

Operation Moonshot proposals are scientifically unsound, experts argue

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Proposals made by the government as part of Operation Moonshot could do more harm than good, a group of UK experts have argued in a new article published today by the *BMJ*.

Polymerase chain reaction (PCR) swab testing is a useful method of detecting SARS-CoV-2 virus in symptomatic patients but it is not without its limitations. PCR is not a [test](#) of infectiousness but instead detects trace amounts of viral genome sequence, which may be either live transmissible virus or fragments from previous infection. This means that when people with symptoms or recent exposure receive a positive PCR result, they will likely be infectious, however a positive result in someone who is asymptomatic, or with no known exposure could stem from a live or dead virus and so, does not determine infectiousness or transmission risk.

The idea of Moonshot is to frequently use new point-of-care tests across the whole population to detect asymptomatic disease. The Moonshot proposals are based on a computer model and not a real study. Whilst it has been reported that the model shows that "less accurate" tests are suitable

for use in mass screening, this is not true. This publication points out that the model used assumes that tests used in Moonshot are very accurate at detecting only those who have infectious COVID-19, and are thus better than PCR.

Such tests do not yet exist, and experts argue that identifying the truly infectious and therefore those who must isolate, is not straightforward. As we have no gold standard way of telling infectious from non-infectious COVID-19, currently it is not even possible to see how well any new tests works at identifying infectious COVID-19.

Lead author Jon Deeks, professor of biostatistics at the University of Birmingham's Institute of Applied Health Research said: "Arguably, the Moonshot proposals have also not taken into account the potential harms from frequent and repeated testing of whole populations. All tests generate some false positives and [false negatives](#). The consequence of high false negative rates are most serious in symptomatic people who can transmit disease while [false positives](#) become a problem when individuals and their contacts have to self-isolate unnecessarily. Even with a specificity of 99%, government proposals to do ten million tests a day, will generate tens of thousands of false positive results, causing unnecessary but legally enforced isolation of both cases and contacts with potentially damaging consequences for the UK economy and for civil liberties."

More information: Jonathan J Deeks et al. Operation Moonshot proposals are scientifically unsound, *BMJ* (2020). [DOI: 10.1136/bmj.m3699](https://doi.org/10.1136/bmj.m3699)

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