


Letter to the Editor

Rostered routine testing for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) infection among healthcare personnel—Is there a role in a tertiary-care hospital with enhanced infection prevention and control measures and robust sickness-surveillance systems?

Angela Chow PhD^{1,2,3} , Huiling Guo MPH¹, Win Mar Kyaw MPH¹, Anthony Lianjie Li MD¹, Rachel Hui Fen Lim MPH¹ and Brenda Ang MPH^{4,5}

¹Department of Clinical Epidemiology, Office of Clinical Epidemiology, Analytics, and Knowledge, Tan Tock Seng Hospital, Singapore, ²Saw Swee Hock School of Public Health, National University of Singapore, ³Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore, ⁴Department of Infectious Disease, Tan Tock Seng Hospital, Singapore and ⁵Department of Infection Prevention and Control, Tan Tock Seng Hospital, Singapore

To the Editor—Active surveillance allows (1) early identification and isolation of individuals infected with severe acute respiratory coronavirus virus 2 (SARS-CoV-2), (2) tracing and quarantining close contacts, and (3) prevention of further transmission. Simulation studies suggest that rostered routine testing (RRT) for asymptomatic healthcare personnel (HCP) amid ongoing community transmission can substantially reduce the risk of coronavirus disease 2019 (COVID-19) outbreaks in hospitals.¹

With the low prevalence of SARS-CoV-2 in asymptomatic HCP of 0.1%–0.4%, the benefits of RRT for asymptomatic HCP in hospitals with good infection prevention and control practices and robust staff acute respiratory illness (ARI) surveillance systems remain questionable.^{2–7} However, with the emergence of more highly transmissible SARS-CoV-2 variant strains and institutional outbreaks caused by them,⁸ Singapore's Ministry of Health has implemented RRT for HCP working in acute-care hospitals.

On April 28, 2021, a nurse working in a general ward in Tan Tock Seng Hospital (TTSH) was confirmed with COVID-19 after seeking medical attention for ARI. A patient receiving care in the same ward was also confirmed with COVID-19 later that day. By May 22, 47 COVID-19 cases had been linked to the ward cluster caused by the B.1.617.2 variant strain. We describe the experience at TTSH in detecting COVID-19 in (1) HCP who were close contacts of COVID-19 cases linked to the cluster, (2) HCP who had been to the affected ward, and (3) asymptomatic HCP screened as part of outbreak management.

The TTSH is a 1,600-bed acute tertiary-care hospital with mostly multibed rooms with 4–6 patients each. The affected location was a multidisciplinary general ward without special isolation facilities. Aside from nurses and housekeepers who were ward-based, other HCP including physicians, surgeons, pharmacists, therapists, phlebotomists, and porters moved between wards.

Author for correspondence: Angela Chow, E-mail: angela_chow@ttsh.com.sg

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Upon detection of the cluster on April 28, 2021, the affected ward was locked down and contact tracing was initiated. HCP close contacts were defined as those who had interacted with a confirmed COVID-19 patient or HCP for a cumulative duration of ≥ 15 minutes within a distance of 2 m, or ward-based HCP. Close contacts were placed on quarantine and were screened for SARS-CoV-2 infection via polymerase chain reaction (PCR) test on entry to quarantine and at 7, 14, and 21 days from the date of last exposure to the confirmed case or to the ward. Furthermore, HCP who had visited the affected ward between April 20 and 28, 2021, for a cumulative duration of ≥ 15 minutes were also identified, placed on quarantine, and screened for SARS-CoV-2 infection on entry to quarantine and at 7, 14, and 21 days from the date of last exposure to the affected ward. The first patient identified with COVID-19 was admitted to the ward on April 20, and the ward was locked down on April 28. Additionally, all asymptomatic HCP working in the hospital underwent weekly SARS-CoV-2 PCR testing until the affected ward reopened on May 22.

Among 416 HCP close contacts who were placed under quarantine, 1 HCP was detected with SARS-CoV-2 infection via quarantine on-entry test 1 day prior to ARI symptom onset, and 2 were detected when they developed ARI symptoms within first 4 days of quarantine (Table 1). Among the 634 HCP who had visited the affected ward for ≥ 15 minutes, 1 HCP was positive 2 days prior to symptom onset.

Of 11,004 asymptomatic staff who had undergone 2 rounds of weekly SARS-CoV-2 PCR testing, none was confirmed with COVID-19. However, 10 were identified to have equivocal results, with high cycle threshold values ranging from 37.42 to 43.30. For these HCP with equivocal results, subsequent 2 swabs taken 24 hours apart yielded negative results by the hospital's laboratory and the national reference laboratory. All except 1 HCP had non-reactive serology test results; that HCP was a returned traveler from India who was diagnosed with COVID-19 on arrival to Singapore in March 2021. Each HCP with an equivocal test result was placed on leave of absence (LOA) and was advised to self-isolate at home except for returning to the hospital for tests. Coworkers identified to be close contacts of the HCP were also placed on LOA until the repeated tests returned negative. An average of 7 HCP close

Table 1. Categories of Healthcare Personnel (HCP) Screened for and Detected With SARS-CoV-2 Infection, April 28–May 22, 2021

HCP Category	Screened, No.	SARS-CoV-2 PCR Test Result			SARS-CoV-2 Detection Rate, %
		Detected, No.	Equivocal But Not Detected On 2 Subsequent Samples Sent 24 h Apart, No.	Not Detected, No.	
Close contact ^a	416	3	0	413	0.7
Visited affected ward ^b	634	1	0	633	0.2
Other HCP	11,004	0	10	10,994	0

^aHad an interaction with a confirmed COVID-19 patient or HCP for a cumulative total duration of ≥ 15 min within a distance of 2 m, or were ward-based HCP. ^bVisited the affected ward between April 20 and 28, 2021, for a cumulative total duration of ≥ 15 min.

contacts (maximum, 18) per HCP with equivocal test results were placed on LOA from work for a mean duration of 3.5 days (maximum, 5).

Although the screening of presymptomatic and symptomatic HCP close contacts and HCP who had visited the affected ward yielded a SARS-CoV-2 detection rate of 0.7% and 0.2% respectively, hospital-wide weekly screening of other asymptomatic HCP did not detect any SARS-CoV-2 infections. Instead, the hospital-wide screening resulted in a loss of productivity of 292 HCP-workdays, with a mean of 3.5 work days lost per HCP placed on LOA. For the HCP (a cook in the hospital) with the greatest number of HCP close contacts ($n = 18$) placed on LOA, response to the equivocal test result caused a reduction in food choices and compromised the nutritional services available to patients.

Even in the wake of a ward cluster due to a highly transmissible SARS-CoV-2 variant strain, the extensive hospital-wide testing of asymptomatic HCP did not uncover any covert infections. With the hospital's robust infection prevention and control measures and HCP ARI surveillance system, the implementation of RRT may yield limited benefits and paradoxically exacerbate strained manpower and laboratory resources that could be conserved to manage community SARS-CoV-2 infections.

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