GUARDING AGAINST THE INVISIBLE ENEMY

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ABSTRACT

The emergence of the Coronavirus Disease 2019 (COVID-19) prompted many countries to impose stringent border control measures to mitigate the risk of importation of the infectious disease. Singapore was no exception. To guard against the invisible enemy, the Immigration & Checkpoints Authority (ICA) implemented tighter border control measures within a short span of time, constantly adjusting them to mitigate the fluid situation. As the global situation worsened, Singapore took the unprecedented step of closing its borders to short-term visitors. ICA also had to conduct heightened clearance operations for dedicated flights that brought home stranded Singapore residents from around the world. In anticipation of a protracted fight against COVID-19, ICA leveraged technology and fine-tuned its operational processes to alleviate the workload of the frontline officers. Beyond the borders, ICA was also responsible for implementing and enforcing the Stay-Home-Notice (SHN) regime to minimise the risk of community spread from residents returning from overseas. Many ICA officers also volunteered to be part of the Forward Assurance and Support Teams (FAST) at migrant worker dormitories to enforce Circuit Breaker Measures. This article documents ICA's response to COVID-19 as guardians of our borders, protecting more than just a line on the map. It also describes how ICA adjusted a border control regime primarily designed to deal with security threats to manage COVID-19, providing a glimpse of border control in a post-COVID-19 world.

FROM KEEPING OUT SECURITY THREATS TO SAFEGUARDING PUBLIC HEALTH

The Immigration & Checkpoints Authority (ICA) was formed in April 2003 against a backdrop of heightened security risk arising from the 9/11 terrorist attacks in the United States. A single border control authority via the merger of the Singapore Immigration & Registration (SIR) and the checkpoint operations of the Customs & Excise Department (CED), ICA has since strengthened Singapore's border security and kept key external threats at bay.

Besides combating security threats, ICA also has to help contain the spread of infectious diseases, as it did during past pandemics such as SARS (2003), H1N1 (2011), Ebola Virus Disease (2014) and MERS-COV (2015). As Singapore's first line of national defence, ICA formulates the Border Health Plan with the Ministry of Health (MOH) and medical services providers to institute border health measures at the checkpoints. For example, in 2018, ICA and MOH staged a joint exercise codenamed Exercise Sparrow Hawk to implement effective health screenings at the land checkpoints.

The Coronavirus Disease 2019 (COVID-19) is, however, not just another disease without borders. Considered "the most crucial global health calamity of the century and the greatest challenge that … humankind [has] faced since the 2nd World War" (Chakraborty and Maity, 2020), it has in one year infected more than 81 million people and caused more than 1.8 million deaths worldwide (WHO COVID-19 Dashboard, as of 31 December 2020).

Since the global outbreak in early 2020, ICA has been at the forefront of Singapore's national defence against COVID-19. This article documents the four response phases ICA undertook to combat COVID-19: (a) alert, (b) contain, (c) restore and (d) adapt to a pandemic. It also details how ICA modified

its border control regime from one that was primarily designed to deal with security threats to one that also safeguards public health.

MITIGATING THE RISK OF IMPORTING COVID-19: FOUR RESPONSE PHASES

ALERT PHASE

During the alert phase, COVID-19 cases were mainly detected in China and the initial key response was to detect and reduce the number of imported cases in Singapore.

On 31 December 2019, China alerted the World Health Organisation (WHO) to the detection of a new viral disease linked to a wholesale food market in Wuhan, the capital of Hubei province. This was followed by a rapid outbreak of the virus later identified as "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)" within Wuhan and an unprecedented lockdown on 23 January 2020 to halt the spread of the disease. The lockdown led foreign governments to scramble to evacuate their citizens from the city (Nourah, 2020). On 30 January 2020, WHO Director-General Tedros Ghebreyesus declared the outbreak a Public Health Emergency of International Concern (WHO, 2020).

Temperature Screening. In response to the rising number of COVID-19 cases, ICA activated the Border Health Plan on 3 January 2020. One of the initial precautionary measures was the implementation of temperature screening for inbound travellers arriving from Wuhan at Changi Airport. Arriving Chinese nationals with passports issued in Hubei province were also referred by ICA to the health screening stations at the airport for further medical assessment.

Suspension of visa facilities. In the second half of January 2020, Singapore had several confirmed COVID-19 cases involving Chinese nationals from Hubei province. As the infection had spread pervasively in Hubei and 95 percent of the confirmed cases in Chinese cities had been attributed to Hubei, the Multi-Ministry Taskforce set up by the Singapore Government decided to impose additional measures to contain the risk of importation (MOH, 2020). ICA suspended the issuance of new visas and halted visa-free transit facilities for travellers holding PRC passports issued in Hubei. On 28 January 2020, ICA implemented the first set of rules of engagement (ROE) at the checkpoints to sieve out travellers with travel history to Hubei, so that they could be placed under quarantine.

As part of the national effort to contain the number of imported and community cases, Singapore enforced stricter border control measures in early February 2020 where ICA denied entry and transit facilities to travellers with travel history to high-risk countries. The list of such high-risk countries also changed frequently. To sieve out these travellers, ICA analysts conducted backend data-mining based on travellers' flight routes, last ports of embarkation, and places of passport issuance.

Mobile temperature screening at land checkpoints. In anticipation of an increase in travel volume during the 2020 Lunar New Year holiday period, ICA extended temperature screening operations to both land checkpoints from 24 January 2020 (Figure 1).

Figure 1. Mobile temperature screening at Woodlands Checkpoint

Repatriation and Special Operations. Following travel restrictions in China, ICA also worked with other government agencies to faciliate the clearance of several relief flights scheduled to bring home Singaporeans and residents from Wuhan and Hangzhou.

At the sea checkpoints, ICA conducted similar special operations to facilitate the clearance of travellers onboard a Singapore-based cruise ship, Costa Fortuna. The cruise ship had earlier been denied permission to dock in both Thailand and Malaysia as it carried about 115 travellers with travel history to countries severely affected by COVID-19. Costa Fortuna arrived at Marina Bay Cruise Centre Singapore on 10 March 2020 with 1,631 passengers and 982 crew members. Except for crew members who did not disembark, the entire end-to-end operation from medical screening to immigration clearance of the passengers was completed within 14 hours.

Before Malaysia's Lockdown. On 16 March 2020, Malaysian authorities announced the enforcement of a Movement Control Order (MCO) which would restrict the entry of foreigners and bar Malaysians from travelling abroad in two days. The announcement sparked a frantic rush amongst those who had been commuting daily across the border to work and study in Singapore as they rushed home to pack their belongings and return to Singapore before the MCO was imposed.

In anticipation of the heavy traffic, officers from other checkpoints were swiftly redeployed to support the operations at both Woodlands and Tuas Checkpoints. Old Woodlands Checkpoint also remained open throughout the day to maximise clearance capacity until traffic subsided.

CONTAIN PHASE

This was the most critical phase as the virus case count in Singapore increased and ICA had to introduce several measures within a short span of time to limit the spread of the disease.

As infections surged globally, Singapore had to gradually tighten its border control measures and eventually took the unprecedented step of closing its borders at midnight on 23 March 2020. At the checkpoints, all short-term visitors were refused entry into Singapore.

Introduction of Approved Letter of Entry (ALE). The closure of our borders affected a substantial group of travellers who needed to enter Singapore. In response, ICA developed internal guidelines to determine which visitors could be granted entry despite the border closure. These guidelines were quickly translated into executable exemption rules at the checkpoints to aid frontline officers in the processing of affected travellers. For example, travellers with roots in Singapore, or had compassionate grounds, were issued with an Approval Letter of Entry (ALE). At the checkpoints, these travellers were assessed and subjected to the prevailing health control measures before being allowed entry into Singapore.

As the number of entry requests increased, ICA quickly established a new Entry Assessment Unit and developed an online form on FormSG as a dedicated channel to handle enquiries and process applications for the ALE. To regulate the flow of arrivals, an e-booking module was developed for successful applicants to select their date of travel to Singapore.

Enforcement of the Stay Home Notice (SHN) Regime. With more countries affected by COVID-19 and residents returning home from abroad, there was an inevitable rise in imported cases in Singapore.

To rein in the importation of the virus, the Multi-Ministry Taskforce decided to put in place a "Stay Home Notice" regime for residents and long-term pass holders returning to Singapore. On 18 February 2020, all returnees from and with travel history to China were issued with SHN and required to remain home at all times for 14 days. Within the next few weeks, the number of countries from where arrivals were subjected to SHN increased rapidly. By 4 March 2020, the SHN regime was extended to all arrivals from mainland China, Iran, northern Italy, and Republic of Korea. Eventually, all travellers entering Singapore from 20 March 2020 were issued with SHNs.

To ensure that the advisories could be understood by persons on SHN who were not familiar with English, the SHN was translated into vernacular and foreign languages (e.g. Mandarin, Malay, Tamil, Korean).

An SHN helpline was also set-up and managed by various agencies such as ICA and MOH to handle queries. Multiple press releases were issued to debunk misinformation and stop the spread of fake news on social media platforms.

Despite these efforts, the number of local community cases in Singapore continued to climb and the SHN regime was further tightened. From 25 March 2020, all residents returning from the United Kingdom (UK) and United States (US) had to stay in dedicated hotels to serve their 14-day SHN. This additional precautionary measure was necessary as the returnees from UK and US accounted for the largest percentage of imported cases in Singapore, and more Singapore residents were expected to return from both countries in the following weeks. By 9 April 2020, all returning residents regardless of travel history were required to serve their SHN at designated facilities to further stem the risk of importation.

During the early stages of the SHN regime, ICA had limited resources to ensure that those on SHNs were placed under proper surveillance. There were no legal levers to enforce the SHN and there were insufficient officers to conduct house visits and surveillance phone calls. At its peak in April 2020, there were more than 40,000 persons placed on SHN, all of whom ICA had to monitor despite the constraints.

By developing monitoring and surveillance protocols and ramping up the resources of the Intelligence Division, ICA was eventually able to conduct approximately 1,000 house visits and 8,000 surveillance calls on a daily basis. To alleviate the workload and minimise the need for house visits, ICA introduced an electronic tamper-proof wristband that uses Bluetooth Low Energy communication via a gateway device to ensure those on SHNs do not leave their place of residence. These individuals are also required to download the StayHome@SG application on their mobile phone to receive and respond to periodic notifications from ICA.

ICA also set up the SHN Investigation Taskforce on 31 March 2020 with investigation officers drawn from other Home Team Departments as well as ICA's Investigation Branch, and Airport Command. These officers are empowered as Health Officers to investigate offences under the Infection Diseases Act (IDA), operating under a policy framework that stipulates punitive actions against those who breach SHN or commit other COVID-19 related offences. These actions include the prosecution of offenders in court, and administrative measures such as the cancellation of Singapore passports, entry permits and passes.

Implementation of Forward Triage points across the checkpoints. To effect policies which were regularly adjusted due to the evolving COVID-19 situation, more than 40 ROEs and instructions were disseminated to ground officers. Forward triage desks were also set up before the immigration gates to manage the different traveller groups (Figure 2).

Figure 2. Forward triage desk at Harbourfront Cruise Centre

Checkpoint operations were also calibrated to adapt to the different operating terrain of each domain to ensure that regardless of arrival by land, sea or air, contact with the local community was minimised.

Bubble-wrapped Gate-Hold Room at Changi Airport. As a safety precaution, travellers arriving from high-risk countries were ushered to a bubble-wrapped gate-hold room for the clearance and issuance of SHN. ICA officers also had to ensure that travellers possessed the necessary documents to enter Singapore before according clearance to them. Thereafter, chartered buses would transport these travellers directly to their respective dedicated SHN facilities in Singapore to minimise interactions with the local community.

Accommodating air and sea crew. To facilitate essential air travel, exemptions were made for air crew working for local airlines from serving SHN if they had not disembarked from the aircraft or left their hotel rooms, while air crew from foreign carriers were centrally housed at Crowne Plaza Hotel at Changi Airport. This arrangement helped the authorities to centrally manage the enforcement and surveillance of foreign air crew. Similar arrangements were also made for sea crew who arrived in Singapore to join the cruise ships docked in local ports. Private buses were engaged to transport sea crew arriving from the land and air checkpoints directly to the ships to serve their SHN on-board.

Tracker Ops at land checkpoints for travellers arriving via conveyance. Unlike the sea and air checkpoints, operations at the land checkpoints were more complex due to the varying modes of transportation such as cars, motorcycles and lorries. To ensure that travellers who arrived in their personal vehicles were duly transported to the dedicated facilities to serve out their SHN, a tracking system was introduced. Travellers were issued with a tracking device and allowed to proceed to their declared parking location in Singapore. Thereafter, officers from the Certis auxiliary police were activated to meet the returnees at their declared parking location and transport them directly to the dedicated SHN facilities. This arrangement effectively reduced the congregation of vehicles at both land checkpoints and ensured returnees complied with the given instructions.

Ensuring continued delivery of essential supplies during Malaysia's MCO. With the implementation of Malaysia's MCO and growing fears that the daily movement of essential supplies into Singapore could be disrupted, Prime Minister Lee Hsien Loong assured Singaporeans that the supply lines from Malaysia would not be cut. ICA, working closely with the Ministry of Trade and Industry (MTI), made arrangements to ensure the continued flow of essential goods and cargoes through the land checkpoints. These arrangements included distributing meals to the Malaysian truck drivers and issuing them with tracking devices to monitor their movements in Singapore. These efforts help safeguard public health by minimising the drivers' interaction with the local community.

Special Operations across land checkpoints. As the border crossing between Singapore and Malaysia came to a standstill, ICA conducted special operations to facilitate essential movement across the border. For example, residents in Singapore separated from their children since the MCO sought ICA's assistance to reunite with their family. Over seven months, ICA facilitated the reunion of more than 330 families in Singapore. Another notable operation was a request by the Malaysia High Commission to facilitate the departure of 50 pregnant women by bus via Woodlands Checkpoint. ICA officers were deployed to ensure the safe passage of these women without any unnecessary delay.

Ambulances and patients requiring essential medical treatment are also not restricted by the border closure policy, with both countries facilitating immigration clearance. This facility is progressively fine-tuned to ensure prompt provision of timely medical attention during emergencies.

BEYOND THE CHECKPOINTS

As soon as the Singapore Government established the Multi-Ministry Taskforce to monitor and contain the pandemic, ICA assumed the responsibility of providing data and statistical support essential to helping the Taskforce and Homefront Crisis Executive Group obtain a full picture of the developing situation, to sense-make and fine-tune policies. ICA also began providing data to the various government agencies responsible for different aspects of policy implementation, viz., MOH's contact tracing efforts, and the Ministry of Manpower's (MOM) investigations into foreign pass holders who breach the conditions of their entry. ICA's data on expected

traveller volumes also helped the Singapore Tourism Board (STB) with the planning and allocation of designated facilities for travellers serving out their SHN. ICA also identified residents who defy the no-travel advisories and were thus disqualified from subsidies at the SHN facilities.

During the contain phase, ICA officers also began taking on additional tasks as part of the Whole-of-Government response. A total of 45 ICA officers volunteered to serve on the Forward Assurance and Support Team (FAST) and were deployed to assist dormitory operators affected by the COVID-19 outbreak to look after the well-being of foreign workers.

Within ICA, two key challenges emerged: continuing to administer regular immigration and registration services with reduced manning and social distancing measures, and maintaining staff morale. This has meant leveraging technology and fine-tuning operational processes.

For example, during the circuit breaker, ICA had restricted over-the-counter services at ICA Building (ICAB) to only urgent services with pre-approved appointments. Members of the public who required urgent services had to submit an online request for an appointment via FormSG. ICA operationalised this process within three days.

To regulate the number of visitors entering ICAB after the circuit breaker, ICA extended the validity of in-principle approvals for Singapore Citizenship, Permanent Residence and Long-Term Visit Pass applicants who were unable to complete their application formalities during the circuit breaker. Beyond extending the deadline for collection of all passports and identity cards (ICs), ICA also arranged for a one-off delivery to residents who had not collected their passport and ICs because of the circuit breaker. More than 30,000 passports and ICs were delivered by courier.

As outbound flights to the rest of the world dwindled exponentially, many foreigners were stranded in Singapore. As they needed to apply for an extension of their short-term visit pass to legalise their stay in Singapore, ICA improved its online service platform to cater to the increased number of applications for visa and pass extensions.

These were not just short-term tweaks. In view of the urgency to operate under the new norms and in anticipation of an extended COVID-19 outbreak, ICA developed new systems and fine-tuned existing systems within a short span of time to support checkpoint operations, some of which are described here.

Development and enhancement of existing systems to support COVID-19 operations

Before COVID-19, the SG Arrival Card (SGAC) was only used for foreign visitors to provide their particulars prior to arrival. Due to the outbreak, enhancements were quickly made to enable the submission of electronic Health Declaration Cards (eHDC) and issuance of electronic SHN (eSHN) advisories for all arriving travellers via the SGAC (Figure 3).

The implementation of eHDC and eSHN has greatly improved the integrity of the contact tracing database which is vital for analysing COVID-19 trends and carrying out contact tracing of suspected/confirmed cases. The time needed to administer the SHN for arriving travellers has also been reduced

Figure 3. Enhanced SGAC to allow all arriving travellers to submit Electronic Health Declaration Cards

as the collection of contact details and processing of health declaration are now streamlined. The clearance logic of the existing backend systems has also been enhanced to factor in the varying travel schemes and corresponding health protocols for different groups of travellers. This has alleviated the workload for frontline officers at the forward triage desk as arriving travellers from different travel schemes are automatically differentiated by the system.

At the same time, ICA has operationalised contactless biometrics verification at the checkpoints via the Multi-Modal Biometrics System (MMBS). Since July 2020, known travellers have been able to use their facial and iris instead of fingerprints for identity verification at the checkpoints. This touch-free and safer way of clearance is timely to facilitate travel during a global pandemic such as COVID-19.

Enhanced Business Continuity Measures employed by ICA

Similar to other public agencies that provide essential services, ICA has had to implement a suite of safe distancing and safe management measures. For instance, a split team concept has been adopted to ensure that there is no interaction between staff from different shifts or teams. To ensure business continuity, work processes have been reinvented and new ways developed to ensure continued delivery of essential services to the public.

Figure 4. Thank you notes from St Anthony Primary School students

At the frontlines, checkpoints are operated in clusters to avoid cross deployment of officers between different operational zones. The ratio of onsite manpower vis-à-vis those working from alternate sites / home is regularly calibrated at our Services Centres.

With the enhanced business continuity measures, officers from Airport Command have been re-deployed to support Air Cargo Command as the demand for low value goods surged. For instance, the volume of consignments at the Air Cargo checkpoints increased by 49% between April and May 2020.

Maintaining Morale

With intensive demands placed on officers in this new operating environment, ICA leadership is making deliberate efforts to upkeep and maintain morale at the checkpoints and Services Centres.

Showing appreciation. Understanding the importance of empathy and connectedness during a crisis, ICA leaders have increased the frequency of their engagement with officers to show appreciation for their commitment and resolution amidst the pandemic. Care packages were delivered to officers who volunteered for FAST operations at the assigned dormitories. At the checkpoints and Services Centres, 'thank you' packs and cards from external organisations (see Figure 4) and members of the public have been distributed to officers. Public and internal communications are also regularly disseminated to express appreciation to officers for their roles in handling COVID-19.

Helping officers cope. At the start of the pandemic, ICA's Psychological Services (IPS) Branch developed a virtual leadership programme on morale management to ensure ICA leaders are equipped with the necessary skills to support their officers during the pandemic. The programme is specially curated to suit ICA's operational environment and focuses on research-based tips on morale management. Trainers also share results gathered from morale sensing surveys to facilitate and reinforce learning. In addition, infographics on mental well-being (see Figure 5) and leadership are regularly disseminated to help officers and leaders cope with the new normal. Given the constraints of COVID-19, new forms of outreach such as the IPS Telegram Channel are used to disseminate open-sourced information and infographics.

Figure 5. Infographic on maintaining mental well-being

RESTORE PHASE

The restoration phase began when the spread of COVID-19 in Singapore came under control and activities could gradually resume.

Reopening our Borders

While border control measures have been effective in mitigating the importation of COVID-19 into Singapore, they come with a heavy socioeconomic cost. Various economic sectors and livelihoods have been disrupted and Singapore entered its most severe economic downturn since independence (Menon, 2020). Aviation and tourism related sectors are in dire straits as travel restrictions continue to decimate air travel.

As these strict border control measures cannot be sustained in the long run without the risk of losing our status as an air hub (Ong, 2020), the Singapore Government has worked to progressively reopen its borders to revive the hard-hit travel and aviation industries. As Minster for Transport, Mr Ong Ye Kung, puts it: "The longer our borders remain closed, the greater risk of losing our air hub status, and our attractiveness as a place to invest, and to create jobs because of those investments."

With border control measures as the cornerstone of Singapore's defence strategy against COVID-19, the International Safe Travel (IST) scheme which encompasses the enforcement of SHN, management of COVID-19 swab tests, and introduction of safe travel schemes was formulated. These arrangements were originally managed in silo by different government agencies. However, with the fast-evolving border re-opening strategies and anticipated increase in travel volume, a decentralised management approach was no longer sustainable.

Implementation of Safe Travel Office under ICA. The Safe Travel Office (STO) was set up under ICA in July 2020 to centralise the management of IST schemes across the Whole-of-Government. Within a month of its formation, STO developed a central online platform known as the Safe Travel Portal (STO Portal) to serve as the main public gateway for IST management.

The STO Portal has provided better central oversight of travel applications under the various Safe Travel Lanes such as Reciprocal Green Lanes and the Periodic Commuting Arrangement with Malaysia. It has allowed agencies to better plan their resources based on the forecasted volume of arriving travellers. As the local health situation in certain countries improved, Singapore gradually allowed entry for more travellers to enter Singapore and for Long Term Pass holders to return to Singapore.

Apart from improving operational efficiency, the STO Portal has provided greater convenience to travellers seeking entry into Singapore by serving as a single touch point regardless of their travel schemes and purpose of entry. This ensures a smoother traveller experience as Singapore gradually reopens its borders to travel.

Implementation of Swabbing Operations at Checkpoints. As WHO Director-General Dr Tedros Adhanom says, the "key message is test, test, test".

As rigorous testing and swift isolation of infected individuals are key to containing transmission, ICA has collaborated with MOH and the Health Promotion Board to set up health screening stations at the land checkpoints to conduct on-site COVID-19 swab tests for travellers. This comprehensive testing regime is necessary in order to reduce the possibility of onward local transmission as the borders gradually reopen. An operation of such magnitude is unprecedented as it was not activated for past pandemics such as H1N1 and SARS.

ADAPT PHASE

During the adapt phase, countries are in a post-pandemic state and will begin to evaluate their response to the pandemic and revise their plans for a new normal.

Secure Borders, Safe Singapore

Border control is expected to be different in the post-pandemic world. Travellers' behaviour and perceptions will likely be reshaped, with a greater demand for automation and safe travel.

ICA's New Clearance Concept as an enabler of safe travel. To prepare for a future beyond this crisis, ICA has pushed forward with its transformation plans even as it manages COVID-related challenges. Under its new clearance concept, automated immigration clearance will be a new norm for all arriving visitors. Residents can also look forward to contactless immigration clearance without the need to present their passport and fingerprints. The use of iris and facial biometrics (Figure 6) will not only provide a more reliable authentication of the traveller's identity, it will also allow travellers to breeze through immigration clearance securely with minimal manual touchpoints. ICA's Services Centres will also transform as planned to an Integrated Services Centre with the vision of "No Visit, No Waiting and No Fuss" by offering more online services and greater convenience to ICA customers post-COVID-19.

EMERGING STRONGER

As Singapore takes steps to further reopen its borders and rebuild connectivity amid these uncertain times, ICA will have to adjust and adapt to more complex immigration clearance processes in line with the dynamic health control measures. Notes ICA Commissioner Marvin Sim: "As guardians of our borders, what we do is not just about protecting a line on the map. It is about taking charge when there is a problem, making a difference and constantly looking for improvements."

Figure 6. Immigration clearance using iris and facial biometrics

The road to recovery will take time and it will not be easy. ICA will build on the experiences gained over the past years and work together with other government agencies to help steer Singapore back on the road of recovery and emerge stronger from this crisis.

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STAYING SAFELY AND COMPETENTLY ON MISSION AMIDST A CRISIS

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ABSTRACT

As a law enforcement agency, the Central Narcotics Bureau has to continue its mission of keeping Singapore drug-free even during a pandemic outbreak. Concomitantly, the Bureau has to ensure that its officers are protected against the risk of infection. This article discusses how the Bureau and its officers tackled the challenges brought about by the COVID-19 pandemic. These include making changes to the way CNB performs its three main mandates: preventive drug education, anti-drug operations and management of drug supervisees. It also discusses the efforts made to maintain the mental health and well-being of CNB staff during this difficult period.

THE NEW NORMAL

As a law enforcement agency, the Central Narcotics Bureau's work requires the majority of its officers to face the public. This does not change in a pandemic. Accordingly, even before the first confirmed case of COVID-19 infection in Singapore in January 2020, CNB began monitoring the situation closely and to plan its response. Leveraging their experience with the SARS pandemic, CNB officers set up the Emergency Management Committee (EMC) to work on contingency plans, and measures to ensure the safety of officers and the sustainability of operations. The EMC started by reviewing and updating CNB's Business Continuity Plans (BCP), ensuring that it is always aligned with the latest advisory from the Public Service Division and the Home Team Medical Services Division (HTMSD).

Among the measures taken, the EMC:

- appointed Flu Managers who were briefed on CNB's BCP, and tasked to quickly disseminate the information, and implement safety measures at their respective units;

- commenced drawing down personal protective equipment (PPE), i.e. N95 masks, surgical masks, goggles, gowns, gloves, sanitisers etc. from a central stockpile and distributing them to all ground units to ensure those working at the frontline are protected;

- broadcast health advisories to all officers educating them on personal hygiene practices, and the correct usage of PPEs for different scenarios. Together with HTMSD, CNB conducted "Train the Trainers" mask fitting exercises for unit representatives so that they can help ensure their officers use the mask properly; and

- implemented a 24-hour hotline for officers to report any COVID-19 related incidents, and to provide officers with timely advice on the precautions to take. These measures include staying away from work pending confirmation if officers come into contact with a suspected or confirmed case of COVID-19; contact tracing to identify officers in direct contact with the subject; regular checks by Flu Managers to track their well-being; disinfection of all areas – including operational vehicles – accessed by the suspected or confirmed Covid-19 case; and the identification of evacuation routes and isolation areas in the event of a case within CNB HQ.

Other safety measures that are now routine include temperature screening for all staff and visitors, daily health declarations for staff reporting to office, telecommuting arrangements for those who can

perform their duties from home, split shifts for operations teams carrying out enforcement actions, and deferment of all overseas trips. In-person training programmes are also suspended except for those imparting critical skills essential to building up and maintaining the operational readiness of CNB, such as the Video-Recording Interview and Pistol Operator courses. These courses are now conducted with smaller groups of participants, and where possible, modules have been converted into hybrid e-learning and face-to-face sessions.

CONTINUING THE MISSION

The key task facing CNB has been ensuring that its contingency plans are robust and nimble in adapting to changes in the management of the pandemic, so that CNB officers can continue to carry out their mission in a safe and sustainable way. This has entailed making changes to the way CNB performs its three main mandates: preventive drug education, anti-drug operations and management of drug supervisees.

Preventive Drug Education and Community Engagement

Preventive drug education (PDE) is the first line of defence in Singapore's national drug control strategy, and a key aspect of this is to reach out and engage the community to propagate the drug-free message and promote a healthy lifestyle. Thus, every year, CNB organises many PDE and community engagement events and programmes. However, due to the Covid-19 restrictions, all the physical activities had to be suspended in 2020. To sustain our PDE efforts, the team of officers quickly came up with alternative solutions, shifting our focus on physical engagements to the virtual realm.

One key event affected was the annual Anti-Drug Abuse Campaign (ADAC), usually which comprises large-scale events in public spaces – i.e. DrugFreeSG Light-Up in June, and the DrugFreeSG Roadshows from July to August – and involve physical interactions with members of the public. The team had to revise the concept, rework the budget and the corresponding requirements, and re-engage the stakeholders in order to keep this event alive. The CNB team finally launched the 2020 DrugFreeSG Light-up event in concert with the #ILiveFor social media campaign, with 21 key partners lighting up their buildings on 26 June 2020. CNB also collaborated with Singapore Polytechnic students on the online campaign to widen the reach and connect with younger audiences.

The PDE team knew that going virtual would be the 'new normal', and continued to creatively explore alternative ways to stay connected with audiences through various online engagements. For example:

- when a videography workshop in March had to be cancelled, online short clips were developed to continue engaging participants and disseminating PDE messages;
- to continue engaging social media followers during the Circuit Breaker, the team took the opportunity to further publicise its activity and comic books with a series of online quizzes;
- instead of physical events, CNB ran a series of online activities (IG stickers, filters, etc) in conjunction with the DrugFreeSG Light-Up;
- to cater to schools that prefer virtual PDE programmes, CNB now offers PDE talks via Zoom or Google Meet, and live streaming of PDE skits; and
- to continue supporting teachers and parents in engaging students and their children on PDE matters, CNB uploaded resources on its website (e.g. videos, publications, toolkits and Augment Reality markers) and broadcast these links to teachers and parent advocates.

The Community Engagement Unit (CEU), which leverages physical engagement to drive the PDE messages, also had to relook its engagement strategies for the Malay-Muslim and Indian communities and build its presence online through the use of online videos and social media platforms, such as Facebook, Instagram, and YouTube. Such online engagement strategies include:

- the dissemination of PDE infographics through various social media platforms;
- a Dadah Itu Haram (DIH) Campaign Hari Raya video titled "A Family's Love", aimed at emphasising the importance of strong family support in maintaining a drug-free life;
- DIH-related anti-drug quizzes, with DIH merchandise up for grabs; and
- #DontRushChallenge video featuring the Bothaiporulai Ethirthu Nirpom (BEN) campaign volunteers participating in healthy pursuits.

CEU has also moved some of its programmes from physical locations to online platforms. Since May

2020, CEU has organised and conducted outreach events via Zoom that involved youth residents and staff of welfare homes and halfway houses, tertiary level students, women and gym members. The emphasis has been on the importance of family bonds, community resilience, discipline and hard work.

In the absence of traditional physical outreach events on the ground, CEU has also shifted its focus to maintaining the strong relationship between the DIH campaign and its partners and volunteers. Dates were distributed – via delivery couriers – to volunteers and partners in appreciation of their continued support in spreading anti-drug messages.

The "new normal" has forced CNB officers out of their comfort zones, to abandon old practices and adopt new technology. It has brought about many seemingly insurmountable challenges, but also created many unprecedented opportunities. In terms of PDE, COVID-19 restrictions, especially during the Circuit Breaker period, drove up public consumption of media and social media contents and allowed CNB to further leverage social media platforms to promote anti-drug messages to a wider audience. At the same time, CNB recognises that efforts to win the hearts and minds of the public so that they support and embrace Singapore's zero-tolerance stance on drug abuse have to be complemented with meaningful, sustained physical engagements, which CNB will continue to pursue once the COVID situation improves.

Anti-drug Operations

To mitigate the risk of infection and spread, and to adhere to safe distancing measures, operations have been re-focused and calibrated progressively in tandem with the evolving COVID-19 situation.

Pre-COVID-19, CNB used to conduct the island-wide Operation Dragnet on a regular basis. The enforcement units would usually arrest up to 80-100 drug offenders within a week. To prevent overcrowding within CNB and the lockup, the operation tempo has been changed with Ops Dragnet stretching to 2 weeks instead of 1 week to spread out the arrest numbers. In addition, instead of the previous practice of rounding up large numbers of drug offenders, officers now return to base to process suspects after apprehending a few, requiring multiple trips.

During the Circuit Breaker period, the operations conducted were focused and targeted based on specific information obtained by the officers. Post-Circuit Breaker, CNB has increased the intensity of operations and adjusted manpower manning to ensure optimal manning levels for each operation. Keeping up the pressure on drug traffickers and syndicates alike is necessary because, despite the travel restrictions imposed during this period, traffickers and syndicates have continued to explore novel methods of smuggling drugs into Singapore, hiding their illicit drugs inside fruits, furniture and drones.

The statistics speak for themselves. In 2020, CNB dismantled 24 drug syndicates, working closely with other Home Team agencies to conduct over 500 operations across Singapore, including at the checkpoints to intercept attempts to smuggle drugs into Singapore. Drug seizures also remained high in 2020, with an estimated street value of S$11.6 million. There was a 79% increase in seizures of heroin to 68.25kg, up from 38.12kg in 2019. Cannabis seizures also saw a 55% increase to 43.12kg, up from 27.78kg in 2019. Seizures of crystalline methamphetamine (more commonly known as 'Ice') saw a 46% increase to 44.87kg, from 30.80kg in 2019 (CNB, 2021). Notably, in November 2020, CNB had its largest heroin bust in 19 years, seizing 14.1 kg of heroin in one operation. The following month, officers from the Immigration & Checkpoints Authority foiled two attempts to bring in a total of 4.6 kg of heroin, 5.4 kg of Ice, 5.5 kg of cannabis, 5,111 'Ecstasy' tablets and an assortment of other drugs. The drugs had been hidden in two Malaysia-registered lorries, one transporting a consignment of beansprouts, and the other carrying furniture and spare vehicle parts.

Drug Supervision Regime

A key prong of CNB's rigorous enforcement strategy is ensuring former drug abusers stay clean. Accordingly, as mandated by the Misuse of Drugs Act and the Misuse of Drugs Regulations, thousands of drug supervisees used to report to CNB's Reporting Centres for urine testing every week. To ensure safe distancing measures are adhered to, CNB has adjusted the frequency of urine testing of drug supervisees based on a risk matrix. Those deemed high risk have to continue their reporting frequency, whereas those assessed to be at lower risk of relapsing have their frequency reduced. This change is augmented by hair analysis testing. This

means that those who do not need to report every week are subjected to hair analysis, which reveals recent drug consumption going back several months. Concurrently, CNB has also increased the number of days of operation of the Reporting Centres, and conducts temperature screening so that supervisees who are unwell are segregated and turned away prior to entering the Centres.

CHALLENGES OF ADAPTING TO THE NEW NORMAL

The nature of its enforcement work means that the majority of CNB frontline officers have to continue to work onsite. Telecommuting, split team arrangements, and more safe distancing measures have been implemented to prevent any spread or forming of a COVID-19 cluster within the Bureau should any officers come into contact with a confirmed case while performing their duties.

In an organisation like CNB with a "gung-ho" culture, persuading people to stay home proved to be quite challenging at the outset. Some officers continued to report to the office despite feeling unwell because they were so used to continue working when only slightly ill, and to show up to settle a very crucial issue or attend an important meeting even when ill. The EMC thus had to use moral suasion and engage supervisors and flu managers to "cajole" their officers to change their mindsets. Officers have had to learn to accept that in a pandemic, the new normal is to seek medical attention even when slightly ill, that this is for the greater good of the organisation, and no officer is to be judged for reporting sick.

Similarly, with telecommuting, senior management led the way to gain buy-in for the new work arrangements. Beyond the initial challenge of procuring the required IT equipment and remote access for staff working from home – a situation aggravated by the surge in demand across the entire public service – both staff and supervisors initially had to grapple with work expectations and productivity issues. A new guide on "Dos & Don'ts of Telecommuting" was drafted to assist supervisors in helping their teams deliver work output, and yet maintain flexibility to assist staff in managing their work-life balance. Concomitantly, divisions made some work process changes so that more work can be done through emails, reducing the need for officers to be physically present in the office.

It also took a while to change the habits of officers who were accustomed to holding face-to-face meetings and persuade them to switch to video conferencing, and to use email to disseminate information where possible.

In addition to having to adapt to all the new changes at work, officers, not unlike others in the public and private sectors, also had to grapple with other government measures implemented to control the spread of COVID-19, such as the suspension of non-essential services, temporary closure of schools and home-based learning, that disrupted many aspects of life. In addition, close to 100 CNB officers were at one point or other involved in the national COVID-19 response, taking on duties such as contact-tracing, conducting checks on persons subject to Stay-Home Notices (SHNs), as well as helping to manage dormitory operations.

As all these changes can be expected to impact the morale of officers, CNB leaders took the pro-active step of surveying the mental health of officers and working with the Bureau's psychologists to develop management strategies to alleviate work stress.

MENTAL HEALTH AND WELL-BEING DURING THE PANDEMIC

Research studies have found associations between pandemics and adverse mental health consequences: Pandemics can lead to development of psychiatric symptoms in individuals without prior mental health conditions, as well as aggravate the condition of individuals with pre-existing mental health conditions. These psychiatric symptoms can range from symptoms of anxiety to depression as well as stress (Rajkumar, 2020). For instance, Xiong et al. (2020) found that during COVID-19, higher perceived vulnerability, having an infected acquaintance and concerns about being infected are predictive of symptoms of depression.

To assess the effects of the pandemic on CNB officers' mental health and well-being, the CNB Psychological Unit (CPU) conducted three rounds of morale sensing between February to May 2020. The aims of the morale sensing were to understand officers' concerns, gather feedback on the effectiveness of measures undertaken by the Bureau, and identify additional potential areas of support.

Overall, CNB officers appeared to have the following concerns in the early months of the pandemic:

a) General anxiety over contracting COVID-19, coming into contact with accused persons who may have COVID-19;
b) Operational fatigue as a result of reduced manpower as some officers were deployed to support other whole-of-government operations, inability to meet key performance indicators (KPIs);
c) Work processes concerns, such as delayed/ additional work processes as a result of pandemic restrictions; and
d) Telecommuting concerns, i.e. isolation from colleagues, unclear boundaries between work and personal life.

The concerns CNB officers expressed over contracting COVID-19 is consistent with literature on pandemics and mental health. For instance, studies have highlighted the heightened fear and anxiety individuals may have during the early stages of the pandemic as the virus remains unknown – a lack of knowledge about the mode of transmission, transmissibility and virulence contributes to the fear and anxiety (Ho, Chee & Ho, 2020). The literature also shows that first responders have higher levels of stress, depression and anxiety. The fear of getting infected is much higher due to their exposure (McAlonan et al., 2007).

Similarly, CNB officers' concerns over telecommuting is an inevitable by-product of the various control measures, i.e. the social isolation and disconnectedness that individuals may face, which may have adverse effects on physical and mental well-being (Haslam et al., 2018). On the other hand, research also demonstrates that timely dissemination of updated and accurate COVID-19 related information is associated with lower levels of anxiety, stress and depressive symptoms in the general public (Wang et al., 2020).

By integrating the literature research with the findings from CNB's morale sensing surveys, the Bureau conceptualised a 3Cs psychological response to the pandemic. Anchored in key resilience principles, the overarching aim of the 3Cs – Be Competent (with Facts), Take Control (of Actions and Emotions), Stay Connected (with Each Other) – is to build physical, emotional and social resilience in officers. This message was broadcast to all CNB staff in emails (see Figure 1).

Be Competent (with Facts)

Amidst the uncertainty that COVID-19 brings, leaders are a source of direction and guidance. and staff will expect leaders to be fully present physically, emotionally and spiritually (Hsieh, 2020). Based on a recent study conducted by CPU, support from senior management contributes significantly to organisational support perceived by staff, which in turn, reduces stress level and increases job satisfaction (Seah, 2019).

Understanding the importance of senior management's role particularly during this challenging period, and recognising the potentially adverse consequences that misinformation and fake news about the pandemic can result in (Frenkel, Alba & Zhong, 2020), CNB has been utilising two platforms to provide accurate COVID-19 information and guidance to officers.

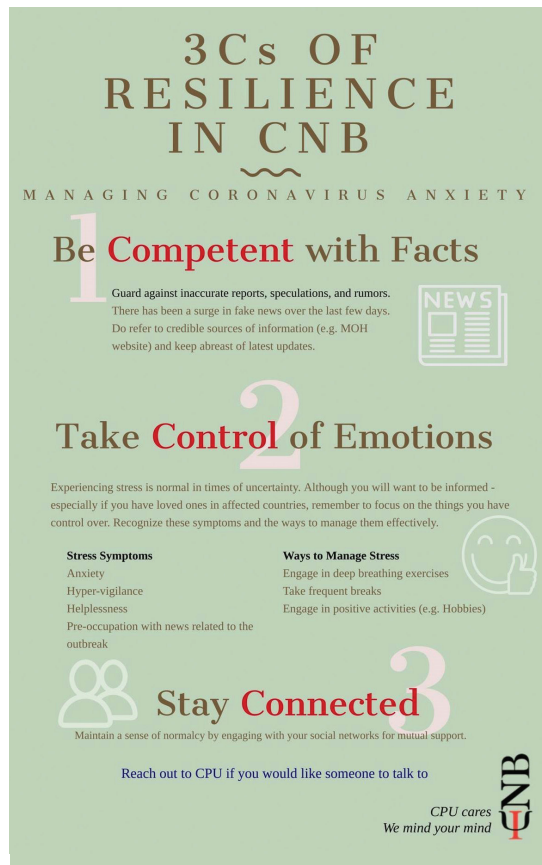

Figure 1. Email broadcast on the 3Cs of Resilience in CNB

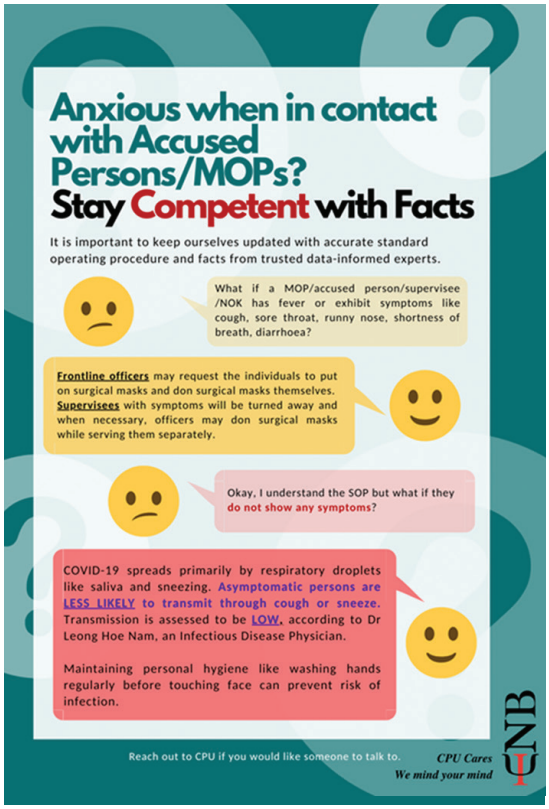

Figure 2. Example of email broadcast to help staff Be Competent with Facts

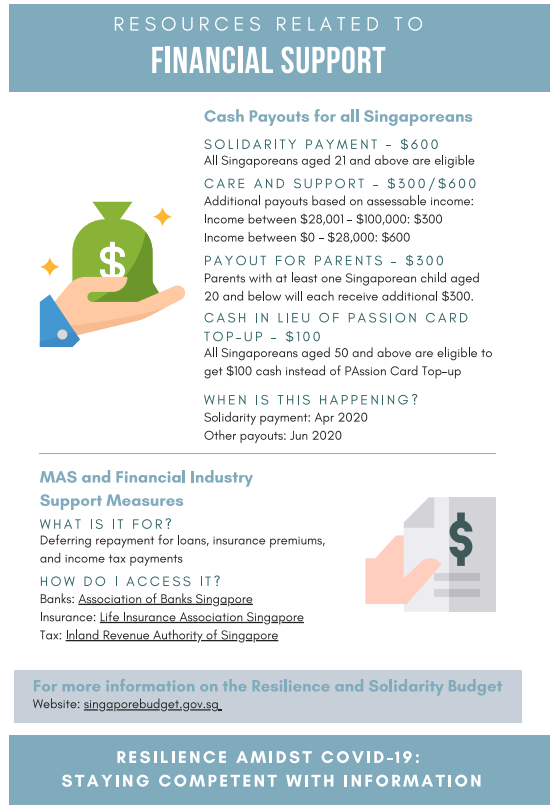

Figure 3. Snippet from the COVID-19 Resource Booklet collated by CPU

For example, CPU broadcasts weekly emails about COVID-19 to debunk myths and ease fears and anxiety (see Figure 2 for example). The Director of CNB also sends timely emails to update all officers on crucial developments, as well as to encourage and show his appreciation to officers for their commitment and perseverance. He also sends customised messages to various Divisions and groups based on group-specific concerns raised during morale sensing. This provides a more personalised touch to his messages, and directly addresses officers' concerns. He has also led his leadership teams in conducting virtual meet-ups with ground officers from different divisions.

To alleviate officers' anxiety over contracting COVID-19, CNB has also distributed Welfare Care Packs consisting of vitamins, sanitizers and dried snacks to every officer. Reusable masks and face shields have also been distributed for added protection.

Take Control (of Actions and Emotions)

Pandemics may result in the perception of a lack of control by an individual and that can contribute to a sense of helplessness (Zhang & Ma, 2020). Recognising the importance of having a sense of control for mental well-being, CPU's broadcasts are crafted to increase officers' sense of control and empower them through developing personal competence. This is done by providing resources and tips to build both physical and emotional resilience. For example, some of CPU's broadcasts have highlighted the practices that individuals can adopt to minimise the risk of infections (e.g. frequent hand-washing and refraining from contact with others). A resource booklet collating various initiatives by the government has also been specially curated and disseminated to officers to provide them with resources that they can seek help from independently (see Figure 3).

Other broadcasts focusing on emotional resilience address the challenges and stressors related to the pandemic, such as adapting to telecommuting processes and balancing work with family responsibilities, and thus help to normalise the stress that officers may be facing while offering coping strategies (see Figure 4). Through these broadcasts, officers are provided with self-help resources and

Figure 4. Example of email broadcast on Taking Control and Staying Calm

simple, bite-sized tips that they can refer to and use at their own time and pace, giving them a sense of control and self-efficacy to tackle their own challenges and stressors.

Stay Connected (with One Another)

With the implementation of telecommuting arrangements in CNB, officers have been placed on alternate-team arrangements or to work from home whenever possible. They are also encouraged to stay home and to not socialise with others outside of their household. Such measures can create isolation from colleagues and peers and add to stress. However, Zhang & Ma (2020) have found that individuals with more social support during the pandemic exhibit lower stress levels.

To create a culture of connectedness despite the physical distance, the Bureau activated its network of peer supporters to support officers activated for the Whole-of-Government COVID-19 response, and to watch for symptoms of stress in their colleagues. A series of virtual activities titled "CNB's Circuit Breaker Challenge" was also

Figure 5. Example of CNB's Circuit Breaker Challenge to help staff Stay Connected

launched for officers to participate in regardless of demographics (e.g. age/gender/activity level) and working arrangements (i.e. telecommuting or otherwise).

Examples of these virtual activities, as shown in Figure 5, included inviting officers to share ways in which they stayed connected with their colleagues

and/or family members, share photographs of their home-cooked meals, and state the one thing that they were grateful for during the circuit breaker. Prizes were given to the top 10 winning entries for every challenge to encourage participation. The winning entries were also broadcast Bureau-wide to facilitate conversations amongst the officers, and allow them to learn from one another, be it ways to engage with friends and family or recipes to try out at home. This allowed officers to stay emotionally and socially connected.

A 2019 study by CPU also found that immediate supervisors contribute to officers' perception of organisational support, stress and job satisfaction due to their frequent interactions with each other (Seah, 2019). Line and middle managers play an important role as the bridge of communication between management's directions and officers' feedback. With the COVID-19 restrictions and increase in telecommuting practices, the role of middle managers has become more pronounced.

As telecommuting is a relatively new practice in CNB, CPU conducted a literature scan to explore effective supervisory practices to better manage and connect with staff while working from home. For example, Lausch et al. (2009) recommend that supervisors provide regular updates and share information with telecommuting officers, and encourage employees to separate work and family boundaries. Findings from the research were adapted to CNB's context, and shared with key appointment holders at CNB's Staff Conference in July 2020 to provide leaders with evidence-based tips and effective practices.

Findings from the e-morale sensing survey in May 2020 indicated that staff morale and confidence in the Bureau increased significantly from March to May. Officers found the following efforts to be helpful: regular situation updates and resilience broadcasts; safe management measures instituted; provision of PPEs and welfare packages; moral support through affirmations and understanding.

Overall, CNB has adopted a multi-dimensional approach to target various areas of concern beyond work, but also in the context of employees' personal lives (e.g. family). The interventions also address various layers of the organisation, from individual stress coping mechanisms and resilience, to peer support, to leadership and management of the organisation.

CONCLUSION

While a lot of hard work has had to be put in to tackle the challenges brought about by the COVID-19 pandemic, the crisis has also brought about a new level of positivity and opportunities. As restrictions become the New Normal, CNB officers and teams have come up with a host of creative solutions to overcome obstacles in their daily work that they had previously not perceived. This epitomises the "can-do" attitude of CNB officers. For instance, CNB held its 1st ever virtual National Day celebration in August 2020 where officers flooded online communications with celebratory and encouraging messages. Some officers noted that it was a more uplifting experience for them compared to previous years. Such positive attitude is required as the COVID-19 situation is dynamic and still evolving. We need to be mentally prepared to continue fighting a protracted and uncertain battle, and find solutions to adapt to this new normal.

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KEEPING TEMPORARY DORMITORY SITES SAFE FOR OUR FOREIGN WORKERS:

A FIRE SAFETY PERSPECTIVE

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ABSTRACT

As Singapore faced a surge of COVID-19 infections among the foreign worker community beginning April 2020, it became crucial to relocate workers from the larger dormitories to contain the spread. The Singapore Civil Defence Force (SCDF), together with other government agencies, undertook a suite of enhanced measures to ensure the safety of foreign workers at alternative temporary accommodations which were not originally designed and built as dormitories. From a fire safety perspective, SCDF sought to balance the critical fire protection requirements vis-à-vis the health needs of the foreign workers. This article explores how the SCDF worked around various challenges to establish a set of requirements and initiatives to maintain fire safety and emergency preparedness at temporary accommodations during the COVID-19 pandemic.

THE BALANCING ACT

The far-reaching impact of COVID-19 has pushed many healthcare systems around the world to its limits. To deal with the pandemic, governments have temporarily converted large, unused spaces – such as Formula One racetracks in Mexico and sports stadiums in India – into alternate care facilities (Katzenberger et al, 2020; Pinatih, 2020; Fang et al, 2020). In doing so, government agencies have needed to balance urgent public health needs against a wide spectrum of issues ranging from sanitation to fire safety.

From a fire safety standpoint, the concerns are two-fold. One, converting buildings that were not originally built to support healthcare or residential needs will alter the fire safety risk profile. Two, it is improbable that these converted premises meet prevailing fire safety regulations that address those risks (NFPA, 2020). Since the start of the COVID-19 pandemic, the National Fire Protection Association (NFPA), an international non-profit organisation based in the United States, has provided guidelines to facility managers and authorities on dealing with fire safety regulations under these extraordinary circumstances. The National Fire Chiefs Council (NFCC), the professional voice of United Kingdom fire and rescue service, has also provided fire safety advice to support the implementation of 'field hospitals' which accommodate high numbers of COVID-19 patients (NFCC, 2020). There is a consensus among professional fire safety bodies that adopting a reasonable and pragmatic approach is the most feasible way forward to ensure that fire safety is maintained during the global pandemic (NFPA, 2020; NFCC, 2020).

SITUATION IN SINGAPORE

Through 2020, the healthcare system in Singapore did not reach critical levels. However, the burgeoning number of positive COVID-19 patients within foreign workers' dormitories beginning in April forced local authorities to find quick and effective solutions to contain its spread (Ng, 2020; Wong, 2020). To begin with, dormitories with a high number of positive COVID-19 patients were gazetted as isolation areas, effectively restricting the movement of workers in the premises. In addition, healthy foreign workers who provided essential services were decanted from their dormitories to sites like army camps and sports halls to minimise cross-infection. Subsequently, more buildings such as vacant factories and former schools were identified as short- to medium-term spaces for conversion into temporary dormitories

(Goh, 2020). This prompted SCDF to formulate a guiding framework to balance critical fire safety issues with urgent public health needs for temporary dormitories converted from existing buildings.

In Singapore, the Fire Code provides a prescriptive-based approach to fire safety for the built environment. The Fire Code Review Committee – made up of representatives from professional bodies, academia, and statutory boards – plays a crucial role in providing technical insights. The committee reviews the Fire Code periodically to ensure that it keeps abreast of the latest fire safety developments. For the construction of purpose-built dormitories, the Fire Code provides prospective building developers with clear guidelines such as the length of travel distance and number of exit staircases, among other requirements. Now, when faced with the unprecedented challenge of converting existing buildings for dormitory purposes within a compressed timeframe, SCDF recognised that it was not feasible to mandate strict compliance with the Fire Code given time and cost constraints. Therefore, SCDF had to adopt a practical risk-based approach in meeting the demands of this challenge.

Responding to these unprecedented circumstances, SCDF adopted a three-pronged strategy: a) establish key baseline fire safety objectives; b) conduct site assessment to assess if the premises are able to meet these key objectives; and c) introduce additional fire safety management measures to augment existing fire safety provisions.

KEY FIRE SAFETY OBJECTIVES

SCDF first outlined three key fire safety objectives integral to ensuring the life safety of occupants. These objectives guided the formulation of a novel set of fire safety requirements unique to the process of converting identified premises into temporary workers' dormitories.

1. To limit fire spread

Compartmentation, which is defined as the "act of subdividing an area into smaller compartments using fire-resistant materials" (Cheshire, 2020), functions to control or slow down the spread of fire. Compartmentation limits the maximum extension area of the fire within the building (Botma, 2013) which then allows for occupants to evacuate the building safely. SCDF assessed that this form of passive fire protection system, which is a requirement for purpose-built dormitories in the Fire Code, should form the basis of the fire safety requirement for temporary dormitories. In general, the partitions used to create the compartments have to be non-combustible or made of a fire-resistant material.

2. To provide early alert to occupants

Fire detection systems such as fire alarms typically provide the first indication to occupants of a fire outbreak. It alerts occupants of an emergency and gives them adequate time to move to a place of safety. An automatic fire alarm system is especially crucial in premises with sleeping accommodation. In a study on the effectiveness of home fire alarms in saving lives, Ahrens (2015) found that almost three out of five homes deaths were caused by fires in properties with no fire alarms.

SCDF recognises the impact of sleep risks on the occupants' safety in these temporary dormitories, where a reliance on human detection is not enough. Also, the occupants may lack familiarity and orientation in a new place, thus prolonging the time needed to evacuate safely. With these considerations, SCDF required the installation of Home Fire Alarm Devices (HFADs) for premises that are only equipped with manual fire alarms. The HFADs will have to be interconnected so that when a detector is activated, the alarm for the entire building will sound thereby giving early warning to all sleeping occupants. For buildings with existing automatic fire alarms, they need to be checked and tested to ensure their functionality. Reliable early detection systems greatly reduce the risk and provide adequate time for occupants to evacuate the building safely while the escape routes are still clear of smoke.

3. To provide safe and adequate means of escape for building occupants

After fire detection, the availability of escape routes is an important fire safety feature that facilitates the quick evacuation of occupants in a fire emergency (Botma, 2013). It is equally important to ensure that these means of escape are constantly cleared of obstruction that will otherwise hinder movement. In addition, having clear notices directing occupants to the nearest safe evacuation routes reduce further stressors on the brain. Studies conducted by behavioural scientists have shown that in

an emergency, the cognitive processes guiding occupants to decide and take actions to ensure safety are placed under stress (Kuligowski, 2009; Proulx 1993). Therefore, it is important to always ensure that the means of escape are pre-determined and made known to occupants.

COMPREHENSIVE SITE ASSESSMENT

Guided by these baseline objectives, SCDF officers from the Fire Safety Department conducted site assessments at multiple pre-identified premises across Singapore such as vacant schools and factories. The aim was to identify existing fire safety provisions and to highlight any fire safety concerns that require further attention before the conversion work started. Information gathered provided a basis for SCDF to decide on further fire safety requirements and management measures necessary to ensure the safety of occupants.

REDUCING THE FIRE RISKS THROUGH FIRE SAFETY MANAGEMENT MEASURES

Having robust fire safety management measures help to reinforce the determined fire safety objectives. Furness and Muckett (2007) argue that beyond fire safety design, one needs to consider occupants' behavioural patterns and design measures that overcome potential problems for a safe evacuation. The safety of people in the event of a fire in buildings is dependent on having emergency procedures that make full use of the fire safety design features of the building and take into account human behaviour when faced with an emergency. Therefore, SCDF recommended a suite of fire safety management measures to ensure a comprehensive approach towards fire safety in these temporary dormitories.

Upon detection of a fire, many different and complex factors interact with one another to affect the reaction of occupants (Huseyin & Satyen, 2006; Kuligowski, 2009; Proulx 1993). Interestingly, the solutions to overcome these complex factors are simple. Many studies and research have shown that behaviours displayed during a building fire evacuation is a result of behavioural process – which can be guided through repeated actions or cues from the physical environment (Huseyin & Satyen, 2006; Kuligowski, 2009). For example, SCDF requires building managements to place prominent fire escape signs and notices at strategic places within the buildings. According to Proulx (1993), having clear information provided during emergency "helps to reduce stress and support the decision-making process required in a successful evacuation." This is to deter unsafe evacuation behaviours such as evacuating via dangerous routes. The concise information provided to the occupants help to guide their cognitive process especially during emergency situations where additional stressors may impair one's ability to think readily.

Maintaining fire safety standards on site

The appointment of a Fire Safety Manager (FSM), who is trained in fire safety, plays an important role in maintaining the on-site fire safety standards and ensuring that the occupants know what to do during a fire emergency. During normal time, the FSM has to walk the ground to ensure that the various fire safety suppression or alarm systems are in working condition and to remove any fire hazards (e.g. storing combustibles along escape routes) or malpractices (e.g. locking exits) that may increase the likelihood of fire or impede escape. FSMs should also look out for acts that increase fire risks, such as open flame cooking or connecting multiple electrical sockets together, also known as "daisy chaining". He is also responsible for formulating a robust emergency response plan, with SCDF's inputs. SCDF also encourages periodic fire evacuation drills. The importance of fire evacuation drills is often understated. In fact, researchers have argued that having such drills create indelible effects in the mind where the brain taps into past experiences in guiding their cognitive process (Keiting, 1985; Sime, 1985). Having occupants physically partake in fire drills help to instil familiarity with the evacuation routes, making them more likely to evacuate safely during an emergency.

Ensuring prompt initial response

For a comprehensive approach towards fire safety, it is crucial to address the response aspect of a fire emergency adequately (Yung, 2008). Providing quick and effective response during a fire, especially at the incipient stage, limits the damage and reduces the number of fire-related casualties (Huseyin & Satyen, 2006). Additionally, imparting fire safety knowledge and training contributes significantly to an effective emergency response (Nyankuru et al, 2017). SCDF, recognising that trained on-site staff can increase

the overall emergency readiness at premises, had introduced the Company Emergency Response Team (CERT) scheme in 2005 to train on-site personnel to provide quick mitigation and prevent an incident from escalating. Under normal circumstances, premises that require CERT will have to undergo formalised training with accredited training organisations. However, with the imposition of Circuit Breaker measures from 7 April to 1 June 2020, the accredited training organisations had to cease operations, presenting SCDF with a unique challenge. To minimise delays to the decanting process, SCDF formulated and conducted a customised half-day CERT training package for the temporary dormitories. The training sessions, comprising both theory and practical aspects, were conducted in-situ so that on-site staff were able to familiarise themselves with the existing evacuation routes and basic fire safety provisions. The participants learnt how to identify and remove fire hazards, how to conduct quick evacuations based on the emergency response plan, and how to mitigate incipient fires using fire extinguishers or hose reels. SCDF's Fire Safety Department and Volunteer and Community Partnership Department (VCPD) planned the training operations, which were largely implemented by the Community Engagement Branch of SCDF's land divisions. Over a span of 4 months, SCDF trained an estimated 1000 on-site staff across 71 sites. Other countries are now also adopting a similar approach. For example, the UK's NFCC has advised that trained on-site staff at temporary field hospitals should provide initial incident response (NFCC, 2020).

CONCLUSION

In the race against time to curb the spread of COVID-19 within dormitories, SCDF adopted an approach that was in line with established fire safety standards yet practical to support the Government's efforts in decanting foreign workers to temporary premises. The key fire safety objectives set out by SCDF served as core tenets by which key fire safety requirements were formulated. Besides design requirements, SCDF also imposed fire safety management measures to further reduce risks. SCDF also initiated training to ensure a baseline level of readiness in the temporary dormitories. As the nation perseveres through this difficult time, SCDF will continue to adapt and negotiate through the various challenges, to protect and save lives, and property.

ABOUT THE AUTHORS

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Shaiful Herman
is currently the Commander of 1st SCDF Division, overall commanding eight fire stations which respond to fire, rescue and medical emergencies in the southern parts of Singapore. He has over 15 years of experience in operations (specialising in fire investigation and HazMat), and in policy work focusing on fire safety and security. He holds a Master's Degree in Fire Investigation from the University of Central Lancashire (UK) and a Bachelor's Degree in Chemistry and Management from the Imperial College of Science, Technology and Medicine (UK). He was previously the Deputy Director of the Fire Safety Department of SCDF, at the time when the COVID-19 outbreak began.

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SINGAPORE'S EMERGENCY MEDICAL SERVICE:

REDUCING OCCUPATIONAL RISK WHILE SAVING LIVES IN A PANDEMIC

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ABSTRACT

The Coronavirus disease (COVID-19) pandemic has taxed healthcare systems and ambulance services worldwide to breaking point. Singapore was among the first to report community transmission of COVID-19, and at one point, had the highest number of confirmed cases in Southeast Asia. In this article, we record the protection measures and protocols adopted by our national Emergency Medical Services (EMS) provider run by the Singapore Civil Defence Force (SCDF). This article describes the impact of the pandemic on operations and training, and discusses continuing challenges.

INTRODUCTION

As the primary national Emergency Medical Services (EMS) provider, the Singapore Civil Defence Force (SCDF) runs a fleet of 84 ambulances and is committed to responding to 80% of EMS calls at any location in Singapore within 11 minutes. In view of the COVID-19 outbreak, SCDF has developed appropriate response measures to ensure that operational readiness is maintained without placing the responders' safety and health at risk. This article outlines the deliberate steps taken by SCDF to reduce the occupational risk of infection among frontline responders, and at the same time, retain a level of medical professionalism and care of patients.

SINGAPORE'S DORSCON FRAMEWORK AND NATIONAL RESPONSE

The Disease Outbreak Response System Condition (DORSCON) is a colour-coded framework that defines the current level of threat to and impact on public health. It provides agencies with a set of necessary response measures based on the level of threat and impact. This framework was established by the Singapore Ministry of Health (MOH) in 2006 after the Severe Acute Respiratory Syndrome (SARS) epidemic in 2003 (MOH, 2014).

On 2 January 2020, MOH issued a circular advising medical practitioners to be on alert for travellers with symptoms of pneumonia and breathlessness arriving from Wuhan City, China (MOH, 2020a). A day after the Multi-Ministry Task Force was formalised, Singapore reported its first imported case of COVID-19 on 23 January 2020 (MOH, 2020b).

The DORSCON framework was immediately applied as MOH raised the DORSCON to Yellow, introducing a slew of precautionary measures aimed at minimising the risk of further transmission in the community. An ambulance service run by contracted private ambulance operators was also dedicated to ferry all suspected cases to hospitals for screening. These included patients who showed stable symptoms but were nonetheless referred by healthcare providers, as well as those placed on quarantine order. With this supplementary set-up, SCDF's emergency ambulance service was able to focus on the expected day-to-day cases and take on only urgent cases of COVID-19.

Following the emergence of local cases without any travel history to China or discovered connection to previous cases, MOH raised the DORSCON level from Yellow to Orange on 7 February 2020 (MOH, 2020c). Accordingly, SCDF

instituted several measures in line with the whole-of-government response.

SAFEGUARDING THE PUBLIC AND AMBULANCE CREW

Personal Protective Equipment (PPE) for Ambulance Crew. From the onset of DORSCON Yellow, the pandemic PPE stockpile was distributed to all fire stations within two days. SCDF also began stockpiling at least three months' worth of PPE in preparation for this global crisis. Proper donning and doffing of the PPE were exceptionally crucial, being the primary deterrent to the exposure of the virus. For all suspected cases, ambulance crew were instructed to don a standardised set of PPE comprising a fitted N95 mask, goggles, gown, gloves, as well as hair and shoe covers. N95 mask-fitting was carried out and completed over three days, alongside the concurrent execution of refresher training to ensure competency. Routine medical drills were also conducted with more attention given to the donning and doffing procedures of PPE.

Upon escalation to DORSCON Orange, travel or contact history alone were no longer reliable identifiers for COVID-19 cases. SCDF had to take additional precautionary measures, and donned full PPE for all cases regardless of the reported symptoms. The PPE protocol was surfaced and approved by a board of appointed Senior Emergency Physicians (Medical Advisory Committee) and a hospital Infection Control specialist.

Call Operator Triage. Call operators at the 995 Operations Centre and dispatch node were trained to screen for travel history, especially for cases reporting fever and respiratory symptoms. Call operators would inform the ambulance crew to don the necessary PPE prior to arriving at the location and getting in contact with the patient. Even as responders are now expected to turn out in full PPE when attending to any case, travel history screening remains part of the triaging process.

Changes to Ambulance Dispatch Protocols. To minimise potential exposure, the dispatch of fire appliances to augment the ambulance response to Out-of-Hospital Cardiac Arrest (OHCA) cases was ceased. The dispatch of Emergency Medical Technicians (EMTs) on Fast Response Bikes for high priority cases was also put on hold when DORSCON Orange was announced. Community response was another facet SCDF had to consider. The activation of Community First Responders for OHCA cases through SCDF's MyResponder mobile application was suspended, in view of the risk of community transmission. The 995 Operations Centre continued to instruct callers to perform hands-only Dispatcher-Assisted Cardiopulmonary Resuscitation (CPR).

All calls meeting the criteria of a suspected case were diverted to the National Centre for Infectious Diseases (NCID) and KK Women's and Children's Hospital designated for adults and children respectively. As for the medically unstable suspected cases, they were immediately conveyed to the Emergency Department of the nearest hospital.

Changes to Clinical Protocols. Ambulance crew were instructed to check for travel and contact history for all cases, regardless of the presentation of symptoms. To minimise the generation of aerosol, nebulisation with salbutamol was also replaced by the use of metered-dose inhalers with spacers.

Augmenting MOH's Pandemic Ambulance Service. While the dedicated MOH ambulance service covered the majority of referred cases, SCDF committed up to ten of its ambulances to help meet the demand, especially during the initial phases where there was a surge in call load.

Hospital Emergency Workflow and Ambulance Decontamination Procedures. As each Emergency Department reorganised itself infrastructurally to segregate the clean and suspected cases, SCDF had to design a suitable workflow with all ten hospitals for the transfer of patients, doffing of PPE, and ambulance decontamination. As an added resource, SCDF engaged the services of an external contractor to provide 24-hour ambulance decontamination services at NCID with a 20-minute turnaround time. The designated ambulance decontamination areas were equipped with either the Biojet or Aseptojet for the crew to perform decontamination after the conveyance of each suspected case.

Force Protection and Health Monitoring of Ambulance Crew

Since the declaration of DORSCON Yellow, responders have been required to take their temperatures twice daily, as part of stringent health monitoring practices to protect the SCDF force. Responders who develop any form of respiratory symptoms are mandated to seek immediate medical attention and stay at home until they are relieved of the symptoms. In the same vein, responders found to have conveyed confirmed cases of COVID-19 and notified by the MOH Contact Tracing Centre are instructed to serve a quarantine period of 14 days. To reduce the incidence of respiratory illness, SCDF also carried out influenza vaccination programmes with the 2020 Southern Hemisphere vaccine for all ambulance crew. Starting in January 2021, SCDF's EMS also received the Pfizer Covid-19 vaccine.

Full segregation was implemented between the Fire & Rescue crew and EMS crew at all fire stations with mealtimes and rest areas kept separate. Within the EMS crew itself for each station, segregation was also in place between the morning and night shifts to minimise the degree of contact. Movement and cross-coverage of personnel between workplaces was also intentionally scaled down, and shift reporting times staggered with brief handovers. While the segregation measures have been relaxed slightly since June 2020 to allow for resumption of the Tiered Response and relevant training, safe distancing measures are still enforced, alongside an increased frequency in the upkeeping and disinfecting of common areas.

Monitoring Psychological Health of Ambulance Crew

As part of SCDF's crisis management framework, the in-house Emergency Behavioural Science and CARE (EBSC) Unit periodically performs phone surveys to ensure that the morale and mental health of the frontline responders are not adversely affected. In spite of positive reports of morale, there was initially still a level of anxiety faced by the responders due to the lack of information regarding the virus, and a bigger concern that they might inadvertently cause infection of their families and loved ones living in the same household. In an attempt to help alleviate this issue, SCDF has made arrangements to allow the crew to launder their clothes and wash up thoroughly before departing the premises. Psychologists are also available on a 24-hour hotline to provide emotional counselling at any time.

OPERATIONAL CHALLENGES FACED BY SCDF EMS

Impact on Response Time

Due to the cessation of fire appliances augmenting SCDF's ambulance response to emergency calls and the additional time required by the responders to don the full PPE, the response time increased by about 15 seconds per call in February and March 2020.

Trend of EMS Calls Conveyed

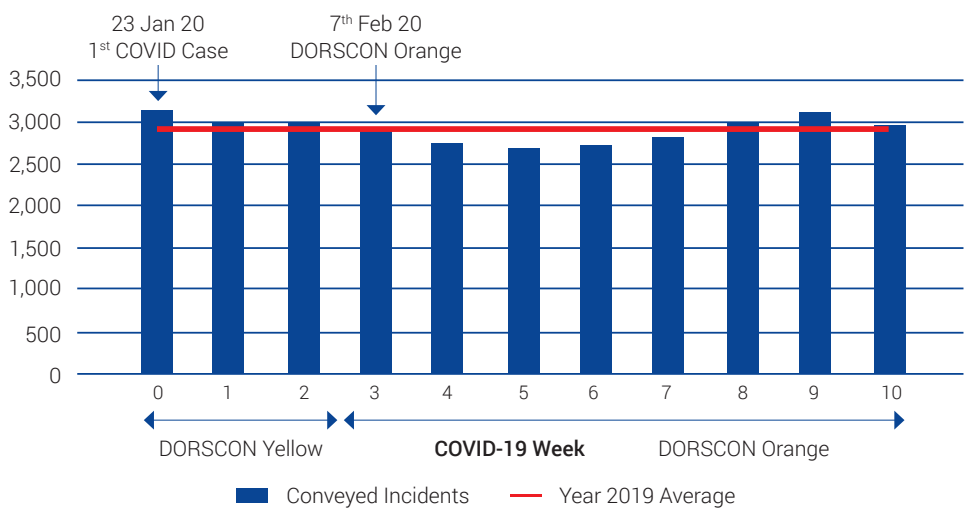

Figure 1. Number of EMS Calls Conveyed to Hospital per week

As Figure 1 shows, when the number of calls per week during the periods of DORSCON Yellow and DORSCON Orange was compared with the weekly average of EMS calls in the same time frame in 2019, there was an 8% reduction in EMS call load in the initial weeks of the outbreak. This was likely attributable to a change in the public's health-seeking behaviour. However, in March 2020, the number of calls increased week-on-week, primarily due to the increased demand in conveyance for COVID-19 cases.

SCDF observed that a large portion of COVID-19 conveyances were triaged as P3 cases (i.e. minor-emergency cases that are not life-threatening, such as cough with green phlegm, muscle cramps or sprains with stable vital signs, and cuts with no active bleeding), and most patients appeared well and medically stable. With this consideration, SCDF worked with MOH to establish triage criteria for the medical teams and lay operators at the dormitories and quarantine facilities, to ensure that ambulance capacity is reserved for higher acuity cases. With these measures in place, SCDF was able to maintain its 11-minute response time for about 90% of cases (similar to previous years) in 2020.

When private-hire drivers were tasked to augment the conveyance capability for suspected yet medically stable COVID-19 cases (Yap, 2020), SCDF helped to provide mask-fitting and training in the management of PPE for more than 900 of these drivers.

SCDF also maintains communication with the MOH Operations Cell to ensure rapid consultation and smooth handover of cases between the two (emergency and non-emergency) ambulance services. Text messaging is used as a means of rapidly updating the ambulance crew of new policies and protocols, new ambulance pick-up points at the various community isolation facilities and other operational matters, as well as to transmit feedback to managers on ground challenges.

With the above measures, the number of COVID-related EMS calls to 995 stabilised. Combined with the effects of the "circuit breaker" (which saw a 15% reduction in trauma caseload from road traffic and other accidents) and a reduction on non-emergency calls, the overall EMS call load for 2020 actually decreased for the first time in 20 years. (SCDF Fire, Emergency Medical Services and Fire Safety Enforcement Statistics, 2020)

There were also other operational challenges that required SCDF to tweak protocols to alleviate crew distress while maintaining high service standards. For example, heat stress and fatigue became a risk for responders with the regular donning of the full PPE in a pre-hospital care environment. SCDF thus introduced a degree of flexibility in the attire and decorum of its responders, allowing ambulance crew to be excused from putting on the full uniform in order to reduce heat stress.

Manpower and Logistics Shortages

Due to the precautionary measures set to reduce the risk of importation of COVID-19, there were initial concerns of short-term manpower shortage (MOH, 2020d). For SCDF, every non-occupational contact with a confirmed case renders a rapid workflow from vacating the responder's place of work for thorough cleaning and decontamination, to identifying close contacts for home quarantine, and subsequent coverage arrangements.

SCDF has tweaked its business continuity plans to ensure that in the event of significant degradation of manpower, it is able to suspend non-operational duties such as paramedic training and certification, and clinical audits, and divert additional headcounts to frontline response. Plans have also been put in place to collapse the ambulance crew structure from a 4-shift cycle to a 3-shift cycle in a worst-case scenario of manpower attrition.

The worldwide lack of PPE in the early months necessitated measures to minimise wastage through safe re-use where possible. SCDF has since been mindful to diversify the sources of supply to make sure the level of stock always remains adequate.

Impact on EMS Training

Training has been affected by the cancellation of clinical attachments to hospitals and the suspension of visits by foreign medical practitioners and lecturers. Within SCDF's training programme, the quarterly Continuing Education and Training sessions for in-service paramedics are now administered via online learning platforms with videos, recorded lectures, and e-quizzes. While online training has some advantages, such as flexibility of time and pace of learning, there have been limitations in rolling

out new protocols that require new practical skills or familiarisation with new equipment.

Fortunately, hands-on training sessions will be allowed to resume in 2021, with group size restrictions in place. In order to minimise the impact on skills-based training, SCDF will be looking at making its divisions more self-sufficient in trainers and training equipment so that training can be decentralised yet consistent.

CONCLUSION

SCDF's pandemic preparedness enabled a swift rollout of personal protective equipment and policies that ensured that none of our frontliners were infected with COVID-19, despite a high exposure rate. In comparison, a seroprevalence study among firefighters and paramedics in Florida, USA, found that up to 8.9% had been infected with the virus (Caban-Martinez et al., 2020).

Through close collaboration with MOH and other agencies to triage and cope with the COVID-related call load, SCDF was able to maintain its response times despite a temporary cessation of fire appliances' co-response to medical cases.

However, SCDF did document slightly worse clinical outcomes of out-of-hospital cardiac arrests during the peak of the pandemic in April and May 2020, measured as a decrease in pre-hospital return of spontaneous circulation to 8.7% of all out-of-hospital cardiac arrests from 12.3 to 12.7% in the same period in the prior 2 years. In addition to reducing the number of responding appliances, this change may also be attributable to the temporary cessation of activation of community first responders, as well as a documented reduction in bystander CPR and AED rates in this period, which corresponded with the "circuit breaker" (Ng et al., 2020).

The prolonged nature of this pandemic has also emphasised the importance of continuity and sustainability of our supply of essential equipment, and the need to be able to modify our training programmes to be decentralised and self-sufficient when access to local or overseas training partners is not possible.

ABOUT THE AUTHORS

Darren Choo
was a Medical Officer in the SCDF Emergency Medical Services department when the COVID-19 pandemic hit. He was involved in healthcare policy planning and helped to formulate policies regarding occupational fitness of firefighters and emergency medical personnel. He has always had a keen interest in occupational medicine and emergency medicine, and while now working in Tan Tock Seng Hospital as a Medical Officer hopes to continue to contribute to SCDF in a meaningful capacity when he returns for his reservist duties.

Janice Oh
is the Senior Assistant Director of the Emergency Medical Services (EMS) Department of the SCDF. She joined the SCDF in 1998 as a Paramedic and after a fulfilling 6 years operational tour in EMS, she underwent a 9 month-long officer course and was the first cross-trained fire officer. She served two years as a fire rota commander in Bishan Fire Station and 7 years in the Civil Defence Academy (CDA) as the Head of Medical Training. In her current job, she oversees the EMS daily operations and is heavily involved in the implementation of EMS projects, including the GOCO Model for the Private Ambulance Operators, OMNII system and EMS Tiered Response. Since 2018, she has been certified and appointed as a medical classifier with the International Search and Rescue Advisory Group. Janice believes in sharing her knowledge and conducts regular training at CDA as an adjunct trainer and provides inputs to the Singapore First Aid Resuscitation Council in her capacity as Chairman of the First Aid Sub-Committee.

ABOUT THE AUTHORS

Amelia Lim
is currently Commander of Jurong Island Fire Station, She was a Staff Officer in Emergency Medical Services (EMS) Operations Management in the EMS Department in SCDF Headquarters during the peak of the pandemic. She joined the SCDF in 2008 and spent 7 years as an operational paramedic before undergoing training to be cross-trained as a fire rota commander. After two years leading a fire rota in Sengkang Fire Station, she was appointed the EMS Team Leader of 3rd SCDF Division. In 2019, she underwent regional disaster management training under the ASEAN Coordinating Centre for Humanitarian Assistance and Disaster Management. She has been heavily involved in the implementation of High Performance CPR and the EMS Tiered Response in SCDF.

Ebenezer Lee
is a data analyst in SCDF's Emergency Medical Services (EMS) Department. He conducts data analysis and data management to support the planning and operations of EMS. He also guides a team in the development and maintenance of programming codes for regular data processing and routine reporting. He is currently helping to ensure the continuation of data workflows and routine reporting as EMS transitions to a new system in 2021.

Shalini Arulanandam
is an SAF medical officer who was seconded to SCDF as the Chief Medical Officer in April 2018. She has been reviewing the training and career development plans for paramedics in the SCDF, introducing a full-time Diploma with Nanyang Polytechnic as part of paramedic training, a new course for Paramedics to become Senior Officers, and a collaboration programme with an overseas university for paramedics to earn a degree in Paramedicine through distance learning. She has also been involved in several initiatives to optimise triage accuracy, and to automate clinical audit. During the COVID pandemic, she developed clinical policies for SCDF and worked closely with MOH, the Joint Task Force and other agencies to co-ordinate SCDF EMS's contribution to the national effort.

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SENSE-MAKING AND SURVEILLANCE IN AN UNPRECEDENTED MEDICAL CRISIS

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ABSTRACT

As with all other changes that COVID-19 has brought about, the demands on surveillance technology have increased as well. Within the Home Team, officers in the Sense-making and Surveillance Centre of Expertise (S&S CoE) have stepped up their efforts to bring to the table various technological applications. This article describes how HTX developed and deployed within two months iFAST, an integrated temperature scanning, mask detection and facial recognition system, at the Ministry of Home Affairs Headquarters. Other projects that the team embarked on with other Home Team Departments and government agencies, such as the use of video analytics for safe distancing and crowd counting, are also featured.

THE ROLE OF TECHNOLOGY IN FIGHTING COVID-19

With the onset of the COVID-19 pandemic in early 2020, governments across the world have both swiftly deployed existing technology such as thermal cameras at airports to conduct temperature screening of travellers, as well as introduced technological interventions.

As the first country to be hit by the pandemic, China rolled out several technological solutions for digital surveillance. For example, closed-circuit television (CCTV) cameras were installed on the doors of homes of quarantined individuals to ensure that they remain inside, drones were deployed on the streets to remind citizens to keep their masks on, and a QR code system was used to track the health status of individuals. Digital contact tracing solutions such as Australia's COVIDSafe, and China's HealthCode were introduced to capture movements and interactions of individuals in order to reduce the time taken for suspect cases to be identified and isolated. South Korea and Israel monitored credit card transactions and individual mobile phone data for digital contact tracing.

In Singapore, the Multi-Ministry Taskforce was set up to oversee strategic direction and coordinate efforts to contain the spread of coronavirus. As the Home Team's force multiplier, the Home Team Science and Technology Agency (HTX) stepped up to join the COVID-19 fight through deployment of S&T capabilities to enhance operational outcomes. The HTX Sense-making and Surveillance Centre of Expertise (S&S CoE) collaborated with other Capability Development Programme Management Centres (PMCs) within HTX – the Joint Capabilities PMC, Q Team Centre of Expertise (CoE), and the Immigration and Checkpoints PMC – to provide consultation and assistance in the deployment of several technology solutions to combat COVID-19.

iFAST FOR FASTER SAFEENTRY

One of the first measures introduced by the Multi-Ministry Taskforce in early 2020 to contain the pandemic included mandatory health and travel declarations for all staff and visitors prior to entry into buildings. As a result, temperature screening and manpower resources were deployed to enforce these measures. Working with the Joint Capabilities team (JCPMC), S&S CoE explored ways to automate this process and reduce the manpower resources required while ensuring public safety and a seamless user experience.

A functional system the team dubbed iFAST (Integration and automation of Face recognition Access and Safe Temperature logging) was swiftly put together (Figure 1). It captures the identity and temperature reading of an individual

Figure 1. Trialling of iFAST by HTX staff

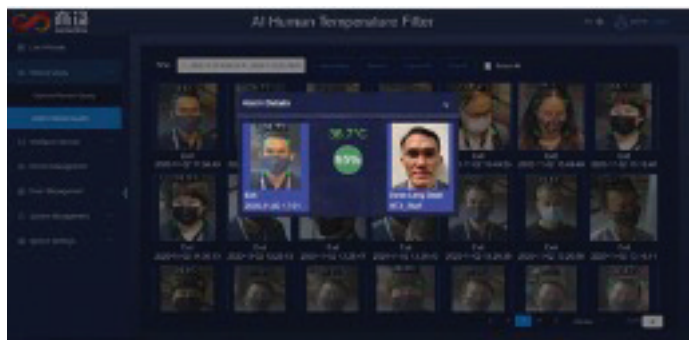

Figure 2. Dashboard display of facial images and body temperature readings captured of staff

at high footfall areas using facial recognition and thermal technology and automatically logs into a common database. Testing and configuration were performed by S&S CoE to determine the optimal camera positions to reduce the rate of false alarm occurrence. Besides capturing an individual's facial images upon entry, cameras can be placed at exit points as well. After several weeks of trial and configuration, we managed to achieve a 74% accuracy for facial recognition with mask and a temperature variance of ±0.3°*C*.

With the initial iFAST prototype in hand, JCPMC and S&S CoE then conducted further enhancements to obtain a stable and cyber-safe system that is fit for operational use at all entry and exit points at Ministry Headquarters in New Phoenix Park (NPPk). Ingress and egress movements are captured and integrated with SafeEntry data, and sent to Ministry of Health (MOH) for contact tracing purposes. Figure 2 shows the dashboard display of facial images and body temperature readings of staff and visitors identified and captured for monitoring purposes.

Besides deployment at NPPk, iFAST has also been developed as a working reference model for other Home Team Departments to adopt and adapt for their onsite use.

VIDEO ANALYTICS FOR REAL-TIME CROWD CONTROL

S&S CoE also leaned forward to support whole-of-government efforts by using video analytics to perform crowd analysis, provide alerts when an individual is spotted not wearing a face mask, and to determine the distance between people for social distancing enforcement.

The enforcement of safe distancing measures by the Ministry of Manpower and the National Environment Agency entails the deployment of manpower as safe distancing officers and ambassadors. Not only does this require a large amount of manpower, but such operations also require officers to be vigilant at all times. The challenge also lies in the timely deployment of officers to unanticipated hotspots

Figure 3. Crowd analytics algorithm tested on a semi-crowded scene. Safe distancing violations are annotated by the red bounding boxes.

to alleviate the situation and reduce the risk of an infection spreading within the community.

Engineers from the S&S CoE and Q Team CoE developed quick prototypes and performed trials on crowd analytics algorithms using data collected from existing systems to assess the suitability of camera angles and algorithm accuracy. While testing commercial solutions, the team also developed in-house machine learning models to perform crowd counting and achieved an accuracy of 80%. After several rounds of testing and evaluation of various models (Figure 3), an optimal result was obtained. With the support of the Singapore Police Force, the model has been deployed operationally, and provides near real-time alerts to enforcement officers on the ground.

The solution enables agencies to better plan their operational deployment of officers on the ground based on data collected on crowd levels, hence allowing for better calibration of enforcement strategies. In addition, the alerts enable officers to grasp the situation on the ground expeditiously and accurately and to make the necessary operational decisions and response.

ELECTRONIC STAY HOME NOTICE FOR MORE EFFECTIVE MONITORING

When Stay Home Notice (SHN) was introduced by the Multi-Ministry Taskforce in mid-February 2020 to minimise the risk of spread by imported cases of COVID-19, S&S CoE worked with the Immigration and Checkpoints PMC (ICPMC) to provide the Immigration & Checkpoints Authority (ICA) with an electronic solution to monitor persons on SHN. This became increasingly important as the situation exacerbated globally and Singaporeans from all over the world began returning home. The influx of returnees added to the operational pressure on ICA officers tasked to enforce the SHN regime, contributing to the strain on manpower and operational resources.

To meet this urgent need for a working solution to be delivered promptly, S&S CoE worked with existing partners and provided technical assessment of potential solutions based on the effectiveness, reliability and accuracy of the proposed technology. Application development, hardware prototyping, production deployment, etc. were then undertaken by ICPMC. With the hard work from ICA, HTX and our partners, the final solution (Figure 4) was deployed in 4 months.

SENSE-MAKING AND SURVEILLANCE IN DIFFICULT TIMES

While COVID-19 affected our everyday lives, the impact on the Home Team's operations was significant as well. HTX looked to promptly provide technological solutions to enhance operational efficiency and alleviate resource constraints. In the video analytics domain,

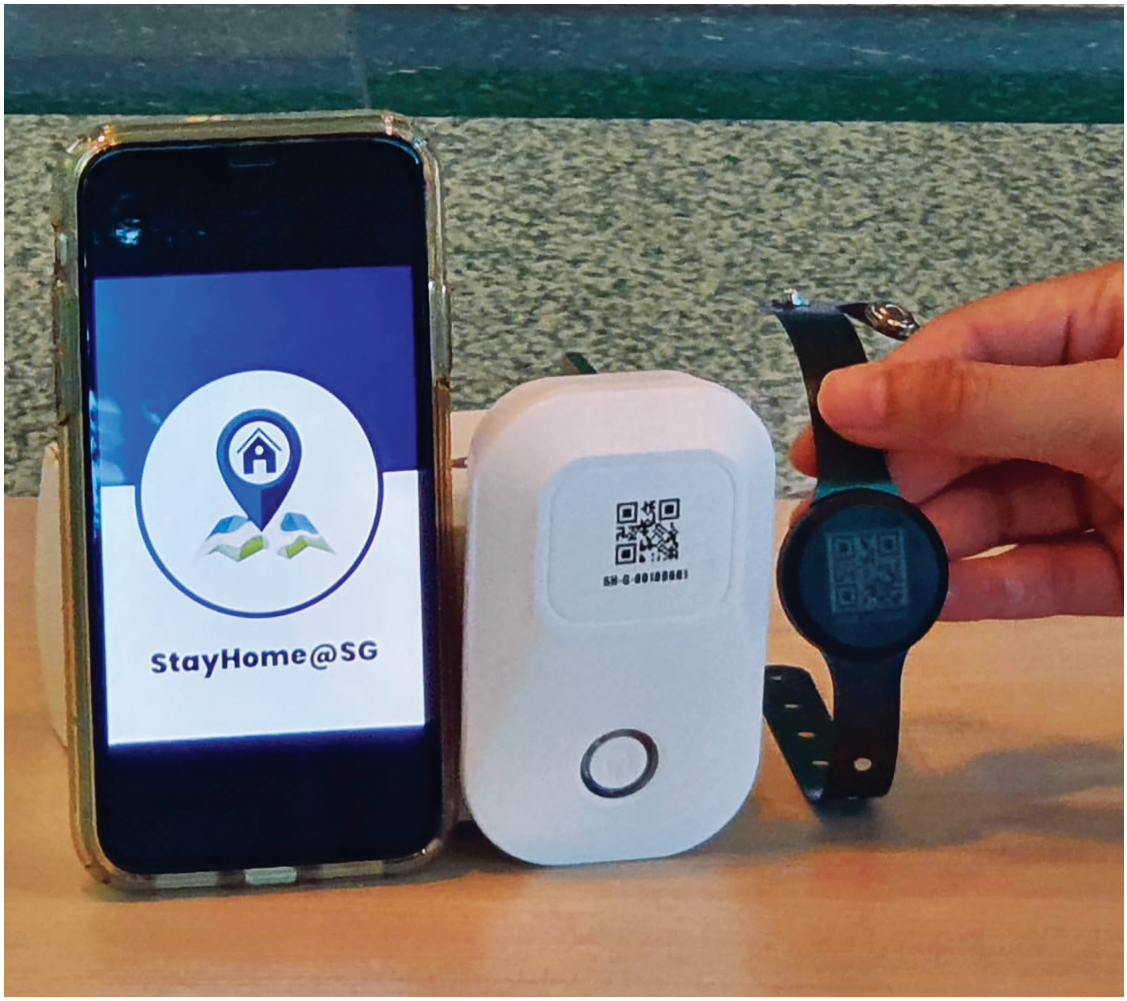

Figure 4. (Left to right) mobile application, IoT gateway and wristband deployed for SHN electronic monitoring

S&S officers worked hard to deliver operational solutions together with our colleagues from HTX, SPF and ICA, and commercial partners. In the process of development and implementation, the team was faced with constraints of limited resources such as backend infrastructure, computing power and bandwidth limitations. On top of that, the urgency of deployment to support COVID-19 operations further added to the project difficulty, necessitating rapid prototyping, development and deployment within a short timeline. Nevertheless, with the strong support of our colleagues and partners, S&S CoE was able to deliver timely and reliable solutions. As the world continues to fight COVID-19, we believe that HTX will be able to contribute to making Singapore a safer place amidst the pandemic.

ABOUT THE AUTHORS

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joined the Ministry of Home Affairs Science and Technology Group in September 2019, prior to the formation of the Home Team Science and Technology Agency (HTX) in December 2019. She completed her Master in Materials Science and Engineering at Imperial College London in the same year. Her first posting has seen her working in the Sense-making and Surveillance Centre of Expertise (S&S CoE) and Data Science and Artificial Intelligence CoE, working on the development and deployment of video analytics and data science capabilities to enhance Home Team operations. In addition, she is also with the Plans and Strategy Division where she does strategic planning for HTX.

Felix Foo
started his career in the Singapore Prison Service's Technology Branch in June 2011 where he was part of the team that replaced the old analogue closed-circuit televisions (CCTVs) with newer digitised CCTVs that produced much clearer images. He then furthered his interest in technology application in the Home Team through his posting to MHA's Ops-Tech group in March 2015. Felix's current portfolio at S&S CoE at HTX includes developing advanced technology road maps and collaborations while integrating existing systems to harness the multiplier effect.

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INNOVATING PSYCHOLOGICAL SERVICES TO SUPPORT THE POLICE IN A PANDEMIC

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ABSTRACT

Policing is known to be a highly stressful and challenging vocation. In peacetime, police officers and leaders are faced with operational and organisational stressors that affect their operational ability and psychological well-being. During periods of uncertainty, as presented by policing in a prolonged pandemic environment like COVID-19, the added stress of operating in an environment with an unknown biological threat with deadly consequence poses unique challenges to the operational and psychological resilience of police personnel. Apart from the operational and legal considerations of policing in a pandemic, there is a need to consider the psychological preparedness of officers for policing in such a unique environment. And given the unknown threat posed by the virus, the provision of psychological services has naturally to innovate. This paper describes how the Police Psychological Services Department of the Singapore Police used a bespoke 3 x 3 framework to plan and deliver innovative psychological support services to police officers, units and leaders policing in the current pandemic.

POLICING IN A PANDEMIC

The first case of COVID-19 in Singapore was announced on 23 January 2020, when a 66-year-old Wuhan resident on holiday in Singapore tested positive for the virus. As Singapore saw a rise in the number of cases, in particular locally transmitted cases with no links to previous cases, the risk assessment was stepped up from Disease Outbreak Response System Condition (DORSCON) Yellow to DORSCON Orange on 7 February 2020. The number of cases continued to rise as overseas Singaporeans returned home and local clusters emerged. In particular, there was a spike in the number of COVID-19 cases in several foreign worker dormitories in early April 2020. In response, the Singapore Government imposed a "Circuit Breaker" from 7 April to 1 June 2020 in a bid to curb the spread of COVID-19.

The COVID-19 Pandemic has been described by the United Nations (UN) as the worst global crisis since World War II. In Singapore's fight against this crisis, the Singapore Police Force (SPF) is substantially involved, with police officers being deployed at government quarantine facilities and at the foreign worker dormitories across Singapore to manage lockdown operations, at the frontline performing day-to-day duties with members of the public, or in contact tracing operations. Police officers and civilian officers in the staff departments have also been working long hours to support crisis operations, such as developing contingency plans and business continuity plans as well as new and innovative operating procedures for policing during the COVID-19 crisis.

In such challenging times, crime does not stop and thus, policing cannot stop either. Rather, on top of the challenging demands of policing, the added challenges of policing during a pandemic places exceptional stress on police officers, units, and leaders. For the policing function to be effective, it is critical that police officers and leaders are duly supported. In Singapore, the Police Psychological Services Department (PPSD) has through the aid of technology developed a comprehensive plan to provide 360 degree psychological and practical support for police officers. These interventions are important in enhancing, maintaining and restoring

the psychological readiness of police officers, units and leaders.

STRESS IN POLICING

Police work is almost universally acknowledged to be stressful (Bishop et al., 2007), with police officers at various times required to intervene in situations of conflict (Lee et al, 2017), apprehend violent criminals, face hostile members of the public, and deal with the inevitable political pressures of public life (Violanti et al., 2018) – these are the commonly known operational stressors police officers face. Operational stressors are often highlighted in police work, although many studies of police stress have consistently found that organisational stressors – those related to the context in which officers perform their duties – are also very common and have deleterious effects (Biggam, Power, Macdonald, Carcary, & Moodie, 1997; Brown, Cooper, & Kirkcaldy, 1996; Evans & Coman, 1993). Challenges arising from manpower shortages, long hours, job overload and changes in supervisors have been found to be among the most common organisational stressors. These stressors can lead to psychological distress, depression, alcoholism, burnout, cardiac disorders and suicide as well as family and marital problems (Alexander, 1999; Biggam, Power, Macdonald, Carcary, & Moodie, 1997; Kop, Euwema, & Schaufeli, 1999; Loo, 1999; Territo & Vetter, 1981; Violanti, 1992).

On top of these stressors, the nature of a prolonged pandemic operation threatens not only the police officers but also their loved ones and colleagues, who may be at risk of infection from human-to-human transmission. Additionally, given the insidious nature of the virus, infected officers may be asymptomatic and may therefore unknowingly infect others. This unknown, unseen and insidious nature of the virus poses unique challenges to policing.

DEVELOPING A 3 X 3 PSYCHOLOGICAL SUPPORT INTERVENTION PLAN

The Police Psychological Services Department (PPSD) is a unit in the Singapore Police entrusted with using psychological know-how to ensure operational and organisational excellence. PPSD is usually involved in operational psychological support in major and intensive policing operations. In response to the challenges faced by police officers in the prolonged pandemic operations, PPSD reviewed past operations and developed a 3 x 3 psychological support intervention plan. Bearing in mind the threat posed by an infectious virus, PPSD harnessed technology to innovate the delivery of psychological services, which are largely concerned with: (1) Psychological Readiness Management, (2) Morale Management, and (3) Operational Resilience Management (Figure 1).

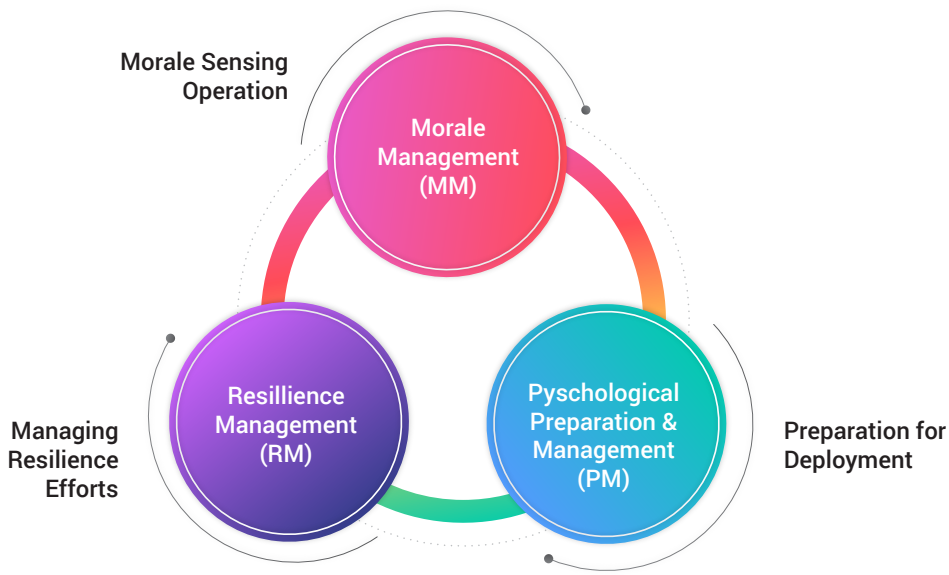

Figure 1. Principal components of psychological support interventions

As part of Psychological Readiness Management, PPSD provides schemas, scripts and cognitive maps in a safe manner to help officers and leaders understand the context of the situation and what they can and should do to prepare themselves and protect their loves ones. Working with communications experts from SPF Public Affairs Department, PPSD psychologists have been developing various psychological preparation materials and guides to mentally prepare and equip officers for the challenges they may face. These challenges include dealing with anxiety, stress and fatigue, maintaining sleep hygiene, and preparing their families for their involvement in pandemic operations.

In the area of Morale Management, PPSD conducts morale measuring, and supports morale monitoring and morale motivating efforts. For morale measuring, PPSD liaises with the Unit Morale Sensing Teams (UMSTs) to conduct e-morale sensing every two weeks. The findings from the morale measuring efforts are then shared with unit and Headquarters (HQ) leadership to calibrate the ground support required and to shape guidance to officers. Sharp dips in operational morale of units are highlighted to their leadership for timely investigation and intervention. For morale motivating, PPSD highlights areas that officers appreciate and their concerns. Unit and HQ leaders are then able to look into the concerns and take steps to boost the morale of officers at the frontline. Some of the interventions have included provision of sanitisers, masks and Vitamin C supplements.

Given the requirements of social distancing measures, morale sensing is not conducted face-to-face as is usually done in most operations. Instead PPSD worked with Ops Tech Department to develop the PPSD E-Morale Sensing capability, otherwise known as PEMS. In face-to-face morale sensing operations, teams of PPSD officers would engage ground officers to obtain a sensing of their operational morale and confidence. This process was manpower intensive and unsuitable for a fast-moving high threat environment. With the PEMS, a morale sensing form is created on FormSg and an internet link sent to officers (see Figure 2). Officers assess the form and respond to the questions. Responses are sent to a PPSD email box which auto-generates into a database the responses received. PEMS allows PPSD to quickly gather officers' feedback with no face-to-face interaction, thus removing any risk of infection. The data, being already collated on a database, is provided in an easy format for faster qualitative analysis. The results from using PEMS is an infection-free, fast and accurate morale sensing carried out without deploying any PPSD officer on the ground.

PPSD psychologists have also been working to enhance, maintain and restore operational resilience, especially when officers are infected. For Resilience Management, a standby plan was developed early for the following three scenarios in anticipation of officers: (1) being potentially contaminated in the line of duty, (2) having family members and loved ones infected, and (3) being infected themselves. Psychological support plans and reassurance operations were prepared and approved early in the deployment. These proved useful when officers eventually came across contaminated subjects as well as when they had loved ones infected and when they themselves were infected. Having the operational resilience plans ready have helped to ensure a thorough and effective response to the crisis.

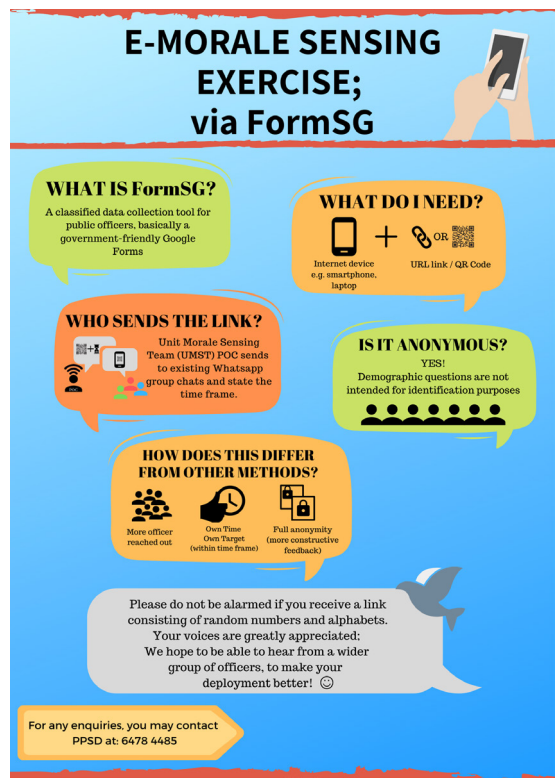

Figure 2. Poster advertising e-morale sensing exercise

Before COVID-19, officers needing support were seen in face-to-face settings. However, with the virus posing a serious threat to the usual mode of providing resilience management services and creating conditions of greater uncertainties and anxieties for officers, PPSD quickly rolled out eCounselling services. Protocols were developed to allow PPSD counsellors to have therapy sessions with counsellees remotely while maintaining confidentiality of sessions. eCounselling allows officers to seek help without endangering their physical health or that of the counsellor. Work processes were also developed to manage contingencies should a counsellee need further assistance.

An important aspect of psychological resilience is in ensuring that the right officers are selected for the right roles in the organisation. Before COVID-19, all psychological interviews were conducted face-to-face. Candidates being considered for special jobs or vocations would be interviewed in person at PPSD. COVID-19 posed unique challenges as the safe distancing measures meant these interviews had to be stopped. PPSD innovated and through the use of remote meeting platforms (like MSTeams and Zoom) worked quickly to set up an eInterviewing capability. The psychological assessment team at PPSD researched existing practices and safeguards in interviewing (e.g. interviewees being coached, verifying the identity of candidates, unauthorised recording of sessions, etc.) and developed a new protocol and work process with the Police Recruitment Division to allow eInterviewing to replace the traditional face-to-face psychologist interviews without degradation in standards. Preliminary data from the eInterviewing trials have been positive. This eInterviewing capability has enabled the Singapore Police to continue selecting the right people for the right jobs in spite of the threat of the virus.

Drawing from the Operations Psychology Framework (Ang, Diong, Misir, & Cheong, 2011) and the Resilience Framework (Khader, et al., 2007) in the SPF, which were modelled after the public health intervention model, PPSD further organised interventions into three main tiers:

1. primary, which aims to reduce the risk involved
2. secondary, which aims to influence the interpretation of risk, and
3. tertiary, which aims to restore normalcy.

In the context of the pandemic, primary interventions involve measures to reduce the risk of infection among all officers, secondary interventions involve measures to reassure the officers who are at a higher risk of infection, whereas tertiary interventions involve measures to restore normalcy for infected officers and those in close contact with them. Unlike other planned operations with a long lead time, the nature of a pandemic operation means that police officers are quickly thrust into action during the viral outbreak, therefore rendering much of the psychological preparation before deployment challenging.

The psychological support interventions at each tier are further categorised into three different levels: (1) individual, (2) unit, and (3) force-wide, and executed with the support of police officers and leaders at all levels. This is illustrated in the 3 x 3 psychological support intervention plan shown in Figure 3.

PRIMARY

(1) Individual Level Interventions

At the individual level, PPSD created and disseminated psychoeducational and morale-boosting messages and infographics for all police and civilian officers. These materials are disseminated through various means, such as internal communications (i.e., emails broadcast to all SPF officers), Workspace or via WhatsApp. The varied means of dissemination ensures that the materials reach officers who may be away from the office with no access to their emails. These messages and infographics provide practical tips on coping with the pandemic situation and remind officers to stay resilient and support fellow officers, family and friends (see Figures 4 and 5 for samples). Self-care tips for leaders are also included, given that leaders may experience stress from leading in a novel and dynamic threat environment.

	Individual	Unit	Force-wide
Primary	• Weekly messages and infographics to boost morale, self-care, and provide tips on managing stress from the pandemic • Using eInterviews for job selection to ensure right person-job fit with minimal physical contact	• Leadership tips for unit leaders through PPSD microsite • Commander and command team ground visit and reassurance engagements • Support tips for paracounsellors • Morale sensing exercises through PEMS with all officers	• Provision of vitamin Cs, thermometers, hand sanitisers for all officers • Commissioner, Deputy Commissioners ground visit and reassurance engagements
Secondary	• Messages and infographics to reassure officers at higher risk (e.g. quarantine ops) and provide psychoeducation or relevant medical information through PPSD microsite • PPSD helpline for emotional support, if required	• Ops electronic morale sensing (PEMS) exercises for quarantine operations officers, officers deployed to foreign worker dormitories, frontline officers and staff department officers	• Provision of Personal Protection Equipment and alternative accommodation, where needed • Clear Rules of Engagement (ROE) from HQ on measures for policing in a pandemic and for protection • Message from Commissioner of Police / • Video call engagement by Commissioner of Police with officers deployed on the ground for COVID-related operations.
Tertiary	• PPSD helpline for emotional support, if required • Provision of psychoeducation and reassurance materials • Family reassurance or assistance • Check-ins by PPSD psychologist and paracounsellors • Leadership check-ins by unit leadership and Commissioner • Ecounselling services	• Ops electronic morale sensing (PEMS) exercises for close contacts of infected officers • Provision of psychoeducation materials • Team reassurance by Unit leaders	• Personal check-ins by Commissioner of Police • Message from Commissioner of Police

Figure 3. 3 x 3 Psychological Support Intervention Plan

Figure 4. Psychoeducational infographic disseminated to police officers

(2) Unit Level Interventions

At the unit level, leadership materials and resources are sent to unit leaders. These provide unit leaders with useful information on how to manage the morale of the team in these challenging times as well as the signs of burnout and stress to look out for in their officers. The paracounsellors nested within the units are also provided with infographics and materials on how best to support fellow officers who may be exhibiting the signs of burnout and stress (see Figure 6).

Apart from the leadership tips, the primary intervention at the unit-level involves peacetime morale sensing operations. This includes the Employment Engagement Survey (EES) that happens once every two years, as well as the Pulse survey that occurs at six monthly intervals. The peacetime morale sensing operations provide a baseline for comparison against the morale and confidence of the officers during specific operations, such as pandemic operations. Unit Commanders and leadership teams are also provided frequent reassurance and information updates to share with their officers.

Figure 5. Morale-boosting message disseminated to police officers

Figure 6. Psychoeducational infographic disseminated to unit leaders and paracounsellors

(3) Force-wide Level Interventions

At the force-wide level, to reduce the risk of infection among officers, all police and civilian officers have been issued items such as vitamin Cs, thermometers and hand sanitisers.

These items allow the officers to boost their immune system and take the precautions as recommended by health agencies (e.g., sanitising hands before eating). Commissioner, Deputy Commissioners and senior leadership also visit ground units and share frequent reassurance updates with the officers.

SECONDARY

(1) Individual Level Interventions

At the individual level, PPSD has created reassurance materials for dissemination through internal communications as well as informal channels such as WhatsApp. The PPSD helpline, a 24/7 helpline manned by PPSD psychologists and trained senior paracounsellors, is also available for all officers should they require further emotional support beyond the reassurance materials. Unlike pre-COVID days where officers can collect these resources from PPSD, during this period officers are encouraged to self-help through assessing the materials on PPSD's microsite in the intranet. This self-help allows officers to get 'just in time' information that is helpful in managing anxieties.

(2) Unit Level Interventions

At the unit level, to assess the impact of the pandemic on our officers, PPSD has conducted regular PPSD Electronic Morale Sensing (PEMS) exercises to gather feedback on COVID-19 deployment and operations. PEMS exercises are conducted via FormSG, a form builder tool developed by Singapore GovTech to create online forms that capture classified data. There are four main target groups, namely (1) officers deployed to the government quarantine facilities, (2) frontline officers, (3) officers from Staff Departments and Specialist Staff Departments, and (4) officers deployed to foreign worker dormitories.

Quantitative morale assessment is derived through officers' ratings on a 10-point Likert scale on two questions regarding current morale and overall confidence in fulfilling their operational duties. Additionally, three qualitative questions are asked to ascertain the officers' concerns, the support they may require during this period, as well as the areas they consider to be executed well during the deployment.

PEMS exercises have allowed PPSD to assess how the morale and confidence scores of the officers evolve in relation to developments in the COVID-19 situation locally and internationally, and the impact on pandemic police operations. These exercises also function as a feedback channel by highlighting the concerns that officers have in relation to their roles in the pandemic operations (see Figure 7 for example of results shared with officers). Some common concerns include the risk of infection during deployment, manpower constraints, the provision and use of PPE, etc. Following each PEMS exercise, the morale and confidence scores, as well as the concerns raised, the support required, and the areas done well are consolidated into a report and sent to the respective unit leaders for follow-up action. For concerns that warrant greater attention force-wide, they will be raised to police higher management whenever necessary.

(3) Force-wide Level Interventions

At the force-wide level, PPEs have been made available to the officers where needed. Alternative accommodation plans have also been put in place

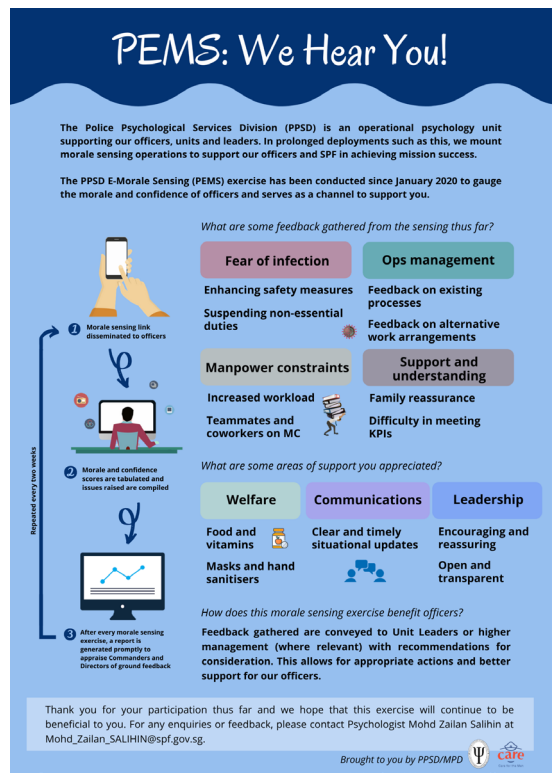

Figure 7. Communications to police officers about results of latest PEMS exercise

for officers who may require such arrangements, such as officers who have concerns about getting infected during duty and risk infecting their families if they were to return home.

Clear Rules of Engagement (ROE) have been disseminated by Police HQ on measures to be taken during policing in a pandemic and for protection. These ROEs include when officers are to put on PPEs and masks as well as procedures for handling high risk persons. These ROEs are frequently updated when new information on the virus is available, and are also aligned with practices within the government. These as well as clear staff guidance to units help to allay much of the anxiety officers have policing in a pandemic.

Apart from this, the Commissioner of Police also sends regular messages to all officers to update them on the COVID-19 situation as well as to assure them of the measures being taken to ensure their well-being. An update about the situation also serves to manage officers' expectations regarding the pandemic operations. It also recognises the officers for their efforts by highlighting and appreciating the areas of work that different units are engaged in. In addition, the Commissioner of Police also engages personally with officers deployed on the ground via video calls.

TERTIARY

(1) Individual Level Interventions

At the individual level, when an officer is infected with COVID-19, the PPSD helpline is made available to provide emotional support. If necessary, the officer will also be provided with a dedicated helpline manned by a PPSD psychologist who will conduct a personal check-in with the officer on his or her concerns and to provide psychological reassurance. This will be done via either phone call or through WhatsApp. A trained paracounsellor will also be assigned to the officer to provide psychological support and address concerns. This includes providing psychoeducation on the possible psychological symptoms that the infected officer may have as well as a comprehensive guide on how to cope with anxiety during this challenging period. If need be, officers can be supported through eCounselling.

Unit leaders are also encouraged to touch base with the infected officers' family members to check on any concerns they may have and provide reassurance.

(2) Unit Level Interventions

At the unit level, when an officer tests positive for COVID-19, PPSD conducts PEMS specifically for the officers in close contact with the infected officer, as well as the teammates and supervisors of the infected officer. These PEMS exercises allow PPSD to better understand how news of an infected officer affects the morale and overall confidence of the officers around him or her, as well as the specific concerns they may have after receiving the news.

Apart from the PEMS exercises, PPSD will also provide psychological reassurance materials to officers who were in close contact with the infected officer. These materials will be disseminated by paracounsellors in the unit. PPSD will also be in touch with unit leaders to encourage them to provide timely reassurance to officers, such as information about disinfection measures, identification of close contacts, and availability of psychological support, as well as provide clarification about work rearrangements.

(3) Force-wide Level Interventions

At the force-wide level, the Commissioner of Police has made personal video calls to officers who tested positive for COVID-19. He has also sent internal communications messages to update all officers about the situation as well as brief and reassure officers of the measures that have been taken. The messages also include the psychological support services available for all officers, such as the availability of paracounsellors as well as the PPSD helpline. The support plan for affected officers are covered in Figure 8.

LESSONS LEARNT

Using Technology

PPSD upgraded its morale sensing tools after a review of past morale sensing exercises. Traditionally, morale sensing exercises were conducted either on the ground (i.e., psychologists went on-site in person) or through the phone. Both methods were tedious and time-consuming, as they involved individually

	Affected Officers	Proposed Intervention	Remarks
1	Line of duty exposure	a. Offer temporary housing (e.g. SPOM chalet) should officer have concerns about returning home	Unit Head Manpower to work with Welfare Division
		b. Provide PPSD helpline to offer emotional support, if required	Manned by PPSD psychologists and Senior Paracounsellors
		c. Provide psychological/medical reassurance information/ support	To work with the Home Team Medical Services Division (HTMSD) in ensuring consistency of PPSD reassurance communications
		d. Provide family assurance/ assistance	Unit Leaders to touch base with family members, if need be
		e. Offer workplace reassurance	Immediate supervisor to work with officer for work re-arrangement, if need be
2	Exposure to infected family/ friends (i.e. on LOA)	a. Provide PPSD helpline to provide emotional support, if required	Manned by PPSD psychologists and Senior Paracounsellors
		b. Provide psychological/medical reassurance information/ support	To work with HTMSD in ensuring consistency of PPSD reassurance communications
		c. Provide family assurance/ assistance	Unit Leaders to touch base with family members, if need be
		d. Offer workplace reassurance	Immediate supervisor to work with officer for work re-arrangement, if need be
		e. Conduct personal check-in calls	Immediate supervisor to keep in contact with officer
		f. Psychoeducational materials	PPSD to provide and send through supervisor
		g. PPSD psychological intervention (if required)	To be advised by supervisor
3	Infected officers (i.e. officer is a confirmed case)	a. Provide PPSD helpline to provide emotional support, if required	Manned by PPSD psychologists and Senior Paracounsellors
		b. Provide family assurance/ assistance	Unit Leaders to touch base with family members, if need be
		c. Offer workplace reassurance	Commander to reassure officer's colleagues on work re-arrangement
		d. Conduct personal check-in calls	PPSD to check with officer on concerns and provide psychological reassurance
		e. Team reassurance	CO/Head/AD equivalent to check in with team to address concerns

Figure 8. Support plan for affected police officers

approaching or calling the officers to be sensed, and manually recording and collating their responses into an excel sheet. The methods were also resource-intensive, requiring several psychologists and vehicles for transport to the site. The current pandemic operation is the first operation where PPSD is conducting morale sensing exercises online (i.e., PEMS). With PEMS, PPSD psychologists can collect more responses within a shorter duration and with lesser manpower and logistics as compared to traditional morale sensing methods. This ensures that the morale sensing reports are sent to the respective unit leaders in a timely manner and enables swift follow-up actions to be taken.

Being Prepared

This 3 x 3 plan was first conceptualised on 14 February 2020, less than a month into the pandemic operations and prior to the spike in local transmission cases as well as the first few confirmed cases within the police force. The early planning gave PPSD sufficient time to explore different options on how best to support officers and to identify and work with the various stakeholders involved in the support plans. Examples of such stakeholders include Public Affairs Department, which worked with PPSD on morale messaging, and the Operations Department, which worked with PPSD on information gathering for the pandemic operations.

Prompt Response

Conceptualising the plan systematically at the different tiers and levels also allows PPSD to promptly identify what should be done when a new situation arises. For example, when the first two police officers were tested positive for COVID-19 in March 2020, PPSD was able to act swiftly to ensure that the psychological and physical needs of the infected officers, their units and all other officers were taken care of. The systematic conceptualisation also allows for ease in assigning roles to the team (e.g., one officer to be in charge of the individual level plans, another in charge of unit level plans).

Being Flexible

Beyond the initial conceptualisation of the psychological support intervention plan, the PPSD team also convenes every two weeks for a During Action Review to discuss three aspects, namely (1) what has been done well, (2) what has not been done well, and (3) suggestions for improvement. The fortnightly meetings empower PPSD to adjust and update its plans and respond according to developments in Singapore. The flexibility of the plan ensures that the psychological needs of the police officers are fully and duly met.

Insights from Past Operations

PPSD drew insights from past operations, such as the quarantine operations for Monkeypox infection, in the planning and execution of the current pandemic operations. One insight is the trend of morale and confidence scores. Based on past operations, the morale and confidence scores of officers tend to be lower at the start of operations, as officers grapple with teething issues such as role clarity or logistical issues. As the operation progresses, the morale and confidence scores tend to stabilise when these issues get resolved. These past trends allowed PPSD to better manage expectations about the morale and confidence scores in the current COVID-19, which were eventually shown to be aligned with the trends of past operations.

CONCLUSION

Crisis can strike anytime, and when it strikes, it strikes fast. It took only a month for Singapore to have its first case of COVID-19 following the emergence of the disease in China. Despite the tight timeframe, SPF has responded readily in the fight against COVID-19. Through innovation and the use of technology as an enabler, PPSD developed a timely and comprehensive 3x3 psychological support intervention plan to provide all-rounded support for Singapore Police officers. Specifically, innovation in the way morale sensing is now conducted, the way counselling services are provided, and the way personnel psychological assessment is done has allowed SPF to be supported despite the threats posed by the virus. Regardless of the length of the operation, the psychological support plan has helped ensure officers and leaders are supported while policing during a pandemic.

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HOME-BASED LEARNING FOR POLICE BASIC TRAINING:

LESSONS LEARNT

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ABSTRACT

At the height of the COVID-19 pandemic in Singapore in April 2020, residential basic police training was suspended. An alternative Home Based Learning (HBL) programme was developed to minimise training disruptions. This article, written by officers then in charge of curriculum development and training assessment at the Police Training Command (TRACOM), documents their planning and execution of the HBL. It provides lessons learnt, and offers some food for thought for those contemplating similar programmes for their organisations.

In April 2020, shortly after Singapore implemented circuit breaker measures to curb the spread of COVID-19 – a form of lock down that required the closure of schools, restaurants, gyms, swimming pools, and the suspension of most group activities – the Singapore Police Training Command (TRACOM) decided that the residential Police Basic Training course for Police National Service recruits should be suspended for between two to four weeks, and be replaced with Home Based Learning (HBL).

Preparations for HBL had begun as early as February 2020, from the onset of the COVID-19 pandemic, when it became clear that residential training, with trainees training and living together in close proximity, would pose a significant risk of transmission. Directing staff from both the Basic Training School, and the Curriculum Assessment Branch of TRACOM, started to examine closely the contents of the basic course, and assess the suitability of having trainees learn from home.

Eventually a total of 1,181 trainees from 2 different intakes went through 4 HBL programmes with durations ranging from 11 to 35 days. The length of each programme was not determined by training considerations but rather the prevailing COVID-19 situation, the availability of dormitories and other factors.

CONSIDERATIONS FOR HBL

What exactly is HBL? In TRACOM's case, we were quite clear that it would still be an instructor-led training programme but with trainees attending classes from their homes and connected with their instructors and peers via technology. The quality of the connection, in terms of screen resolution, disruptions to transmission etc., would depend on the technology, the equipment and available bandwidth.

We had no illusion that learning effectiveness would be at the same level as full time residential training. Clearly HBL would be of limited use for training requiring purpose-built facilities and equipment, such as firearms training, police combat tactics, etc, and to some extent field and physical training.

However, the approach we took was to work within the limits imposed by the requirement of not having trainees be physically present, make best use of HBL by re-curating training contents and redesigning training delivery.

Some of the key considerations in planning for HBL were:

- **Availability of Personal Devices** – As a general rule, trainees are equipped with laptops during

training, but these laptops are not internet accessible and they can only be used for the intranet-based Home Team Learning Management System. At the start of the HBL, 9.3% of trainees said they did not have dedicated laptops or computers at home as they either did not own one or had to share the machines with school-going siblings who were also undergoing HBL at the same time. A small number of trainees also did not have WIFI facilities. All trainees, however, said they had personal smartphones. As most of the trainees would be using their smartphones, the team assessed that HBL would be best carried out via video conferencing learning apps, together with hardcopy training materials mailed to their homes, as well as web-based training materials freely and publicly available.

- **Structure of HBL** – As part of police basic training, HBL could not be a free-for-all programme with trainees left to decide what they would learn and do. It had to be structured, supervised and validated. It should preferably be activities based, via e-discussion and e-assignments to counter lethargy and boredom, and to measure progress. There should also be a clear reporting structure with scheduled activities, and learning requirements stipulated at the appropriate juncture.

- **Training Contents** – There were several parameters to consider in the selection of suitable contents for HBL. As the materials would be transmitted over public domains, and available at home, only information publicly available, or could be made available publicly, could be shared during HBL.

  Thus we sourced HBL materials from publicly available websites, including the run-hide-tell protocols in the event of a terrorist attack available from the SGSecure website, the Singapore Statutes Online website maintained by the Attorney-General's Chambers, etc. For training materials which can be made available but not found in the public domain, or those found in the public domain but not curated for training, we asked our curriculum officers and trainers to develop the materials in a manner suitable for delivery over HBL. For example, training scenarios to illustrate how laws should be applied to various policing scenarios are usually not available in the public domain. Our trainers therefore had to create their own materials.

  We decided that fictitiously written scenarios would generally be suitable as there would be no privacy concerns. Contents relating to laws could also be discussed during HBL, although complicated law topics would require instructor-led, face-to-face sessions to clarify doubts and validate understanding. However certain police tactics and procedures, or terrain specific information which could compromise operations would not be discussed over the public domain.

  Most policing scenarios and topics are highly contextualised and situational. In a social media environment where issues are prone to sensationalism and distortion, instructors have to be aware that their opinions on certain policing responses or even training contents might be quoted out of context and attributed to the organisation. For these reasons, we informed the trainers that footage from Body Worn Cameras, and scenarios which might generate controversies were to be avoided during HBL.

- **Trainees' learning styles** – Generally HBL works well for trainees with better cognitive abilities and learning styles. However, in a typical cohort of enlistees, specific learning abilities of individual trainees are quite uneven. Individuals learn differently. Learning styles include visual, auditory, kinesthetic, logic, reading and writing etc. Thus HBL programmes must take into consideration trainees' learning profiles and be adjusted accordingly.

- **Alternatives to Instructor-led training** – Compared to residential training, interactions between trainers and trainees in a HBL setting would be muted, especially for a large group of trainees. We realized that HBL programmes must therefore leverage other means of learning to compensate for the loss of instructor-trainee connectivity and interaction.

Curation of Contents

Based on these considerations, contents suitable for HBL were carefully identified and curated so that not only the right content was used but they would also be presented in a format suitable for the available platform. For example, as most trainees would be assessing materials through their 5-inch mobile phone screens, font sizes and videos had to be carefully chosen to minimise eye strain. Videos

and e-learning packages would also have to be kept short as attention on a 5-inch screen would be hard to maintain.

As the interactive component of HBL would be conducted with one instructor for 35-40 trainees over Zoom, it would be impossible for the instructor to maintain eye contact, and to capture the attention of each and every trainee. The instructor's ability to tease, to arouse curiosity, and to encourage learning would be severely limited. We decided then that topics with a high dosage of abstract and complicated concepts would be generally less suitable for HBL. Conversely, contents which were informational in nature and easy-to-understand would be suitable for HBL, such as the following:

Topic	Titles
1	Vision, Mission and Organisational Structure
2	SPF Rank Structure & Rituals
3	Values and Ethics (Basic)
4	Conduct and Discipline (General)
5	Conduct and Discipline (Financial Embarrassment)
6	National Education Programme
7	SGSecure Tier 1 Run Hide Tell (RHT)
8	SGSecure RHT Protocol for Police officers
9	SGSecure Tier 2 Assist with Evacuation
10	Document Security
11	Data Protection
12	Constitution
13	Judiciary & Parliament
14	Police Force Act
15	Enlistment Act
16	Basic Police Powers
17	Service Awareness Training - Understanding what good service in SPF means
18	Incident Response (Dishonest Misappropriation of Property)
19	Incident Response (Managing Cases of Theft)

Delivery of Training

In terms of delivery, one of the key considerations was to put in place some form of structure so that trainees would be reminded that they were participating in a training session. This was accomplished by check-in and check-out procedures conducted at the beginning and the end of each day, to communicate the learning objectives at the beginning and to do a sum-up at the end of the day.

As we anticipated that the effectiveness of the instructor, in terms of engaging the trainees, would be severely muted in a HBL setting, we introduced e-consultations, where trainees could seek

clarification from an instructor in a one-to-one or one-to-a-small-group settings, and e-assignments in question-and-answer format to validate learning.

Another strategy we adopted for HBL was peer learning (Topping, Buchs, Duran, & Van Keer, 2017). This was done by identifying those with stronger cognitive learning styles and grouping them with the others, so that the stronger trainees could help the weaker ones. Group assignments were given to facilitate discussions and peer learning, with the stronger trainees expected to help the weaker ones. (See Annex A for an example of a scenario-based group assignment.) As basic training also entails the assessment of character and leadership qualities, we expected such activities to provide the instructors with additional observations they would otherwise be devoid of with the suspension of residential training. Similarly, group activities would also help to facilitate interaction among Singaporeans of different social backgrounds, fulfilling our National Education objectives.

A typical HBL day thus had the following schedule:

Time	Activity	Remarks
0900 – 0930 hrs	Check-in by trainer via Zoom. Depending on the topic, Trainer would deliver a short lecture as well as set expectations and remind everyone of the dos and don'ts and other stay home rules, e.g. temperature taking	To ensure the presence of all trainees
0900 – 1100 hrs	Self-study of training materials provided (either hard copies or materials available in the public domain), followed by e-Group Discussion	Assigned Group Leader to submit a learning report via email to Trainer for purpose of learning validation
1100 – 1200 hrs	E-consultation with Trainer	
1400 – 1600 hrs	Scenario-based assignments	Individual trainees (or group of trainees) to go through typical policing scenarios and submit answers to Trainer via email
1600 – 1700 hrs	Check-out via Zoom	Trainer to provide learning summary and selectively check on learning progress
1700 – 1800 hrs	Individual Static Physical Training at Home	Physical Training Videos featuring TRACOM field trainers screened over Zoom

POST-HOME BASED LEARNING

As noted earlier, not all training can be carried out effectively via HBL. Even for the topics chosen, HBL can never be as effective as formal training and it should be viewed as an alternative stop-gap measure. Certain modules are completely unsuitable for HBL and have to be conducted post-HBL when trainees return to the Academy with the proper training facilities and equipment. These include firearms training, police contact tactics, police standard obstacle course, physical scenario-based exercises, use of various policing equipment such as grip restraint, taser, etc.

Even for the topics taught during HBL, the school allocated "clarification sessions" when the trainees returned to the Academy. To gauge which topics required further clarifications, a quiz comprising multiple choice questions was administered at the end of each HBL programme. Based on the results of the quiz, individual trainers customised their clarification sessions to close the gap when the training resumed in the Academy.

TRAINEE EVALUATION OF HBL

Using Kirkpatrick (1996)'s model, the curriculum branch conducted level 1 evaluation for HBL courses 1-3. Level 1 measures learners' immediate reaction, or experience with regards to the training they received. A total of 848 trainees or 91% of the 930 HBL trainees who participated in HBL 1-3 took part in the evaluation exercise conducted via the e-platform, FormSg, on the last day of their HBL.

All trainees were asked to answer a set of questions based on their experience with HBL. The survey comprised close-ended questions and open-ended questions, broken into 12 categories:

a) General Questions on HBL (4 questions)
b) Use of Zoom application (4 questions)
c) Use of Articulate Online application (3 questions)
d) Course materials (3 questions)
e) Video Lectures (3 questions)
f) E-package (3 questions)
g) Trainer (5 questions)
h) Group Discussions (with squad mates) (3 questions)
i) Individual Assignment (3 questions)
j) Course Manager Consultation (3 questions)
k) Physical training (3 questions)
l) Others (2 questions), viz.
   - How do you think we can improve HBL further?
   - What other problems did you face during HBL?

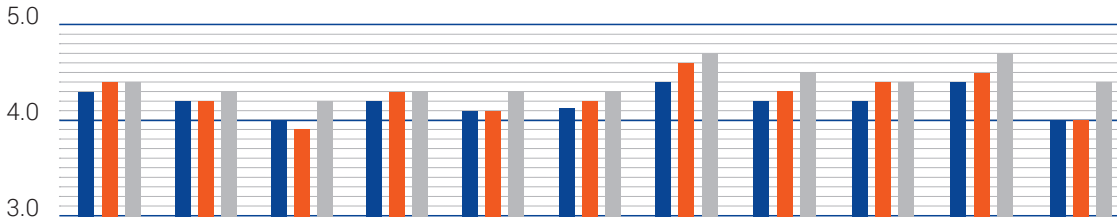
There were also fields for trainees to provide qualitative feedback on the 10 features of the HBL comprising various training modes, platforms and materials. A 5-point Likert Scale, from 1 strongly disagree; 2 disagree; 3 neutral; 4 agree to 5 strongly agree, was used in the survey.

Overall Survey Ratings for HBL 1 to 3

Figure 1 shows the average scores (on a scale of 1 to 5) based on the general HBL experience as well as the 10 features of HBL. The highest scoring features were Trainer and Course Manager Consultation (4.7). The 2 categories with the lowest scores were the Use of Articulate Online application (3.9) and Physical Training and Drills (4). Overall, the average scores for all categories were generally high; almost all categories achieved the score of 4 and above on a scale of 5. The one exception was the use of the Articulate Online application, which was scored 3.9. The ratings show trainees generally had a favourable HBL experience.

In terms of qualitative feedback, some trainees said they found the HBL lessons too easy while some said they had difficulties. This is not unexpected given the different learning styles of trainees. Trainees said they were generally happy with the instructional support given by the trainers, peer interactions, e-consultations, and the group and individual assignments.

There were, however, some problems with the technical aspects, e.g. lag transmission over Zoom especially when videos were screened. We also explored an online learning management platform, Articulate Online, but the results were no better. Some said that their computers were slow or the broadband/4G was not reliable. The home-based static PT was also assessed as "not challenging". Surprisingly most found the hard copy training materials and assignments which we prepared for HBL to be useful. One plausible explanation for favouring print material could be the frustrations trainees experienced with the poor transmission of electronic training materials over the various platforms.



General Questions on HBL	Use of Zoom Application	Use of Articulate Online Application	Course Material	Video Lectures	E-package	Trainer	Group Discussions (with squad mates)	Individual Assignment	Course Manager (CM) Consulations	Physical Training and Drills
4.3	4.2	4.0	4.2	4.1	4.1	4.4	4.2	4.2	4.4	4.0
4.4	4.2	3.9	4.3	4.1	4.2	4.6	4.3	4.4	4.5	4.0
4.4	4.3	4.2	4.3	4.3	4.3	4.7	4.5	4.4	4.7	4.4

HBL 1 HBL 2 HBL 3

Level 2 Evaluation

Apart from level 1 evaluation, we also did a limited level 2 evaluation on those from the 179th intake who were subjected to HBL. Level 2 of the Kirtpatrick's Model measures whether learning did take place. Upon the resumption of residential training after HBL, we administered a one-hour quiz to 19 squads of the 179th Intake on 3rd and 4th June 2020, to gauge how much they learned during HBL1 and HBL2. This post HBL quiz was used as a proxy for the continual assessment, which is the mid-term assessment usually conducted in the middle of the 14-week basic course.

Some have argued that a more holistic comparison should be the end-of-course assessment of HBL and non-HBL cohorts. However, adjustments and additional training were given to make up for the loss of training effectiveness during HBL, when the trainees returned to the Academy to continue their residential training, and thus we feel such comparisons are a good gauge of HBL effectiveness.

We did a comparison between the post-HBL quiz results and the continual assessment test results of non-HBL cohorts from earlier intakes. While trainees subjected to HBL achieved a decent passing rate of 78.5% for the post-HBL quiz, it was still lower than the passing rate of the non-HBL cohorts whose continual assessments scored between 84.1% to 93.9%. Apart from the overall performance, we also did an analysis of the test results vis-à-vis the profile of trainees, as well as of the test results for different topics. The results confirmed the following findings:

- Learning does take place during HBL and HBL is a viable alternative when residential training is suspended. However, it is clearly less effective when compared to traditional instructor led face-to-face training.

- Trainees strong in cognitive learning styles performed better during HBL. On the whole, trainees did worse for law subjects compared to other topics.

- A similar study comparing end-of-course academic assessment between HBL and non-HBL cohorts showed little differentiation. This could be attributed to additional catch-up training administered by the school when the trainees returned to residential training after HBL. However, the individual physical fitness test (IPPT) passing rate of HBL cohorts suffered a significant dip, at 91% compared to 96.1% for non-HBL cohorts. The IPPT results are not surprising as the HBL is generally a cognitive training, with very limited physical training other than the static PT. Moreover, physical fitness requires time to build up. This is one area that TRACOM will have to study as to how physical training can be enhanced during HBL.

Evaluation of HBL 4

In HBL 4, we worked with the Training and Capability Development Department of the SPF and the Civil Service College (CSC) to trial the LEARN platform, a civil service-wide internet accessible learning management system. A total of 251 trainees going through 11 days of HBL were provided with LEARN accounts for asynchronous learning. 10 e-packages were cleared with content owners and hosted on LEARN. The topics covered included SG Secure, Service Awareness Training, and Criminal Law. An evaluation conducted post-HBL had some trainees raising concerns over their difficulties logging into LEARN as their accounts were created based on personal email addresses instead of work email addresses. There was also feedback on issues with a couple of e-packages which were not compatible with their mobile phones (iPhones).

Although there were some difficulties faced during the trial, our initial assessment is that LEARN is a good platform as part of HBL, as it is, after all, a platform specifically designed for learning outside the classroom. Most of the issues raised were teething problems which are not insurmountable. Perhaps more refinements and trials on how we can make better use of LEARN as part of HBL should be embarked on.

CONCLUDING REMARKS

While TRACOM had conducted online learning before the formal implementation of HBL during the COVID-19 pandemic, it was on a much smaller scale and on an experimental basis. The pandemic nudged TRACOM to implement online learning on a much bigger scale, and as a key component of HBL. While our experience clearly demonstrated the viability of HBL as an alternative programme, it also showed that HBL can never be as effective as residential training, even for cognitive types of training.

The practical and logistical difficulties encountered during HBL are not a trivial matter and must be addressed to remove all the irritations and frustrations encountered by trainees. These include the availability of suitable learning devices, the conduciveness of the home environment, sufficient bandwidth, etc. Training contents and deliveries should also be finetuned further, taking into consideration trainees' learning abilities during HBL. Finally we should also explore how best we can enhance physical training during HBL, to minimise the loss of physical training sessions so that trainees can still complete the basic training with a reasonable level of physical fitness.

ANNEX A. EXAMPLE OF A SCENARIO-BASED GROUP ASSIGNMENT GIVEN TO TRAINEES

Topic 8: Incident Response (Crime & Routine): Misappropriation of Property
Dishonest Misappropriation of Property

Sec 403 Cap 224

Whoever **dishonestly misappropriates** or **converts** to his own use **movable property**, shall be punished with imprisonment for a term which may extend to 2 years, or with fine, or with both.

What It Means

- **Dishonestly**: cause wrongful gain to one person or wrongful loss to another person
- **Misappropriate**: dishonestly or unfairly take something to a wrong person or for a wrong use
- **Converts**: deals with or uses the property of another without right as if it is his own property
- **Movable Property**: Anything that can be moved from one location to another except land, things attached to the earth, or permanently fastened to anything which is attached to the earth

Differences between Theft (Section 379 Cap 224) &
Dishonest Misappropriation of Property (Sec 403 Cap 224)

	Theft	Criminal Misappropriation
How the property is obtained	The accused took it away from the rightful owner without his permission	The offender obtained it by chance (found) or with owner's implied consent.
The intention of doing something dishonestly	The dishonest intention began before the property came into possession	The dishonest intention began on or after the property came into possession or subsequent change of intention.
The office is completed when	The offender moves the property out from the rightful owner	The offender started to misappropriate or convert the property to his own use.

Police Response to Cases involving Dishonest Misappropriation of Property

Dishonest Misappropriation of Property is a **non-arrestable** offence. You should not arrest the offender without a warrant.

When responding to incidents on misappropriation of property, the first step to do is to preserve the scene by ensuring that no one is able to tamper with the scene. If there are any evidence, such as CCTV footage, or items left behind by the offender, you should preserve the evidence.

Preserving evidence can be ensuring that no one touches the item, or ensuring that the CCTV footage is stored/ recorded and not overwritten.

Preliminary investigation should be conducted to locate more evidence, after which the complainant/ witness/ victim should be interviewed. You can also search for other witnesses in the vicinity by checking if anyone has witnessed the incident. Photographs of the crime scene can be taken if there are visible evidence. If there are any non-perishable physical evidences on scene, they should be seized as case exhibits.

Steps:
1. Preserve scene
2. Preserve evidence
3. Conduct preliminary investigation
4. Interview complainant/ witness/ victim
5. Search for other witnesses
6. Take photographs (optional)
7. Seize case exhibits (optional)

HBL Assignment - Crime & Routine: Misappropriation of Property

Instruction
Read the 2 scenarios below and answer the questions, in not more than 100 words for each question. You may answer in point form too.

Scenario 1
You are conducting foot patrol when the Police Operations Command Centre (POCC) directed you to attend to an incident with the following text of message "I lost my G Shock watch at Lot 1 Shoppers' Mall McDonald's. I need assistance."

When you arrived at scene, the complainant approached you and informed you that he had used his G Shock watch to reserve his seat while he went to use the washroom, leaving his watch unattended. When he returned from the washroom five minutes later, he discovered that his G Shock watch worth $200 was missing. There are CCTVs in the McDonald's restaurant. Police classified the offence as Dishonest Misappropriation of Property under Sec 403 Cap 224.

Question
Describe how you will respond to this incident.

Answer
_____
_____

Scenario 2
Extracted from The Straits Times, 25 Dec 2019.

A teenager allegedly trespassed into King Edward VII Hall at the National University of Singapore (NUS) multiple times and **took at least nine laundry bags containing socks, exercise attire as well as male and female undergarments**. Goh An Soon, 19, faces one count each of criminal trespass, **dishonest misappropriation of property** and theft.
The Straits Times understands the Singaporean teenager was neither working nor studying at the university at the time. **Between Dec 19 last year and Feb 1 this year, Goh allegedly trespassed into the hall on eight separate occasions. Within that period, he is said to have misappropriated the laundry bags four times.**

He is also accused of stealing items worth $183 in total at the hall at around 5pm on Feb 1. They included socks, female undergarments, $80 in cash and bank cards. Court documents did not reveal what Goh - who appeared in a district court last Thursday - did with the items or how he was caught. NUS had announced in May that it had increased the number of security guards at hostels, will be adding hundreds of closed-circuit television cameras and will better secure toilets as well as shower cubicles.

Goh was offered bail of $8,000, and will be back in court on Jan 9 next year.
If convicted of criminal trespass, he can be jailed for up to a year and fined up to $3,000. Offenders convicted of dishonest misappropriation of property can be jailed for up to two years and fined. Those convicted of theft can be jailed for up to seven years and fined.

Question
Assume that the laundry bags were left unattended in a laundry room in the hostel. Explain why Goh's act of taking the laundry bags is considered to be an offence of dishonest misappropriation of property instead of theft.

Answer

Suggested Answers

Scenario 1
Describe how you will respond to this incident.

Suggested Answer
- Preserve scene by ensuring that no one touches the table which complainant had left his watch on
- Preserve evidence by reminding the restaurant staff to ensure the CCTV footage is not overwritten
- Conduct preliminary investigation for any other evidence left behind
- Interview complainant on the details of the incident
- Search for other witnesses who are seated near the table

Scenario 2
Explain why the act of taking the laundry bags was considered to be an offence of dishonest misappropriation of property instead of theft.

Suggested Answer
- The offender found the laundry bags (probably in the laundry room) in the absence of the owners.
- The offender found the laundry bags by chance.
- The dishonest intention only came in after he came into possession of the laundry bags.
- The laundry bags were movable properties and they were moved away from its original location by the offender.
- The act caused a wrongful loss to the owners of the laundry bags.

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BUILDING PSYCHOLOGICAL RESILIENCE DURING THE COVID-19 PANDEMIC:

FOUR STRATEGIES FOR COMMUNITY LEADERS

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ABSTRACT

The COVID-19 pandemic has highlighted how a disease outbreak is not just a public health issue, but it can also have significant social consequences for communities in Singapore. Early in the health crisis, there was panic buying and the inciting of fear through misinformation. However, the responses also showed community resilience as some used humour to cope and to encourage each other to stay strong. By drawing on past research on the SARS epidemic in Singapore, and crisis preparedness, this article examines four strategies that can help build Singapore's community resilience: 1) emphasise personal responsibility as the first line of defence to combat the crisis, 2) engage in effective crisis communications to address negative emotional reactions, 3) rally the community together in the face of adversity, and 4) maintain normalcy in day-to-day functioning.

THE PSYCHOLOGICAL IMPACT OF COVID-19 ON SINGAPOREANS

The world has been witnessing the massive spread of a novel coronavirus, also known as Covid-19, that killed a million people within nine months and took less than four months to kill another million (Mega, 2020; WHO COVID-19 Dashboard, 2021). To contain the spread of the disease in Singapore, a multi-ministry task force instituted a set of safe distancing measures, the most drastic of which it called a "circuit breaker" when infections spiked in April 2020 (Yuen, 2020). The circuit breaker involved the closure for almost nine weeks of non-essential workplaces, schools, recreation venues, attractions and places of worship as well as measures to reduce movements and interactions in public and private places, all of which were eased in June 2020 as infections fell.

Amidst the detrimental health consequences of the pandemic, panic, anxiety, and social disharmony have also arisen. It is important to recognise that fear and anxiety are common responses during a health crisis (Lin, 2020), as people inevitably and naturally worry for their own well-being. With a newly identified coronavirus that spreads unpredictably and escalates with increasing numbers of infections across the globe, the seeming lack of control over the situation will incite more fear and anxiety.

Fear of the unknown

During the early stages of the COVID-19 pandemic, much of the key information regarding the virus remained unknown and unclear – such as how severe and detrimental this virus could be as well as how it could be transmitted – which created a great deal of uncertainty. Consequently, many people in Singapore were anxious to the point of keeping their children at home; others also became suspicious of one another should anyone let out a mere sneeze or a cough (Yong, 2020). Apart from depending on the government to contain and minimise the spread of the virus, Singaporeans also speedily took action to reduce their susceptibility to and enhance protection against the virus, such as engaging in greater levels of hygiene practices (e.g., washing hands), avoiding crowded places, and not travelling to

other countries (K. Ho, 2020). Stores selling surgical masks also reported running out of stocks as people hurried to purchase the item (Chia, 2020).

While most Singaporeans engaged in adaptive actions to protect themselves from the virus, other maladaptive and concerning behaviours were also observed in the public. For instance, people began hoarding masks and selling them at inflated prices (Goh, 2020); the change of Singapore's Disease Outbreak Response System Condition (DORSCON) level from yellow to orange resulted in the panic buying of various groceries as well as household items such as toilet paper (Tan, 2020). Subsequently, supermarket representatives as well as government officials had to step forward and reassure the public that the nation had sufficient stockpiles of essential items, as long as people did not over-purchase.

"Panic Buying"

The phenomenon of panic buying is concerning, as it was observed across various regions around the world, including Singapore, Hong Kong, South Korea, Japan, Australia, Germany, Austria, the United Kingdom, and the United States, in the early months of the pandemic (Jolly & Smithers, 2020; Nunn, 2020). The images of emptied supermarket shelves and snaking queues of shoppers suggested a highly flustered, irrational, and wildly anxious public.

However, behavioural scientists have argued that this so-called "panic buying" does not qualify as panic (e.g., Savage & Torgler, 2020). There was no indication of chaos, nor was there any sense of excessive fear. Rather, according to the rational perspective, the stocking up on food and other supplies constitutes reasonable and logical decisions that people make in the face of disasters and crises; a natural consequence of humans' adaptive abilities to perceived future threats and to prepare for them.

Coupled with the knowledge that potential infections can lead to quarantine, curfew, isolation, and other disruptions in daily life, people are likely to look ahead to prepare themselves for these eventualities. In other words, so-called "panic buyers" are mostly individuals taking calculated decisions based on a heightened sense of caution about an evolving situation. The trouble arises when masses of people act in unison, motivated by this shared desire to individually prepare for the unknown. With the pervasiveness of social media enhancing the salience of highly sensational and worrisome images (e.g., emptied shelves), people's tendency towards risk-aversion may be fuelled by a herd mentality (or more technically, informational conformity e.g., "maybe others know something which I don't"; Schultz et al., 2007). The result is a substantial number of people being driven to engage in stockpiling behaviours "just in case".

Overall then, those who are casually (and inaccurately) termed "panic buyers" in reality comprise a minority of actual hoarders and, more significantly, a majority of concerned but rational individuals driven towards risk-aversive behaviours, often facilitated by social media. Such a clear dissection of the phenomenon is necessary for informing downstream response measures, such as inviting the media to shoot images of stockpiles of essential items in warehouses, as major supermarket chain FairPrice did in Singapore (Tan, 2020).

On the other hand, many members of the public reacted with humour, mocking the outrageous nature of "panic-buying" with memes on social media that highlighted the oft-cited ill-effects of over-consuming certain food items such as instant noodles (Figure 1).

Use of humour by the public

Across the world, people have been responding to the pandemic with varying sorts of humour. The form of humour that can arise during a crisis can be respectful or sarcastic (Maxwell, 2003), or even insulting and ironic (Wisse, 2016). The "humorous" reactions have been in response to varying subject matters, including the health crisis in general, city lockdowns experienced by some communities, and phenomena such as panic-buying of masks, hand sanitisers, household items, and groceries.

Humour is a method of coping that can arise during stressful circumstances (Maxwell, 2003). Even in frightening, difficult, or helpless events or

Figure 1. Memes created by Singaporeans to mock those rushing to buy large amounts of "essential items"

crises, humour – or more specifically, gallows/dark humour – can help individuals make sense of such situations, and thus ease their negative emotions as well as the terrifying nature of these events (Piemonte, 2015; Watson, 2011).

Another benefit of using humour in messaging initiatives is that it helps to reach out to and capture "the attention of a lot of people you wouldn't have otherwise" (Magon, 2019). Humour provides a useful outlet for people to not only pay attention to but to also receive and make conversations about a certain topic or piece of information. This in turn keeps them interested in and remain engaged in the issue. Humour can be used to help people learn and comprehend issues – after all, the capacity to laugh at a piece of information entails the successful receiving, processing, and understanding of these details (Magon, 2019).

The expression of emotions and thoughts through humour – more specifically, via the use of images, videos, messages, etc. – also contributes to an individual's healing process following a crisis (Beeston, et al., 2014). When these are shared with others who can relate to them, it creates an informal support network, where people with similar opinions, emotions, and thoughts about the event "come together" in support of others who are similarly trying to cope with the crisis (Hancock, 2002). In other words, indirect relationships and camaraderie are established as a result of humour, which may then foster solidarity within online communities.

When the announcement of DORSCON Orange in Singapore led to speculation of a potential lockdown and panic-buying by a large number of people, netizens reacted with satirical humour, creating memes that poked fun at quintessentially Singaporean characteristics. For instance, a short commentary on a photograph of mostly empty vegetable bins in a supermarket went viral when it declared in Singlish that Singaporeans "Die also don't want to eat Bitter Melon"; the average Singaporean can relate to the acerbic phrase because it pokes fun at their tendency to be both kiasu (afraid of losing out) and picky at the same time. In other words, even when stockpiling food to ensure their survival in a crisis, some Singaporeans will still never purchase and consume certain food items. Other memes played on puns on the virus' common name to put the illogical behaviour of fellow citizens into perspective while creating a sense of solidarity among observers (Figure 2).

LEARNING FROM SARS AND CRISIS PREPAREDNESS RESEARCH

As Singapore's biggest health crisis since the 2003 Severe Acute Respiratory Syndrome (SARS) epidemic, attention is naturally placed on whether the government is ready to manage the coronavirus health pandemic. Fortunately, previous experiences with infectious outbreaks had led to the development of protocols and structures as part of the government's crisis preparedness efforts against future pandemics. As the co-head of the government's multi-

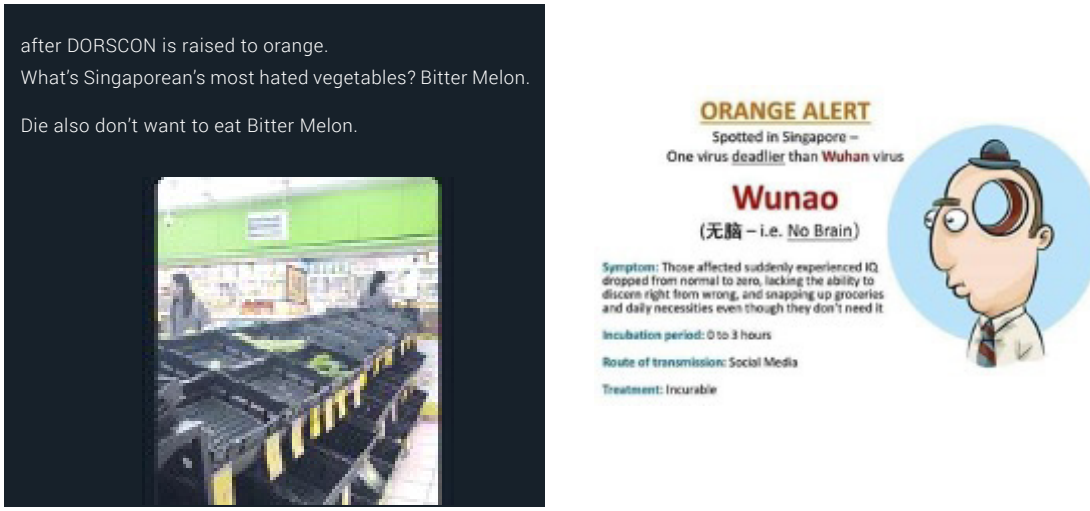

Figure 2. Memes putting "illogical" behaviour into perspective for Singaporeans

national task force and National Development Minister Lawrence Wong said: "We have put in place inter-ministry coordination mechanisms. We have put in place drawer plans for a full range of different scenarios of the virus outbreak. We want to assure Singaporeans that we are (better prepared), and that's why our message is: Keep calm, carry on with our lives, but all of us work together, take the necessary precautions and we can overcome this together" (Mahmud, 2020).

Drawing lessons from the SARS epidemic and insights from the crisis preparedness literature, this report identifies four strategies that can be adopted by community leaders to further maintain and enhance psychological resilience in the community during the health crisis.

STRATEGY 1: EMPHASISE PERSONAL RESPONSIBILITY AS THE FIRST LINE OF DEFENCE TO COMBAT THE CRISIS

For disease outbreaks, the first line of defence in combatting and containing the crisis lies with individuals. Raising awareness about the importance of personal responsibility to combat the pandemic is necessary to prompt the proactive, actual manifestation of such behaviours in individuals. When people engage in the required individual actions, the overall spread of the pandemic is reduced, thus maintaining the overall health of the community. Large-scale national measures ultimately may show only limited effect if people do not endorse individual responsibility (Anderson, et al., 2020).

Concurrently, it is essential to highlight to the public that while they undertake actions to enhance self-protection against the virus, they should do so reasonably such that self-protection does not come at the expense of the larger community. For instance, the purchase of excess masks and hand sanitisers prevents others from being able to access these vital resources.

As the community slowly returns to work at their physical offices, other issues of concern relating to personal responsibility could arise, including presenteeism. Presenteeism refers to the act of being on the job despite individuals not being able to function fully and effectively (Chan & Fan, 2020; Hemp, 2004). Despite experiencing negative physical and mental health circumstances, people may choose to continue to work for various reasons. For instance, taking a day off to look after oneself may be deemed as pointless, given that employees might still practise working from home (Rogers, 2020). Employees may also feel that they need to be in the office in order to make their visibility at work more prominent (Lim-Lange, 2020).

Nonetheless, it is critical to recognise that different people have different levels of risk tolerance and require different levels of need for safety. Some people may downplay the risks of and their susceptibility to the coronavirus, whereas others may perceive a stronger need to take additional precautions, engaging in hygiene practices that they believe in and are comforted

by. After prolonged periods of cautiousness and anxiousness, however, complacency may set in, as the number of community cases in Singapore reduces and the economy starts to reopen (Washington Post Editorial Board, 2020; United Nations, 2020).

So what can community leaders do? The foremost measure is to continue to emphasise the importance of engaging in personal responsibility:

1. Serve as a role model for the public by engaging in guidelines on what they should or should not do to protect themselves in the face of the health pandemic.
2. Highlight how real the threat of the health pandemic is by informing the public of the detrimental consequences of falling ill to the coronavirus.
3. Stress to the public that they have a role to play and are in the best position to help and/or protect themselves, hence maintaining the overall health of the community.
4. Encourage people to engage in adaptive practices and change maladaptive ones.

STRATEGY 2: ENGAGE IN EFFECTIVE CRISIS COMMUNICATIONS TO ADDRESS NEGATIVE EMOTIONAL REACTIONS

Provide information to keep the community updated on crisis developments

The continuous and prompt dissemination of both health advisories and updates on the health pandemic is critical in allaying public fear and anxiety (U.S. Department of Health and Human Services, 2002; Vaughan & Tinker, 2009). Keeping the community up to date on developments and the various concrete ways they can enhance their protection against the virus will, the research shows, foster a sense of psychological safety, minimisation of the negative emotional reactions in the community (e.g., fear or confusion), and reduce non-compliance with official advisories (Lundgren & McMakin, 2013a).

Additionally, the continuous process of providing regular and up-to-date information via multiple channels to the community helps to foster trust in leaders, because it conveys the message that: (i) the leaders are on top of things, and (ii) the public will not be kept in the dark with regard to any crisis information or development (Chess & Clarke, 2007; Lundgren & McMakin, 2013b). In turn, the public is likely to turn to community leaders as an authentic and reliable information provider.

So what should community leaders communicate? Part of the endeavour to ensure effective crisis communications is to keep the public informed of any developments regarding the pandemic:

1. Share important information and address any concerns/questions that the public have:
   a. Keep the community informed of updates on the crisis
   b. Ensure that the information shared across various platforms is consistent to those shared by official and/or reliable sources of information (Boholm, 2019)
   c. Ensure that information shared is accurate, and reflects reality (i.e., what is actually happening)

2. Continue to disseminate informative health advisories:
   a. Inform people of the right personal hygiene etiquette that they should engage in
   b. Debunk myths by providing "do you know" information
   c. Ensure that various demographic groups in the community are reached out to and/or receive the information effectively
   d. Tailor communication style and channels according to needs (Jensen, et al., 2012), such as reaching out to the elderly population in their dialects

Combat fake news swiftly

A health crisis can be exploited to further induce public panic, through the spread of fake news. In fact, fake news about cures for the virus and false warnings are abundant on social media (Thomas, 2020) as there is an audience that is receptive to such information due to worry or fear.

For instance, information that a person in Singapore had passed away from the virus was inaccurately shared and spread on the online HardwareZone Forum on 26 January

2020. The fake news was quickly addressed on the government website https://www.moh.gov.sg/2019-ncov-wuhan (Factually, 2020). The online States Times Review also carried an article claiming that face masks had run out ("Correction Directions Issued," 2020). In both cases, the government issued correction notices against such misinformation, additionally exhibiting that interventions to stop the spread of fake news can prevent further fear and anxiety emerging in the public.

So what can community leaders do to limit the spread of coronavirus-related false information?

1. Direct the public to get information from authoritative/reliable sources. In Singapore, there is the Ministry of Health website and the gov.sg group chat on WhatsApp that the public can sign up for to receive regular updates on the situation in Singapore (Gov.sg, 2020).
2. Encourage the public to check the veracity of the information, especially if the information has no links to an official source about the disease outbreak (Caulfield, 2017).
3. Remind the community that they can help to stop the spread of fake news by, for instance, referring family members and friends to official sources of information, and thus stopping the emergence of additional, unnecessary panic (Tan et al., 2019; Tandoc, 2017)
4. Remind the community not to share any unverified information even if it is done out of goodwill (i.e., to warn others because it is "better to be safe than sorry").

Does using humour help?

The use of humour during a crisis has both advantages and disadvantages. If effectively employed during a crisis, it may potentially facilitate the capturing of the public's attention, processing, and retention of critical information; additionally, it allows people to come together, thereby fostering solidarity. For instance, the well-loved, Singapore sitcom character Phua Chu Kang, who sang and rapped a song known as 'SARvivor' during the 2003 SARS crisis, has returned with a new rap video using Singlish to educate Singaporeans on what they should do during the Covid-19 pandemic. The video, produced by the government, is readily available on Gov.sg's YouTube and Facebook accounts.

In both the online (internet) and offline (real world) platforms, humorous reactions can, however, bring about both positive and negative psychological, social, and political impact in different communities (Ridanpää, 2019). The use of humour in official communications therefore needs to be applied judiciously, appropriately and sensitively, as it may lead to the public's minimisation of the severity of the crisis, or public displeasure if poorly utilised or done in poor taste. On the other hand, humour, when used in a respectful and moderate manner, can potentially have a positive effect in reaching out to and helping the masses cope more effectively during a crisis.

STRATEGY 3: RALLY THE COMMUNITY TOGETHER IN THE FACE OF ADVERSITY

The act of standing together in times of crisis is necessary to promote harmony in society, where people will come together and support each other in solidarity and empathy (Goh & Neo, 2020). When people are reminded that everyone is equally experiencing the crisis, it emphasises that everyone has an equal stake in the crisis regardless of their background or country of origin. The outcome is that it re-directs a tendency to blame specific groups of people for the cause and spread of the coronavirus towards engaging instead in active efforts to combat the health pandemic.

Xenophobia has emerged in the wake of the Covid-19 crisis. The presence of xenophobic and racial sentiments in Singapore can fuel hatred towards certain members of society, and disrupt Singapore's existing social harmony (Abdul Rahman, 2020). For instance, although Singapore, like many other countries, imposed travel restrictions to and from China early in the outbreak, some Singaporeans still started an online petition to ban the entry of Chinese nationals into Singapore (Smith, 2020). While the more than 100,000 people who signed the petition might not all have done so out of xenophobia or racism, the interest in the petition highlighted the underlying concerns of the community.

There is thus a need to rally people, so that they will stand united and in solidarity in difficult times. When the public is rallied together in times of a crisis, it helps to create a collective identity among the people, which in turn will lead to more supportive and empathetic behaviour towards each other (Abdul Rahman, 2020).

Understand sentiments of the community

Having conversations with members of the community will help leaders understand the sentiments and concerns that are brewing on the ground. For instance, before mask wearing in public was mandated in April 2020, the initial advice from the government and medical experts was that only the unwell and medical health workers should wear a mask; that created much unhappiness (Tham, 2020). The public's sentiment at that point in time was that it was better for everyone to err on the side of caution and wear a mask even if they were feeling well.

When such issues surface, leaders should address them promptly, thus preventing their escalation. This includes addressing any misconceptions that the public might have. Social tensions in the community can hence be avoided, reducing anger, hatred, and social disharmony.

In such circumstances, what can community leaders do to ensure that citizens feel heard and understood?

1. Be prepared for the various emotions that the community will exhibit:
    a. Anticipate a wide range of emotions that the community will display, including fear, anxiety, and anger.
    b. Be aware that these are normal emotional reactions to a crisis, and are not purposefully targeted at leaders.
    c. Work with the community (e.g., more prominent figures in the society, such as social influencers) to spread awareness and amplify messages, such as the rationale behind the implementation of certain measures or advice.

2. Conduct ground-sensing efforts:
    a. Engage in regular conversations with the community to understand their thoughts and feelings about the health pandemic.
    b. Establish formal communication platforms for the public to turn to, or informally walk the ground.
    c. Ensure that even the vulnerable populations are being heard, e.g., the elderly, and the poor.
    d. Address and manage any concerns and misconceptions.

Encourage people to stand united

When critical resources such as masks and hand sanitisers appeared to be lacking in the early days of the pandemic, members of the public in Singapore came together to provide these items for free (Wong, 2020). Sharing such stories of community volunteerism serves to highlight that Singaporeans have helped one another, in spite of the escalating health pandemic and the need to self-protect from the virus. In turn, it is hoped that these stories will encourage others to do the same, which may then motivate people to think of others as well. Other heart-warming displays of solidarity during this pandemic include people clapping collectively from their homes to show appreciation for all front-line workers involved in the response to the pandemic (Ho, 2020).

There is therefore a need to identify ways where leaders can support and encourage such organic efforts, for example, by publicising these acts on social media platforms. What else can community leaders do to facilitate a sense of solidarity and unity amongst the public?

1. Be empathetic and supportive of one another.
2. Respect each other's health-related beliefs and actions.
3. Share stories of how members of the public supported and helped one another.
4. Encourage people to emulate these behaviours, or pay it forward.

STRATEGY 4: MAINTAIN NORMALCY IN DAY-TO-DAY FUNCTIONING

The need to maintain normalcy is vital in times of adversity (Kuck, et al., 2009). While it is important for people to be kept up to date with the progress of the novel coronavirus, it is concurrently essential

that people do not become preoccupied with and be severely affected by news reports of the crisis (Vieira et al., 2020). Doing so may increase the likelihood of further anxiety and an unhealthy obsession with engaging in protective actions, which ultimately can disrupt the community's ability to function on a day-to-day basis.

Efforts to limit the spread of the virus have been undertaken to protect the community. When the community is informed and reassured that they are being looked after, it promotes trust in community leaders and thus government (Renn & Levine, 1991). In other words, it helps people to not place excessive attention and resources on the health pandemic, but to instead keep things in perspective and return to their daily routine. Subsequently, as people regain a sense of control of their lives, feelings of panic and anxiety will reduce.

How can community leaders be involved in ensuring that citizens are able to return to a certain level of their daily functioning?

1. Share stories of what is being done to limit the spread of the virus.
2. Regularly update on the precautionary measures that have been implemented to protect the community.
3. Encourage the community to continue with their normal way of life.
4. Assure the community that there is sufficient stockpiles of protective and essential items for everyone if people do not over-purchase.
5. Encourage the community to look out for one another, if possible, such as volunteering with the community centres to help distribute masks, or to educate the vulnerable population like the elderly.
6. Share stories of how individuals in the community balance their anxiety and continue to go to school/work, whilst protecting themselves against exposure to the coronavirus.

CONCLUSION

Just as with any crisis, a pandemic like Covid-19 can exert varying detrimental effects on society. The impact of engaging in individual acts of personal responsibility have an accumulative effect, thereby facilitating the overall effectiveness of national measures. As the crisis progresses, however, other issues of concern apart from the pandemic itself can arise, including fake news, blaming behaviours, and public frustration. In turn, social harmony and unity of citizens may be threatened, further contributing to the existing negative, uncertain nature of the crisis.

The approach to responding to a pandemic is a nation-wide one, both top-down and bottom-up. Given the importance of the community's involvement in combating the spread of the pandemic, community leaders have a vital role in encouraging every member of the public to be involved in any crisis response effort and initiative. As outlined in the four strategies above, there is a need to: 1) emphasise personal responsibility as the first line of defence to combat the crisis, 2) engage in effective crisis communications to address negative emotional reactions, 3) rally the community together in the face of adversity, and 4) maintain normalcy in day-to-day functioning.

In order to prepare for the next pandemic, there are a few areas of interest for behavioural scientists and policymakers: 1) assessing how Singapore's psychological resilience fared during the pandemic; 2) building a deeper understanding of strategies and community interventions that can help sustain such psychological resilience; and finally, 3) looking at upstream efforts to enable the community to develop a crisis-ready mindset for the next crisis when it occurs.

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SUPPORTING NATIONAL QUARANTINE EFFORTS WHILE ACCELERATING TRAINING TRANSFORMATION IN THE HOME TEAM

Poon Ngee, Darius Lim, Nabilah Razalie & Nicholas Tan
Home Team Academy

ABSTRACT

The Home Team Academy (HTA) was one of the first government agencies to operate a Government Quarantine Facility, an alternative housing for relocated migrant workers, and a Dormitory Isolation Facility, concurrently at our dormitory blocks, in support of Whole-of-Government efforts to mitigate the spread of COVID-19. HTA housed more than 500 migrant workers and about 700 Persons-Under-Quarantine from 30 Jan to 9 Jul 2020. Both uniformed and civilian officers from HTA were part of the operations, and took on these responsibilities on top of their day-to-day work. This article documents HTA's response and role in managing the crisis through its dormitory operations. It also describes how HTA continued to play its role as the Corporate University of the Home Team (HT) amid the COVID-19 situation, driving HT training and learning initiatives in the 'new normal'.

A TEST OF PREPAREDNESS

Organisations have long known that if they are to survive and thrive in a volatile, uncertain, complex and ambiguous (VUCA) environment, they must nurture in their leaders the ability to adapt, to be agile and to be resilient. Every crisis is a test of their preparedness, and in the case of the Home Team (HT), how well it has trained for particular scenarios.

As the Corporate University of the HT, the Home Team Academy (HTA) plays a key role in driving training and learning in the HT amid an ever-evolving security landscape. HTA ensures that HT leaders have the required knowledge and skills in crisis management and leadership, be it through its Introduction to Crisis Management Course for Public Service officers, or modules taught in its milestone leadership programmes.

As the Chief Executive of HTA, Clarence Yeo, has noted, a global pandemic not only reinforces the need for us to be always prepared in a VUCA environment, it is also "where our investment in training, such as in the areas of crisis management, leadership development, incidence responses and operating as one Home Team, are put to the test" (Yeo, 2020).

HTA's "test" came early in the ongoing COVID-19 pandemic, when it became one of the first government agencies to operate a Government Quarantine Facility, alternative housing for relocated migrant workers and a Dormitory Isolation Facility – all within HTA's premises. As a residential training academy, HTA has in place protocols for preventing the spread of diseases such as flu or gastrointestinal disease within its dormitory blocks. But COVID-19 represented an unknown and unpredictable challenge beyond the scope of usual protocols, prompting HTA to constantly adapt to the evolving situation while ensuring the safety of residents and its officers.

A CHALLENGE LIKE NO OTHER

There were no ready blueprints for what HTA had to accomplish in support of the Whole-of-Government efforts to contain the spread of COVID-19.

Figure 1. HTA officers running the daily operations such as tracking the migrant workers' movements in and out of HTA, with support from officers from the HT training schools co-located at HTA

On 28 Jan 2020, one of HTA's six dormitory blocks was activated as a Government Quarantine Facility to house Persons-Under-Quarantine. HTA received its first Persons-Under-Quarantine on 4 Feb 2020. When migrant workers from essential services had to be relocated from their dormitories to prevent the healthy from being infected, an additional dormitory block was activated in HTA on 7 Apr 2020 as alternative housing. Subsequently, a third dormitory block was activated as a Dormitory Isolation Facility on 16 Apr 2020.

In total, more than 500 migrant workers were housed in HTA. With the end of the circuit breaker on 1 Jun 2020, the migrant workers who were housed at HTA were moved to other locations. By 2 Jun 2020, the dormitory blocks used to house the relocated migrant workers and as a Dormitory Isolation Facility were reinstated as dormitory blocks for trainees. This allowed HTA to resume basic training for full-time Police National Servicemen. On 9 Jul 2020, HTA ceased its Government Quarantine Facility operations, which saw a flow-through of about 700 persons who had to be quarantined.

TAKING ON MULTIPLE ROLES IN SUPPORT OF DORMITORY OPERATIONS

Both uniformed and civilian officers from HTA took on additional responsibilities on top of their day-to-day work to manage operations at these dormitories. Their primary mission was to ensure the safe stay of Persons-Under-Quarantine and migrant workers, so that they could be isolated safely, and for those who were not infected, to continue providing essential services in Singapore.

HTA set up a Watch Commander Operations Team to oversee 24/7 daily internal operations and issues related to all individuals under its care. An operations planning team was also set up to facilitate coordination with external parties including other agencies within the Joint Task Force and to provide the Operations Team with timely information. HTA's Security Branch, HT training schools co-located at HTA (i.e. the Police Training Command, the Immigration & Checkpoints Authority Training Command, and the Singapore Prison Training Institute), auxiliary police officers and the facilities management vendor also worked together to ensure everything ran smoothly.

The officers worked round the clock to get the facilities ready in time. This included putting in place safety measures in line with Ministry of Health and Ministry of Manpower guidelines, such as allocating designated pathways to minimise crossing of paths. HTA also designed and produced illustrated posters in English, Bengali and Tamil to remind the residents to observe personal hygiene and safe distancing.

HTA's officers ensured the comfort of the Persons-Under-Quarantine, such as by providing them with iPads (if they did not have one) and access to Wi-Fi, magazines and games to occupy their time. Officers also helped with sundry needs

such as providing pails and detergent for laundry, and supported requests to contact employers and arranged to send them for medical checks when needed.

To make sure that migrant workers at both the isolation facility and alternative housing area felt at ease, HTA officers proactively engaged with them and their employers. Officers also took care of their dietary needs and arranged for meal treats during festive holidays such as Pongal and Hari Raya Puasa, as well as snacks during weekends to keep their spirits up. These efforts appeared to have paid off and a bond was forged with the migrant workers. Some of the migrant workers even produced a light-hearted video skit to remind their fellow workers to practise personal hygiene and safe distancing.

PERSEVERING AND LEARNING FROM THE EXPERIENCE

The COVID-19 outbreak at the start of 2020 was HTA's first attempt at converting its facilities in support of a national crisis. It formulated a framework to guide an approach anchored by operational excellence and future readiness, and in strategic alignment with Whole-of-Government efforts to overcome the COVID-19 crisis.

Part of this framework was the documentation of challenges, and how HTA overcame them. For instance, upon activation, procuring essential logistical equipment such as toiletries and kettles within a short turnaround time was a challenge, coupled with the limited availability of vendors when the nation went into a semi-lockdown - circuit breaker - mode. HTA quickly pooled together its available resources, at the same time tapping on alternative supply options. This experience underscored the importance of establishing a wide network of suppliers in advance to avoid any delay.

Initially operating a single block as a Government Quarantine Facility, HTA had to prepare two more blocks to house relocated migrant workers performing essential services and as a Dormitory Isolation Facility in Apr 2020. To overcome the surge in volume of meals required, HTA engaged a caterer to provide meals for the Government Quarantine Facility, then packed and delivered them from the HTA cookhouse. Additional arrangements were also made for Muslim residents during the Ramadan period. The key takeaway was to plan ahead and work with the expectation that the situation could escalate, and result in a surge in volume at any time.

Even as operations were ongoing, there was a need to constantly monitor and review work processes to optimise effectiveness and productivity. In this regard, HTA streamlined its reporting and documentation systems along the way. For example, HTA developed a database to facilitate the capture and retrieval of residents' records. HTA would need to continuously improve its processes as required during future operations, so that officers can get up to speed even faster.

There was initially limited information on the virus and its impact or implications on the health and livelihoods of the migrant workers. Guidelines had to be constantly reviewed and updated. HTA officers also had to overcome language barriers when communicating with the migrant workers, and manage employers who were anxious to know about their workers' well-being and ability to resume work. To ensure that officers remained motivated, Watch Commanders regularly engaged with their staff to find out how they were coping with work and at home. Such check-in sessions helped to identify and address any issues early. Group chats were set up to provide updates, share self-care tips and encourage one another. HTA's leadership also regularly engaged officers to ensure that morale remained high.

To safely resume basic training for full-time Police National Servicemen after the dormitory residents had been relocated to other purpose-built facilities, HTA took reference from past operations and processes to carry out measures such as disinfecting all dormitory rooms and equipment, common areas and toilets in accordance with guidelines from the National Environment Agency. Protocols are in place to ensure that HTA continues to work closely with the relevant agencies to ensure that prevailing safe management measures are strictly enforced and adhered to – both during and post-operations.

Using this COVID-19 operations framework, HTA will continue to document key learning lessons to further improve forward planning and agility in the event of future crises.

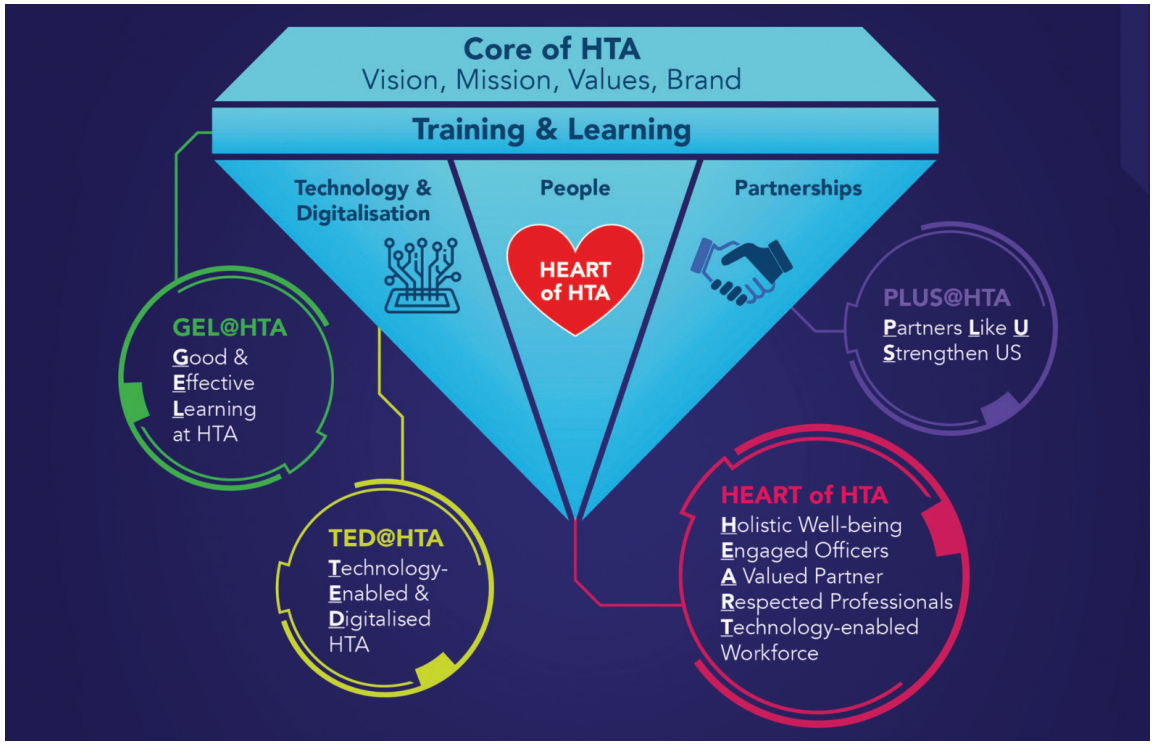


Figure 2. HTA's Gem Framework with Four Strategic Thrusts

DRIVING TRAINING AND LEARNING DURING NON-NORMALCY AND IN THE NEW NORMAL

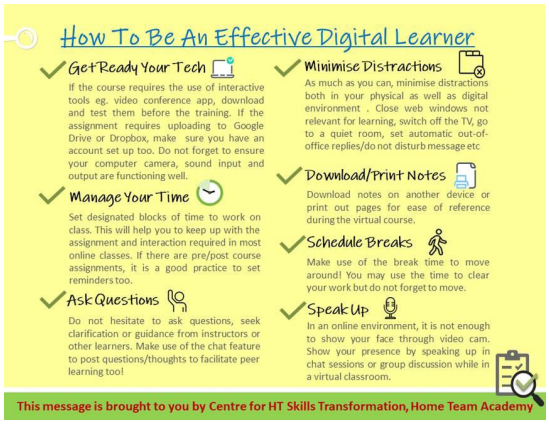
Against the backdrop of its expanded dormitory operations, HTA also had to continue driving the transformation of training capabilities throughout the HT, to press on with training and upskilling on all fronts. As Second Minister for Home Affairs Josephine Teo said at the HTA E-Workplan Seminar in June 2020, even during a pandemic, training and learning must go on "to ensure that Home Team officers continue to be agile and ever ready for whatever new challenges come our way."

HTA's vision as a leading corporate university in homefront safety and security is guided by a holistic people-centric 'Gem' framework that ensures commitment not only to the development of knowledgeable and skilled HT officers but also in the transformation of every HT leader as a trainer, coach and mentor, all excelling together as One Home Team. Accordingly, HTA's goal is to proactively provide HT officers with the expertise and skills they need to do their jobs, and to enable them to come together to learn as one and work together for mission success.

HTA's Gem framework comprises four strategic thrusts geared towards its vision – namely providing Good and Effective Learning (GEL@HTA) through its training and learning initiatives, leveraging technology and digitalisation (TED@HTA), forging strong partnerships (PLUS@HTA); and having people as its greatest asset (HEART of HTA).

Like all major crises, and perhaps more than most, COVID-19 has left lasting changes in the way work and business take place. Learning will be the foundation of survival for both organisations and the individuals within them (Peshkam & Petriglieri, 2020). Current safe management measures mean, however, that training and learning can no longer be conducted like before. In-person interactions and discussions must now be restricted significantly and a blended approach adopted by leveraging virtual modalities.

As a result, HTA stepped up its pace of transforming training and learning approaches to continue delivering quality courses and programmes to HT officers safely. In 2020, HTA redesigned its courses, adopted new training modalities and converted some trainer development and cross-



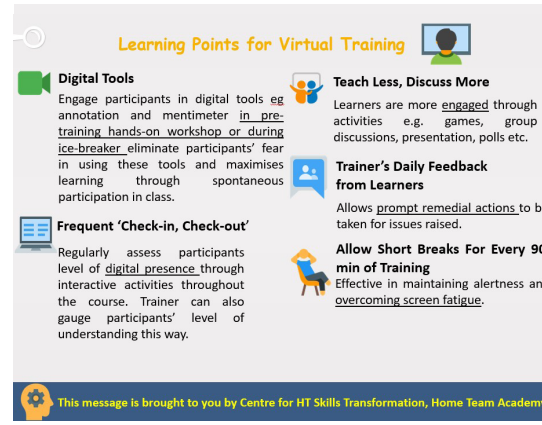


Figure 3. Examples of infographics designed by HTA on virtual learning tips to better prepare participants for virtual learning

cutting skills courses to fully virtual courses. It now delivers training via virtual conferencing platforms, while modules have also been converted for online learning, including assignments, reading materials and training slides. For instance, with HT leaders agreeing that it was crucial to continue the milestone leadership programmes during the pandemic, HTA leveraged virtual conferencing for its popular fireside chats. Where lessons were conducted in-person, HTA ensured that safe management measures were strictly observed. HTA also designed and disseminated simple infographics on virtual learning tips to better prepare participants for virtual learning.

To ensure the transition to virtual is a smooth one, HTA has continued to leverage strong relationships with its training partners to optimise course delivery via virtual platforms. For instance, HTA collaborated with the National Institute of Education International (NIEI) to plan, review and redesign the training content, and explore various modalities for the 'Upgrading Professionally – through Specialist Certificate in Adult Learning and Education Programme' (UP-SCALE). Since the move to blended modalities, feedback from HTA's course participants has been positive. Ratings have been comparable to previous courses.

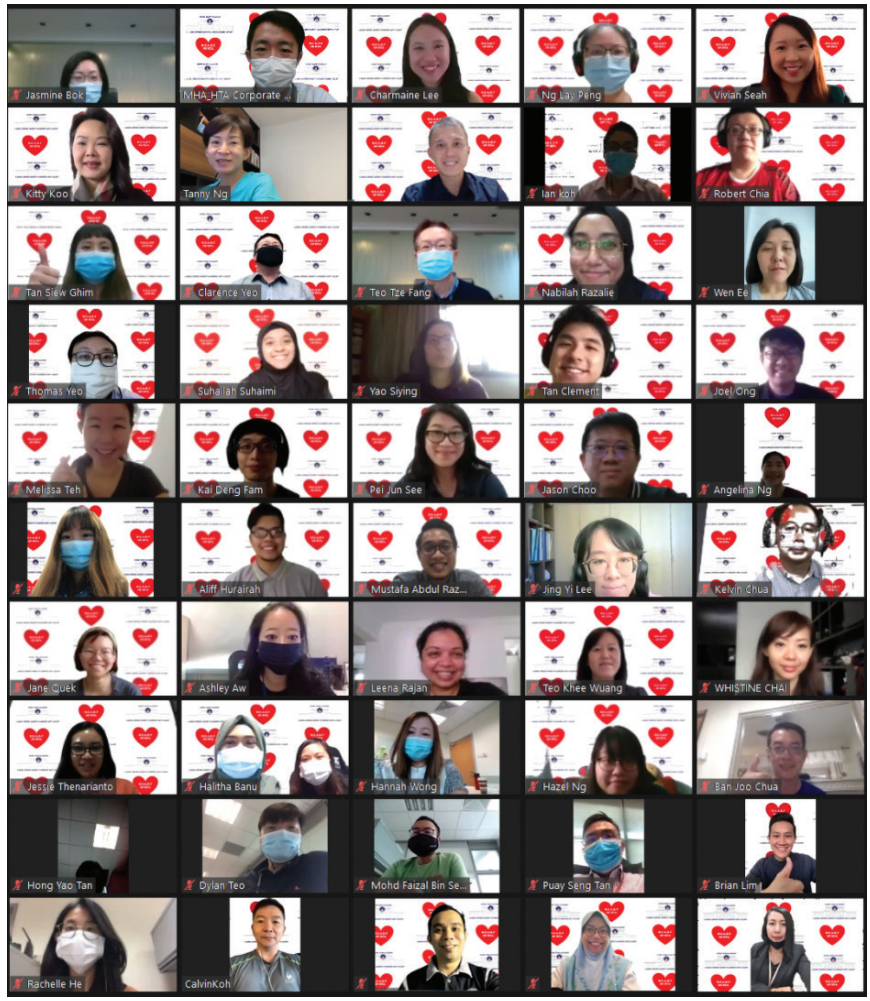
More than ever, training and learning will be a key enabler for HT leaders and officers to discharge their duties purposefully and effectively. HTA's virtual Workplan Seminar in 2020, which featured new and upcoming training and learning initiatives from HTA and the HT Departments (HTDs), demonstrated the HT's commitment to training and learning in the new normal.

For instance, HTA has been engaging with the HT training community to develop its Technology & Digitalisation Masterplan 2025. This plan serves as a strategic blueprint for HTA to deliver seamless campus experiences and achieve effective learning outcomes. An example is the development of the new HT Learning Management System 2.0, which will incorporate features such as web responsive learning, an automated marking system, and analytics capabilities to support competency development. This will push training for HT officers to the frontline, and facilitate just-in-time learning 'anytime, anywhere'.

HTA will also continue to work closely with the HTDs to better meet their training and learning needs. To augment frontline capabilities, HTA worked with the Singapore Police Force (SPF) to develop a HT Simulation System (HTS2) satellite centre at Tanglin Police Division that links to the HT Simulation Centre at HTA. The HTS2 allows HTDs to train their officers in sense-making, incident management, and operational decision-making. With this satellite centre, SPF will also be able to conduct small-scale independent exercises or joint exercises with other HTDs, paving the way for more such connected satellite centres to be developed across the HT to support HT-wide joint exercises.

A UNITED ONE HT APPROACH

Throughout the dormitory operations, HTA officers, with the support of the HT training schools co-located at HTA, were committed to playing their part to support the national response to COVID-19. Familiarity with one another facilitated coordination work greatly, and a strong rapport was quickly



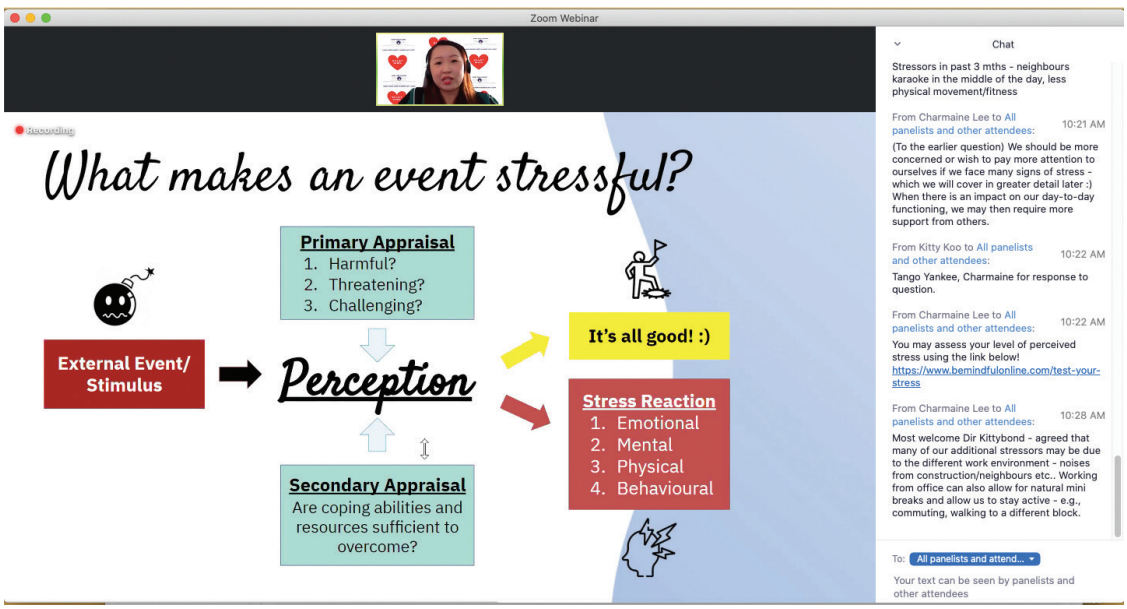


Figure 4. Examples of HTA's people engagement efforts to promote camaraderie and staff well-being

established among the officers to demonstrate a "One HT" spirit and effort. HTA also worked closely with other government departments such as the ministries of manpower, health and national development in setting up the quarantine and isolation facilities.

HTA continued to work with other HTDs to ensure that the HT training and learning ecosystem remains viable. For example, HTA has been able to count on support from participating HTDs to resume the milestone HT Foundation Course for new senior officers. This programme features experiential learning and visits to HTDs, now conducted with safe management measures in place. HTA also worked with HTDs for HTA's E-Workplan Seminar as well as for the HTDs to nominate suitable officers to participate in HT-wide events such as HTA's first virtual HT Lecture in Jan 2021, where HT officers gleaned insights from an experienced domain expert.

EMERGING STRONGER AS A FAMILY OF HTA-ENABLERS

The better an organisation is at engaging and inspiring its employees, the better its performance. Research suggests that an engaged employee is 45% more productive than a merely satisfied worker (Garton & Mankins, 2020). For HTA, being an 'HTA-Enabler' is a form of shared identity for its officers, all of whom enable HTA to achieve mission success through adding value as unique individuals and collectively as a team of HTA-Enablers. Individually, HTA officers aim to value-add to help their colleagues. As a work unit, they strive to value-add across HTA. Collectively as an organisation, HTA aspires to value-add to the Home Team and Singapore.

In view of safe management measures due to COVID-19, HTA has been going beyond physical platforms to engage with staff. Officers are kept informed of updates through frequent and consistent internal communications, as well as through virtual townhalls and dialogues. HTA also leverages technology to organise regular virtual get-togethers that encourage team bonding and interaction.

Throughout these uncertain times, HTA's Chief Executive Clarence Yeo has rallied staff through monthly messages, as well as provided close guidance on all COVID-19 related matters, while the Deputy Chief Executives directed the COVID-19 dormitory operations and helped to ensure the training schools' safe operations on the ground. Supervisors have also been checking-in virtually with staff, ensuring constant two-way communication to ensure that HTA officers are well-equipped to carry out their duties in the new normal with high morale.

Care packs with healthy snacks and cards carrying messages from the Chief Executive have been sent to staff to reinforce the importance of staying a strong and unified HTA-Family, with officers encouraged to show support for fellow colleagues. These communications efforts will be sustained to help staff cope with and embrace the cultural and behavioural shifts necessitated by this pandemic.

CONCLUSION

The COVID-19 pandemic has accelerated the need for HT training and learning to be agile and adaptive as well as to continue transforming. HTA's response as an organisation will be key in a post-COVID-19 world. The national COVID-19 challenge helped HTA staff discover their collective power as they successfully ran a 24/7 triple-operation, while continuing to carry out their role as the Corporate University of the HT. The new normal will require each officer to continue exercising individual discipline, social responsibility, and collaborative effort to keep the HTA community safe. As Chief Executive Yeo put it in a message to staff, "Our response to the pandemic has demonstrated what we can achieve as one HT. With the continued support of the HTDs and all HTA-Enablers, HTA will continue to play a key role in shaping the HT's values, culture and the mindset of our officers in the 'new normal'."

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FIGHTING THE COVID-19 WAR – WITH A LITTLE HELP FROM … CLAUSEWITZ

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ABSTRACT

Given the rapidly unfolding and significant social, economic and geopolitical impact of the COVID-19 outbreak, it has become a wider national security matter as well, requiring a coordinated response from other sectors beyond public health. In this respect, what would a wider, more encompassing, national security response to COVID-19 entail? The current struggle against COVID-19 has been called a "war". If so, can we learn anything from the insights of the 19th century Prussian philosopher of war Carl von Clausewitz, who famously conceptualised war as comprising a "remarkable trinity" of "primordial passions"; the "play of chance and probability within which the creative spirit is free to roam"; and the "element of subordination, as an instrument of policy"? This article will show what a coordinated "trinitarian" response to the outbreak involving the public health community, the public and the government must entail.

WHAT WOULD CLAUSEWITZ SAY ?

As Singapore continues its fight against COVID-19, much has been written about what should or should not be done to keep the nation safe. Granted, the COVID-19 fight is at its core very much a public health issue, and one should take care not to hastily "securitise" the matter. Nevertheless, given the rapidly unfolding and significant social, economic and geopolitical impact of the COVID-19 outbreak, it has arguably become a wider national security matter as well, requiring a coordinated response from other sectors. In other words, we need a strategic, integrated assessment of the complex and multifaceted COVID-19 challenge, rather than piecemeal, uncoordinated assessments and ensuing responses occurring simultaneously within various sectors. The question therefore is, how can we usefully think about a wider, more encompassing, holistic and integrated national security assessment of COVID-19?

In this essay we shall look to, perhaps at first glance, a rather counterintuitive, even surprising, source for guidance: the 19th century Prussian soldier and philosopher of war Carl von Clausewitz (1780-1831). Clausewitz personally participated in and witnessed the highly destructive Napoleonic wars between 1792 and 1815 in Europe and his experiences drove him to seek to make sense of the various structural, political and psychological factors that in his view, were making war more absolute and total. The product of his intellectual endeavors – that in no small part contributed to his ensuing fame as a well-known strategic theorist in military history and strategic theory circles to this day – was his multi-volume tome *On War*, published originally in German but widely translated afterward and known for more than a century within the English-speaking world. *On War* remains an influential treatise on the nature of war and how it should be prosecuted by states. The influential 20th century American nuclear strategist Bernard Brodie went so far as to assert that *On War* is "not simply the greatest but truly the only great book *on war*" (Brodie, cited in Paret & Howard, 1976).

Clausewitz is arguably best known for his axiom that "war is the continuation of policy by other means" and because he died before completing his study of war to his satisfaction – his widow published his book posthumously in 1832 – there have been some controversies concerning how to interpret aspects of his strategic thinking (for

instance, Keegan, 1993; Bassford, 1994). That said, there are certain aspects of his work that have remained truly timeless and relevant to such an extent that his ideas have already been applied to other fields beyond war, such as business (Pietersen, 2016). It is the contention of this essay that Clausewitz's insights have relevance to the current fight against COVID-19 as well. The essay shall unpack the argument as follows. First we examine the famous Clausewitzian concept of the *Trinity of War*, showing how it has surprising applicability to Singapore's fight against COVID-19 as well. We then use "trinitarian" analysis to analyse holistically how the efforts of the public health sector, the general public and finally the government are in fact integrated and energise one another. We shall end the essay with an analysis of how think tanks and academia can better apply inter-disciplinary approaches to more effectively study the complex, interlocking sectoral challenges posed by COVID-19 and generate real-world insights that practitioners can use in dealing with what Singapore Prime Minister Lee Hsien Loong calls the "crisis of a generation" (Lee, 2020).

ADAPTING CLAUSEWITZ'S ENDURING "TRINITY"

A true strategic intellectual, Clausewitz sought to understand the essence of war above all else. In this respect, based on his experiences of and study of war, he conceptualised war as comprising a "remarkable trinity":

> War is more than a true chameleon that slightly adapts its characteristics to the given case. As a total phenomenon its dominant tendencies always make war a remarkable trinity—composed of primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination, as an instrument of policy, which makes it subject to reason alone (Villacres & Bassford 1995).

Clausewitz went on to elaborate:

> The first of these three aspects mainly concerns the people; the second the commander and his army; the third the government. The passions that are to be kindled in war must already be inherent in the people; the scope which the play of courage and talent will enjoy in the realm of probability and chance depends on the particular character of the commander and the army; but the political aims are the business of government alone.

In short, Clausewitz and succeeding interpreters of his ideas essentially identified "the people" as the repository of the "primordial" passions and "blind natural force" that energise the nation for conflict; the "the particular character of the commander and the army" as the source of "the creative spirit", "courage and talent" needed to neutralise threats characterised by "chance and probability"; and the government as key to harnessing such energies and responses toward clearly defined, rational, "policy aims". That said, it would be important to note that Clausewitz never tried to dogmatically pigeonhole the three enduring features of war – passions, creative spirit and reason – into the people, army and government respectively. He regarded the three latter elements as not mutually exclusive, but rather in fact constantly interacting with one another, while at the same time displaying all three aspects of the "remarkable trinity". For instance the officers and men of the army, as well as the political leaders emerge from and are part of the people. In addition, in democratic societies, government leaders are influenced to varying degrees by popular opinion. At the same time, political leaders are not emotionless, robotic rational decision-making machines – they are just "as often driven by personal needs" and irrational passions "as by rational calculation of their societies' practical requirements". Meanwhile, rapidly evolving situations on "the army's battlefields have a tremendous influence both on the people and on the political leadership, while popular and political factors, in turn, affect the army's performance" and morale. As Clausewitz argued, the "task therefore is to develop a theory that maintains a balance between these three tendencies, like an object suspended between three magnets".

Put another way, as some observers have argued, If we accept that the current struggle against COVID-19 is indeed a "war" – as many commentators have so described – what would a systematic, coordinated "trinitarian" response

encompass? Before we answer this question, though, we first need to have a concise assessment of the nature of the threat we are facing.

THE NATURE OF THE THREAT: WHAT WE KNOW ABOUT THE VIRUS THUS FAR

The COVID-19 disease is caused by a new or novel coronavirus called SARS-CoV-2. The World Organization or WHO first learned of this new virus on 31 December 2019. This was following reports of several cases of "viral pneumonia" in Wuhan, in the People's Republic of China. Importantly, COVID-19 is asymptomatic – that is, an infected person may not even present any symptoms at first, but still transmit the virus to people in close physical contact (Chew, 2020a). Of individuals who develop symptoms – fever, dry cough, fatigue, loss of taste or smell, fatigue, amongst others – about 80 percent recover from the disease without needing hospitalisation. However, about 15 percent of infected patients become very ill, requiring oxygen. Another 5 percent fare even worse, becoming critically ill and requiring intensive care. It has been found that older people aged 60 years and over, as well as those with underlying medical problems like high blood pressure, heart and lung problems, diabetes, obesity or cancer, are particularly at risk of developing serious illness if they contract COVID-19. WHO takes pains to add that in fact anyone can get sick with COVID-19 and become seriously ill, or die, at any age. In addition, several complications leading to death could occur, causing distress to infected patients. These include "respiratory failure, acute respiratory distress syndrome, sepsis and septic shock, thromboembolism, and/or multiorgan failure, including injury of the heart, liver or kidneys" (World Health Organization, 2020). WHO points out that on occasion, children can develop a severe inflammatory syndrome a few weeks following infection by COVID-19. More ominously, some patients who appear to have recovered from COVID-19 still experience symptoms weeks or even months after supposedly recovering – including those who had only experienced mild symptoms at first while being infected. Medical professionals have reported a significant number of patients reporting "mostly post-viral fatigue, muscle aches, shortness of breath, chest pain", as well as tingling sensations, "a lot of neurologic symptoms" and brain fog as well (Grey, 2020). These are the so-called "long haul" COVID-19 patients, which have caused much concern within global medical circles still struggling to comprehensively grasp the full effects – short and longer term - of the disease.

Against such a backdrop, what would a holistic – trinitarian in Clausewitzian terms – response encompass? It is argued here that three sectors – the public health sector, the general public, and the government, have a role to play in an integrated, coordinated, mutually reinforcing manner.

THE PUBLIC HEALTH SECTOR

While most acolytes of Clausewitz to this day would understandably see the nation's armed forces as the main instrument to be deployed against an adversary's invading forces, in the current "war" we are facing, another, frequently overlooked and relatively under-appreciated instrument comes into play: the public health community. This refers to the frontline medical staff in hospitals and clinics, as well as the supporting ecosystem of scientists and biotechnology researchers who in the current context of the war on COVID-19, really represent the nation's "armed forces" against the virus. It is the public health professionals who have to find ways to unleash their collective creative energies to stem the relentless, seemingly non-linear, unpredictable spread of this unseen enemy. While the front-liners fight to "flatten the curve" of infections, the supporting medical research community have to race against time to better understand myriad issues ranging from how even asymptomatic individuals can apparently shed the virus; modelling the projected spread of the virus in the community; what current treatments against other coronaviruses can be hastily jury-rigged and thrown into the fray; and how far we are from effective vaccines to cope with ever-mutating strains of the bug. The public health community literally stands between the virus and the rest of the nation. Since the very first COVID-19 case in Singapore – a 66-year old male from Wuhan – was detected on January 23 2020 (Goh, 2020b), the public health sector has been boldly and sacrificially leading the full-spectrum conflict against the virus. It has not been all smooth sailing. Due to an unfortunate outbreak of the fast-spreading virus within the densely populated foreign worker dormitories, the overall number of infected individuals in Singapore

spiked dramatically between April and July 2020. However, as of February 25, 2021, the curve had been well and truly flattened and the total number of COVID-19 cases in Singapore amounted to 59,900 – not a particularly small number, but certainly a stabilised figure, with the vast majority of these individuals recovering fully (Ministry of Health, 2021).

Importantly, Singapore's medical community had by November made great strides in both treatment of COVID-19 patients and in the quest for a vaccine. As of February 2021, only 29 people had died of COVID-19 in Singapore; "one of the lowest mortality rates in the world". By contrast, in the United States, where there have been about 28.4 million cases, more than 508,000 people had died. An important reason for the low COVID-19 mortality rate in Singapore is that the public health front-line staff at the National Centre for Infectious Diseases (NCID) and related departments had cracked the puzzle of how to effectively treat those with the disease. This was no purely national effort of course. The NCID collaborated with global pharmaceutical firms like Gilead and the US National Institutes of Health (NIH) to learn global best practices in treatment protocols and suitable drugs to administer to sick patients. Hence it was established that for "severe cases, medicines such as remdesivir and dexamethasone" were effective in treating infecting patients. Remdesivir is an anti-viral agent that directly attacks the SARS-CoV-2 virus, in the process reducing its impact on patients. Dexamethasone, on the other hand, a corticosteroid, "helps to dampen inflammation, as patients can develop severe disease due to overwhelming inflammation in the body that is triggered by the viral infection" (Chew, 2002b).

At the same time, Singapore's backend but no less critical medical and biotechnology researchers have been just as busy as well. Duke-NUS Medical School researchers have been busy co-developing a vaccine with US pharmaceutical company Arcturus Therapeutics Holdings Inc. Ongoing early stage clinical trials in Singapore have shown that a single dose of the vaccine is effective in preventing infection, which should become available sometime in 2021 ("Singapore may get first Covid-19 Arcturus vaccine in early 2021", 2020). There have been other efforts as well that have borne fruit in a relatively quick time span: Fortitude Kit, a diagnostic kit developed by A*STAR and Tan Tock Seng Hospital, can accurately detect the presence of the SARS-CoV-2 virus, and has been deployed in 13 Singapore hospitals and labs, as well as to more than 20 countries. In addition, a research team at Duke-NUS Medical School has developed a serological test that detects the presence of COVID-19 antibodies; this innovation helped accelerate Singapore's contact tracing efforts. Importantly, Duke-NUS Medical School is also collaborating internationally with entities such as the Coalition for Epidemic Preparedness Innovations (CEPI), to develop other COVID-19 vaccines and test them in Singapore ("Singapore marshalls R&R efforts to combat covid-19", 2020). Granted, Clausewitz's ideas of "the particular character of the commander and the army", as well as their "creative spirit", "courage and talent" to neutralize enemy threats characterised by "chance and probability" have conventionally been understood to apply to the military battlefield. That said, it requires little imagination to recognize that such traits are completely applicable to public health professional leaders, senior researchers and their respective "troops" in hospitals and laboratories as well, as they continue full-spectrum efforts to treat and prevent COVID-19 and secure the health of the Singaporean community. However, their efforts need to be animated and backstopped by the fighting passions, spirit and social discipline of that wider community, as we shall now see.

THE WIDER COMMUNITY

The wider community – the population of Singapore, residents and non-residents – is a key sector in this regard. No matter what accomplishments the public health sector can pull off, all will be undone if the public does not cooperate. To be sure, just as the public health sector has been under tremendous strain since the start of the COVID-19 crisis, the wider community has not had it that easy either. In January 2020, people were still going about their daily routines – working, studying, eating, playing, all utterly unmasked – routines that would be utterly upended a few short months later, with the "new normal' involving working from home, wearing a mask out and virtual meet-ups replacing mass social in-person gatherings. As the government took decisive action in the early months of 2020 to reduce the number of incoming and outgoing air, sea and land passenger traffic, and as supply chains began to strain and stretch, members of

the public perhaps understandably grew anxious, with the result that hand sanitisers and face masks flew off the shelves at an unprecedented rate. When in February, the government raised the Disease Outbreak Response System Condition, or DORSCON, to Orange, just one level shy of the top category, significant panic buying was evidenced, as supermarkets were stripped bare of toilet paper and instant noodles, for instance. At the same time, social gatherings were limited to 10 people and schools started shifting to online home-based learning. Thickening the plot for most Singaporeans, moreover, was the introduction of a so-called "circuit breaker" from Apr 7 to May 4, initially and then subsequently extended to June 1, 2020. Under the circuit breaker, life in the city-state ground to a virtual standstill, with most workplaces closed – except for those providing essential services – and schools moving to full home-based learning. Meanwhile, soon after the commencement of the circuit breaker, the government announced that anyone "stepping out of the house would have to wear a mask, or face being fined, with egregious cases to be dealt with by the courts" (Bakar, 2020).

This was, it has to be said, a telling test for the Singaporean public. In the 1960s, soon after Separation from Malaysia, founding Prime Minister Lee Kuan Yew declared that for Singapore to survive, we have to function as a "tightly organized society" (Ramakrishna, 2020). He later likened Singapore to a finely calibrated "chronometer" in which the government, businesses and the public pulled together effectively in the same direction. That generation helped lay the foundations for Singapore to take off and achieve First World status in a few decades. Today, many from that generation have passed on, or are today the very elderly that are being constantly cautioned to be wary when outside as any infection is likely to be especially harmful for them. The big question since the COVID-19 outbreak has been: can the current generation rise to the occasion and emulate the generalised social discipline and "primordial passions" of that post-Separation cohort of "can-do" Singaporeans? To be sure, Singaporeans as a whole have risen to the occasion.

From January to May 2020, Singaporeans donated SGD 90 million to Community Chest, Community Foundation of Singapore's Sayang Sayang Fund, and through Giving.sg. Apart from financial generosity towards the less well-off members of society impacted by the pandemic, volunteering rates went up considerably as well: more than 13,300 people signed up to volunteer at Giving.sg from January to May 2020, an increase of 2000 over the same period in 2019. This was "despite a deliberate reduction of volunteering opportunities to only essential aid services during the circuit breaker period" ("Singapore Cares spirit shines through COVID-19 pandemic with rise in community philanthropy and volunteerism", 2020). Furthermore, when it became apparent that the foreign worker dormitories had been severely hit by the pandemic and that the living conditions were in dire need of improvement, the intensified publicity on the issue sparked "a surge of charitable collections" (Tan, 2020). Many other Singaporeans contributed in their own ways to community needs: one family sewed 300 reusable masks for distribution to low-income families in the early months of the pandemic when there was concern about a mask shortage ("Siblings Sew and Donate Over 300 Masks to the Needy", 2020). To be sure, there have been recalcitrants: it was reported that by late June, in excess of 1,100 fines for "offences related to mask-wearing" and "more than 5,500 fines for the breaching of safe distancing measures" had been meted out (Goh, 2020a). On the whole though, it has become clear that as Clausewitz would have put it, the "passions" of the people have prevailed. Hence as one minister put it, the pandemic has "not dampened" the Singaporean community's "spirit of caring", and "instead brought out the best in Singaporeans" ("Singapore Cares spirit shines through COVID-19 pandemic with rise in community philanthropy and volunteerism", 2020). She urged the community "to continue to grow this spirit of Singapore Together, and partner one another to overcome our challenge", so that the country can "make it through this difficult period, and emerge as a stronger society."

THE GOVERNMENT

Finally, the creative energies of the public health sector in the daily battle against COVID-19, as well as the passions and spirit of the wider community, need to be harnessed and channelled in meaningful ways at the grand strategic level to ensure ultimate victory over the virus. This is where the government – the third element of the Clausewitizian trinity – must come into play. Beyond the fight raging in hospitals and biotechnology laboratories, one of

the biggest challenges the government has had to face in 2020 has been coping with the sudden outbreak of infections within the densely packed foreign worker dormitories. At first, soon after Singapore saw its first imported virus cases in late January, a "huge contact tracing programme began and a national coronavirus-tracing app was rolled out", along with clear public communication campaigns – prompting "Harvard epidemiologists" to hail Singapore's approach as the "gold standard of near perfect detection" (Tan, 2020). However, there was a sucker punch looming. Singapore has long been home to more than 300,000 low-wage foreign workers from countries like India and Bangladesh, deployed largely in the manufacturing and construction sectors. As a norm, these contracted workers reside in employer-run dormitories and "commute from their dorms in packed vans to building sites where they work and take breaks alongside men from other crowded dorms - perfect conditions for the virus to spread" (Tan, 2020). Since the first two infections in dormitories – purpose-built facilities, factory-converted and construction temporary quarters – were reported on March 29, 2020, the number of infections in dormitories had grown to 54,485 by October – forming the bulk of Singapore's 57,884 cases by that time. At its peak, "more than 1,000 new cases" were being identified each day (Yong, 2020). However, a very strong governmental response then ensued, including aggressive testing of the foreign worker population, separating those infected from their healthy compatriots – with the latter then housed in army camps and vacant public housing flats. These measures, executed by dedicated medical teams focused on eradicating the disease in the dormitories, eventually led to an improving situation, such that by 13 October, no new cases were being reported (Yong, 2020). Government leaders conceded that their approach to the COVID-19 threat to foreign worker dormitories had not been "without shortcomings" – and, seemingly taking a leaf out of *On War*, even quipped: "In the fog of war, it is not possible always to make the perfect decisions" (Tan, 2020).

As many observers have recognized, moreover, the COVID-19 war is foggy not least because it really has more than one front. The direct public health threat of the disease to the country is just for starters. Economically, the government has had to draw on past reserves to fund massive budgets to stabilise a rapidly-contracting virus-hit economy to save jobs and businesses, while at the same time finding various means to maintain the resilience of food and other critical supply chains. Moreover, security and intelligence agencies have had to keep abreast of the continually evolving transnational terrorist threat, given that the both violent Islamist and White Supremacist networks have urged their followers worldwide to take advantage of the COVID-19 situation to strike hard at distracted states and societies. In addition, the government must continue navigating an even more troubled regional and global security landscape, in the light of heightened US-China tensions fuelled not just by trade issues but now by accusations and counter-accusations over each side's handling of the COVID-19 situation as well. Moreover, there are indications that certain major powers have also capitalised on the global pandemic to sow disinformation and foment chaos along ethno-cultural lines in multicultural societies. These same powers, their affiliates or transnational criminal networks may also take advantage of the societal distraction caused by the COVID-19 outbreak to launch cyber-attacks against national infrastructures. These complex, interlocking full-spectrum challenges on the grand strategic plane of the war against COVID-19, help shed light on why it falls to the government to ensure that the entire national effort is not permitted to drift haphazardly but rather, tightly coordinated and integrated in line with the overall national "policy aim", based on an attribute highly prized by Clausewitz: reason.

FINAL THOUGHTS ON THE CLAUSWITZIAN TRINITY AND COVID-19 AND IMPLICATIONS FOR THE THINK TANK/ACADEMIC COMMUNITY

Make no mistake: with more than 113 million cases and over 2.5 million deaths worldwide at February 25, 2021, the struggle against COVID-19 is, as has been said in some quarters, likely to be the defining struggle of this era ("Coronavirus Update", 2020). The world – including Singapore – have to do whatever it takes to win this war, because there is simply no other choice. In this short essay we have tried to employ Clauzewitzian trinitarian analysis to help us frame the war against COVID-19 in a hopefully useful and practical way. While we have tried to articulate what each key sector – public health, the wider community and the government – contributes to the war against the disease and the virus causing it, as mentioned earlier, one must avoid rigidly pigeonholing the

three enduring features of war – passions, creative spirit and reason - into the wider community, public health sector or government respectively. After all, the public health sector and the government ultimately emerge from and are part of, the wider community. Ultimately, therefore, the real issue is whether the wider community that berths the political leadership and frontline forces possess the requisite moral resilience to confront and surmount national, existential challenges. As two leading modern interpreters of Clausewitiz, Peter Paret and Michael Howard, argue:

> "The moral elements are the most important in war. They constitute the spirit that permeates war as a whole, and at an early stage they establish a close affinity with the will that moves and leads the whole mass of force. . . . History provides the strongest proof of the importance of moral factors and their often incredible effect" (cited in Strange & Iron, 2004).

In a way, therefore, what matters is if the primordial passions of the Singaporean nation *as a whole* are vital enough to sustain a long multi-front struggle against COVID-19 – and whatever new disease emerges in the coming years. This is a question that is worth pondering deeply as we move forward. Can we sustain the Singaporean spirit from generation to generation? To someone like Clausewitz, in the end this will always remain the most important commodity that separates mediocre nations from those with that special quality that keeps them successful and resilient in the face of diverse current – and future – shocks.

A closing comment: one final take-away from the COVID-19 war would be that the think tank sector and academia can no longer afford to think in mono-dimensional terms about interlocking security challenges. In 1999, the great Harvard biologist E.O. Wilson (1999) argued – prophetically – that the "issues that vex humanity daily – ethnic conflict, arms escalation, overpopulation, abortion, environment and endemic poverty" – cannot be solved without integrating insights from the natural sciences with that of the social sciences and humanities. Wilson (1999) insisted that only "fluency across the boundaries will provide a clear view of the world as it really is." Singapore should position itself to take the lead in such a quest for building systematic, interdisciplinary expertise – and in so doing prepare the nation for future national security challenges.

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