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MEDIA RELEASE

COVID-19: LOCAL 3D-PRINTED NASAL SWABS MAY SOLVE SUPPLY CHAIN PROBLEMS

FOR IMMEDIATE RELEASE

A MELBOURNE company has designed and 3D-printed nasal swabs which have been shown to be the equal of two commercially available swabs when recovering SARS-CoV-2 in vitro, according to the authors of research published today by the *Medical Journal of Australia*.

“Rapid upscaling of laboratory testing for SARS-CoV-2 has led to an acute global shortage of nasal swabs,” wrote the authors from the Royal Melbourne Hospital, Peter Doherty Institute for Infection and Immunity, Melbourne Health, the University of Melbourne, the Victorian Infectious Diseases Reference Laboratory, Austin Health, 3DMEDitech and the Microbiological Diagnostic Unit Public Health Laboratory.

Using specifications made available by US investigators four prototype designs were prepared and 3D-printed by 3DMEDitech. Further modifications were made in consultation with the researchers.

“To assess the ability of the 3DMEDiTech 3D-printed swab to detect SARS-CoV-2, an in vitro validation study was conducted,” the researchers wrote.

“This study: (i) assessed the recovery of SARS-CoV-2 from different transport media using the ‘Design G’ 3D-printed swabs, and (ii) compared the ability of 3D-printed swabs to recover SARS-CoV-2 with two swabs currently used in Australia to collect specimens for the diagnosis of COVID-19.

“A flocked nasopharyngeal swab was taken with the Copan Eswab as the standard of care, followed by a mid-nasal swab in the other nostril, using the 3D-printed swab. Both swabs were placed into individual tubes of 1 mL Liquid Amies transport media. The order in which swabs were collected was randomised 1:1. Participants were asked to complete a brief survey on the levels of discomfort with each swab.

“There was 100% categorical agreement of SARS-CoV-2 detection from each concentration of mock sample between the Copan Eswab, Kang Jian swabs and 3DMEDiTech ‘Design G’ 3D-printed swabs in the three different transport media,” they found.

“In addition, SARS-CoV-2 was detected at all timepoints, across all swab/media combinations.”

The local production of swabs may solve supply problems globally, the researchers concluded.

“The widespread availability of 3D-printing capacity may enable many countries to ensure ‘sovereign supply chains’ of swabs, and the scalability of the technology means that, depending on local capacity, thousands of swabs can be produced per day,” they wrote.

“This may provide onshore manufacturing solutions to swab shortages in an unpredictable international market for both high- and low-income countries.”

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