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Slovakia to test all adults for SARS-CoV-2

Slovakia plans to be the first country to test its whole population for SARS-CoV-2, but experts warn of logistical and technical challenges. Ed Holt reports from Bratislava.

Slovakia has begun a massive operation to test its entire adult population for SARS-CoV-2 in a bid to halt what its government has said is an alarming acceleration of the spread of the virus in the country.

An initial 3-day pilot testing scheme in four regions in the north of the country that have become infection hotspots began on Oct 23, 2020, ahead of mass testing of the rest of the population on the two weekends of Oct 30–Nov 1, and Nov 6–8. But questions remain about the effectiveness and safety of an operation that was only announced 2 weeks before it was due to begin, with some infectious disease experts warning that the plan could put people's health at risk and undermine public trust in measures to contain the virus's spread.

The number of COVID-19 cases has risen rapidly in Slovakia since the end of the summer. The country garnered international praise for its response to the virus in the first wave of the pandemic. Slovakia's first identified SARS-CoV-2 infection was in early March, and between then and September, it had recorded relatively few infections, with new daily cases rarely rising beyond 100.

But in the past 3 weeks, thousands of new infections have been identified per day, with the proportion of infections per number of people tested at just under 16%. Government ministers have called the numbers alarming and had warned that, unless the spread of the virus is slowed, the country's hospitals could be on the brink of collapse within weeks.

For the mass testing, thousands of testing sites are to be set up across the country and everyone over the age of 10 years—approximately 4 million people—will be asked to attend a

testing site and take an antigen test. After being tested, people must wait in a separate disinfected room and, around half an hour later, will be given their results.

Anyone testing positive must remain in strict self-isolation at their home for 10 days, or they can go to a quarantine facility provided by the state. Many shops are being closed and restrictions on movement imposed

“This kind of testing can't be implemented overnight. Doing so would be optimistic to the point of fallacy.”

during the 3-week period of testing with people subject to random spot checks by police. Everyone taking the test will be given a certificate to present if requested. Failure to do so could result in a fine of €1650. The testing is voluntary, but anyone not participating must self-isolate in their homes for 10 days. Breaking this quarantine also carries a fine of €1650. Individuals older than 65 years who spend most of their time at home have been urged not to participate, but the government has said that it will carry out testing of older people in care homes. Testing will also be done in hospitals.

Leaders of the country's ruling coalition government have backed the mass testing as the best way to combat the increasing spread of the disease. But many experts have said that although mass testing in itself is not a bad idea, Slovakia's approach the way it is being done in is flawed.

“This isn't a good move. There are some serious risks to this”, Vladimir Leksa, an immunologist working with the Slovak Academy of Sciences and the Medical University of Vienna, Vienna, Austria, told *The Lancet*.

Scientists have questioned the use of antigen tests, which WHO has said are not suitable for mass testing unless used alongside PCR tests. The tests that have been purchased by the government include BIOCREDIT COVID-19 Ag (RapiGEN, South Korea) and Standard Q COVID-19 Ag (SD Biosensor, South Korea). The Prime Minister Igor Matovič, reading from the package insert for the latter, said the test has a specificity of 99.68% and a sensitivity of 96.52% compared with PCR tests. One study, however, has suggested that some specificities and sensitivities are much lower than those reported. Experts also point to increased risk of infection at testing sites and concerns over massive logistical challenges.

While the army has been called in to help, the government has had to appeal for volunteers to do administration and whether there will even be enough trained medical staff, or necessary equipment, for the necessary tests is unclear.

The government has said that 20 000 medical staff will be needed for the nationwide mass testing, and as of Oct 25, ministers said that they had not yet reached that target. Health Minister Marek Krajčí has appealed to Slovak doctors abroad to return to help. How checks will be done on anyone self-isolating after being tested is also unclear.

Alexandra Brazinova, an epidemiologist at the Medical Faculty of Comenius University in Bratislava, told *The Lancet* that “there are many risks: not communicating properly to the public the aim and process of the testing could create misunderstanding, frustration, fear, and opposition”. She added, “then there are the logistics required—many health-care workers, assistants, and the army will be needed.

And there is also a risk of infection at testing sites”.

Brazinova said that there was a risk of many false-positive and false-negative results, which could allow infected people to spread the disease while keeping others needlessly in quarantine. “This could undermine public trust towards testing and all other pandemic containment measures”, she explained.

The pilot tests initially encountered problems. Some centres were unable to open because of a lack of equipment or personnel—volunteers did not turn up, or health-care workers were found to be infected themselves. At others, hundreds of people queued outside for hours, although social distancing was enforced by soldiers, who had been drafted in to help. But by the third day officials at sites reported that testing was running smoothly.

Over the 3 days, 140 951 people were tested of an estimated maximum 155 000 people eligible to take part, with 5594 positive cases identified.

Beyond the potential difficulties involved in successfully testing, questions have also been raised about its ultimate benefits. Brazinova said “the mass testing will not stop the pandemic; the best it will do is to slow the spread and get us back to where we were a few weeks ago”.

The government has admitted as much, stressing that testing is not a quick fix. Slovak Government and state health-care officials declined to comment on the testing programme when contacted by *The Lancet*.

But members of the government’s advisory team of medical and scientific experts are adamant that mass testing will be a key tool in reversing the upward trend in infections and point to what they say was the success of the pilot testing.

Pavol Jarčuška, an infectologist and member of the government’s scientific advisory team who helped with the pilot testing, told *The Lancet* that “the pilot testing was a success. We got thousands of the most infectious

people into quarantine, there were no real problems, social distancing was observed at all times and it was safe. It was good preparation for the nationwide testing. Whatever happens now, this testing will have had an effect because we have identified around 5000 infected people in one area alone. It will also help to buy us some time for Slovakia’s health-care system”.

Addressing concerns over the use of only antigen tests, he said that “nowhere in the world has the capacity to do testing on this scale in the space of a weekend using PCR tests. Antigen tests are not as sensitive in the first few days of a person’s infection, which is why we are doing the second tests a week later”.

There is little precedent for the massive scale of the testing being attempted in Slovakia. Earlier in October, Chinese authorities tested more than 7 million people in the city of Qingdao over 3 days. The Chinese operations used sample pooling in which residents’ individual samples were collected and then processed in batches of ten at a time in a single nucleic acid test. Similar tests of 9 million people were done in Wuhan in May. But testing a country’s entire population has not been attempted anywhere else.

Prominent supporters of mass testing in other countries have welcomed Slovakia’s plans, telling international media that the country could provide an important case study for the rest of the world.

Julian Peto, professor of epidemiology at the London School of Hygiene & Tropical Medicine, London, UK, who has been campaigning for the UK Government to adopt regular mass testing, told *The Lancet* that the testing in Slovakia “sounds like a great idea, and I am delighted someone has decided to try it, but this seems like a very bad way of doing it. This kind of testing can’t be implemented overnight. Doing so would be optimistic to the point of fallacy. It needs to be prepared properly”.



Radovan Stoklasa/Reuters

However, although many experts both in Slovakia and abroad agree on the potential benefits of mass testing, even the government’s own scientific advisers have suggested that a different course should be taken to stem the current rise in infections. At a press conference confirming on Oct 22 that the tests would be going ahead, Matovič said that the government’s scientific advisory team had told him that he should instead impose an immediate 3-week lockdown with severe restrictions on movements and only essential businesses left open. Matovič said that he had rejected that suggestion on economic grounds. He has claimed that such a lockdown would cost the economy €80–100 million per day.

Leksa said that a so-called hard lockdown with severe restrictions would have been a better idea than the mass testing and that it was very likely that Slovakia “will end up having to have a lockdown anyway” soon, something that Matovič has said will happen unless infection numbers start falling by the end of the testing period. Leksa added that the prime minister’s decision highlighted what he sees as a detrimental role politics is playing in the response to the country’s outbreak. “In my opinion, politicians should let the experts—scientists, epidemiologists, and others—decide what needs to be done.”

Ed Holt