

Evaluating the impact of COVID-19 travel bans

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Country	Date of Ban	Estimated % reduction in imported cases of COVID-19
China	1 February 2020	94.45%
Iran	1 March 2020	32.81%
South Korea	5 March 2020	94.41%
Italy	11 March 2020	77.9%

Summary of the effect of individual travel bans. Credit: CSIRO

Australian scientists have modeled a way to determine how many cases of COVID-19 could be traveling on any international flight, based on data from the first six months of the pandemic, which could help Australian authorities make decisions about incoming international travel.

Developed by CSIRO, Australia's national science agency, and Queensland University of Technology, the tool can forecast the number of potential infections on each flight using the number of incoming travelers and the rate of disease in the countries they're arriving from.

Researchers evaluated the [travel](#) bans implemented by the Australian government at the start of the pandemic showing they lowered the number of COVID-19 cases brought into the country by 88 percent.

CSIRO research scientist Dr. Jess Liebig, said the model gives governments another tool to aid complex decisions on [travel restrictions](#) and the opening of borders.

"The model is a flexible framework that can be used to quantify the effects of travel restrictions and to evaluate proposed relaxations," Dr. Liebig said.

"It also enables us to pinpoint the groups of travelers most likely to be carrying the virus, so authorities can more efficiently direct healthcare and biosecurity control strategies."

The scientists applied the model to two scenarios; one with open borders and another which reflects the actual travel restrictions implemented by Australia between January and June 2020.

During this period Australia introduced travel bans on China, Iran, South Korea and Italy due to their high rates of COVID-19 disease before a full travel ban on all foreign nationals commenced on 20 March 2020 to curb the spread of the virus.

"Our modeling shows that without travel restrictions, over 48,000 COVID-19 cases were likely to have been imported to Australia from January to May 2020," Dr. Liebig said.

"However, all of Australia's travel bans successfully lowered imported cases into Australia by 88 percent, to an estimated 6,000 cases over the studied period."

Queensland University of Technology's Professor Raja Jurdak said the model is the first to quantify the expected number of COVID-19 importations from all countries globally into a particular country.

"The effectiveness of travel bans on individual countries varies widely and depends heavily on the behavior of returning residents and citizens," Professor Jurdak said.

"If we can better understand and forecast the likely spread of COVID-19 through air travel, we can make more informed decisions about when and how to reopen international borders,"

The research paper, Should international borders re-open? The impact of travel restrictions on COVID-19 importation risk, was published in *BMC Public Health* on 23 August 2021.

More information: Jessica Liebig et al, Should international borders re-open? The impact of travel restrictions on COVID-19 importation risk, *BMC Public Health* (2021). [DOI: 10.1186/s12889-021-11616-9](https://doi.org/10.1186/s12889-021-11616-9)

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