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Case Report

Preparation and response to COVID-19 outbreak in Singapore: A case report

Fan Peijin Esther Monica*, Fazila Aloweni, Ang Shin Yuh, Elena Binte Mohamed Ayob, Norhayati Binte Ahmad, Chiang Juat Lan, Ho Ai Lian, Lee Lai Chee, Tracy Carol Ayre

Singapore General Hospital, Outram Rd, 169608, Singapore

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Abstract The COVID-19 pandemic has an overwhelming impact on the nursing profession. Nurses play a vital role before and during pandemics, with nurse leaders taking the lead in preparation for outbreaks. In response to an outbreak, early recognition and preparation for the increasing threat, managing staffing challenges together with the well-being of nurses are of utmost importance. Strategies to promote physical distancing while not compromising continuing nursing education and patient care are also essential. With prompt actions and coordinated efforts, risk of spreading the virus within the healthcare sector can be kept at the minimum. As nurses are in the frontline of healthcare, their confidence in being well-supported by the hospital should be maintained. This case report describes the preparation and response of the nurses in Singapore General Hospital to the COVID-19 outbreak in Singapore. © 2020 Australasian College for Infection Prevention and Control. Published by Elsevier B.V. All rights reserved.

Highlights

- Early recognition of a threat is key to prompt preparation.
- Physical and mental health of staff should not be neglected.
- Technology allows patients' needs to be met while maintaining physical distancing.

* Corresponding author.

E-mail addresses: esther.monica.fan.p.j@sgh.com.sg (F.P.E. Monica), fazila.abu.bakar.aloweni@sgh.com.sg (F. Aloweni), ang.shin.yuh@sgh.com.sg (A.S. Yuh), elena.mohd.ayob@singhealth.com.sg (E.B.M. Ayob), norhayati.ahmad@sgh.com.sg (N.B. Ahmad), chiang.juat.lan@sgh.com.sg (C.J. Lan), ho.ai.lian@sgh.com.sg (H.A. Lian), lee.lai.chee@sgh.com.sg (L.L. Chee), tracy.carol.ayre@sgh.com.sg (T.C. Ayre).

Introduction

The COVID-19 pandemic has an overwhelming impact on the nursing profession. However, little is known about how the nursing profession prepared for and is currently responding to it. This paper describes the preparedness and response of nurses in Singapore General Hospital to the pandemic. SGH is a 1700 acute tertiary hospital in Singapore. It offers a wide variety of healthcare services including outpatient specialist clinics, accident and emergency services as well as inpatient care.

Recognition of increasing threat - preparation at Singapore general hospital

The precursor to preparation, is the recognition of a threat. In 2003, SGH was badly affected by the Severe Acute Respiratory Syndrome (SARS) outbreak, whereby 19 healthcare workers, two family members, 13 patients and 6 visitors were infected by one index case at SGH [1]. Drawing from that experience and cautious to prevent history from repeating itself, SGH recognised the threat of COVID-19 in early January 2020 and responded in a swift manner to contain its spread, prepare to nurse COVID-19 patients and support our healthcare staff.

A nursing command post was organized to coordinate efforts across different nursing units. This ensured accurate and timely communication, as well as availability of workforce, equipment and supplies across units.

Nurse leaders identified ways to expand our emergency care and inpatient capacity. Additional areas adjacent to the emergency department were created to house patients with signs of respiratory infections; and wards were converted to accommodate patients with COVID-19.

To contain the spread of the virus, quarantine orders were implemented. During that period, healthcare workers returning from China were required to serve a 14-days leave of absence upon their return to Singapore. This protected fellow colleagues and patients in case the healthcare worker contracted the disease during his/her travels.

This quarantine order together with the increased staffing demands to cope with the rise in patient volume required adjustments in the distribution of our workforce. Nurses were deployed to cope with surges in the emergency department and isolation wards. To maximise efficiency, overlapping shift hours were reduced by rostering emergency care nurses on 12-h instead of 8-h shifts.

We also ensured that our nurses were prepared to face COVID-19. Staff records for size of N95 mask were updated, and refresher training sessions for the use of powered air-purifying respirator (PAPR) conducted. We adopted a 'train-the-trainer' approach to train the masses as it is well-suited for disseminating information quickly [2]. In addition, a PAPR training video for staff was developed. Training was prioritized towards needs arising from the outbreak. Other non-essential training were suspended.

To further enhance staff safety, nurses previously not based in wards (for instance research nurses and nurse educators) were deployed as spotters. They were responsible to guide the healthcare team in preventing any cross-contamination [3].

Well-being of nurses during outbreak

A higher rate of staff absenteeism during an acute respiratory disease epidemic is expected [4,5]. It may be attributed to preventive measures (e.g. staff with upper respiratory tract infections (URTI) were issued five days sick leave); perceived risk of occupational exposure [6] or caregiving duties at home (e.g. if school and child-care facilities close). Personnel at the nursing command post monitored sick leave records and observed for increase in absenteeism as well as possible clusters of nurses with URTI.

In addition to caring for their physical health, a staff care centre and dedicated helpline were set up to provide emotional support to healthcare workers. These services were provided by psychologists and medical social workers (MSW). They were organized as emerging infectious disease can cause stress among healthcare workers due of fear of contagion, concern for family's health, rapid changes in work conditions, interpersonal isolation as well as perceived stigma [7].

Physical distancing yet meeting patients' needs

Physical distancing prevents the spread of acute respiratory infections [8]. During the SARS outbreak, there was a period where an entire medical team was affected when one of the doctors was infected by SARS and the entire team were quarantined as a result. To prevent this, we practiced physical distancing from the start. Nurses in a care unit were divided into smaller care teams with each team responsible for a dedicated group of patients.

Besides physical distancing among staff, contact with COVID-19 cases was minimised to protect the workforce. Technology was used to achieve that goal without compromising on patient care.

Vital signs wearables were deployed to the isolation ward. Once the device was attached to the patient, nurses could remotely monitor the patient via a mobile application. Readings were then transmitted to the electronic medical records.

Mobile tablets were provided for patients in isolation. The purpose was to ensure patients remained engaged in their care [9] and to facilitate communication with the healthcare team without requiring direct contact. From the tablet, patients were able to view their care schedule, medication list, blood results and vital signs. Any blood test or radiological procedure ordered for the patient would also be reflected there. Patients could make common requests (e.g. "water") via the tablet rather than the call bell. This is preferred over the call bell as it reduced a trip by the nurse into the room to ascertain why the call bell was activated. Non-urgent messages could also be sent to nurses via the tablet. These measures reduced exposure of nurses to the virus and prevented PPE wastage.

Physical isolation increases rates of depression, anxiety, fear and hostility [10]. The bedside tablet was loaded with words of encouragement, video interviews of previous SARS survivors, and techniques for regulating stress. There was also a section on frequently asked questions to address the patients' anxieties. Lastly, instructions were

provided should they wish to speak to a MSW via a video call.

Conclusion

We believe that the prompt and coordinated efforts thus far minimised the spread of virus within the hospital. Till date, no nurse has been infected with COVID-19 during their course of work in SGH. Any nurse who were infected contracted it from the community or overseas. We hope that sharing these measures will be advantageous to the wider healthcare community.

Authorship statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Conflict of interest

None.

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Ethics

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