NUHS National University Health System

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Medical workers collecting samples at a drive-through testing facility in San Francisco in March. The United States is among countries that have administered saliva tests to detect Covid-19. PHOTO: AGENCE FRANCE-PRESSE

Singapore may use saliva as it ramps up testing capacity

MOH looking into feasibility of incorporating it into testing regime

Cheryl Tan

The use of saliva to test for Covid-19 is being considered by the health authorities here, as Singapore ramps up its testing capacity.

Responding to queries from The Straits Times, the Ministry of Health (MOH) said it will "continue to review global and local clinical research and evidence on the feasibility of incorporating saliva testing into (its) testing regime". This is part of regular assessments on the suitability of new testing technologies, its spokesman said.

Saliva testing is already being administered in places such as Hong Kong, Japan and the United States as it is non-invasive and less uncomfortable compared with nasal swab tests.

Those who push for the method say it also reduces the risk of exposure and infection for healthcare staff and others who do the tests.

The British health authorities have begun trialling do-it-yourself test kits at home, hoping to detect asymptomatic cases early and ramp up the nation's testing for Covid-19.

Some experts, though, are questioning the reliability of using saliva samples to detect Covid-19.

They note, for example, that even as some research may suggest that saliva sampling could be comparable to swabbing when conducting polymerase chain reaction tests, the saliva sample should include throat secretions, which generally have a higher viral load, to yield more accurate results.

Associate Professor Hsu Li Yang, programme leader of infectious diseases and co-director of global health at the National University of Singapore's Saw Swee Hock School of Public Health, said the viral load in "pure saliva" is relatively low, whereas "secretions from the back of the throat, which includes the oropharynx and nasopharynx, generally have a higher viral load".

And if unsupervised or self-administered at home, "the saliva collection may be done poorly or improperly, be it deliberately or inadvertently", which could produce variable or inaccurate test results.

The process of obtaining saliva and throat secretions may also generate respiratory droplets, which could be a concern if the saliva is collected in a crowded place without proper infection control and cleaning measures, Prof Hsu said.

Still, saliva testing is not without its merits. Depending on the testing strategy and the population targeted for testing, administering saliva tests could reduce bottlenecks at mass testing centres as it would require fewer supervisors, who need not be medically trained for swabbing, said Prof Hsu.

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Currently, incoming travellers at Hong Kong airport are required to undergo saliva tests, as these are fast to administer and hardly require supervision.

Associate Professor Alex Cook, vice-dean of research at the Saw Swee Hock School of Public Health, said saliva testing – if approved here – could be "more palatable to groups who might baulk at being swabbed", for example, young children.

As research continues in this area, Singapore-based molecular diagnostics company Lucence and the Agency for Science, Technology and Research have come up with a saliva collection kit called Safer-Sample.

About 2ml of saliva is collected through a funnel connected to a collection tube. A bottle of stabilisation fluid containing a reagent is then mixed into the sample, which stabilises the viral RNA – the genetic material of the virus – at room temperature for up to one week.

At the same time, the Sars-CoV-2 virus that causes Covid-19 is inactivated such that it will no longer have the ability to invade other cells. This will help reduce one's risk of exposure to the virus when handling samples during collection, transport and testing.

The Straits Times understands that the test kit is now undergoing clinical validation studies, to assess its feasibility and reliability.

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