

Antigen tests: blunt but fast COVID weapon

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Less precise but faster than other forms of COVID-19 diagnosis, antigen tests—such as the 150 million kits ordered by US President Donald Trump this week—are another weapon in the pandemic battle, experts say.

Whereas tests such as RT-PCR nasal swabs require sophisticated lab equipment to detect the virus' [genetic material](#), antigen tests offer the prospect of a result within minutes without any specialist gear.

Speed is key

The size and shape of a credit card, the tests use a paper strip containing [coronavirus](#) antibodies that react when they touch the virus's spike protein, similar to how a [home pregnancy test](#) reacts to hormones.

However, the antigen tests may require further confirmation by a PCR test, particularly if a person tests negative but appears to have symptoms.

According to the World Health Organization, the antigen tests can be used to detect COVID-19 in

regions where there is a shortage of PCR tests, or when there are "prolonged turnaround times" for results.

They could play a role in stemming the second viral wave in countries such as France and Britain, where demand for testing has surged and delays in delivering results are stacking up.

The idea, according to Dominique Le Gulse, president of France's health authority, is to get patients who test positive to isolate as soon as possible.

"One case detected more quickly will allow for measures to reduce the risk of contaminating others," she said.

Testing gap

The WHO on Monday announced some 120 million antigen tests will be available for poorer nations at a cost of \$5 each.

It said the \$600-million scheme would enable low- and [middle-income countries](#) to close the dramatic gap in testing.

"This will enable the expansion of testing, particularly in hard-to-reach areas that do not have lab facilities or enough trained health workers to carry out PCR tests," said WHO director-general Tedros Adhanom Ghebreyesus.

Threshold

The precise reliability varies from model to model, leading the WHO to set a minimum accuracy threshold of 80 percent—that is the probability that a [test](#) will return a positive result if a person is infected.

Negative results should be correct at least 97 percent of the time. This is important in ensuring that other viral illnesses such as seasonal flu are not conflated with COVID-19 cases.

Timing key

Their usefulness also varies significantly with time. They are at their best when an individual has a lot of virus in their [nasal cavity](#), which is also probably the point at which they are most contagious.

"Rapid antigen tests perform best when the person is tested in the early stages of infection with SARS-CoV-2 when viral load is generally highest, said the US Centers for Disease Control.

The WHO says the tests should be administered "within the first 5-7 days following the onset of symptoms".

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