



Covid-19: Quarantine works when introduced early alongside other measures, finds review

Elisabeth Mahase

The BMJ

Quarantine is effective at reducing incidence and mortality during the covid-19 pandemic, according to a Cochrane rapid review.

The review—commissioned by the World Health Organization—found that it must be implemented early and combined with other public health measures to ensure the spread is reduced.¹ There are uncertainties about when these measures can best be relaxed, it said.

The review summarised evidence available from 29 studies, including 10 modelling studies on covid-19, four observational studies, and 15 modelling studies on SARS and MERS. The researchers from Danube University Krems, Austria, which funded the research, said that because of the diverse methods of measurement and analysis used in the studies they could not conduct a meta-analysis so instead conducted a narrative synthesis. As a consequence, the certainty of the evidence is rated as low to very low.

The study reported that current evidence consistently showed a benefit of quarantine measures, with quarantine of people exposed to confirmed or suspected cases averting 44% to 81% incident cases and 31% to 63% of deaths, compared with no measures.

There was very low certainty evidence indicating that the earlier quarantine measures were implemented the greater the cost savings and that quarantining travellers from countries with a declared outbreak had a small effect on reducing incidence and deaths.

When quarantine was combined with other prevention and control measures, including school closures, travel restrictions, and social distancing, the models showed a “larger effect on the reduction of new cases, transmissions, and deaths than individual measures alone.”

“Quarantine alone is an important component of outbreak control but seems not to be enough to contain covid-19. Preliminary estimates of the basic reproduction number of SARS-CoV-2 range from 2.8 to 5.5,” the review said. “Models have shown

that the effectiveness of quarantining individuals during outbreaks of diseases with presymptomatic infectiousness and a basic reproduction number of greater than 2.5 is limited.”

The researchers said that, based on an estimated 3.11 reproduction number, 58% to 76% of transmissions must be averted by control measures for covid-19 infections to stop increasing.

Lead author Barbara Nussbaumer-Streit said, “This Cochrane review shows that while quarantine may help in containing the covid-19 outbreak, decision makers will need to constantly monitor the outbreak situation locally in order to maintain the best possible balance of measures in place and [to ensure] that there is an acceptable trade-off between benefits and harms.”

Keith Neal, emeritus professor of the epidemiology of infectious diseases at the University of Nottingham, said, “This review suggests that quarantine works . . . It is impossible to do controlled trials on the effectiveness of quarantine. There are some things in science to which we need to apply thought experiments. If we reduce the number of people an infectious person meets, then there are less people that person can infect. This is the type of parameter models include.”

The review was limited in several ways, including that it did not look at the psychological effect of quarantine on individuals or at other health and economic adverse effects resulting from quarantine such as quality of life, unemployment, and domestic violence.

“For these reasons, our review is unable to address the question of when quarantining and other public health measures aiming to reduce the spread of covid-19 should be relaxed or lifted,” the paper said.

1 Nussbaumer-Streit B, Mayr V, Dobrescu AI, et al. Quarantine alone or in combination with other public health measures to control COVID-19: a rapid review. *Cochrane Database Syst Rev* 2020;4:CD013574. 10.1002/14651858.CD013574.32267544

Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to <http://group.bmj.com/group/rights-licensing/permissions>