improvement of the measures has reduced the incidence of COVID-19 infections and thus the number of deaths in LTCFs; however, a better balance between physical safety and well-being is necessary, as social isolation is a serious health threat for older residents and increases the risk of mortality.\(^6\)\(^,\)\(^7\) During a Dutch pilot, the cautious opening of nursing homes using a Dutch guideline adapted to the local context, did not lead to new infections.\(^8\) As social contact and meaningful daytime activities are essential for LTCF residents,\(^9\)\(^,\)\(^10\) LTCFs should implement policies on allowing visitors and continuing daytime activities as much as possible in times of COVID-19. This should be done in conjunction with residents, family, and staff, prioritizing residents’ well-being and autonomy again.

References

Methods

A retrospective chart review of residents from a long-term care home with a large COVID-19 outbreak was conducted. Charts were reviewed to extract, comorbidities, symptoms, and outcomes. The study period was March 1 (before the outbreak in the home) to May 21, 2020 (the day the outbreak was declared over). The case definition used was based on the provincial case definition, and included a broad range of typical and atypical symptoms (fever, cough, chills, myalgias, fatigue, sore throat, rhinorrhea, conjunctivitis, unexplained tachycardia or hypotension, difficulty swallowing, headache, dyspnea, hypoxia, diarrhea, nausea or vomiting, confusion, functional decline, or altered taste and smell). Results were summarized using descriptive statistics. Sensitivity and negative predictive values were also calculated. Research Ethics Board approval for the study was obtained from our institution.

Until April 13, 2020, testing was performed using a published laboratory-developed test targeting the E gene and RdRp of SARS-CoV-2. From April 14 onward, RT-PCR was performed using the Allplex 2019-nCoV Assay (Seegene Inc., Seoul, Republic of Korea), which targets the E, N, and RdRp genes of SARS-CoV-2.

Results

A total of 117 residents were living in the home at the start of the study period, in a mixture of private, semi-private, and 4-person rooms. Four patients refused testing and were excluded, leaving 113 patients to be included, all of whom underwent at least 1 nasopharyngeal swab for Coronavirus Disease 2019 (COVID-19). The mean age of the residents was 78.3 ± 11.8 years, 45.5% were men, and the rates of comorbidities were as follows: 62% hypertension, 31% cardiovascular disease, 30% diabetes, 29% previous stroke, and 25% chronic lung disease.

Ninety-seven (85.8%) of 113 residents had confirmed COVID-19 infection; 19 patients required hospitalization and 21 died (21.6% case-fatality). There were 5 additional non–COVID-19 deaths during the study period. In those with confirmed SARS-CoV-2, 68.0% (66/97) had fever, 52.6% (51/97) had cough, 7.2% (7/97) had sore throat or rhinorrhea, 9.3% (9/97) had dyspnea or hypoxia, and 15.5% (15/97) remained asymptomatic throughout the study period.

Between March 20 and April 13, symptomatic residents were tested, and then after April 14 a combination of symptomatic testing and asymptomatic screening was conducted. A flowchart of testing is outlined in Supplementary Figure 1.

To calculate sensitivity, we excluded those who remained asymptomatic and also had negative SARS-CoV-2 testing (7 residents), as they were felt to represent true negatives, leaving 106 residents included (Figure 1). Of the 97 positive residents, 96 were positive on the first test with a resulting sensitivity of 90.6% (96/106).

Discussion

Despite multiple previous reports suggesting low sensitivity of RT-PCR for SARS-CoV-2 by nasopharyngeal swab, here we report a relatively high sensitivity (90.6%). A major strength of our study is that by using a non–PCR-based gold standard, we can avoid the bias toward positive PCR. The high attack rate in the home and lack of other circulating viruses at the time allowed for limited confounding that may have been seen in previous studies. Applying these results to a similar population, not in outbreak, and thus with a lower pre-test probability of infection (eg, 10%), results in a high negative predictive value (99%) and thus can adequately rule out disease.

Caution, however, should be taken in extrapolating our results to other populations, because there is evidence that older individuals have higher viral loads and thus may have higher rates of detection than other populations. Another limitation was that given the emerging nature of the pandemic, tests were done at different laboratories and on different machines over the course of the study.
and these could have different sensitivities, affecting the generalizability of the results.

Overall, our results suggest RT-PCR for SARS-CoV-2 by nasopharyngeal swab has a high sensitivity in this cohort of older long-term care home residents.

References

Supplementary Fig. 1. Flowchart of testing.