

LETTER TO THE EDITOR

Rostered routine testing for severe acute respiratory coronavirus virus 2 infection among healthcare workers: Do we detect more?

To the Editor,

The emergence of SARS-CoV-2 variants of concern poses significant challenges because of its easy transmissibility, more severe disease, and possible reduced effectiveness to treatment or vaccines.¹ The rapid transmission of virus particles through droplets or aerosols makes gastrointestinal endoscopy a high-risk procedure for COVID-19 transmission.² The recent AGA update recommended against routine pre-procedure testing for SARS-CoV-2 in patients undergoing endoscopy to minimize delay in care.³ The recommendation was based on indirect studies and very low certainty evidence. However, the validity of this recommendation during the widespread community transmission of SARS-CoV-2 variants of concern is unclear. We describe our experience of rostered routine testing (RRT) for SARS-CoV-2 among HCWs in the endoscopy unit during the second outbreak of infection with SARS-CoV-2 variants.

In April 2021, a community and hospital outbreak of variant strains of SARS-CoV-2 (predominantly Delta) was reported in Singapore. A fully vaccinated nurse working in a public hospital in Singapore was confirmed with COVID-19 after seeking medical attention for acute respiratory illness. Following this, contact tracing and testing identified a small cluster of infected HCWs within the hospital and community cases linked to the hospital outbreak. In May 2021, as a part of national outbreak management, RRT was mandated for all the HCWs at the Singapore General Hospital (SGH) to identify asymptomatic carriers, irrespective of their vaccination status. SARS-CoV-2 PCR testing was performed weekly for the first 3 weeks, then bi-weekly for those who have received vaccines. All the HCWs have been recommended to receive mRNA vaccines at the hospital since the beginning of this year. For those unvaccinated, weekly PCR testing was performed. Regular reminders were sent to HCWs to complete their RRT on the specified date, and the results were tracked and stored in a central database. HCW, with a positive result, was placed on a leave of absence and advised self-quarantine at home for 2 weeks. To understand the benefit of this strategy, we extracted the information on RRT SARS-CoV-2 PCR results of all the HCWs working in the endoscopy unit, including endoscopists, fellows, nurses, reprocessing unit staff, patient care assistants, administrative staff, and technicians, from April to June 2021.

All outpatients ($n = 7176$) underwent universal screening for symptoms, exposure to sick contacts, and travel history before entering the endoscopy suite. Pre-procedure SARS-CoV-2 testing was performed only on the inpatients ($n = 953$). All of them are required to wear a surgical mask before and after the procedure while in the endoscopy unit. All the HCWs involved in patient care are mandated to wear personal protective devices (PPD) and

follow strict hand hygiene practices. Endoscopists and nurses in the scope room must wear a gown, hair net, gloves, N95 mask, and face shields at all times during the procedure. After the procedure, the endoscope is pre-cleaned and placed in a separate tray and sent to the reprocessing unit. The scope room and the surface are thoroughly cleaned with disinfectants before the next session.

A total of 8129 diagnostic and therapeutic procedures were performed during the study period. The breakdown of the procedures is shown in Table 1. Of the 199 asymptomatic HCWs, 174 (87%) were vaccinated, and 25 (13%) were not. A total of 1096 PCR tests were performed. A majority of the vaccinated (83%) and non-vaccinated (84%) HCWs underwent at least five rounds of testing. The remainder underwent three rounds of testing, and very few received only one swab during the study period (Table 2). Despite the intense testing, none of the HCWs was found to be positive for SARS-CoV-2.

Table 1 Total number of procedures performed in endoscopy unit

	April 2021	May 2021	June 2021
EGD ± therapy	1260	951	1102
Colonoscopy ± therapy	1455	1107	1412
Sigmoidoscopy ± therapy	221	179	229
ERCP	23	19	31
EUS	56	31	44
ESD	1	2	6
Total	3016	2289	2824



Table 2 Outcome of RRT among healthcare workers

	Vaccinated ($n = 174$)	Not-vaccinated ($n = 25$)
Endoscopists	38 (22%)	1 (4%)
Fellow	15 (9%)	3 (12%)
Nurses	91 (52%)	20 (80%)
Patient care assistants	13 (7%)	0
Administrative staff	9 (5%)	1 (4%)
Technicians	8 (4%)	0
Total number of PCR tests	943	153
HCW with (%)		
≥5 PCR	145 (83%)	21 (84%)
≤3 PCR	28 (16%)	3 (12%)
≤1 PCR	1 (0.5%)	1 (4%)
Positive RRT (n)	Nil	Nil

Our observation lends support to the recent guidelines against routine testing before endoscopy. Endoscopic procedures are shown to expose endoscopists' faces to potential infectious biological samples and increase the risk of acquiring an infectious disease.⁴ Studies evaluating droplet generation during endoscopy have shown that upper endoscopy could produce approximately 500 liquid droplets during the procedure. This corresponds to about 6500 viral copies per procedure.^{5,6} Despite such risks, multiple rounds of testing involving a large group of HCWs did not identify any SARS COV-2 infection. We could only postulate that the strict infection control measures and the use of particle filtering masks during the procedure would have prevented transmission.

The pre-endoscopy testing strategy relied on the early identification and isolation of asymptomatic patients. However, with the implementation of population vaccination in Singapore (rate 80%) and almost all HCWs, being vaccinated might protect against infection transmission.⁷ The center for disease control and prevention recommends that fully vaccinated people with no COVID-19-like symptoms or exposure be exempted from routine testing.⁸ Similarly, no testing or quarantine is suggested for fully vaccinated people following exposure to suspected or confirmed COVID-19 cases. Although RRT would enable early detection and isolation of infected HCWs, the overall infection rate observed was negligible. Chow *et al.* showed that two rounds of weekly RRT of 11 004 HCW following a hospital outbreak did not detect any infection.⁹ Even among those who had close contact with a confirmed COVID-19 patient, the positive test rate was 0.7%. Given the low risk of infection among HCWs, performing RRT would only increase the cost, resources, workload, and anxiety among the healthcare workers.

In summary, implementing a rigorous patient symptom screening and surveillance program and adopting a strict infection control policy would be satisfactory to prevent infection among HCWs and RRT strategy adds little benefit.

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