



not fully vaccinated and had a significant-risk exposure were issued work restrictions and were advised to quarantine at home following CDC and local public health guidelines.

In total, serial PCR testing was arranged for 85 HCWs with significant-risk exposures to 1 of the 2 immunocompromised patients. Fortunately, none of the HCWs contracted COVID-19 due to the exposures. This finding was largely attributed to the high vaccination rate among exposed HCWs, of whom 85% were fully vaccinated, with partial vaccination in some of the remaining HCWs.

These 2 cases highlight additional infection prevention and control considerations in caring for immunocompromised individuals with risk of persistent COVID-19 infection. Isolation precautions were prematurely discontinued following negative NP swabs in both scenarios, leading to large-scale exposure among HCWs. These cases also highlight the overall unknown potential infectivity of immunocompromised patients with prolonged symptoms, where transmission risk may be lower in cases with negative NP swab results and positive BAL sampling results with high Ct values, suggesting decreased overall viral burden. A threshold for Ct-value infectivity in such patients, however, has not been established. Clinicians and infection prevention and control specialists should be aware of possible false-negative NP swab results in profoundly immunosuppressed hosts until more research can be conducted to understand the infectivity of persistent COVID-19 infection in this population.

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Effective risk management strategy prevented severe acute respiratory coronavirus virus 2 (SARS-CoV-2) transmission in three private hospitals in Hong Kong throughout the pandemic

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To the Editor—The subtropical city of Hong Kong has responded to the threat of coronavirus disease 2019 (COVID-19) with a local elimination strategy,¹ focusing on preventing virus introductions with border controls and timely application of public health and social measures to control community outbreaks if and when they occur.^{2,3} As part of the public health response, all confirmed or suspected cases of COVID-19 are isolated in designated public hospitals with isolation beds set up for this purpose. Following the 2003 SARS experience,^{4,5} 1,400 isolation beds were already available at the start of the pandemic for Hong Kong's population of

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7.5 million. More beds have been added throughout the pandemic, and at present >3,000 isolation beds are available. If COVID-19 cases are identified in patients in nondesignated hospitals, including private hospitals, the standing policy is for those patients to be transferred to the designated hospitals immediately. In addition, the Department of Health routinely traces close contacts of confirmed cases and quarantines them as one of the measures to control transmission in the community. To mitigate the risks posed by COVID-19, 3 private hospitals with nearly 700 beds have developed a 2-stage admission strategy resulting in zero hospital-acquired COVID-19 cases.

Stage 1 of the strategy focuses on screening incoming patients. All patients coming to the hospital are first screened by the appropriate clinical and epidemiological criteria: fever, travel history, occupation, contact with case, or cluster exposure (FTOCC). Any patient meeting 1 or more FTOCC criteria are isolated. All patients who

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Table 1. COVID-19 Infections in 3 Private Hospitals With Data Related to Stage 1 and 2 Procedures and Community Infections of Staff

Pandemic Period Under Evaluation: Jan 2020 to 16 July 2021 (18.5 mo)				
Hospital	A	B	C	Total
Total hospital beds	334	123	226	683
Data related to stage 1 procedures				
Total cases attending Emergency Room during the Pandemic	133,560 (7,220/mo)	100,565 (5,435/mo)	52,712 (2,849/mo)	2,868,837
Total days of cases during pandemic (hemodialysis, day surgery, endoscopy, chemotherapy)	7,431 (402/mo)	6,722 (363/mo)	25,042 (1,354/mo)	39,195
Total in-patient admissions during the pandemic	29,925 (1,609/mo)	10,895 (588/mo)	12,568 (697/mo)	53,388
SARS-CoV-2 PCR test done, no.	38,773	22,466	20,777	82,016
Confirmed COVID-19 cases transferred to designated HKDH hospitals, no.	39	16	22	77
Data related to stage 2 procedures				
No. of patients tested negative for SARS-CoV-2 but isolated in a single room for suspected infection	1,263	294	404	1,961
No. of patients positive after isolation	1	0	0	1
Contacts subsequently quarantined by HKDH, no.	0	0	0	0
Data related to community infection of staff with COVID				
No. of staff infected with community-acquired COVID-19	1	0	3	4
Contact tracing done to evaluate exposures to the infected staff	14 staff and 4 patients	0	72 staff and 10 patients	85 staff and 14 patients
Contacts subsequently quarantined by Department of Health Hong Kong	1 staff	0	7 staff and 0 patients	8 staff and 0 patients
Final outcome				
No of staff and patients with secondary hospital-acquired SARS-CoV-2 infection	0	0	0	0

Note. PCR, polymerase chain reaction assay; HKDH, Hong Kong Department of Health.

are negative for FTOCC on admission are tested using nucleic acid amplification testing (NAAT). Patients who are FTOCC or NAAT positive are reported to HKDH and are transferred by assigned ambulances to the HKDH isolation facilities. The goal in stage 1 is to not admit even a single COVID-19 case.

Stage 2 of the strategy is to mitigate risks within the hospital. All patients for whom infection is suspected are admitted and isolated in single rooms until all such suspicions are shown to be groundless. This procedure includes patients with symptoms of chest infection, those whose FTOCC status is uncertain, and those for whom admission is needed before the completion of stage 1 procedures. A key reason for this stage 2 strategy is the quarantine requirement: for any positive case of COVID-19 admitted inadvertently, all close contacts will be quarantined. The goal of stage 2 is to avoid such quarantine for any patient or hospital staff during the pandemic. Aggressive contact tracing of any COVID-19 patient admitted or any staff member that is infected from the community is performed in these hospitals as required by the Department of Health.

The numbers of patients seen in the emergency room as day cases and finally admitted as patients are shown in Table 1. All 3 hospitals have been in active service throughout the COVID-19 pandemic. Many SARS-CoV-2 tests have been conducted in stage 1 by the 3 hospitals. As of July 2021, 77 cases of COVID-19 had been successfully transferred to the designated isolation hospitals. In the stage 2 procedures, 1,961 patients had been isolated in single rooms (Table 1). Only 1 patient was subsequently found to be positive for SARS-CoV-2 in hospital A,

but no persons were quarantined because adequate infection control measures had been adopted.

Table 1 also shows the number of community-acquired SARS-CoV-2 infections among hospital staff, which led to substantial contact tracing efforts. Only 2 were clinical staff with patient contact, but appropriate infection control practices were in place and no quarantine of any patient was deemed necessary. In total, 8 staff were quarantined due to exposures to their colleagues, but no secondary infection resulted from these community-acquired infections.

In summary, the measures implemented in these 3 hospitals successfully prevented SARS-CoV-2 transmission. Despite 77 confirmed COVID-19 cases being treated in these hospitals, and only 1 admitted patient under isolation was found to be already infected. In addition, despite very low COVID-19 prevalence in the community, 4 community-acquired infections occurred among staff, but they were all aggressively managed by contact tracing and quarantine as required by the Department of Health, resulting in no secondary cases in these hospitals. This strategy was only possible because the Department of Health required that all confirmed COVID-19 cases be admitted to designated hospitals. The 3 hospitals are still required to ensure that the proper infection control practices are in place for all patient care procedures. Notably, with this strategy, a high number of diagnostic tests are required and sufficient single rooms must be allocated for stage 2. Nevertheless, achieving the result of zero secondary hospital-acquired cases in 3 active acute-care hospitals is a worthwhile accomplishment. This strategy deserves consideration, perhaps with added adaptations in different locations.

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Utilization of rapid antigen assays for detection of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) in a low-incidence setting in emergency department triage: Does risk-stratification still matter?

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To the Editor—We read with interest the article by Smith *et al*¹ describing the use of rapid antigen detection (RAD) for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) in guiding hospital admission triage. Given the rapid turnaround of point-of-care testing, various studies have utilized RAD tests at the point of entry into the healthcare system.^{1–4} However, most of these studies have occurred during periods of heightened transmission, with detection rates of 5%–21%.^{1–4} RAD testing in clinical scenarios with lower incidence, such as asymptomatic individuals, may potentially result in low detection rates with high false-positive rates.⁵ False-positive RAD tests have resulted in SARS-CoV-2–negative patients being admitted to coronavirus disease 2019 (COVID-19) cohort wards, with subsequent nosocomial transmission.² Conversely, given broad variations in potential infectivity among individuals with false-negative RAD tests,⁴ negative RAD tests need to be interpreted cautiously, especially in the context of significant contact history or clinical syndromes compatible with COVID-19. We describe our institution's experience with the implementation of RAD testing for SARS-CoV-2 to guide

admission triage in a low-incidence setting. RAD testing was utilized in tandem with pre-existing triage strategies that stratified admissions according to epidemiological risk and clinical syndromes,⁶ which allowed a comparison of these approaches.

In Singapore, a Southeast Asian city-state, hospitals instituted admission triage strategies early on to segregate patients presenting with clinical syndromes compatible with COVID-19.⁶ At our institution, the largest hospital campus in Singapore, patients with epidemiological risk were admitted directly to the isolation ward; patients without epidemiological risk who presented with clinical syndromes compatible with COVID-19 were isolated in modified cohort cubicles with reduced bed density in the “respiratory surveillance ward (RSW)” until SARS-CoV-2 was excluded by polymerase chain reaction (PCR) testing.⁶ During the first wave of COVID-19 from January to June 2020, these admission triage strategies were extremely successful in correctly placing suspected COVID-19 cases. Although $\geq 1,500$ cases of COVID-19 were managed in our institution, $< 5\%$ of cases were admitted outside isolation areas.⁷ However, with the emergence of more transmissible variant strains, a second wave of COVID-19 began at the end of April 2021, providing the impetus for universal screening of inpatients via PCR testing of respiratory samples on admission and every 7 days subsequently. On June 27, 2021, our institution began utilizing RAD testing to screen all admissions for SARS-CoV-2. Thereafter, patients with a positive RAD result were transferred

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