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# Covid-19: Lockdowns and masks helped reduce transmission, expert group finds

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Non-pharmaceutical interventions (NPIs) were “unequivocally” effective when rolled out in tandem during the covid pandemic and led to “powerful, effective and prolonged reductions in viral transmission,” says a report by a team of experts brought together by the Royal Society.<sup>1</sup>

The team reviewed thousands of studies undertaken around the world during the pandemic, including randomised controlled trials and observational studies, to assess the effectiveness of six NPIs: face coverings; social distancing and lockdowns; test, trace, and isolate; travel and border restrictions; environmental controls; and communications.

They found “clear evidence” that the strict implementation of NPI packages was effective in reducing the transmission of covid-19 and that these were “most effective” when applied at times of low transmission intensity, showing the importance of early action. However, as the pandemic progressed and the virus became more transmissible these interventions became less effective in controlling transmission, the group found.

Salim Abdool Karim, a Royal Society fellow and member of the working group, told a Science Media Centre briefing, “NPIs work, they are context specific, and some of them work better in certain settings. You have to make decisions on which combinations are most suited for each setting.”

## Social distancing worked best

The authors found that social distancing and lockdowns were the most effective NPIs. They wrote, “Stay-at-home orders, physical distancing, and restrictions on gathering size were repeatedly found to be associated with significant reduction in SARS-CoV-2 transmission, with more stringent measures having greater effects.”

Face masks and mask mandates were also deemed to be “effective,” with higher grade masks, such as N95 masks, more effective than surgical-type coverings.

In terms of contact tracing and isolation measures, the team found studies from several countries that put strict “test, trace, and isolate” systems in place, which showed reductions in deaths from covid-19.

The findings were more mixed when it came to international border measures and environmental controls. From the available evidence, the group concluded that quarantine at entry borders was the most effective, while symptomatic or exposure based screening, such as temperature checks before travel, had “no meaningful effect on reducing importation or transmission.”

The team found a lack of evidence on whether the use of screens in public spaces or enhanced cleaning procedures had any real effect on transmission. They said it was not clear how significant the transmission of this virus was through surface contact. They did find some evidence to suggest that enhanced ventilation, air treatment, and lower room occupancy reduced transmission in some settings, but these measures were often applied in combination with other NPIs, making it more difficult to tease out their individual impact.

Lastly, the group looked at the effect of communication on uptake of NPIs in the UK. They found “limited evidence” to suggest that the communications were “sufficiently effective to ensure high adherence” but that trust and confidence in the people communicating was key, as was the clarity and consistency of the messaging and the “opportunity for personal control.”

The team also highlighted some evidence to suggest that communications through social media websites were “less likely to be associated with higher adherence than those via the traditional media.”

As well as facing difficulties untangling the individual effects of certain interventions because measures were often implemented in tandem, the expert group identified other limitations to their review, including a lack of experimental studies and their focus on transmission—meaning that they did not consider the socioeconomic, developmental, or mental health related effects of NPIs.

Michelle Kendall, research fellow in the Department of Statistics at the University of Warwick, who was not involved in the report, commented, “Such evaluations are much needed because of the wide societal impacts of NPIs, and to learn lessons for the future. The findings of this report are important, as are its practical recommendations towards enabling more rapid and robust cost-benefit evaluations in future.”

## The next pandemic

Karim argued that further research on how to use NPIs to the greatest effect was “going to be critical” and needed to be done in “peacetime, before we go into the midst of a pandemic.”

The report called on policy makers to consider the balance between the benefits and adverse effects of NPIs in advance of the next pandemic, emphasising that it was “likely to be different in important ways from covid-19 and other previous pandemics.” They should also work with researchers to improve knowledge on the effectiveness of NPIs under

laboratory conditions and in different scenarios, it advised.

Karim said, “We’ve got to expect that we will be dealing with new pandemics. Sooner or later they are going to happen. And often when they happen we don’t know what the organism is, and so the ability to test and make vaccines takes time. So, in between we are going to need NPI interventions.”

- 1 Royal Society. Covid-19: examining the effectiveness of non-pharmaceutical interventions. Aug 2023. <https://royalsociety.org/topics-policy/projects/impact-non-pharmaceutical-interventions-on-covid-19-transmission/>

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