

Modelling of hypothetical SARS-CoV-2 point of care tests for routine testing in residential care homes: rapid cost-effectiveness analysis

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Plain English summary

SARS-CoV-2 POCTs in residential care

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Plain English summary

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus that causes coronavirus disease 2019 (COVID-19). SARS-CoV-2 is highly infectious, and this can cause problems in care homes, where the virus can spread quickly. Laboratory-based tests can determine whether or not someone has SARS-CoV-2, but these tests are not perfect and can take a long time to provide a result. Point-of-care tests that can be performed quickly in the care home to detect SARS-CoV-2 are being developed and they may have much shorter times to get a result than laboratory-based tests, although with worse accuracy. The benefit of quicker tests is that decisions to put residents into or release them from isolation can be made sooner, reducing the risk of spreading SARS-CoV-2 and reducing time in isolation. The disadvantage of reduced accuracy is that wrong decisions could be made, resulting in either unnecessary isolation or increased spread of SARS-CoV-2.

A computer model was built to explore the impact of using SARS-CoV-2 point-of-care tests for residents of care homes. The model estimated the number of SARS-CoV-2 infections, deaths due to COVID-19 and days in isolation. Strategies were run using different values, including the time to get a test result back, the accuracy of tests, the proportion of care homes where there is a case of SARS-CoV-2, whether residents were isolated individually or in groups and how well vaccines work. The results of the model indicated that point-of-care tests could be good if there was a large decrease in the time to get a test result back, if accuracy was high and if vaccination protection was moderate. However, the accuracy and speed of future point-of-care tests is uncertain. When newer SARS-CoV-2 tests are available, the model will allow an estimate of the clinical effectiveness and cost-effectiveness of the tests to be made.

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