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## Letter to the Editor

## Reducing hospital admissions for COVID-19 at a dedicated screening centre in Singapore

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## To the Editor,

The National Centre for Infectious Diseases (NCID) Screening Centre (SC) in Singapore was activated on 28 January 2020 to evaluate patients referred from institutions nationwide for COVID-19 disease [1]. All suspect and confirmed cases seen were admitted for purposes of isolation to airborne infection isolation rooms, in line with a national containment strategy to limit community transmission. As the number of cases requiring admission increased, there was a need to develop a triaging algorithm to determine who could be discharged pending a confirmatory result. We describe a Swab-and-Send-Home (SASH) strategy implemented on 7 February during this outbreak that has helped to reduce hospital admissions.

Patients who fulfilled case definition as defined by the Ministry of Health would undergo a chest radiograph. They would then be stratified into high-risk or SASH according to criteria. If any high-risk suspect criteria were met, the patient was admitted for evaluation (Supplementary Appendix Figure A). High-risk criteria were modified according to latest available epidemiological and

scientific information on the global outbreak situation (please see supplementary material). In the SASH group, one nasopharyngeal swab for SARS-CoV-2 polymerase chain reaction (PCR) was taken immediately. Patients were sent home with a surgical mask, standard advice to observe personal hygiene, given 7 days of hospitalization leave and asked to return if unwell. A clinic appointment 5–7 days later was scheduled if SASH patients had acute respiratory illness with travel to areas of heightened vigilance or other countries with outbreaks, close contact with confirmed cases, prolonged ARI or visits to other hospitals overseas without pneumonia. No appointments were made for low-risk patients. If the PCR result was positive, the patient was recalled immediately for direct admission to NCID. If the PCR result was negative, clinicians conducted a tele-health consult with the patient via a phone call after 4–6 days to assess resolution or persistence of symptoms. If symptoms had improved or resolved, and there were no other reasons for medical review, the scheduled appointment was cancelled.

Between 7 February to 24 March 2020, a total of 10 571 patients were evaluated at the SC, of which 9153 (86.6%) fulfilled suspect case definition (Fig. 1). Using the algorithm, 8089 (88.4%) were SASH and the rest were admitted as high-risk suspects. Among those SASH, 3.1% were found to be positive and recalled for admission the following day regardless of clinical condition for purposes of isolation, compared with 10.2% positive in the high-risk direct admission group.

From 16 March, due to the high volume of follow-up appointments, physicians initiated follow-up tele-health consults via phone call to 793 SASH patients who had one negative swab result 1 day prior to the scheduled clinic appointment. This resulted in the cancellation of appointments for 480 (60.5%) patients whose symptoms had improved or resolved. Overall, there were 14 (0.17%) SASH patients who re-attended the SC or outpatient clinic within 14 days of the initial negative swab for persistent symptoms and were found to be positive on repeat swab.

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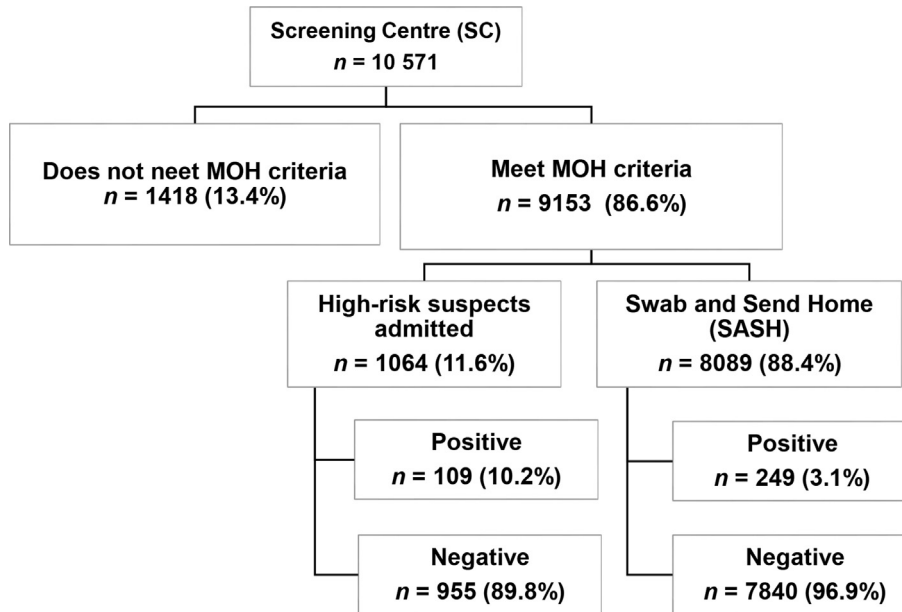


Fig. 1. Screening Centre attendances between 7 February and 24 March 2020. MOH, Ministry of Health.

As COVID-19 cases increase globally, healthcare institutions are facing greater pressure to perform diagnostic testing and allocate resources to patients who need hospital care the most [2,3]. Capacity to evaluate, test, admit or isolate persons under investigation for COVID-19 depend on healthcare resources available and case-loads, which will vary from country to country, and the degree of transmission in each. A SASH strategy followed up with a tele-health consult via phone call may be an effective intervention to optimize limited hospital resources. Nonetheless, given the constantly evolving nature of the COVID-19 outbreak response and differing national resources, the SASH algorithm would need to be contextualized and may need to be modified to meet changing needs.

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#### Authors contributions

Study conception and design: G.S.E. Tan, K. Marimuthu, M. Chan, S. Vasoo. Acquisition of data: G.S.E. Tan, C.Q. Gao, F.K.K. Ng, C.S. Wong. Analysis of data and figures: G.S.E. Tan, C.Q. Gao, M. Chan.

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#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.cmi.2020.05.005>.

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