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Covid-19 breathalysers could be used on large scale in S’pore soon

Clara Chong

Mass deployment of Covid-19 breathalysers that produce results on the spot may soon happen here. This will facilitate safe travel arrangements and screenings at large-scale events.

The Straits Times has learnt that local medical technology firm Silver Factory Technology is working with the National Centre for Infectious Diseases (NCID), Changi Airport and security firm Certis to develop its breathalysers.

Silver Factory’s breathalyser, TrackX, has been shown to be almost as accurate as polymerase chain reaction (PCR) tests, while taking a fraction of the time – at two minutes – to turn in results.

Compared with PCR tests – the gold standard for testing – the disposable breathalyser’s sensitivity rate so far has been over 95 per cent, and its specificity, more than 99 per cent. Sensitivity refers to a test’s ability to identify those infected as positive, while specificity refers to a test’s ability to correctly identify those not infected as negative.

It is also cheaper, costing around US$20 (S$27) each currently.

Trials have already started at the NCID, Changi Airport Terminal 1 and Certis, with a total of more than 400 individuals tested to date, Silver Factory said.

In an unblinded trial at Changi that began last month, arriving passengers were selected randomly and asked to volunteer for the trial by providing a breath sample.

The test site was set up with the help of NCID, which evaluated its biosafety protocols and monitored and analysed the data collected.

“Breathalyser tests are less invasive, more cost-effective and can deliver results in two minutes or less, making them ideal for the travel industry,” said Mr Simon Liew, the managing director of Silver Factory.

The results are expected to be released by the end of the month.
Firm aims to ramp up production of breathalphysers

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which, if proven reliable, will make the airport experience for passengers a smoother one and give reopening efforts a boost,” said Changi Airport Group’s senior vice-president of passenger experience, Albert Lim.

Silver Factory, founded in January last year as a spin-off from Nanyang Technological University, aims to produce at least 200,000 breathalphysers a month from June, potentially ramping up production to two million a month. The product’s cost price is expected to fall once large-scale production begins.

Sensor chips will be produced in Silver Factory’s upcoming 300 sq m pilot plant in Tuas – roughly the size of three five-room Housing Board flats – while home-grown manufacturing company Dou Yee Technologies will assemble the devices.

Further studies are also set to begin soon at Changi Airport, NCID and some hospitals in Malaysia, Silver Factory said.

At least 1,000 participants will be recruited in Singapore, as well as in Hong Kong, Macau and Qatar.

Professor Ling Xing Yi, one of the co-founders of Silver Factory, told ST that trials will be expanded to Malaysia due to the low Covid-19 infection number.

Silver Factory aims to apply for regulatory approval from the Health Sciences Authority (HSA) by late June.

Once approved, Silver will also use these breathalphysers in its current Covid-19 testing operations, said its chief executive, Jia Zhunan.

The breathalphysers is disposable and will then be safely discarded.

The breathalphysers are the gold standard for testing – Silver Factory’s breathalphysers has a sensitivity of over 95 per cent and a specificity of over 99 per cent.

Details on the breathalphysers can be found below.

Below, from left: Silver Factory co-founders Phong-Quang Gia Chuong, Ling Xing Yi and Phang In Chong, with the company’s Covid-19 breathalphysers, TracieX, at Changi Airport, NCID and in Dubai – with over 3,000 people tested in total. It aims to get HSA approval by the first half of this year.

“This trial will help Breathox better understand and improve the actual deployment workflow for our breath cost station,” said its chief executive, Ja Zhunan.

Below, from left: Silver Factory co-founders Phong-Quang Gia Chuong, Ling Xing Yi and Phang In Chong. Silver Factory’s upcoming 300 sq m pilot plant in Tuas – roughly the size of three five-room Housing Board flats – while home-grown manufacturing company Dou Yee Technologies will assemble the devices.

Detecting Covid-19 in a single breath

Breathalphysers developed by medtech start-up Silver Factory Technology employ vibrational spectroscopy to identify Covid-19 infections. This technology identifies the molecular fingerprint of volatile organic compounds present in the exhaled breath of individuals who have Covid-19.

Clara Chong looks at how this works.

Breathalphysers are less invasive, more cost-effective and can deliver results in two minutes or less, which, if proven reliable, will make the airport experience for passengers a smoother one and give reopening efforts a boost.

Mr Albert Lim, senior vice-president of passenger experience at the Changi Airport Group.