Community nursing services during the COVID-19 pandemic: the Singapore experience

Xu Yi, Nursa'adah Binte Jamil, Irene Tan Cheng Gaik, Lim Su Fee

Xu Yi, Senior Nurse Clinician, Community Nurse
Nursa'adah Binte Jamil, Senior Staff Nurse, Community Nurse
Irene Tan Cheng Gaik, Nurse Clinician, Community Nurse
Lim Su Fee, Deputy Director of Nursing, Advanced Practice Nurse, all at the Department of RHS-Community Nursing, Population Health and Integrated Care Office, Singapore General Hospital, Singapore

xu.yi@sgh.com.sg

The Chinese authorities alerted the World Health Organization (WHO) on the first case of coronavirus disease (COVID-19) on 31 December 2019 (WHO, 2020a). Singapore reported its first confirmed COVID-19 case on 23 January 2020 (Ministry of Health (MOH), 2020a). The COVID-19 outbreak was subsequently declared a pandemic on 11 March 2020 (WHO, 2020b). As of 7 July 2020, the number of cases were approaching 11.5 million worldwide (WHO, 2020c). In Singapore as of 7 July 2020, there have been 45 140 COVID-19 cases, including 4112 (9.1%) active cases and 26 reported deaths (MOH, 2020b).

ABSTRACT

Community nurses in Singapore support vulnerable older persons with chronic health condition(s). In the situation of scaled-down community health and social services during the COVID-19 outbreak, the community nursing team adopted measures for pandemic preparedness. This report is to share the Singapore General Hospital community nursing experience, preparation and transforming efforts during the pandemic. Team segregation, active screening and triage before visits and other precautionary measures were executed to minimise the risk of exposure to COVID-19. There was a shift from face-to-face to teleconsultation to meet the requirement of safe social-distancing. Community nursing teams continued to play an active role in supporting older persons during the pandemic, despite the challenges. Moving to the lockdown phase ('circuit breaker'), teleconsultation, virtual meetings and integrated partnerships were essential to ensure healthcare accessibility and continuity of care. The experience gleaned was valuable to advance future community nursing services in the evolving healthcare landscape. Structured teleconsultation and technology advancement are useful to complement the service.

KEY WORDS

◆ Community nursing ◆ COVID-19 pandemic ◆ Teleconsultation
◆ Chronic disease ◆ Older persons

Singapore's experience with the 2003 SARS outbreak aided the government to take swift precautions, such as strong epidemiological surveillance, contact-tracing capacity and a strict hospital and home quarantine regimen for potentially infected patients (Heijmans, 2020).

In April 2020, the Singapore government was prompt to take unprecedented measures termed the 'circuit breaker' (CB), where stricter measures were implemented to contain the spread of COVID-19 (Government of Singapore, 2020a). The enhanced safe-distance measures during the CB period from 7 April 2020 to 1 June 2020 have resulted in community services, such as home personal care and centre-based care services, being scaled back and limited to serve only residents with inadequate family support and intensive care needs.

The COVID-19 situation has aggravated the social vulnerability of older adults. The lack of social interaction and physical activity could have a negative impact on the mental and physical health of vulnerable older populations (Narici et al, 2020). Older persons with chronic health conditions were affected not only by the scaled-down community services, but also by the disruption of acute-care services in institutions. These included early discharges from hospital to home, rescheduling non-urgent elective procedures/outpatient appointments and redeployment of staff.

During the CB period, the withdrawal of routine face-to-face (FTF) care by other services, closure of most ambulatory care and the stay-at-home directive have all added significant pressure on the health management and care coordination in community settings. This paper reports the experiences and transforming efforts of the community nursing services of the Singapore General Hospital (SGH) during the pandemic.

Background

Demographic of Singapore

As of June 2019, the population of Singapore was 5.7 million (3.5 million citizens). Some 78.6% of the population lives

in government-owned apartments, also known as Housing Development Board (HDB) flats (Department of Statistics Singapore, 2020b). From 2000 to 2017, the proportion of three-generation households among all resident households decreased from 10.5% to 8.7%; the proportion of older persons aged 65 years and above living alone increased from 19.3% to 32.0% (Ministry of Social and Family Development, 2019).

The life expectancy was 81.4 years for males and 85.7 years for females in 2019 (Department of Statistics Singapore, 2020a). The citizen population aged 65 years and above is forecasted to reach 21% by 2025, compared with 16% in 2019 (National Population and Talent Division, 2019). The proportion of older adults with three or more chronic diseases nearly doubled from 2009 to 2017 (Choo, 2019).

Singapore General Hospital community nursing

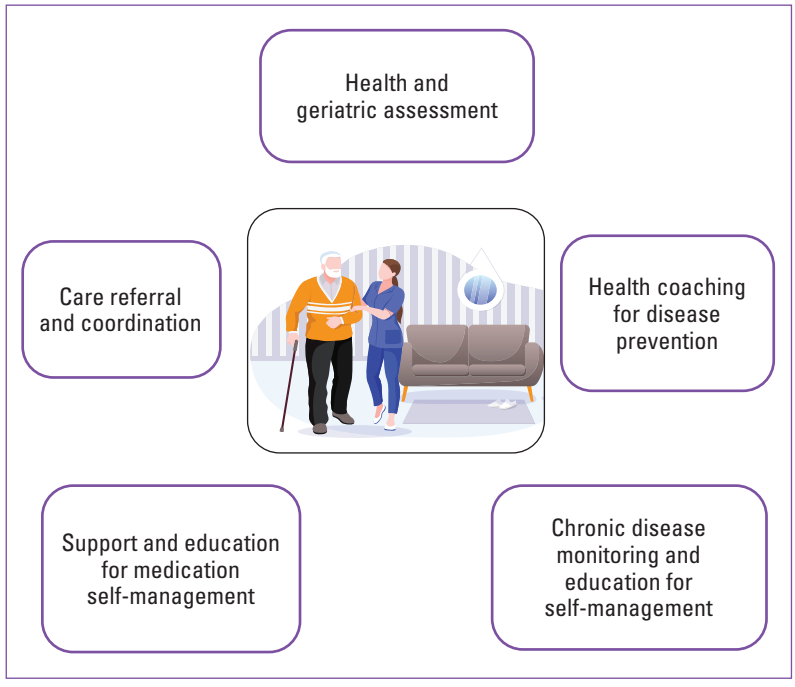
Community nurses in Singapore play a similar role to district nurses in the UK. They focus on promotion of health and wellness, prevention of illness and the care of people with differing abilities, the ill and those needing palliative care. The philosophy of care is characterised by person-centredness, client and family empowerment and continuity of care (MOH, 2019).

The home- and centre-based community nursing services were traditionally provided by voluntary welfare organisations or private agencies, which were more procedure-based. In 2017, the MOH announced strategic directions for a sustainable healthcare system beyond 2020 (MOH, 2018). In October 2017, community nursing pilots were implemented across the three integrated clusters (Lau, 2017; MOH, 2020c). Singapore General Hospital is the first and largest tertiary hospital in Singapore and a member of the SingHealth cluster of healthcare institutions (SGH and SingHealth, 2019a).

Funded by the MOH, the SGH community nursing pilot was officially launched on 28 February 2018 with the establishment of the first community nurse post. Geographically based community nursing is envisaged as a key anchor for population health management and is expected to respond to a portfolio of patients across the five SingHealth Southeast Communities of Care (CoC).

The services include (i) early interventions for pre-frail older persons, (ii) chronic disease management for patients whose conditions are not well-controlled, (iii) care for frail patients in the immediate post-discharge period and (iv) palliative care for those at the end of life (Xu and Lim, 2019). Community nurses collaborate with other home care nursing agencies outside of acute hospitals in the community care settings for patients requiring long-term support of nursing procedures, for example, wound care and medication management.

The community nursing team is led by an advanced practice nurse. Each team comprises a team leader who is a nurse clinician and four to seven senior staff nurses. They are included in 27 community nurse posts in the neighbourhood. The scope of services provided at the posts or patients' homes is illustrated in *Figure 1*. They play a critical role in health and social care service integration. The complexity in managing patients' health conditions is often associated with a lack of mental/cognitive wellbeing, health literacy and health-seeking behaviour as well as a complex social background. Rapport building with patients and their families, as well as close-knit community partnerships, are essential to overcome these.



AdobeStock/Qualit Design

Figure 1. Scope of community nursing services at Singapore General Hospital (SGH and SingHealth, 2019b)

The community nursing programme enrolled 4038 residents with 7998 home visits and 8525 community nurse post consults from April 2019 to March 2020. The nurse-to-resident ratio was 1:150. The team actively led and participated in community outreach events, such as community health posts, health talks and a falls prevention programme with the support of government and community agencies, as well as volunteers.

Besides routine services, the community nursing team also conducts quality improvement projects to encourage self-care among older persons, which proved to be beneficial during the pandemic. One of the projects targeted older persons diagnosed with chronic diseases who did not receive influenza vaccination within a year. The project successfully achieved an 86% increase in vaccine uptake through a tiered approach over 6 months, involving health talks, individual coaching and standardised referral processes. Other projects focused on improving older persons coping with their medical conditions, such as developing a wall decal with important contacts of next of kin, health and social service providers and appointments; and educating residents from senior activity centres on self-monitoring of blood pressure.

Pandemic preparedness

Staff wellbeing and team readiness

The COVID-19 situation presents a public health threat that may carry on for a long time. On 20 March 2020, the MOH

of Singapore announced stricter safe-distancing measures to reduce the risk of further local transmission of COVID-19, especially for vulnerable segments of the population (MOH, 2020d). Community nurses continued to provide services with added precautions. Notices were displayed at community nursing posts, and triage stations were set up to screen for fever and/or respiratory symptoms and travel and contact history before nursing consults. Community nurses reviewed their existing workload to prepare for home visits and teleconsultations. Team leaders facilitated the handover of cases in preparation of staff deployment and reassigning of the caseload.

Survey on staff readiness for COVID-19

An online platform was created to assess the team's readiness to tackle the COVID-19 outbreak and seek suggestions to overcome the challenges in view of the emerging situation and influx of information on the spread of COVID-19. The survey helped the senior management team to quickly evaluate the frontline community nurses' responses to the pandemic as well as adjust the preparation work needed. The survey showed that approximately 90% of the community nurses were confident in handling the outbreak situation. The nurses were assured that the MOH and hospital were implementing stringent measures to allay healthcare workers' fear of contracting COVID-19 infection. In addition, senior community nurses who had experienced the severe acute respiratory syndrome (SARS) pandemic in 2003 provided tremendous psychological support to their younger colleagues in alleviating their fears in dealing with patients during the pandemic. The following measures were suggested as some of the strategies to manage the evolving COVID-19 situation: (1) alleviate public fear of contracting the infection from healthcare workers through education, (2) coordinate community services to support frail residents and (3) perform home visits for essential needs that cannot be delivered remotely.

Revised workflow with precautionary measures

Moving into the CB phase, community nurses continued to play a critical role, implementing novel adaptations of FTF consults towards telephonic and video consultations. The services at community nursing posts were ceased, but support through home visits was permitted for essential services with strict adherence to precautionary measures.

The community nurses adopted various precautionary measures, which included the following:

1. Staff surveillance: hospital staff surveillance was conducted through temperature monitoring (twice a day), contact tracing and any visits to areas with possible clusters. All hospital health workers including community nurses were tested only if they met the clinical case definitions for COVID-19. If anyone was not feeling well, they were advised not to turn up for duty and seek medical attention immediately.

2. Team segregation: the community nursing team of each CoC prepared a standby workforce for deployment. The team was further segregated into teamlets based on community nursing post locations. Physical contact across teamlets was minimised. The distance reduced the risk of cross-infection between staff, meaning they not only kept themselves safe but also prevented the risk of possible spread within the team.

3. Workload distribution: the community nurses' workloads were reduced due to the suspension of walk-in consults and individual/group activities at the community nursing posts. The workforce of each teamlet was also kept at a minimum to meet the daily workload of essential home visits and teleconsultation.

4. Triage of patients via teleconsultations and electronic medical records (EMR) to determine the need for visits: risk assessments were undertaken through telephone calls and EMR review before visiting patients. This was to ascertain the need for essential home visits and any potential exposure to COVID-19. The screening questions included ones about respiratory symptoms and body temperature, overall health status, contact history to COVID-19 for patients and persons in the same household, sufficient stock of medications and the availability of caregiver or family support. EMR reviews aimed at identifying hospital admissions/emergency department (ED) visits, whether a COVID-19 test had been performed, risk of falls and treatment adherence, to determine the need for a home visit. The community nurses also liaised with other service providers for additional support during the CB period, such as transport to appointments, meal delivery, medication delivery and home personal care.

Patients with symptoms of fever or respiratory tract infections and close contact with COVID-19 cases were referred to the nearby Public Health Preparedness Clinic (PHPC) or ED with appropriate coordination. Testing for COVID-19 could be performed at public hospitals and selected PHPC (Government Technology Agency, 2020).

5. Observed FTF visits of limited duration without compromising care delivered: the bulk of the essential assessments was performed through telephonic and EMR reviews. Essential home visits were conducted when (i) patients were uncontactable or unable to comprehend instructions through the telephone, (ii) adequate symptom control could not be achieved through teleconsultation, (iii) physical examination or nursing procedure was required; or iv) the patient was at risk of abuse/self-harm or causing harm to others. The visit was limited to 30 minutes.

6. Risk-based approach for personal protective equipment (PPE) use: to protect the safety of community nurses, the MOH provided guiding principles for PPE use following the risk-based approach. The SGH also regularly updated the PPE guidelines in the context of the COVID-19 Disease Outbreak Response System Condition (DORSCON) alert according to the setting, personnel and type of activity. All community nurses attended N95 mask-fitting sessions and refresher training on the use of powered air-purifying respirators.

Community nurses would ensure the appropriate PPE was available and put on before performing any services

or making a home visit for residents with/without any household member(s) living within the same premises on Stay Home Notice (SHN) and Home Quarantine Order (HQO). A 14-day SHN applies to anyone who enters or returns to Singapore from abroad. The HQO differs from the SHN as it has legal ramifications, with a severe penalty for non-compliance. It is issued to quarantine or isolate an individual who is suspected to be a carrier of COVID-19 or a contact of a confirmed COVID-19 case (Government of Singapore, 2020b; 2020c).

7. Virtual meeting: leveraging on digital technology, virtual meetings with teamlets and community agencies were organised for case discussions and care coordination.

Delivering community nursing services during pandemic

Teleconsultation

During the pandemic, teleconsultation has come to light as a feasible solution for the precaution and prevention of COVID-19 (Portnoy et al, 2020). It has the potential to provide timely information with reassurance and confidence that help is a phone call away. It increases communication with healthcare providers while fulfilling the requirements of social distancing. For older persons with stable health conditions, community nurses provided teleconsultation to assess their general wellbeing, health and self-monitoring measures, for example, for blood pressure. The ongoing monitoring was essential for targeted interventions and care escalation when the medical conditions were not well-controlled and/or when the patient had had a recent change in medication.

During teleconsultation, community nurses needed to be well-versed with the patient's chronic condition to perform detailed assessment through questioning of the patient and/or caregivers on baseline conditions, disease-specific symptoms and presence of red flags. However, this proved challenging to conduct with older persons who have hearing impairment. Moreover, the social, physical, environmental and non-verbal cues of older persons are critical aspects of health assessment and management. Therefore, teleconsultation via phone or video might not adequately replace FTF consults when an older person is unable to describe their conditions due to language barriers, mental/cognitive impairment or lack of self-monitoring devices.

Home visits with essential needs

Social and fitness activities organised by government agencies for older persons have been suspended since 11 March 2020. Older people may experience social isolation due to lack of meaningful activity engagement and less face time with others (Yip, 2020). Community nurses also observed that some older persons' health deteriorated, probably due to social isolation and deconditioning. For those who were not contactable, screening was done at the door during a 'surprise' visit to ensure wellbeing and safety. It was important to balance the need for close monitoring by social and healthcare providers with the need for social distancing. Care escalation was warranted for a few senior residents during home visits due to health deterioration.

The community outpatient parenteral antibiotics therapy (CoPAT) service continued during the pandemic. The CoPAT service provided frail patients with limited mobility with an alternative to inpatient hospitalisation when they required prolonged intravenous antibiotics (Xu et al, 2019).

Several older people had their medical consultations postponed. Some were reluctant to visit specialist clinics for appointments, and some did not top up their chronic disease medications due to fear of contracting COVID-19. Community nurses remained accessible to ensure care continuity and constant supply of medication through the medication delivery services to patients' residences. They assisted older persons in medication self-management through health coaching, medication consolidation and short-term medication packing at home.

Moving towards the post-CB phase, the clinical outcomes of teleconsultation and home visits will be evaluated. Nevertheless, it was reassuring to note that none of the patients visited by SGH community nurses during the pandemic tested positive for COVID-19.

Virtual outreach

Community outreach and screening activities were suspended during the CB period. A virtual 'live' outreach programme for older individuals was conducted by community partners. Community nurses were invited to deliver health talks on falls prevention in Mandarin and a local dialect. It was well-received by the audience. They commented that the facts and tips of falls prevention were helpful for them at home.

Practising beyond the community

COVID-19 patients were admitted to appropriate tiered facilities, such as hospitals, community care facilities (CCFs) and community recovery facilities (CRFs), for medical care and support. Patients were transferred between these facilities according to their needs and discharged when they were well and no longer infectious (MOH, 2020e).

Nurses, including one-third of the community nursing workforce, were deployed to clinical areas to cope with surges in the SGH ED and isolation wards over 3–5 months. Some community nurses were subsequently deployed to join the CCF and mobile medical teams (MMT) at workers' dormitories and swab isolation and facilities (SIF) to look after the medical needs of migrant workers in Singapore. Building on their experience working in the community, the community nurses adjusted swiftly to their new roles at a different 'community'. As part of MMTs, community nurses worked with doctors, pharmacists and administrative staff to triage, assist with or perform COVID-19 specimen collection and other procedures, as well as provide education to migrant workers on self-care (for physical and mental wellbeing and use of monitoring devices, for example, pulse oximeters). In addition, community nurses assisted medical teams to manage migrant workers diagnosed with chronic diseases and conduct health coaching on treatment adherence and lifestyle modification.

Conclusion

The experience gained from the COVID-19 pandemic preparation and service delivery was helpful to guide future community nursing practice in the ever-changing healthcare landscape. Keeping the community nursing service accessible during the pandemic was essential for vulnerable older persons through timely interventions. It is anticipated that structured teleconsultation will complement community nursing services with technological advancements and further improve the clinical outcomes of older persons in the community. Equipping community nurses with a broad skillset was also fundamental in times where staff deployment to various healthcare and community settings was necessary to cope with the pandemic surge. **BJCN**

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Conflicts of interest: none

KEY POINTS

- The lack of social interaction and physical activity during the COVID-19 pandemic could lead to mental and physical health decline among vulnerable older populations
- During the Singapore 'circuit breaker' period, the withdrawal of routine face-to-face (FTF) care by other services, closure of most ambulatory care services and 'Stay at Home' directives have all added significant pressure to the health management and care coordination in community
- Community nurses play a key role in health and social care services integration. Their efforts in empowering older persons on self-care proved to be beneficial during the pandemic
- Community nurses moved smoothly from FTF consults towards teleconsultations and kept their services accessible during the pandemic.

CPD REFLECTIVE QUESTIONS

- What are the roles of community nurses in connecting vulnerable older persons with health and social network during the COVID-19 pandemic?
- What are the necessary adaptations to the community nursing workflow in order to ensure continuity of care during the pandemic?
- What would be the challenges faced by community nurses during teleconsultation?

Choo F. Proportion of older adults with multiple chronic diseases surges. 2019. https://tinyurl.com/y2axspb4 (accessed 8 July 2020)

Department of Statistics Singapore. Households. 2020a. https://tinyurl.com/y344sjuh (accessed 9 July 2020)

Department of Statistics Singapore. Death and life expectancy. 2020b. https://tinyurl.com/y5x7oep6 (accessed 9 July 2020)

Government of Singapore. Circuit breaker extension and tighter measures: what you need to know. 2020a. https://tinyurl.com/y25uc7xo (assessed 2 June 2020)

Government of Singapore. Everything you need to know about quarantine orders. 2020b. https://tinyurl.com/y5sfydc6 (accessed 9 July 2020)

Government of Singapore. Implementation of new stay-home notice. 2020c. https://tinyurl.com/sm9c7ck (accessed 9 July 2020)

Government Technology Agency. Public health preparedness clinic. 2020. https://tinyurl.com/y2z6aquk (accessed 9 July 2020)

Heijmans PJ. Singapore's coronavirus response has contained the outbreak—but its strategy is hard to replicate. 2020. https://tinyurl.com/wst7nnw (accessed 8 July 2020)

Lau B. Singapore to learn from Hong Kong's community nursing strategies. 2017. https://tinyurl.com/y3ts8rd4 (accessed 8 July 2020)

Ministry of Health Singapore. Speech by Mr Gan Kim Yong, Minister for Health, at the Ministry of Health Committee of Supply Debate 2018. 2018. https://tinyurl.com/yy9f35ey (accessed 8 July 2020)

Ministry of Health Singapore. Community nursing competency framework. 2019. https://tinyurl.com/y4dlwgyp (accessed 8 July 2020)

Ministry of Health Singapore. Confirmed imported case of novel coronavirus infection in Singapore: multi-ministry taskforce ramps up precautionary measures. 2020a. https://tinyurl.com/szjx229 (accessed 9 July 2020)

Ministry of Health Singapore. Updates on COVID-19 (Coronavirus Disease 2019) local situation. 2020b. https://www.moh.gov.sg/covid-19 (accessed 8 July 2020)

Ministry of Health Singapore. New Chief Nursing Officer in Ministry of Health. 2020c. https://tinyurl.com/y6zfeqmb (accessed 8 July 2020)

Ministry of Health Singapore. News highlights: stricter safe distancing measures to prevent further spread of COVID-19 cases. 2020d. https://tinyurl.com/wlhhjwk (accessed 2 June 2020)

Ministry of Health Singapore. Comprehensive medical strategy for COVID-19. 2020e. https://tinyurl.com/yaovsxhf (accessed 10 July 2020)

Ministry of Social and Family Development. Families and households in Singapore, 2000–2017. 2019. https://tinyurl.com/y2hokoyo (accessed 10 July 2020)

Narici M, Vito GD, Franchi M et al. Impact of sedentarism due to the COVID-19 home confinement on neuromuscular and metabolic health: physiological and pathophysiological implications and recommendations for physical and nutritional countermeasures. Eur J Sport Sci. 2020; 1–22. https://doi.org/10.1080/17461391.2020.1761076

National Population and Talent Division, Strategy Group, Prime Minister's Office. Population in brief 2019: what do you need to know? 2019. https://tinyurl.com/yxcvjwsm (accessed on 8 July 2020)

Portnoy J, Waller M, Elliott T. Telemedicine in the era of COVID-19. J Allergy Clin Immunol Pract. 2020; 8(5):1489–1491. https://doi.org/10.1016/j.jaip.2020.03.008

Singapore General Hospital, SingHealth. Hospital overview—Singapore General Hospital. 2019a. https://tinyurl.com/yynqqc7h (accessed on 8 July 2020)

Singapore General Hospital, SingHealth. SingHealth Community Nursing Programme (Southeast): bring nursing care closer to you. [Leaflet]. 2019b. https://tinyurl.com/y56x6ohm (accessed 20 June 2020)

World Health Organization. Pneumonia of unknown cause- China. 2020a. https://tinyurl.com/qwxenbk (accessed 9 July 2020)

World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19. 2020b. https://tinyurl.com/vyvm6ob (accessed 2 July 2020)

World Health Organization. Coronavirus disease (COVID-19) situation reports. 2020c. https://tinyurl.com/y5afsgeo (accessed 9 July 2020)

Xu Y, Lim SF, Aloweni F, Chua YY, Huang JY. Development of a resident-centred model of community-based OPAT (CoPAT) service in Singapore. Health and Primary Care. 2019; 3:1–3. https://doi.org/10.15761/HPC.1000169

Xu Y, Lim SF. The development of geographically-based SGH community nursing in SingHealth (Southeast) Regional Health System. College Mirror. 2019; 45(1):12–13. https://tinyurl.com/yxs226ax (accessed 8 July 2020)

Yip M. Coronavirus pandemic: elderly have to focus on their health amid social distancing. 2020. https://tinyurl.com/yxm6sp2t (accessed 2 July 2020)