An outbreak of Covid-19 infections occurred among both staff and residents at a combined assisted living facility (ALF) and memory care center (MC) in Sacramento, California. After two residents tested positive following mildly symptomatic presentations, the entirety of the staff and residents were tested. Twenty-five of 80 staff and 25 of 39 assisted living residents were found to be Covid-19–positive upon testing. Most had minor symptoms, and several were asymptomatic. After at least 14 days of in-room isolation (among the residents) and home isolation (of symptomatic staff), re-testing was conducted, revealing 10 residents and 6 staff remaining positive. All other previously positive residents and staff tested negative. Similar results were observed at other long-term care facilities in general in Sacramento County. Results of this case study suggest that adoption of proactive testing and treatment protocols can effectively curb infection and mortality rates at such facilities.

Outbreaks at residential care facilities can be avoided or better controlled if private sector and public health leaders adopt protocols to regularly test and carefully cohort both staff and residents, while adhering to rigorous compliance with personal protective equipment standards.

The assisted living facility (ALF) in this case, located in Sacramento, is designed for residents who need some help with daily activities, such as bathing, dressing, and medication reminders, but do not require intensive 24/7 skilled nursing care. After two ALF residents developed fevers on March 30, 2020, they were isolated to their respective private quarters, and the next day were taken to their primary care physician to be tested for Covid-19, using the rRT PCR (real-time reverse transcriptase polymerase chain reaction) nasopharyngeal swab test. Results from the Sacramento County public health lab were positive for both residents, provided on March 31 for the female and on April 3 for the male.
Upon return to the ALF, both were returned to isolation in their respective rooms. Both patients responded well to treatment, which included acetaminophen, empiric azithromycin, for lung protection and possible immunomodulating effect to protect from cytokine storm that can be seen with Covid-19, and telehealth visits with the PCP. Both patients experienced low-grade fevers initially in illness, but no significant coughing or dyspnea. No hospitalization was required.

The presence of Covid-19 infection at the facility prompted additional testing. On April 9, staff from the nearby UC Davis medical campus traveled to the facility and tested all staff and residents at the ALF and associated memory care center (MC).

**Test Results**

As of April 20 at the ALF and MC, 31% of staff (25 of 80, ranging in age from 16 to 68) and 64% of residents (25 of 39, ranging in age from 72 to 99), tested positive. Of the positive staff, 12 were mildly symptomatic (with some combination of fever, cough, and mild dyspnea), 12 were asymptomatic and one was hospitalized with moderate symptoms. All symptomatic staff was sent home to isolate for 14 days. Asymptomatic Covid-19–positive staff were allowed to continue to serve Covid-19–positive residents only, using strict personal protective equipment (PPE) protocols. This service consisted of providing in-room meals, performing light cleaning of rooms, mail delivery, personal care, and individual engagement. Covid-19–negative staff served all residents, with strict adherence to PPE use.

As of April 20, of the 25 Covid-19–positive residents, 11 required hospitalization, two of whom eventually expired due to Covid-19, age, and underlying chronic conditions. However, most of the residents exhibited minor symptoms (8 had some combination of a mild fever, cough, dyspnea, diarrhea), and 6 had no symptoms at all. All Covid-19–positive residents were isolated to their individual rooms, as were all Covid-19–negative residents. None of the MC residents tested positive. The original two Covid-19–positive patients were tested at the ALF on April 14. The results came back that they were both still Covid-19–positive. On April 16, the PCP prescribed a second course of empiric azithromycin (500 mg day 1, 250 mg/day for next 4 days, total 5-day course).

It was then determined that, per CDC guidelines,1 all Covid-19–positive residents and staff would be retested on April 27, after at least 18 days of isolation. Testing (rRT PCR) was again conducted at the ALF. Upon this retesting, only 10 residents (out of 25 previously positive) and 6 staff members (out of 25 previously positive) remained Covid-19–positive. Follow-up testing of these remaining 16 individuals was denied by the county division of public health per California Department of Public Health temporary guidance,2 so the Covid-19–positive residents and staff were presumed to be non-infectious by day 30 and residents were released from isolation on May 11, 2020.

On May 1 and May 3, the sentinel female and male, respectively, received immunoassay serological testing for IgG Covid-19 antibodies and were confirmed to have IgG-neutralizing antibodies, as was at least one other previously positive resident.
Lessons Learned

Four lessons can be taken from this case study:

1) Significant numbers of elderly Covid-19–positive ALF residents may be only mildly symptomatic or even asymptomatic. This is somewhat surprising seeing as the mortality rate for residents of this ALF, with an average age of close to 90, based on current CDC data would be expected to be well over the 8% observed at the ALF. (The CDC reports that Covid-19 fatality is highest in persons aged ≥85, ranging from 10% to 27%.) However, this limited case report suggests that far more elderly individuals may be Covid-19–positive, yet not be severely ill. More widespread testing in ALFs and long-term care facilities (LTCF) in general is called for, both to put the ALF/LTCF on alert for a Covid-19–positive patient taking a turn for the worse, and to allow for the removal or repositioning of Covid-19–positive staff.

2) If one staff member or resident tests positive in an ALF/LTCF, Covid-19 infection is very likely to be much more widespread, necessitating universal testing — of both staff and residents. This would seem to be common sense; however, ALFs/LTCFs often have in-house attorneys who will advise their client to resist mass testing for a variety of reasons, ranging from fear of lawsuits to worries about staffing, should many staff test positive and be unable to work. To combat this legal interference, Sacramento County public health staff reached out directly to the ALF/LTCF’s staffs. As part of that effort, they sent a strong message that testing is important for the residents’ health. After doing so, lawyers for six of seven LTCFs (including three ALFs) backed down and allowed testing.

“ALFs/LTCFs often have in-house attorneys who will advise their client to resist mass testing for a variety of reasons, ranging from fear of lawsuits to worries about staffing, should many staff test positive and be unable to work.”

3) With proper management (including isolation of staff and residents, strict adherence to proper PPE usage, and cohorting of Covid-19–positive residents served by asymptomatic Covid-19–positive staff), an outbreak in a high-risk population can be prevented or brought under control fairly expeditiously.

4) Finally, timely test results (one to two days in this case versus waits of up to 10 days for results in surrounding counties, due to the presence of a public health laboratory in Sacramento), allow for rapid isolation of those who test positive, leading to reduced spread of the infection in a vulnerable population.

The results of this case report suggest that universal testing of residents and staff of ALFs and LTCFs, in general, should be considered to be the standard of care (particularly with viral testing now widely available) — at least in settings where even a single resident or staff member has Covid-19.
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Acknowledgements

The author thanks Ingvild Lane, MD, and Katherine Cancio, RN

Disclosures: Peter Beilenson discloses that his mother is a resident of the assisted living facility.

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