Frequent Sars-Cov-2 Antigen Testing In A Disease-Free Population

C.S. Lau[1*], T.C Aw[1, 2, 3].

1. Department of Laboratory Medicine, Changi General Hospital, Singapore
2. Department of Medicine, National University of Singapore, Singapore
3. Academic Pathology Program, Duke-NUS Medical School, Singapore

*Correspondence should be addressed to:

Department of Laboratory Medicine, CHANGI GENERAL HOSPITAL, 2 SIMEI STREET 3, SINGAPORE 529889

E-mail: mike.lau.cs@gmail.com

Phone: +65 – 68504927

Fax: +65 – 64269507

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To the editor:

In the recent study reported by Smith et al. [1], in order to identify infectious individuals early during their infectious period, a university campus surveillance testing program was implemented to minimize forward transmission. It was noted when used every third day, the SARS-CoV-2 antigen assay demonstrated sensitivities (>0.98) comparable to those with RT-PCR testing. This has been supported by other reports [2] that recommend testing individuals every third day to reduce total infectiousness (up to 80% reduction).

However, in their study the data were stratified according to viral culture data to demarcate periods of viral shedding and not on quantitative viral loads of the individual subjects. All 43 adults included in the study were pre-selected with confirmed RT-PCR positive SARS-CoV-2 infection as a condition for enrolment. Thus, the study begins with an initial disease prevalence of 100%. The test performance seen in this study may not be achieved in a population with unknown disease prevalence or in subjects exposed to persons with COVID-19.

In our hospital laboratory, a staff member immunized with the Pfizer vaccine tested positive for SARS-CoV-2 in August 2021. As we were unable to quarantine all staff without compromising laboratory services, we stepped up surveillance and protective measures. These included the strict use of N95 masks instead of surgical masks, more stringent safe distancing measures and limiting the usage of common areas such as the pantry. All staff members (n=161) underwent immediate nasopharyngeal swab testing for SARS-CoV-2 RT-PCR (Roche SARS-CoV-2 Qualitative assay, Cobas 6800). All staff tested negative. Thereafter, staff were issued rapid antigen tests (Standard Q, SD Biosensor) to be performed daily for the next 2 weeks prior to coming to work. The Standard Q COVID-19 Ag Test is a rapid qualitative chromatographic immunoassay performed on nasal swabs from both nostrils. The reported evaluations [3] of the test shows a sensitivity of 41.8% and

specificity of 100%. Results of their antigen rapid tests were uploaded into the national COVID19 surveillance database every day. In addition, further nasopharyngeal swab RT-PCR testing was performed on day 4, 7 and 10. Over a 2-week period, none of our staff tested positive on either the SARS-CoV-2 RT-PCR or SARS-CoV-2 antigen tests.

Our real-world observations during this experience support the findings of Smith et al. that daily antigen rapid testing is equivalent to 2 or 3x weekly testing, and we observed this even in an initial disease-free population. With a loosening of restrictions, our laboratory is now transitioning back to antigen rapid testing twice a week for healthcare institutions.

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