

compared to the hospitalization rate.” Early reports suggest that most breakthrough infections with Omicron have been mild, says Madhi. “For me, that is a positive signal.”

### Does Omicron cause milder or more severe disease than previous variants?

Early reports linked Omicron with mild disease, raising hopes that the variant might be less severe than some of its predecessors. But these reports – which are often based on anecdotes or scant scraps of data – can be misleading, cautions Müge Çevik, an infectious-disease specialist at the University of St Andrews, UK.

A challenge when assessing a variant’s severity is how to control for the confounding variables that can influence the course of disease, particularly when outbreaks are localized. For example, reports of mild disease from Omicron infection in South Africa could reflect the fact that the country has a relatively young population, many of whom have already been exposed to SARS-CoV-2.

Researchers will be looking for data on Omicron infections in other countries. This geographical spread, and a larger sample size as cases accrue, will give researchers a better idea of how generalizable the early reports of mild disease might be. Ultimately, researchers will want to conduct case-controlled studies, in which two groups of participants are matched in terms of age, vaccination status and health conditions.

All of this will take time. “I think the severity question will be one of the last bits that we’ll be able to untangle,” says Çevik.

### Where has Omicron spread and how are scientists tracking it?

More countries are detecting the Omicron variant, but the capacity to rapidly sequence viruses from positive COVID-19 tests is concentrated in wealthy countries, meaning that early data on Omicron’s spread will be skewed.

Surveillance efforts in Brazil and some other countries are taking advantage of a distinctive result on a particular PCR test that could allow them to pinpoint potential Omicron cases for sequencing, says virologist Renato Santana at the Federal University of Minas Gerais in Brazil.

Even so, not everyone uses that test and it could take some time before Omicron’s spread is fully mapped. Despite some guidelines urging countries to sequence 5% of samples that test positive for SARS-CoV-2, few can afford to do so, says computational virologist Anderson Brito at the All for Health Institute in São Paulo, Brazil. And Brito worries that the travel bans enacted by some countries in the wake of the Omicron discovery could discourage governments from sharing genomic surveillance data. “We are punishing those who did a good job,” he says.

## Omicron border bans ignore the evidence, say scientists

### Researchers say travel restrictions are too late and might even slow studies of Omicron.

More than 50 countries have stepped up border controls to keep out Omicron, a highly mutated SARS-CoV-2 variant of concern that is sweeping through South Africa. But researchers say restrictions targeting only travellers from a handful of countries are unlikely to work, and come at significant cost.

Scientists in some affected countries also say that travel bans risk slowing down urgent research on Omicron, by limiting the arrival of imported lab supplies.

“I’m not that optimistic that the way in which these measures are being rolled out right now will have an impact,” says Karen Grépin, a health economist at the University of Hong Kong.

“It’s too late. The variant is circulating globally,” agrees Kelley Lee, who studies global health at Simon Fraser University in Burnaby, Canada.

Many travel bans target South Africa, which raised the alarm about Omicron on 24 November, as well as Botswana, Lesotho, Eswatini, Zimbabwe and Namibia.

In South Africa’s most populous province, Gauteng, Omicron accounts for the majority of virus samples sequenced in the past few weeks. The World Health Organization (WHO) designated it a variant of concern because it has many mutations in its spike protein, which could make it more infectious or improve its ability to evade antibodies.

Researchers say border restrictions might deter nations from alerting the world to variants in future. They will also slow down urgent research, because few planes carrying cargo – including lab supplies needed for sequencing – are now arriving in South Africa. Researchers are racing to understand how Omicron’s transmissibility and ability to evade immunity created by vaccines differ from those of pre-existing SARS-CoV-2 variants. They’re also investigating the relative severity of the illness Omicron causes.

Travel bans “affect the speed at which scientists are able to investigate”, says Shabir Madhi, a vaccinologist at the University of the Witwatersrand in Johannesburg, South Africa. Researchers might also struggle to share samples with global collaborators.

Tulio de Oliveira, a bioinformatician at the University of KwaZulu-Natal in Durban, South Africa, says the slashing of commercial flights could threaten crucial genomic surveillance efforts by a network of institutions in the country. “By next week, if nothing changes, we will run out of sequencing reagents,” he says.

Last week, the WHO published guidance that recommended against travel bans to control viral spread. The advice includes specific recommendations for measures that would be useful, including quarantining new arrivals, and testing travellers for SARS-CoV-2 before and after journeys.

The WHO guidance represents a clear shift in researchers’ understanding of the effectiveness of travel restrictions over the course of the pandemic. Before COVID-19, scattered data led many public-health agencies to denounce border restrictions – although almost every country imposed them in early 2020. But the pandemic has revealed that restrictions can be useful in certain contexts (K. A. Grépin *et al. BMJ Glob. Health* 6, e004537; 2021), especially for relatively geographically isolated nations such as Australia and New Zealand.

One lesson has been that restrictions are most effective when implemented rapidly, but the Omicron-related border closures were too late, says Grépin. The variant has now been detected on every populated continent and in more than 20 countries and territories. “As soon as countries start looking for it, they’re finding it, so the advantage of time is probably gone,” she says.

Restrictions are also probably most effective at slowing the number of initial cases in a country when they reduce the total volume of arrivals, rather than when they focus on specific countries, says Lee.

For such measures to be effective, they also need to be comprehensive, including regular testing and at least a week of quarantine (B. Yang *et al. Lancet Reg. Health West. Pac.* 13, 100184; 2021) for travellers who do arrive, says Catherine Worsnop, who studies international cooperation during global health emergencies at the University of Maryland in College Park. But this, she says, is something “most countries have not done”.

By Smriti Mallapaty