recommended IPC practices and ensure that staff have access to all necessary supplies including alcohol-based hand sanitizer 60–95% alcohol, PPE, and supplies for cleaning and disinfection.⁷ CDC also recommends education of residents and visitors about the coronavirus, actions the facility is taking to protect them and their loved one from the coronavirus, and actions they should take to protect themselves and others in the facility, stressing when they should wear a face mask, physically distance, and perform hand hygiene.⁷

In addition to CDC's guidelines and recommendations, a robust prevention and early intervention approach is strongly recommended. First, nursing homes should improve coverage of the primary vaccination series and booster vaccination. Vaccination has been shown to contribute to reducing severe illness and deaths from COVID-19, and to prevent SARS-CoV-2 infection.³ Vaccinating LTCF residents and staff and minimizing the spread of disease is important.^{9,19,20} As indicated in the Woodland Behavioral case, low vaccination acceptance among staff and residents made them extremely vulnerable to the highly contagious Omicron variant. The role of government-induced COVID-19 vaccine mandates and incentives in LTCFs can always be beneficial to ensure that as many residents and staff as possible are fully vaccinated with the first two dose series and one or more booster doses.

Second, early polymerase chain reaction (PCR) or antigen tests can help promptly identify infected people, including those with or without symptoms (asymptomatic or pre-symptomatic) who may be contagious, so that measures can be taken to prevent further transmission²¹. According to the Woodland Behavioral Website, the facility follows the NJDOH guidelines and recommendations for COVID-19 infection control, including daily health/temperature screenings, weekly testing of unvaccinated staff one or two times a week, testing of staff or resident who may present with signs and symptoms consistent with COVID-19, and initiating facility-wide testing for all staff and residents only when a new COVID positive case is identified. Such reactive diagnostic testing strategy is focused on therapeutic care and is ill-suited

for early detection of asymptomatic or pre-symptomatic infections. Frequent screening testing should be performed to identify infectious individuals, who are then rapidly isolated to prevent the onward infection of others.

Third, early isolation and quarantine can effectively break the chain of transmission and prevent further spread of the virus in the LTCF settings. As indicated in the Woodland case, the facility allowed for infected residents to mingle with the uninfected and asked staff to work even if they had been symptomatic for COVID-19, allowing for the coronavirus to quickly spread. LTCFs should collaborate with local public health authorities to create a plan for early isolation and quarantine to separate residents with confirmed or suspected COVID-19 from those without COVID-19. Residents in isolation should stay in a specific “sick room” or area and use a separate bathroom if available. Every staff member who has been in close contact with COVID-19 or who are sick should stay home and isolate from other people for at least 5 days.⁷

Fourth, early diagnosis and treatment of COVID-19 infection likely reduces disease severity and mortality.²² Medications to treat COVID-19 must be prescribed by a doctor and initiated as early as possible after cases are diagnosed. As shown in the Woodland case, staff’s failure to administer medications caused two preventable hospital deaths. Antiviral drugs and monoclonal antibodies work best if they were initiated early after diagnosis to be effective.

The coronavirus had a devastating effect on LTCFs, including the Woodland Behavioral and Nursing Center, where nearly 100 residents died. Prevention is key to stopping COVID-19 from spreading like “fire through dry grass” in LTCFs. Each of the previous prevention strategies is effective and provides some level of protection. Use of multiple strategies provides greater protection than implementing a single strategy. A robust infection prevention program that incorporates multiple prevention strategies is critical to protect residents and staff in LTCFs.

Conclusions

As the coronavirus pandemic enters its third year, staffing shortages continue to plague the long-term care industry and the coronavirus is still spreading and killing our loved ones. Prevention is key to protecting residents and staff from COVID-19. This paper reported a case study for how a nursing home incorrectly responded to the pandemic and investigated effective prevention strategies to reduce SARS-CoV-2 spread in LTCFs. Prevention measures, such as improving vaccination, early detection, isolation and intervention, are effective for reducing the spread of COVID-19 in LTCFs, particularly when they are integrated together and when they are used consistently and correctly. Further research is needed to implement a strong prevention and early intervention program that incorporates vaccination, early detection, isolation and intervention to prevent the spread of COVID-19 in LTCFs.

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