CORRESPONDENCE

Spread of a Variant SARS-CoV-2 in Long-Term Care Facilities in England

TO THE EDITOR: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections and hospital admissions for coronavirus disease 2019 (Covid-19) increased rapidly in the South East region of England in November and December 2020, despite lockdown measures.[1,2] More than half of these infections were associated with a distinct phylogenetic cluster that is estimated to be 40 to 70% more transmissible than previous variants and is driving the growth of infections across England.[3] Given the excess deaths seen in long-term care facilities during the pandemic, preventing further spread of this variant, known as B.1.1.7, to long-term care facilities is a public health priority.

We investigated the proportion of SARS-CoV-2 infections caused by the variant in staff and residents of long-term care facilities in England between October 5 and December 17, 2020. Participants were tested for SARS-CoV-2 by reverse-transcriptase–polymerase-chain-reaction (RT-PCR) assay of nasopharyngeal swabs collected weekly from staff or monthly from residents.

PCR cycle-threshold (Ct) values indicating viral load were obtained for each of three gene targets (*S*, *N*, and *ORF1ab*) (see the Supplementary Appendix, available with the full text of this letter at NEJM.org). The B.1.1.7 variant was identified in samples with *S* gene target failure on PCR (i.e., only *ORF1ab* and *N* were detected). The absence of detectable *S* gene was a marker of the variant from mid-November 2020 onward.[1] The PCR results were linked to demographic data, and the percentages of samples that were positive for one, two, or three gene targets were plotted with corresponding median Ct values according to week, geographic region, and age group.

Of 143,994 samples obtained from staff and residents of long-term care facilities throughout England, 4442 (3.1%) were positive for at least one gene target on PCR assay. Overall, the total number and proportion of positive samples with *S* gene target failure increased from 70 of 582 (12.0%) to 491 of 813 (60.4%) between November 16 and December 13; this increase was associated with a decrease in median Ct values (Table S1 in the Supplementary Appendix). Over the same time period, the proportion of samples with *S* gene target failure increased in the South East and East of England regions and London (Fig. 1). For example, in the South East region, the proportion increased from 25.9% on November 16 to 79.8% on December 13. By December 7, a total of 372 of 656 samples (56.7%) obtained from adults younger than 65 years of age and 119 of 157 samples (75.8%) obtained from those 65 years of age or older had *S* gene target failure (Fig. S3). Sequencing data were available from only two samples from long-term care facilities, and both of the sequenced samples were B.1.1.7. In England during this period, 90 to 100% of sequenced samples with *S* gene target failure were B.1.1.7.

The SARS-CoV-2 B.1.1.7 variant is now prevalent in all regions of England,[4] and it spread rapidly from the community into long-term care facilities in the South East and East of England regions and London in November and December 2020. Emerging data suggest the variant may be associated with an increase in mortality.[5] Enforcement of disease-control measures to prevent further spread of this highly

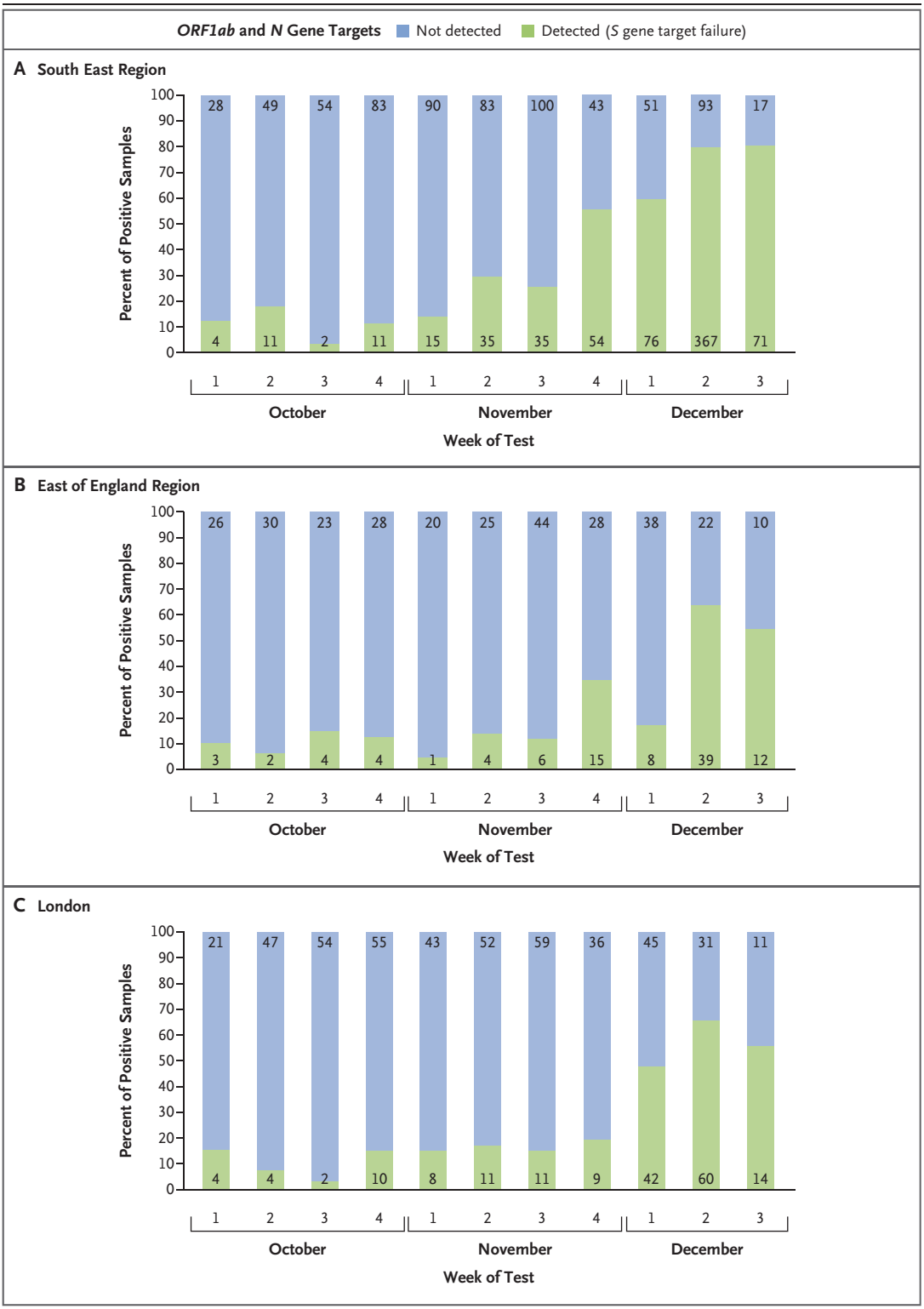
ORF1ab and N Gene Targets
Not detected
Detected (S gene target failure)
A South East Region
Percent of Positive Samples
100
90
80
70
60
50
40
30
20
10
0
28 49 54 83 90 83 100 43 51 93 17
4 11 2 11 15 35 35 54 76 367 71
1 2 3 4 1 2 3 4 1 2 3
October
November
December
Week of Test
B East of England Region
Percent of Positive Samples
26 30 23 28 20 25 44 28 38 22 10
3 2 4 4 1 4 6 15 8 39 12
1 2 3 4 1 2 3 4 1 2 3
October
November
December
Week of Test
C London
Percent of Positive Samples
21 47 54 55 43 52 59 36 45 31 11
4 4 2 10 8 11 11 9 42 60 14
1 2 3 4 1 2 3 4 1 2 3
October
November
December
Week of Test

Figure 1 (facing page). SARS-CoV-2–Positive Samples with *S* Gene Target Failure, According to Week and Geographic Region in England.

Samples were obtained from staff and residents of long-term care facilities. The numbers of samples that were positive for SARS-CoV-2 on polymerase-chain-reaction assay per week from October 5 through December 17, 2020, in the South East region (Panel A), the East of England region (Panel B), and London (Panel C) are shown. Samples with *S* gene target failure were those in which only the *ORF1ab* and *N* gene targets were detected. Since mid-November, 2020, *S* gene target failure has been shown to be a reliable marker of variant B.1.1.7. Data collection was incomplete in the final week, so a decrease in the total number of samples is shown.

transmissible variant is needed, particularly in long-term care facilities.

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