

TOGETHER: A CARE COMMUNITY

If COVID-19 has revealed one thing about the heart of TTSH and its partners in the community, it is that when push comes to shove, all parties put the well-being of patients first, extending rapid help when it becomes necessary. This is a care community at work, joining hands to form a safety net that ensures no patient is left behind.

PARTNERING THE COMMUNITY

When the situation began escalating in March 2020 and the Screening Centre began seeing a surge in potential patients, it set off a cascade of needs and services that emanated beyond NCID to TTSH Main Building and its community partners like Ren Ci Community Hospital (RCCH) and Ang Mo Kio-Thye Hua Kwan Hospital (AMK-THK) and further

“TTSH was racing against time . . . the team identified cases suitable for transfers to community partners within a very short period ■

MUNAWAR KAHLIK
Operations Executive

Community Swab Team members carrying out a swab test on a bedridden elderly at Lee Ah Mooi Nursing Home.



Conducting a swab test on an elderly patient at Kwong Wai Shiu Hospital.

out to the community isolation facilities like the CDC and Singapore Expo.

NCID had to ramp up 256 more beds from its initial 330-bed capacity in a hurry to accommodate the exponentially increasing number of patients. What would have taken three days to do was accomplished in nine hours, thanks to the many hands and hearts from all departments and levels. But all too soon, NCID was packed to its gills, and TTSH had to open up wards to house COVID-19 patients, which meant that able, long-stay BAU patients had to be moved elsewhere.

“Right siting of care had been the paramount message echoed within TTSH since BAU times,” explains Munawar Kahlik, Operations Executive, TTSH. “The impact from the prompt right siting of patients became prominent in the times of the outbreak where it facilitated the quick transition of TTSH – from an acute hospital to being at the heart of the outbreak.”

He adds, “TTSH was racing against time to ensure the smooth transition to support NCID. This meant that a large volume of cases had to be transferred out as quickly as feasibly possible. Together

“The strength of our relationships with care partners are forged through and reinforced in times of adversity and uncertainties ■

HAYLEY CHAU YOKE CHUI
Director, Operations

with TTSH Medical Social Workers and the Nursing team, the team identified cases suitable for transfers to community partners namely AMK-THK and RCCH, and within a very short period, team members from the three institutions held case consultations via Zoom.”

“A crisis can make or break the system. We are privileged and heartened that the rallying call for unity in purpose and patient care was the top focus in this crisis. The strength of our relationships with care partners are forged through and reinforced in times of adversity and uncertainties,” affirms Hayley Chau Yoke Chui, Director, Operations, TTSH.

Dr Mark Chan Peng Chew, TTSH Divisional Chairman of Integrative and Community Care, agrees, “It is extremely heartening that all stakeholders are united with a common sense of purpose; that is, our combined efforts are meant to ensure safe and high quality care for both usual care and COVID-19 patients alike. With

patient safety as paramount, there is no room for unnecessary red tape or trivial bickering over resources or logistics.”



Staff learning how to carry out swab tests on a fellow colleague.



Community Swab Team members ensuring their PPE are properly donned.

THE BIG MOVE: COMMUNITY CARE FACILITIES

The TTSH team had to quickly draft out transfer protocols and criteria and ensure clear communication to all parties involved. These efforts were not one-off and had to be maintained to ensure constant outflow of patients into the community. Respective point-of-contact from various family groups came together and tapped on messaging platforms to jointly resolve issues.

RCCH, a part of the HealthCity Novena campus and a long-time partner in step-down care for TTSH's recovering

patients, swiftly answered the call for help, seeing the opportunity to take on cases as a learning experience. While some physical arrangements had to be made in terms of wards and equipment, the largest leap RCCH had to take was to adapt work processes and infrastructure changes in a very short time.

"RCCH supported TTSH in our conversion of TTSH wards @ Renci to COVID-19 short-stay units (SSU) in record time," says Lynn Wu Xue Lin, Senior Executive at TTSH. "This would not have been achievable without the camaraderie and tireless efforts readily displayed by both teams. It was a major

“Achieving the operational success of admitting 43 TTSH decant patients into RCCH within two weeks required unprecedented levels of efficiency ■

RUTH LEE
Manager, Clinical Operations, RCCH

overhaul of our shared work processes as well as infrastructure modification rapidly set-up by in-house facilities teams, in order to put in place the safe care practices of COVID-19 patient management. Additionally there was the shared management of visitors under the ever-changing guidelines; the months of close communication and collaboration further strengthened our relationship as adjoining organisations on campus.”

Ruth Lee, Manager of Clinical Operations at RCCH, adds, “Achieving the operational success of admitting 43 TTSH decant patients into RCCH within two weeks required unprecedented levels of efficiency in decision making, planning and execution. Working closely with our counterparts from TTSH, this feat leveraged on a high level of focus and tight alignment with leadership. All of this ensures effective communication and coordination.”

One of the cases transferred to RCCH was a complex care patient on tracheostomy support, which required strong teamwork between the two

hospitals. “With the support initiated by TTSH to offer clinical guidance, the transition and delivery of care was a success. On the whole, our team was able to expand and improve their clinical skills and knowledge,” says Ruth.

This collaboration is a two-way street. The strength of the system was well demonstrated when TTSH's Department of Laboratory Medicine (DLM), Centre for Geriatric Medicine (cGRM) and Materials Management Department (MMD) came together to expand capacity and capabilities and modify internal



Ren Ci Community Hospital, a long-time partner of TTSH.

“As a whole, we work together to see what we can do to transit patients out of the system to the community in a timely manner ■

DAVID YONG
Admission Manager, AMK-THK Hospital

work processes to extend and support COVID-19 testing for RCCH’s patients and staff.

Similarly, AMK-THK Hospital answered the call to meet the nation’s urgent needs during the pandemic, expanding its acceptance criteria to help TTSH take over patients waiting for long-term care facilities placements and/or the arrival of foreign domestic workers delayed by border lockdowns and stay-home notices.

“As a whole, we work together to see what we can do to transit patients out of

the system to the community in a timely manner, so that the next patient is able to receive care promptly,” says David Yong, Admission Manager, AMK-THK Hospital.

To free up space at TTSH-NCID for new cases, COVID-19 patients who were not battling the acute symptoms of the virus were discharged to TTSH wards at RCCH or community locations such as Downtown East, where they could continue to recover until they could return back home.

The “stress tests” that COVID-19 has put TTSH-NCID and its community partners through demonstrate a continuous, vigorous need to establish a community of care that taps on each other’s capacity, capabilities and manpower for BAU and outbreak responses – from acute hospital care to step-down community hospital care and other community care facilities. To be sure, this Herculean task requires the efforts of many, from the Nursing and Medical teams to the support teams such as Allied Health, Facilities, Operations, Security and so many more.



Ang Mo Kio Thye Hua Kwan Hospital, a community partner of TTSH.

BEYOND ACUTE BEDS: COMMUNITY ISOLATION FACILITIES

Starting in late March 2020, patients with COVID-19 who were stable or recovering well went to private hospitals,¹ as well as facilities such as Singapore Expo and Downtown East. Concord International Hospital took in 20 patients on 20 March. The following week 56 patients were sent to Mount Elizabeth Hospital and Gleneagles Hospital. Mount Alvernia took about 35 patients in early April, having dedicated space in the hospital to care for 40 COVID-19 patients that were clinically well. Other private hospitals like Parkway East and Farrer Park were also prepared to help, blocking off wards and beds for such COVID-19 cases. At the same time, D’Resort at Downtown East became a community isolation facility: it can hold up to 500 patients.

Even the previously dormant CDC was converted over the Labour Day weekend into a pre-Community Care Facility (CCF) Holding Facility. The CDC had already been decommissioned, but permission was granted by MOH to reopen the premises to house patients awaiting transfer to CCFs. It was run as short stay units (SSUs) with 394 beds and also provisioned for a 100-seat facility for people waiting for their swab test results or same-day transfers to CCFs.² The compound is an open area, hence security measures had to be put in, such as cordoning off of areas with yellow chains. Other concerns included safety of the nurses, who were mostly female, and who had to stay on the premises. The nurses were housed in a restricted area, while security officers provided the extra security measures.

(Top left/right) Tentage and beds readied for patients at the old CDC.
(Bottom left/right) Subacute wards at TTSH ready to receive patients.





Community Swab Team preparing themselves before setting off to serve at a community facility.

The first nursing home resident to be infected with COVID-19 was an 86-year-old patient from Lee Ah Mooi Old Age Home, on 31 March 2020. In all, 14 people from the home were infected, and four passed away. The need for testing in such institutions became urgent immediately, as COVID-19 affects the elderly and chronic sick with serious outcomes.

In March 2020, TTSH set up the Community Swab Teams (CSTs).⁴ These teams, comprising TTSH staff from different departments, were formed and trained to support nursing homes and home care providers with COVID-19 testing for the residents of these homes

and the staff. The CSTs also trained the nurses at these homes to perform the swab tests. So far, the CSTs have worked with more than 20 partners and conducted over 800 swabs.

Beyond testing, the CSTs also worked closely with these partners, as well as the MOH and Agency for Integrated Care (AIC), to build and fortify a safe environment in every nursing home. This included implementing safety measures, and putting in place a comprehensive medical strategy in the event of a new COVID-19-positive case.

Lynette Yuen Man Ting, Senior Staff Nurse II for Community Health was part of a CST conducting swabs

Members engaged in serving at community facilities such as Kwong Wai Shiu Hospital and Lee Ah Mooi Nursing Home.

Nonetheless, the thousands of COVID-19-positive cases necessitated the use of larger facilities beyond the conventional healthcare care environs. The sprawling Singapore Expo and Max Atria were designated an isolation facility by the Singapore government. On 10 April 2020, 19 patients from NCID were sent to the Expo, where one hall houses those in recovery and another contained patients with mild COVID-19 symptoms.

Moving forward, as Singapore prepares itself to live with COVID-19, and as part of the nation-wide efforts to prioritise healthcare resources for severely ill or

vulnerable patients, the COVID-19 Home Recovery Programme (HRP) will be the default care arrangement for everyone from 10 October 2021, except for certain groups: not-fully vaccinated individuals aged 50 and older; fully vaccinated individuals aged 80 and older; and kids below one year old.³

THE COMMUNITY HEALTH TEAMS

As important as the community's support in housing well COVID-19 patients was the TTSH teams' efforts supporting the community in COVID-19 testing.



“COVID-19, or any outbreak, is not a battle TTSH can fight alone – our community partners are indispensable ■

DR MARK CHAN PENG CHEW
Divisional Chairman of Integrative and Community Care

at Lee Ah Mooi Old Age Home. She explains that as part of the out-facing team that goes into the community, the CST is positioned to share best practices with these community institutions to manage the pandemic. However, training a TTSH CST to conduct swabbing on the elderly did come with its fair share of concerns, as “most of the elderly may not have the mental capacity to understand what we are doing, so it can be quite a struggle at times.” In fact, some of the

elderly residents would go into hiding when it was time for their swab!

“In crisis management, you just have to be objective: you know what needs to be achieved and what takes precedence. In this case, public health takes precedence – it’s a pandemic situation. You rationalise that what you are doing is for their good,” she shares.

Tay Tian Lin, Manager at the Population Health Office in TTSH, was PPE-trained at the NCID and was sent out as part of a CST. He agrees swabbing the elderly can be an emotionally exhausting endeavour, but “when you realise they are all coming back clean and you don’t have to do it anymore, it’s a good feeling.”

CARE WITHOUT WALLS

COVID-19 has underlined the importance of building a strong population health model, making TTSH-NCID not only a hospital of care, but



Caring for the community is a core of TTSH's axiom.

together with partners, building a care community. It has taken willing hearts and minds between departments and institutions to make the fight against COVID-19 a united one.

For TTSH, learning to forge partnerships and relationships to ensure integrated care in the community has been a valuable lesson for the leadership and the staff. It reinforces the understanding that to build a community of care, one without walls, requires people caring as a community for the community.⁵

“COVID-19, or any outbreak, is not a battle TTSH can fight alone – our community partners are indispensable. Just because there is an outbreak doesn’t mean people stop being critically ill or sick with chronic disease – these patients need continued, quality care too. I’m grateful that our community partners RCCH, NHG and the private hospitals were forthcoming in taking in our stable patients. That’s what I call a care community – it’s not just about one hospital giving care,” concludes Dr Chan. ■



Swab specimens collected, ready to be tested in the lab.

SAFEGUARDING ESSENTIALS: PPE, LOGISTICS, FOOD . . .

When COVID-19 first struck – fast and ferocious – one of the most frightening and heart-wrenching scenes shown on TV across the world was frontline doctors and nurses tending to COVID-infected patients without proper protective gear – or worse, none at all.¹ Global supply of Personal Protective Equipment (PPE) was desperately in short supply as it was outstripped by surging demands. The already dire situation was made worse by worldwide restrictions on air freight.

“Our top consideration is not about sourcing for the cheapest products but ensuring we procure timely and sufficient supply for our staff and patients . . . in hindsight, we were too busy to be worried about the virus itself! ■

DR PAULINE YONG
Director, Hospital Supply Chain

A staff conveying logistics. Ensuring logistical adequacy is a key pillar of TTSH's response to managing the COVID-19 outbreak.



“Our first principle of consideration is to establish an open and transparent communication with our key suppliers and partners. This includes information on projected burn rates and having an accurate supply picture in place for the short to medium term ■

ANDY GAN KOK WEE
Deputy Director, Hospital Supply Chain, ALPS@TTSH

MMD staff have to handle a diverse range of healthcare and medical essentials at TTSH.

The shortage of medical supplies and equipment is a horrific reality. It determines if healthcare professionals live or die. It can also hamper efforts to keep the pandemic under control if frontline healthcare workers get sick or refuse to work in unsafe conditions. There is simply no other way. Every frontline worker needs proper “armour”. Wearing a bandana to treat a COVID-19 patient is like walking into a battlefield wearing nothing but a diaper.

EQUALLY ESSENTIAL

Singapore has learnt from previous outbreaks that availability of medical supplies is non-negotiable. The country has learnt to be outbreak-ready 24/7. Although face mask supplies for the general public hit a snag early in the COVID-19 outbreak, the problem was quickly and systematically solved as the weeks progressed. Even now, new and ever more effective reusable face masks are being made available to every resident in Singapore every few months.

At TTSH-NCID, the protection of the protectors is paramount. The hospital ensures that a safe and hygienic environment is present so that staff can treat patients with peace of mind and confidence. TTSH also ensures that there

is sufficient PPE and medical supplies for its workers.

Andy Gan Kok Wee, Deputy Director, Hospital Supply Chain, ALPS@TTSH,² Materials Management Department (MMD), explains on building the hospital’s supply resilience, “Our first principle of consideration is to establish an open and transparent communication with our key suppliers and partners (e.g. MOH Resource Management). This includes information on projected burn rates and having an accurate supply picture in place for the short to medium term.”

PPE

The scramble for PPE was a worldwide issue – it still continues in some under-developed parts of the world two years on. Some countries decided to take a wait-and-see approach in the early days of COVID-19. For Singapore, it was not a luxury the island-state could afford.

During a regular, non-crisis time, the supply of PPE is kept at three weeks’ worth, to manage costs and keep supplies “fresh”. But during a pandemic like COVID-19, ensuring sufficient PPE for every frontline healthcare worker was a top priority. Yet, the worldwide shortage made it necessary for hospitals



“It’s so important for our nurses and doctors and our cleaners to have PPE to protect us as we do our jobs. I’m thankful for the MMD team for having our backs ■

KALAIHELVI D/O G GOVINDARAJU
Senior Nurse Manager

A secure supply of PPE helps to keep frontline workers safe.

and healthcare workers to exercise responsibility and accountability.

As early as January 2020, for essential PPE like N95 masks, goggles, gowns, shower caps and shoe covers, TTSH was already beefing up its supply in preparation for the worst, working in tandem with MOH and partners like ALPS and other agencies. The MMD was working round the clock, procuring from regular suppliers as well as alternative sources, creating a pandemic stockpile to safeguard against shortage of critical items. By doing this, TTSH stayed ahead of the curve, even as supply chains started to be affected as the weeks passed and the coronavirus was proving to be a global threat.

Andy adds, “When it becomes clear that supplies will be constrained and won’t meet the projected burn rate, the MMD team would start to communicate the situation with our end users and work out alternative supplies and suppliers. This ensures uninterrupted supply. One prime sample is the switch from using disposable visors masks to re-usable goggles for certain areas like the Screening Centre during the initial COVID-19 spike. MMD also worked to source for a manufacturer who could produce locally a face shield that was designed in-house by our very own CHILL Kaizen team.”

The MMD’s predictions and preparations were “spot on”. The burn rate of the PPE supplies was high, especially at the Screening Centre, where the Emergency Doctor in charge of the shift always has one eye on the PPE supply. At the beginning, staff having to navigate the “clean” and “dirty” areas meant that PPE was being disposed often, leading to some logistical concerns. Then as Singapore’s COVID-19 numbers surged and more healthcare workers were deployed to the frontlines, the need for PPE shot up further. This is where specific demand management measures and policies – through workflow changes – were promptly established. It aimed for the twin goals of safe and efficient use of certain consumables such as masks and ICU consumables as well as maintenance of sustainable burn rates.

As COVID-19 continues to endanger lives, PPE supply will remain a life-and-death matter. Senior Nurse Manager Kalaichelvi D/O G Govindaraju who looks after the converted COVID-19-inpatient wards at TTSH Level 7 explains that a logistics nurse is present to make sure each ward has enough supply. “We have to ensure that there is sufficient supply of stock for use, mainly the surgical masks and the PPE, and then there are other things like dressing equipment for the patients.”

“Even as we placed orders with the vendors, there was no certainty that the drugs would come in, until they reached our doorstep ■

CHONG YI MEI
Senior Pharmacist, ALPS@TTSH

Once a week, she says, checks are done on the central store on the numbers of each item available. The MMD controls the PPE, and at the start of the year, would predict how much PPE is needed for the year and the acceptable percentage of wastage. “So we have to control it,” adds Kalaichelvi. “We make sure the nurses don’t waste it; at the same time we also need to make sure we have sufficient weekly supply.” The wards have to report how much supply they have.

Grateful for the stable supply of PPE even in the thick of COVID-19, Kalaichelvi says, “It’s so important for our nurses and doctors and our cleaners – everyone who comes into contact with COVID-19 patients – to have PPE to protect us as we do our jobs. I’m thankful to the MMD team for having our backs.”

LOGISTICS

TTSH-NCID needed essential “weapons” to overcome the virus, ranging from test kits to lab equipment, communications systems and software to medicines,

pharmaceuticals and other medical supplies, tentage, linen, cleaning equipment, food and more.

In March 2020, TTSH and ALPS found themselves in a global race for essential medication. Working against the clock in the face of countries going into lockdown worldwide, ALPS managed to quickly secure ample supply of drugs for TTSH and for the nation.

Yet such supply was not to be taken for granted. There were two critical periods when the hospital faced supply uncertainty: February 2020, at the start of DORSCON Orange and April 2020, when the Circuit Breaker was enforced. “The global supply chains were disrupted on an unprecedented scale. Our usual sources of supply such as China, a global leading producer of PPE and medical consumables, Europe and the US were all hit with lockdowns. We had to quickly find alternative sources where the outbreak was under control,” continues Andy.

The air of supply risk was palpable.

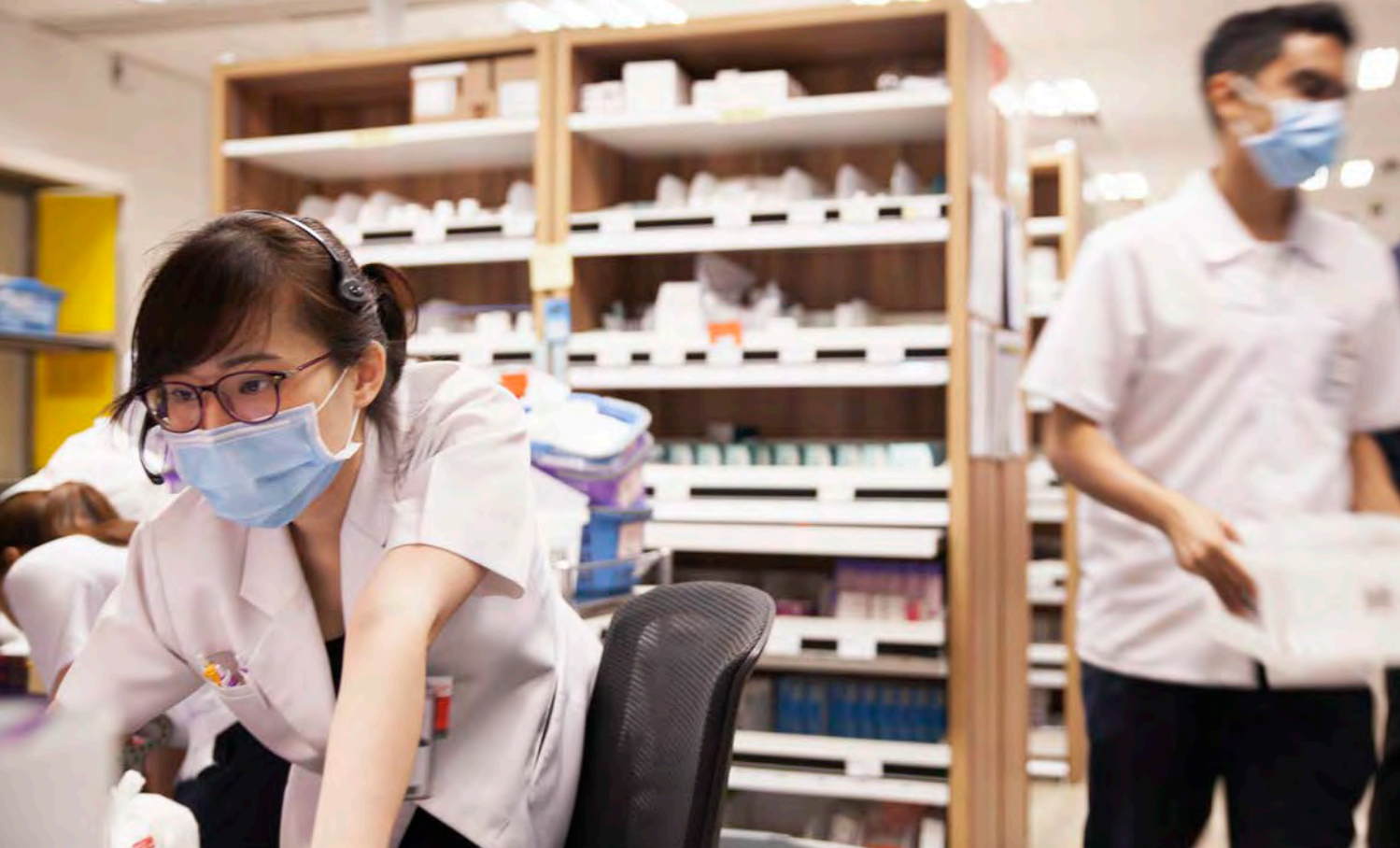


All hands on deck to ensure all the essentials – from medication to kits and equipment – are well stocked.

“Even as we placed orders with the vendors, there was no certainty that the drugs would come in, until they reached our doorstep,” Chong Yi Mei, Senior Pharmacist, ALPS@TTSH, Procurement, Supply Chain and Manufacturing Services, Pharmacy, whose sister Chong Yi San is principal pharmacist at TTSH, told *The Straits Times*.³

Nonetheless, on the pharmacy front, staff worked tirelessly, including weekends and public holidays during the first few months of the pandemic, to make sure patients got what they needed, especially at the start of COVID-19.

“As countries started to lockdown, we were virtually racing against time examining usage data of the few hundred drugs that are infrequently used. We needed to decide if we had to pre-emptively order in to ensure continuity of supplies. For some of these drugs, we also needed to seek input from our clinicians with respect to how much we had to bring in. Once we determined how much to procure, we had to quickly engage vendors to bring in the drugs. All these had to be done in double quick time as borders were shutting down,” recalls Yi Mei.



Pharmacists at work at TTSH Pharmacy.

Meanwhile, the logistics team worked hard to support the multiple changes on the ground due to the outbreak, for example, the opening of outbreak wards and the Screening Centre to re-purposing of existing wards to outbreak wards. As the drugs used during peacetime and for COVID-19 were different, the staff had to change the range of drugs stocked in the Automated Dispensing Cabinets (ADCs) at the wards, a tedious and complicated process.

One key lesson the hospital has learnt amid uncertainty is diversification of supply sources. A case in point is the

hand rubs. A manufacturing country had suddenly stopped exporting and the supply was dwindling fast (with increased use), so the team had to find alternative products. However, as the hand rub holders are round, products with square or hexagonal shapes were unsuitable. Hence, all the available round-shaped hand rubs were reserved for locations with only round hand rub holders, e.g. the beds. Coordination of hand hygiene involved working with Infection Control nurses – to determine which product to use for each of the over 100 TTSH departments.

“COVID-19 had been really tough. Drugs were not spared from supply disruptions when countries stopped exporting due to lockdowns ■

MARY CHONG KONG LIAN
Pharmacist Head, Procurement

Pharmacist Mary Chong Kong Lian, Head, Procurement, Supply Chain and Manufacturing Services, Pharmacy, recalls, “COVID-19 had been really tough. Drugs were not spared from supply disruptions when countries stopped exporting due to lockdowns. During the outbreak peak in February-April, the Procurement and Supply team had to manage myriad new challenges weekly, rushing to secure drug supplies and hand hygiene products in time to set up ward stocks as COVID-19 patient load increased. I am thankful for the great team work, collective leadership and lots of extra help rendered to us by the Singapore authorities, suppliers, clinicians, many helpful hands from the larger TTSH pharmacy team, and finally the excellent leadership from Hong Yee, our Pharmacy Division Head, who led us through this crisis.”

“Our top consideration is not about sourcing for the cheapest products but ensuring we procure timely and sufficient supply for our staff and patients. I am thankful for the team’s resilience during



Pharmacist at work at NCID Pharmacy (top). Ensuring the right procurement, even for an item like the hand rub holder, is vital.

“With the increased load of linen to clean – collecting from 17 wards instead of seven wards, and 40 beds in each ward instead of 20 beds – we had to start work at 6am and only finished work about 730pm ■

NG KWANG SOON

Assistant Supervisor, Department of Hospital Supply Chain, Linen Services

this period. We gave our all, and in hindsight, we were too busy to be worried about the virus itself!” quips Dr Pauline Yong, Director, Hospital Supply Chain.

The logistics behind running defence against the pandemic are mind-boggling. Crucially, the urgency to buttress supply resilience so as to enable frontline staff of TTSH-NCID to effectively “test, trace, and treat” drove not just the backline logisticians but also their information systems colleagues as well.

The Command, Control and Communications (C3) System, the nation’s first ever in healthcare, was fortuitously launched end 2019 to meet the COVID-19 challenge. Its arrival meant that the Disease Outbreak Module had to be stepped up. There was no moment to waste. Within two months, Gurusamy Arul Prasath, the Lead Analyst of IHiS⁴ and his team, deployed at TTSH’s Operations Command Centre (OCC), had developed 34 key widgets that supported the real-time tracking of

staff and patients as well as accessing data such as the usage rate of essential supplies such as PPE. The timely data gathered from the ground facilitated better logistic decisions.

Arul observes, “C3 is critical to the current situation. It is special and meaningful to be part of the healthcare sector, especially in the present circumstances.”⁵

A CLEAN SPACE

Keeping the environment at TTSH-NCID clean was paramount in efforts to contain any spread of the virus. TTSH’s Housekeeping department enhanced its cleaning routines, expanding the existing force of robot cleaners to deploy hydrogen peroxide vapouriser (HPV) or ultraviolet (UV) disinfection system to decontaminate the areas.

The workload had more than doubled but TTSH Inpatient Ward Supervisor Megala Armugam, who oversees a team



An increased load of linen being prepared for cleaning.

of housekeepers, says, “We took it as a challenge.” Each time a patient was discharged from the NCID, the room required top-to-bottom disinfecting, changing of linen and thorough cleaning. The dirty linen would then be dropped down a chute directly into the Linen department and sent off for thorough disinfecting and cleaning.

According to Ng Kwang Soon, Assistant Supervisor at the Department of Hospital Supply Chain, Linen Services, dirty laundry increased by up to 400 bags a day during the COVID-19 surge, and to avoid cross contamination, 1,500

pieces of patient gowns and towels were issued to TTSH staff daily, with the Linen Services staff working overtime throughout the week.

“With the increased load of linen to clean – collecting from 17 wards instead of seven wards, and 40 beds in each ward instead of 20 beds – we had to start work at 6am and only finished work about 730pm. This is much longer than our standard working hours, that is, from 8am to 430pm. We had to even work on Sunday, our normal off-day,” says Kwang Soon.⁶

“The hospital is a safe place to be,” declares Kalaichelvi. Given all the care and precautionary protocols in place, patients and visitors should have full confidence at TTSH-NCID.

FOOD TO NOURISH

If there is one thing that sends the average Singaporean into a panic, it is a shortage of food. The Circuit Breaker saw supermarket shelves emptied out as people resorted to panic-buying.

Fortunately at TTSH, the food supply for patients and frontline staff was not in want. According to Glora Soon Siok Wan, Assistant Manager, Hospitality & Environmental Services (Food & Beverage Services), TTSH Kitchen adopted a two-pronged approach to keep food flowing. “First, we man our kitchen with segregated-teams, where staff is divided into two teams; this is also part of our business continuity measures. Second, we work hard to ensure safe storage and uninterrupted delivery of food supplies.”

The cooks and chefs, spearheaded by Chef Leo Yui Thim, Senior Executive Chef and Glora, were mainly responsible for the preparation of the daily patient meal, cooking and dishing, whilst the front and back end support staff took on other challenging tasks such as meal distributions, logistics planning and arrangement, procurement of raw



Kitchen staff working virtually round the clock to bring the comfort of food to patients and frontline staff.

By continually providing nutritious sustenance to all our patients and frontline workers battling the pandemic, we show them our camaraderie and support ■

GLORA SOON SIOK WAN

Assistant Manager, Hospitality & Environmental Services (Food & Beverage Services)

materials, etc. This segregated team model work allowed the team to stay focused and keep morale high during the crisis.

For patient meals, the team had to maximise all available storage spaces in

the kitchen as well as engage external storage vendors to safely store food supplies as a contingency, should disruption from overseas suppliers occur. For hospital staff meals, a contracted caterer supplied hot meals on a daily

basis to the COVID-19 wards and the Screening Centre. Bread, cakes, and ready-to-eat meals were procured and supplied 24/7 to all staff supporting the outbreak and to patients waiting for registration at the Screening Centre.



Each meal is carefully planned and prepared to ensure nutritious sustenance.

“All of this is possible because we have built a strong and trustful partnership with our contracted food suppliers during peacetime. This helps us ensure a continuous supply of safe food to the kitchen,” explains Chef Leo.

Meanwhile, Chef Leo and Chef Alson Lim, Sous Chef, not only had to work with dietitians to make sure that each meal contained sufficient nutrients, they had to design meals that suited the taste buds of the migrant workers as they were not used to the subtle flavours of

traditional hospital food fare, preferring spicy and well-seasoned food.⁶

Together with the menu planning team, the team created curry dishes with sauce to satisfy their palates. Food options such as chapatti and rice dishes including rendang chicken with turmeric rice and Singapore chicken rice were specially created for them. The migrant workers appreciated all the efforts made to suit their palates. Some of them responded, “The chapatti meals were simply delicious.”

“ I will work harder tonight because of your caffeine hehe . . . thank you for thinking about us ■

A BENEFICIARY OF FOREWORD COFFEE

Summarising, Glora says, “By continually providing nutritious sustenance to all our patients and frontline workers battling the pandemic, we show them our camaraderie and support.”

Beyond nourishing patients and staff with food prepared by F&B Services at the Kitchen, there was a swell of donations that poured in from the public, including coffee treats from businesses like Foreword Coffee. A part of operation #BoosterShot, it was a campaign to buy coffee for healthcare workers. Started by a Julie Chen, she wrote on the crowdfunding platform Ray of Hope, “Over the past week, many healthcare workers have worked over 100 hours battling nCoV. Some cannot go home to their families after, have had their holidays cancelled, etc. And the work continues today.”⁷

The campaign raised over \$10,000 in one day and 500 cups of coffee were claimed by TTSH-NCID staff

in one day. One beneficiary writes, “I will work harder tonight because of your caffeine hehe . . . thank you for thinking about us,” while an anonymous donor who donated \$150 encourages, “Hi healthcare angels n to all who are helping to fight the virus. You are dearly cherished n respected n in my thoughts n prayers! Thank you for your time n effort n sacrifice in taking care of patients n caring for many under your care. Without you guys we won’t be any better.”



Coffee treats aplenty from institutions and coffee joints to encourage staff.



LIFELINE OF ESSENTIALS

In battling COVID-19, safeguarding essentials such as PPE, logistics and food can never be overemphasised. Doctors, nurses and other workers on the frontline can treat patients with peace of mind when they know they have a reliable crop of colleagues providing the essentials.

“Looking back over the last six months of our constant review and multiple efforts, our supply chain was never once behind the curve,” observes CEO Dr Eugene Soh in his June 2020 Tribune.⁸ “This is credit to our MMD team and the many stakeholders from pharmacy to laboratory to kitchen to wards to clinics, who made extraordinary efforts in ensuring a robust chain of supplies.”

He adds, “It’s encouraging to note that our staff serves with simplicity, strength and sincerity as they trust the organisation to protect them so they may care and serve patients confidently.”⁹ ■


“Our supply chain was never once behind the curve. This is credit to our MMD team and the many stakeholders from pharmacy to laboratory to kitchen to wards to clinics ■

DR EUGENE FIDELIS SOH
CEO, TTSH & Central Health

TTSH STAFF INSPIRED: FAMILY+

The battle against COVID-19 is not merely one fought by doctors, nurses and other frontliners. When the going gets tough, what brings strength to the ones soldiering in the battle are family and friends who do their part to support and encourage these frontliners.

The magnitude of the work has been overwhelming: toiling for long hours wearing non-breathable PPE and N95 masks; facing what seemed like an endless queue of worried people waiting to be screened; struggling to keep alive those severely afflicted with COVID-19; cleaning surfaces for what seems like the 100th time in a day; facing hysterical family members who are unable to be next to their loved ones as they die; the list goes on. Frontliners faced these situations every single day, particularly during the peak of new COVID-19 cases.



“We are heartened to receive such sweet and appreciative gestures from members of the public and organisations. These are morale boosters for our frontline staff and the various departments ■

DOMINIC TUNG KUAN SAN
Assistant Director, HR Well-being & Member, 3S Committee



Staff at TTSH-NCID showing their appreciation to the public members and national leaders.

Distressingly, after all the gruelling hours of work they put in, they were not able to go home and be comforted with a hug from their spouses or children – the risk of them infecting their loved ones was all too real.

Even as early as the Chinese New Year, on 24 January 2020, Dr Lui Wen Li, Consultant, Rehabilitation Medicine, and her husband Dr Timothy Quek, Consultant, Endocrinology, were already busy on the phone, checking messages and talking on the phone to their colleagues throughout the festivities. “My family members are understanding,” she says. “They know that we are in healthcare and that this is a crucial

period for the hospital and healthcare system.” Sometimes, the silent support of a family goes a long way towards allowing healthcare workers to give their all to the task at hand.

For frontliners like Dr Ng Wei Xiang from the Emergency Department (ED), strength came from a WhatsApp photo of his pre-schooler son holding up a note that read, “I love you. Thank you for saving Singapore.”¹

A timely text message from a colleague; FaceTime calls, hand-drawn cards, little notes expressing love and encouragement from their spouses and children – these made all the difference to those fighting on the battleground.

FAMILY MATTERS

Being on the frontline means sacrifices have to be made on the home front. Dr Lui and her husband are both TTSH doctors who had to work in the hospital during the period childcare centres were closed. She adds, “Our children stayed with my in-laws during the period of home-based learning (HBL). Thankfully, my in-laws were supportive and helped to look after our kids, who are four and two.”

For Soh Yan Ming, Principal Occupational Therapist, Rehab, home-based learning was also a challenging period. “We have a 16-year-old and a 10-year-old. My husband and I had to learn how to manage and assist our children with HBL, which was a paradigm shift for us all. Indeed, it was very trying to balance family responsibilities and the escalating work demands. I could rely on my husband, gratefully. During the festive season, it was very intense; half the time, I wasn’t really there – I was in a corner texting! My husband has been a pillar of support for me – he is full of understanding and patience.”

Rehab Staff Nurse Babasa Kristel Ann Gallenito, who had been deployed at NCID, has been away from her family in the Philippines for the past year. The

single mother speaks to her eight-year-old son Joachim daily over FaceTime.

“We would pray together and he would say, ‘Please make my mommy safe, because my mommy is a frontliner,’” shares Kristel. What began as a two-week deployment became an ongoing engagement for her (eight months and counting). “I wanted to be here – other nurses are scared, but I’ve overcome the fear already so I might as well stay.”

In the early days Kristel had many concerns. She was worried about her landlady, who is in her 80s. “I thought I would be chased out,” she admits. “But my landlady has been very supportive.”



Senior speech therapist Tan Xuet Ying showing her appreciation to her family on Valentine’s Day 2021.



The sheer joy of receiving affirmation from the public and supporters.

“HANG IN THERE!”

Though their work was hectic and uncomfortable, the TTSH-NCID frontliners, like frontliners across the island in other hospitals, airports, and out in the community, received the love and support of an entire nation.

Words have therapeutic power. “Thank you for your hard work!”; “Hang in there!”; “Keep going!”; “We care for you”; “Do take rest too!” These were simple yet uplifting, powerful words that strengthened the spirit of TTSH staff. Besides encouraging messages written on beautiful handmade cards, messages

of love were also communicated through bouquets of flowers, goodies such as chocolates, muffins, and even much needed cups of coffee or bubble tea!

Such expressions didn’t just come from the public; care and concern began right in the hospital.

Following the SARS outbreak in 2003, TTSH turned informal peer support given to staff on the frontline into a formal Staff Support Staff (3S) programme.² Steered by an executive committee led by chairman Dr Habeebul Rahman, Head & Senior Consultant, Department of Psychiatry, 3S support measures were ramped up from February

2020 in anticipation of increased stress, burnout and other mental health issues among staff.

“When COVID-19 first hit, all parts of the hospital were calling for help as suspected cases began to flood in, and staff were redeployed quickly to where they were needed most. Stress levels increased as the number of patients coming in spiked. Staff were also gripped by anxiety and fear of the risk of being infected by COVID-19 patients – at the time there was no way of knowing what the exact symptoms of COVID-19 were. Indeed, the thought of ‘If I get this virus I’m going to die’ was heard often, based on reports from all over the world,” remarks Dr Habeebul.

The reality of stress and burnout in a pandemic situation was not lost on the 3S team. A slew of platforms and opportunities were created for all TTSH staff, not just the frontliners, to express challenges as well as to receive support from their peers. The Workplace from Meta Group “Spread A Smile” was quietly started as a means for any staff member of TTSH to appreciate and affirm another. It grew into a behemoth nearly overnight, becoming an organic platform for the staff to express their innermost feelings and celebrate one another. Together, the power of a *kampung* spirit helped to boost the morale of the frontliners and backliners,

giving TTSH staff a way to show their appreciation, support and encouragement to their colleagues.

Karen Kwa Su-fen, Head and Principal Social Worker, Care & Counselling, who is part of the 3S committee, adds, “We learnt during SARS that staff support is very important. We have developed ways to support staff, like introducing a distress hotline and the #SpreadASmile campaign. Through platforms like TTSH Workplace, the staff, in their own words, encourage each other.”

“It’s good to hear our staff out. They are mission-focused and will do their utmost to complete a job even when it is difficult. This inevitably gives rise to tension. Thus, we need to help them manage this tension,” continues Dr Huang Wanping, Head & Principal Psychologist, Department of Psychology.



The Spread A Smile Committee works hard to inspire smiles across the TTSH-NCID campus.



The TTSH-NCID Kampung Mart opens to great enthusiasm among the staff.



COMMUNITY INSPIRES

The community was more than ready to jump in. Grab launched GrabCare, a special transport service for healthcare workers during COVID-19, to ease their travel needs. Corporations and members of the public generously donated food and care items to the hospital: drinks from Yeo Hiap Seng, Red Bull and Monster Energy and lunch bento boxes from Mapletree Investments – even nutritious black chicken soup! The donations became so plentiful that on 27 April 2020, the TTSH and NCID Kampung Mart was launched: staff members simply

had to bring their own bag and collect all sorts of goodies – including food items, mask protectors and skincare – from the Mart.

Dominic Tung Kuan San, Assistant Director, HR Well-being, who also sits on the 3S committee, quips, “We are heartened to receive such sweet and appreciative gestures from members of the public and organisations. These are morale boosters for our frontline staff and the various departments within our main hospital who are working tirelessly to ensure that our patients and staff are well taken care of in this global fight against COVID-19.”

“The public kept sending things to cheer us up. It felt good to receive cards and food ■

BABASA KRISTEL ANN GALLENITO
Rehab Staff Nurse

“The public kept sending things to cheer us up,” exclaims Kristel. “It felt good to receive cards and food.”

The kindness and support spilled over to the patients. On Labour Day, the Nursing team and HR Well-being decided to bring some cheer to the migrant worker patients warded for COVID-19. They shared 800 care packages donated by the public, and brought in prayer mats and dates to support the Muslim patients during Ramadan. “This is our way to appreciate them for building our homes and hospital,” wrote Chen Jiayi, Assistant Manager, Communications on Workplace. “It is also to offer some comfort to them during this difficult time and to reassure them that we are committed to helping them build their health and return them safely to their loved ones.”

Indeed, COVID-19 was not meant to be fought alone by any one team, department or even hospital. It was to be a “collective fight” in multifarious aspects – beyond epidemiology, medicine and healthcare. Everyone’s body, mind and soul was tested, from the frontliners to those in support roles. To keep every staff member going, it was vital to maintain strong bonds, to exercise understanding and cooperation among staff, management, even patients and the public. Caring to care for each other was, is and will remain the tie that binds everyone.

WE CARE TO CARE

Care for the staff was further enhanced as the hospital battled the COVID-19 cluster in late April/May 2021 and the spike in cases beginning September 2021 as restrictions eased (details in Chapters 4 and 17). No efforts were spared.



Public goodwill and donations, from drinks to lunch bento boxes, keep flowing into the hospital.

CARE CHAMPIONS: SERVING HOPE

HOPE HEALS

COVID-19 infects not only the body of a person, it also injects fear into the hearts and minds of patients and those at risk, such as frontline workers. In a US study, it was found that one in five COVID-19 patients developed mental illness within 90 days of being infected.³ Anxiety, depression and insomnia were most common psychiatric issues among recovered COVID-19 patients. For others, it is the uncertainty of when they would be able to see their families – in Malaysia, or the Philippines or elsewhere – again.

In times like these, mental resilience has to be protected and boosted. TTSH has initiated myriad programmes to

“serve hope” to patients and staff alike. For example, volunteer groups such as TTSH’s Institute of Geriatrics and Active Ageing are invited to virtually “sing” to elderly patients, art facilitators conduct floral artistry and painting sessions for patients and staff. More details are described in Chapter 16.

MENTAL HEALTH

A serious knock-on effect of COVID-19 and the distancing measures it necessitated was isolation. No man is an island, as the saying goes, and being forced to be apart, unable to mingle with others proved challenging, not just for COVID-19 patients but also healthcare workers, who now had to observe new guidelines such as dining alone during lunch break.

The worst-hit group appeared to be the migrant workers – not only because they became physically ill, but their lack of understanding due to the limited translation services available compounded their deepest fears. If they caught COVID-19, would they be sent home without pay? Could they go back to work soon and start earning a salary again? Where would they go if they tested positive for COVID-19?



Bountiful bouquet of flowers bring smiles to many staff.



A staff engaging a migrant worker seeking medical attention.

There was one migrant worker who had lost his brother and his best friend in the same week in India – he was inconsolable. But due to language issues, the staff couldn’t understand why he was so upset.

Among the hospital staff, there were some who were emotionally affected as they could not go home to Malaysia.

Looking out for the mental well-being of patients and staff force was not something a single team could accomplish. For the staff, the 3S team has developed platforms to empower staff to look out for one another, for HODs

to encourage their teams, and for the public’s appreciation to be made known to all the healthcare workers toiling at TTSH-NCID.

“Our strategy was threefold: showing and sharing goodwill; sending out EDMs on maintaining mental well-being and engaging the department heads to be aware of their staff’s state of mind,” explains Karen Kwa, adding that the senior management also participated by writing notes to the staff.

Dominic points out that it wasn’t just staff in TTSH and NCID that experienced this, but also colleagues

What’s very impressive is that people have a strong sense of purpose; they are mission-focused. They put others before self; they come together to support each other ■

DR HUANG WANPING
Head & Principal Psychologist, Department of Psychology

based at Ang Mo Kio-Rehab (AMK-Rehab) and AMK Specialist Centre as well. “Our senior management would also visit and encourage them,” he adds.

“It’s really a *kampung* spirit that’s been forged,” says Dr Huang. “What’s very impressive is that people have a

strong sense of purpose; they are mission-focused. They put others before self; they come together to support each other.”

“Our role,” says Dominic, “is to take care of our staff’s overall well-being with sharing of the goodwill we received being one of the means.”

Staff from the various departments receiving encouragement from the public – including two sisters Elena and Elyssa.



DEALING WITH PAIN, FEAR, LOSS

Ho Lai Peng, Senior Principal Medical Social Worker, Care & Counselling, looked after the emotional needs of patients in long-term isolation and their families. In the ICU, families are separated and cannot see each other, she explains. Some of the family members have also tested positive and are in the hospital as well, but they cannot see each other. So she helps conduct video calls or requests for ward nurses to do the calls, even for those patients who are not conscious.

“We always tell them that the patients can hear what they’re saying, so tell them to say some words to encourage their family members; or sometimes, they do voice recordings. We can use the speaker phone outside the patient’s room to play the voice recordings so that the patient can hear,” she describes.

Lai Peng saw seven of the deaths that happened at the ICU. This final round of communication between the patients and their family was so important, as through her, they could say their final farewells and gain some form of closure.

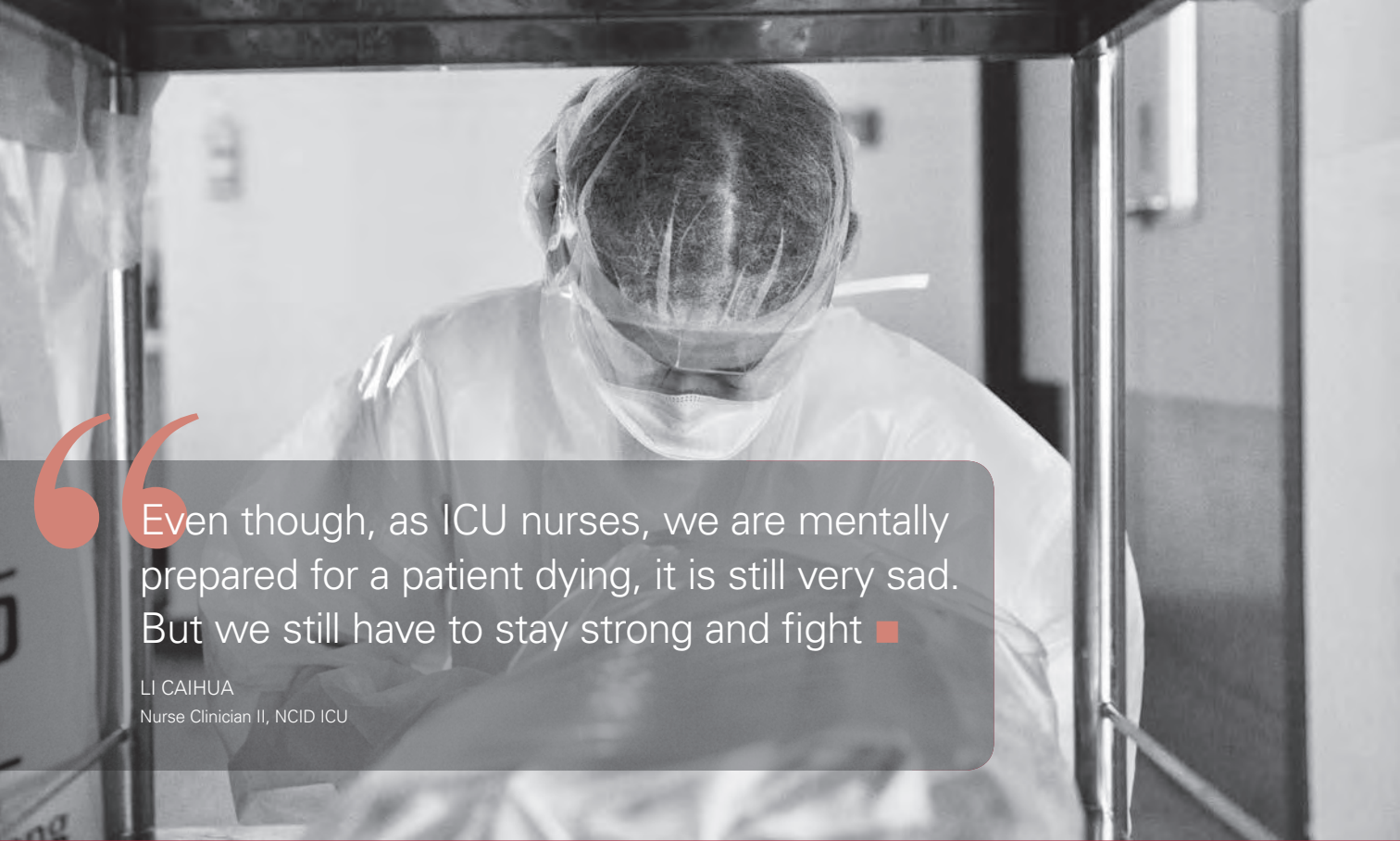
SALUTING THE CARE CHAMPIONS

It may be ironic that when the Circuit Breaker came into effect, psychology and psychiatry were deemed “non-essential services”. Time has proved without a doubt that psychological well-being is a key element in the fight against COVID-19 or any pandemic. At TTSH, these teams – Goodwill teams, the 3S team, the psychiatrists, psychologists, medical social workers – have worked relentlessly to ensure that even in the face of great sickness and death, hope is not lost.

No one knows when “normal life” will return. Notwithstanding, the unconquerable spirit of the courageous and hopeful will prevail. Tough times never last, tough people do!



A nicely framed artwork given by Class 5B1 students from Peicai Secondary School.



“Even though, as ICU nurses, we are mentally prepared for a patient dying, it is still very sad. But we still have to stay strong and fight ■

LI CAIHUA
Nurse Clinician II, NCID ICU

A frontline staff at work.

CARE FOR CARERS: CASTING RESILIENCE

CARERS' BURDEN

“We hope every case would make it. Even though, as ICU nurses, we are mentally prepared for a patient dying, it is still very sad. But we still have to stay strong and fight. And we keep hoping things will improve,” says Li Caihua, Nurse Clinician II at NCID ICU.

It is a tough position to be in: to care for someone who is so sick from

COVID-19 that his major organs have shut down, that he even needs help breathing; and at the same time, to observe as carer the paramount safety and security for one's own sake and that of his family at home.

Having to be in such a situation not for one day, or one week, but for months can take a serious toll on a worker's

physical and mental health. Add to that the fact that there is no end in sight yet for the COVID-19 crisis.

“I will never be numb to death,” says Dr Jennifer Ting, Consultant, General Medicine and Intensive Care Medicine who works in the ICU. “I go through every case and think, ‘What if I am this patient or his/her family member?’ Being reflective is important; don't treat each patient as just a patient.”

BURN-OUTS + DISTRESS

In the face of a pandemic, sacrifices are expected, such as annual leave applications being cancelled. For healthcare workers that have been toiling non-stop throughout the past year, this turn of events can be extremely discouraging and demotivating.

Burnout is real on the frontline – working extra long shifts, sometimes two shifts, answering non-stop messages every waking moment of the day, having to put up with the inconvenience of wearing PPE and exercising safety procedures daily, it all adds up.

Says Karen Kwa, “Early in the pandemic, the staff were impacted by the restrictions. The narrative was largely negative, so there was a lot of fear and anxiety.” The 3S Team huddled. First up was the development of a “Toolkit”, a survival guide to what to expect when

deployed to the frontlines, and how to manage burnout. Next, “we were thinking of a movement to encourage staff to support and affirm each other.”

As mentioned in the main chapter, the Workplace from Meta group's “Spread A Smile” was started simply as a platform for TTSH-NCID staff to share their hearts with their colleagues. “We said, ‘If you know of a colleague who has brought cheer to others, you can share about them on Workplace.’ The page was a success from the moment it was launched.”

For the individuals experiencing a deeper level of distress, there is the 3S hotline, which staff can call to “vent”, as Dr Huang puts it. “On the week when all the leave was cancelled, we got a lot of calls. We gave staff the opportunity to express their unhappiness – they just needed a listening ear.” It wasn't long before the frustration gave way to understanding as the reality of COVID-19 being a global pandemic sank in.

The toughest cases, said Karen Kwa, were those with young children and those caring for very old parents. There was a group of staff that lived in Malaysia that had to make the decision if they would stay in Singapore or go home. Those who chose to stay in Singapore suddenly had nowhere to stay! They needed help. Dominic Tung found himself becoming a “tour agent” who found lodging for these workers.

Healthcare workers are stressed not just by the question of whether they could get infected, The sheer number of patients coming in is weighing quite heavily on them ■

DR HABEEBUL RAHMAN
3S Chairman



Some staff take to running to help upkeep their mental health and general wellness.

Some took to running. In October 2020, 228 TTSH staff members took up the challenge of clocking a total running distance of either 17.5km or 175km on their mobile phone. It was one of the many external running events supported by TTSH's HR Well-being Department to encourage staff to #getmoving and stay fit. Senior nurse clinician Ng Poh Leng, 63, went for the 17.5km category. "When you keep active, you can lose weight, keep the blood sugar down and keep your mind sharp and de-stress. I also hope to be a role model for my patients; you need

to walk the talk," she shares with *The Straits Times*.⁴

Ultimately, says Karen Kwa, "The staff give mental support to each other. There is camaraderie. Team support and team work really help to boost morale and build resilience."

3S: THE CARE WHISPERERS

3S, or Staff Support Staff, was born out of the SARS outbreak in 2003. What began as informal support given to frontline workers was formalised into 3S.

The team today comprises professionals from psychiatry, social work, psychology and human resource.

"Healthcare workers are stressed not just by the question of whether they could get infected," says 3S chairman Dr Habeebul Rahman, to *The Sunday Times*.² "The sheer number of patients coming in is weighing quite heavily on them." Doctors also have anxiety not knowing if the next patient they see might be COVID-positive.

That said, Dr Habeebul noted that the staff of TTSH-NCID seemed to be managing stress much better than expected. Self reported resilience was always rated higher than self reported stress levels in our staff.

Today, "Spread A Smile" is teeming with accolades from staff about staff, listing sacrifices made and bravery shown in the face of COVID-19, such as the Allied Health workers who were deployed to help the Singapore Armed Forces and National Health Group at the migrant worker dormitories; and highlighting physiotherapist Lim Ding Zhi's genius move of getting the migrant workers waiting for their test at the Screening Centre to stretch and move after hours of sitting.

The fact that healthcare workers recognise the importance of even small efforts that are made to improve all sorts of situations is a great morale booster for their colleagues.

STRONGER

In the face of adversity, the staff of TTSH-NCID has shown its true colours – courage, resilience and gratitude. In the words of Dr Habeebul, "Don't underestimate how much you can stretch. At the start, staff who had been unsure, worried and afraid two or three weeks before, were showing up for work, putting on their PPE, and working hard uncomplainingly for a common purpose."

Whatever doesn't kill one makes one stronger. The community and TTSH-NCID are both stronger a year into the battle: more resilient, more empathic and more selfless than before.



A post shared on internal platform, Workplace from Meta, on leading migrant workers to do stretching exercises.



WORDS: INSPIRING COURAGE AND HOPE

Never underestimate the mysterious “therapeutic” impact of words. Every well meaning word inspires courage and hope. It serves as a bulwark to keep every frontliner and backliner strong.

No words are too insignificant. The consideration, appreciation and prayer

behind each and every word epitomise the splendour of the human soul.

No one knows when “normal life” will return. Notwithstanding, the unconquerable spirit of the courageous and hopeful will prevail. Tough times never last, tough people do. ■

Every card of encouragement is precious and deeply appreciated.



Farah Nadia Binte Moheden
19 March 2020
The COVID-19 had never stopped us. Since we can't shake hands, let's all "shake legs"! ENT HOD Prof Yeo seng Bang was happy to present token of appreciation to all staff who obtained positive compliments from patients despite the coronavirus situation. This shows our determination of persevering in providing quality care of patients.

Lai Kai Eng
17 March 2020
You can't see our smiles behind the masks, but you can see it through our eyes. Feeling thankful to be working with awesome colleagues throughout this difficult situation. #spreadasmile #hashtag #NHC

Foo Pei Ling is feeling delighted with Irene Eye and Sim Jin Yen.
12 March 2020
Thank you, HR wellness for coming over to Clinic 5A to distribute flowers from Bryan and Maria Chew share International Pte. LTD. SPREADING THE SMILE to our lovely colleagues!! You can see the twinkle in their eyes!!

Wong Hui Mei
10 March 2020
Care & Counselling Dept celebrates Social Work Day today! This year is a special one for us - we had a virtual celebration with #SMW holding forums at various sites and team #MSG MDs devoted to #spreadasmile & some cheers to our colleagues at #AMSCU. Hope the special appearance of our cute Pooh Bear made your day team #MSG. "A little Consideration, a little thought for others, makes all the difference." -Winnie the Pooh.

Anthony Low Chal Siong is with Muhamad Faizal Bin Mohd Fakhri.
10 March 2020
While we were performing our VES duty at ED during the wee hours, Faizal from ED bought us drinks and ice cream for our breaks!

Leong Siyun
9 March 2020
Always remember to #spreadasmile! To all TTSH and NCID staff, thank you for working tirelessly around the clock in keeping Singapore healthy and safe!

HAPPY #HASHTAGS

A sampling of workplace posts - of smiles created and shared.



SING! SMILE!

SING! MUSIC TO THE SOULS

Music Rocks!

Even in the worst of times, music has the power to heal, bring comfort, give strength, and sometimes, bring on a chuckle or a smile. In the midst of the pandemic, Singapore saw many songs written and sung about the COVID-19 situation, by and in tribute to all those fighting the virus on the frontline.

Singers JJ Lin and Stefanie Sun boarded the bandwagon first in February 2020, writing and recording their song “Stay With You” for the people of Hubei when the whole city was locked down.¹ Gurmit Singh, as Phua Chu Kang, gave Singapore the “SAR-vivor Rap” in 2003,² and he followed up with “Singapore Be Steady” when COVID-19 hit.³ As #SGUnited started to trend, media giant MediaCorp also recorded and released “The Light”,⁴ a ballad that paid

“My deepest thanks to all of you for your dedication and commitment to save lives and bring comfort to the ill and infirm ■

PRIME MINISTER LEE HSIEN LOONG
In his 7 April 2020 Facebook post

A sense of gratitude among the staff for the public outpouring of encouragement and appreciation.

“ I love sound; I believe they are an underrated and understated element that make the human experience ■

INCH CHUA
Singer-songwriter

tribute to all frontline workers. Every day, Singaporeans also expressed their hopes and encouragement with song, including Primary Six student Jacob Neo, from Fairfield Methodist Primary School, who wrote an original song “Singapore, United As One” to pay tribute to those sick with the virus, their families, caregivers and healthcare workers toiling to treat patients.⁵

TODAY Online reported on 14 March 2020 that “the long shifts get more bearable these days, thanks to morale boosters coming in the form of

food, presents and ‘thank you’ notes from members of the public – a marked change from before when some healthcare workers donning their uniforms found themselves being ostracised in public. The nurses and doctors said they are thankful for the chicken rice, nasi lemak, cookies, bubble tea, skin care products and flowers, among other things, that come their way.”⁶

Inch Chua, a singer-songwriter, wrote a special song “Rhythm of the Brave” in celebration of TTSH Founder’s Day on 27 July 2020. Blending the sounds

Singer-songwriter Inch Chua recording her song in her studio, weaving the “sounds” she recorded on the frontline.



Dr Valerie Tay Su-lin leads a team of colleagues singing “Home Away from Home”. Screenshot: YouTube.

recorded from the various parts of the hospital campus – kitchen, wards, linen department, facilities, etc. – she turned what would have been “mundane, ordinary” beats into music of love, courage, friendship and camaraderie.⁷ On a TTSH Facebook post, she says, “I love sound; I believe they are an underrated and understated element that make the human experience.”

Home Away From Home

In March 2020, 70 healthcare workers from seven hospitals recorded and shared a video of themselves singing Dick Lee’s “Home”, dedicating the video to all Singaporeans and healthcare workers.

The brainchild of Dr Valerie Tay Su-lin, Senior Consultant, Department of Otorhinolaryngology (Ear, Nose, Throat), the video was put together over five days, and received 10,000 views in a matter of days. “I saw that many healthcare workers were getting rather concerned about COVID-19... The man on the street was also getting anxious and isolated as the outbreak progressed,” she told *The Straits Times*. “I felt that a collaborative effort to raise our spirits would be useful. Despite the physical distancing measures, we have to continue to reach out to one another to promote social solidarity.”⁸

I was cheered by this video of 'Home' sung by around 70 of our healthcare workers, and dedicated to all Singaporeans and fellow healthcare workers ■

PRIME MINISTER LEE HSIEN LOONG

*When there are troubles to go through
We'll find a way to start anew
There is comfort in the knowledge
That home's about its people too
So we'll build our dreams together
Just like we've done before
Just like the river which brings us life
There'll always be Singapore*

*This is home truly
Where I know I must be
Where my dreams wait for me
Where that river always flows
This is home surely
As my senses tell me
This is where I won't be alone
For this is where I know it's home*

An extract from the song lyrics "Home" by Dick Lee.

Prime Minister Lee Hsien Loong, in his 7 April 2020 Facebook post, writes, "Today is World Health Day . . . This year's theme celebrates the work of nurses and midwives – a fitting one to salute the healthcare professionals working selflessly and tirelessly to care for patients in the midst of the Covid-19 pandemic . . . I was cheered by this video of 'Home' sung by around 70 of our healthcare workers, and dedicated to all Singaporeans and fellow healthcare workers. Glad to see them positive and in good spirits during these tough times. My deepest thanks to all of you for your dedication and commitment to save lives and bring comfort to the ill and infirm."

In May 2020, the virtual choir named JOY, which stands for "Just Older Youths", made up of senior friends of the Institute of Geriatrics and Active Ageing, recorded a virtual performance of Louis Armstrong's "What A Wonderful World". The video was dedicated to frontline healthcare workers and all those working to keep Singapore safe.

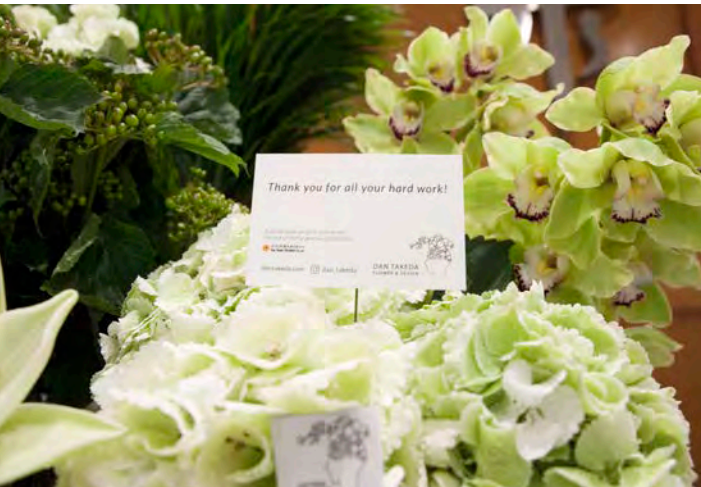
ART REFRESHES

Like music, art can be a breath of fresh air to the tired soul. Karen Kwa, Head and Principal Medical Social Worker, Care & Counselling, who is part of the 3S Team, shares that art jamming sessions were made available to the staff

of TTSH, with volunteer artists guiding the staff through their art sessions. One of the themed sessions was on "Your COVID-19 Experience", which allowed staff to reflect and express their thoughts and emotions. "We used different strategies to help the staff destress," she explains.



Entitled "Front line heroine" and painted by James Steward (May 2020), this art piece features TTSH Assistant Nurse Clinician Ong Zh Hua, with a message: "This painting is dedicated to all the frontline staff who often work long stressful shifts, wearing uncomfortable PPE and put their own health at risk in order to screen and care for patients infected with COVID-19 and other dangerous pathogens. Thank you."



Floral arrangement artfully crafted and donated by Dan Takeda.

The artistry of nature has also lifted spirits in this journey. Beginning February 2020, the TTSH staff received flowers and cards from the public – the fresh scent and the sight of nature’s beauty brought a smile to the faces of many. In June, Dan Takeda Flower & Design created thank-you floral sculptures for the lobby area of the hospital, bringing exquisite greenery and beauty into the middle of TTSH.

“Flowers always have a way of reaching into our hearts and bringing a smile to our faces. Thank you Dan Takeda for your gift, and bringing joy to our hospital through your floral artistry, #SingaporeTogether,” writes the hospital on its Facebook page.



“Containment” by Puah Ser Hon. “Control is elusive and always to look as if it is slipping through our very fingers.”



Migrant workers are encouraged to express themselves through art, as part of art therapy.

“This is home surely, as my senses tell me. This is where I won’t be alone, for this is where I know it’s home ■

AN EXTRACT FROM THE SONG LYRICS “HOME” BY DICK LEE

THE NATION SINGS

In April 2020, as Singapore battled the large numbers of infections in the migrant worker dormitories, there was a fresh awareness and appreciation of the sacrifices made by these migrant workers.

On 25 April 2020, the nation came together to dedicate “Home” to these workers and healthcare workers in an islandwide sing-along session of the song

at 7.55pm, while waving torchlights from their windows or balconies. The special edition featured its composer Dick Lee, singers Rahimah Rahim, Shabir and Taufik Batisah, a 900-strong choir from non-profit arts group Voices of Singapore, as well as other artists.⁹ It was a beautiful celebration of hope in the midst of one of Singapore’s worst health crises – a show of resilience and strength in this nation.



Singaporeans and residents from all walks of life come together to sing to support all the healthcare workers and migrant workers. Screenshot: YouTube.

#SPREAD A SMILE

THE MAGIC OF A SMILE

As the saying goes, “A smile is the shortest distance between two people.” This is especially poignant at a time when safe distancing has become a necessity and a way of life. A smile communicates connection and care without touching, yet it has the power to touch a person’s heart and say, “I see you. I appreciate you.”

Staff welfare and well-being at TTSH-NCID is central to TTSH’s mission of delivering excellent patient care experience. It’s part of the *kampung* spirit – having each other’s back and caring for each other. Besides, the HR Well-being Department and the 3S Team, a special Staff Well-Being Group was formed on 2 February 2020, comprising teams that led group-up movements throughout the hospital to create morale boosters for the staff – that is – to inspire a “smile”!



A workplace post to spread a smile.

#SPREAD A SMILE

The #SpreadASmile campaign, kickstarted by the SAS¹⁰ Team in March, introduced the magic of cheer into a workplace constantly soaked in tension and exhaustion, especially during the COVID-19 peak. Staff from the Departments of Care and Counselling, Psychology, Psychiatry, Clinical Standards and Improvement and HR Well-being made up the SAS team.

Set up with the aim of encouraging TTSH-NCID staff to bring cheer to each other, the campaign was launched on



#SpreadASmile campaign mascots Miley and Smiley (top) are created by designer Tammy Chew. Photo: www.teechewpaper.com. A note to spread a smile (bottom).



A staff appreciating a gift donated by the public.

Workplace from Meta on 20 February 2020 with a pair of specially-designed mascots. Response was overwhelming – over a hundred touching and encouraging posts were uploaded in the first week alone, and many smiles were shared.

Tammy Chew, the designer who created the campaign mascots Miley and Smiley, explains on her website,¹¹ “During the COVID-19 outbreak, our healthcare workers in Singapore worked tirelessly on the frontline to care for patients. Likewise, it is important to look after their well-being. TTSH rolled out an internal staff welfare campaign and I volunteered to design the mascots. It’s my tiny way of saying ‘thank you’ and hopefully to bring some smiles.”

GOODWILL MOVEMENT

Amazingly for the three weeks following Valentine’s Day in February 2020, the hospital turned into an overflowing flask teeming with overwhelming goodwill from the community. There was a ground swell of support for healthcare workers. From food to flowers to artworks to care packages, TTSH staff were blessed with kind gestures of appreciation and support from the community. Drawings, cards, collages, sculptures and more, displayed around the hospital, reminded TTSH-NCID that they were not alone during this difficult time.¹²

The Goodwill team from HR Well-being helped to handle the outpouring



TTSH #HealthcareHeroes Movement honours staff who fight against COVID-19. It has become a community movement to support all healthcare workers.

of love and support while the team from the Centre for Health Activation managed the collection points outside the hospital entrances. Together they worked untiringly to bring the community goodwill to all four corners of the hospital.

#HEALTHCAREHEROES MOVEMENT

On Valentine’s Day, every member of the staff received a Healthcare Heroes badge to recognise their efforts in the fight against COVID-19 – a symbol of appreciation for every staff member that many wore proudly as they went about their work.

What started as a simple movement by the Well-Being Group was soon adapted by the greater community. The Ministry of Culture, Community and Youth (MCCY), the People’s Association, and DBS Bank were among those that helped turn #HealthcareHeroes into a community movement supporting all healthcare workers. Residents of Singapore had the opportunity to express their gratitude to healthcare workers through artworks and other creative methods. These were collected and displayed for the staff to enjoy, to cheer them on.

YOU’RE APPRECIATED!

True blue Singaporeans show their love through food. In appreciation of healthcare workers, businesses like Gong Cha and Killiney Kopitiam offered free or discounted food and drinks to TTSH staff. Gong Cha, for example, gave out 5,000 Mango Teas at \$1 each, while Michelin-starred restaurant Labyrinth teamed up with Hey Yogurt to gift food and drinks to the NCID staff for two months.¹³ Businessmen also chipped in. Billionaire Peter Lim picked up a tab for \$1 million of meals for hospital staff, in a show of appreciation and support for their work. Priority was given to housekeeping staff, patient care assistants and ambulance drivers, people whom Peter described as “unsung heroes”.¹⁴

Hwa Chong Junior College’s alumni association galvanised its membership to show appreciation to the staff of TTSH-NCID. The association raised funds to purchase \$10 vouchers for 700 NCID frontline staff. An alumnus of the school also donated 1,000 Toastbox \$5 vouchers for NCID. Other alumni gifted cookies, Chinese tea and alcohol wipes to the hospital staff as well.

Visits to the “epicentre” of Singapore’s outbreak response were earlier made by Cabinet Ministers and community leaders. PM Lee visited NCID and TTSH on 31 January, followed by the Multi-

Ministry Task Force Co-Chairmen, then Health Minister Gan Kim Yong and then-National Development Minister Lawrence Wong (now Education Minister), Labour Chief Ng Chee Meng, and many others, in the months of February and March.

Appreciation for healthcare workers culminated in a grand, extraordinary fashion. For the first time ever, on NDP 2020, six RSAF F-15 fighter jets soared around the island over eight hospitals – including TTSH – as a tribute to frontline and essential workers amid the COVID-19 pandemic.¹⁵ “The ‘Roar Of Unity’ signifies the nation is remaining united as we celebrate National Day. We want to give tribute to our frontline fighters and essential workers that keep us going during this period and we salute them for their resilience, dedication and sacrifice,” Lieutenant-Colonel



Then Health Minister Gan Kim Yong engaging the staff during his visit to the hospital.



TTSH-NCID staff gathered to mark the exceptional National Day 2020, with six RSAF F-15 fighters roaring over the hospital.

Tan Boon Hong, deputy chairman of air participation and flying display marshal, shared with *The Straits Times*.

Finally, on 2 February 2021, national COVID-19 frontliners working long hours and beyond the call of duty to keep Singaporeans safe amid the pandemic were collectively named “The Straits Times Singaporean of the Year 2020”. Represented by NCID Executive Director Prof Leo Yee Sin and nurse clinician Abdul Wahab, among many, they received

the award from President Halimah Yacob at a ceremony held at the Istana.

CONCLUSION

Since COVID-19 hit Singapore in January 2020, there has been no let up of widespread support from the community for frontline and backline workers battling the pandemic. From the young to the old, people from all walks of life have come together to stand with healthcare workers

and those infected with COVID-19. It is evident from the never-ending outpouring of messages of appreciation and encouragement, and gifts – to remind them that they are not alone in their journey – that their efforts, sacrifice and fight have not gone unnoticed.

“I am heartened by the various community support and ground-up movements which have nourished our hearts for the journey ahead. I can now see the Smiles behind

our Masks. Our staff have pulled together to support one another. This is our *Kampung Spirit* and we are *#StrongerTogetherBetterTogether!*” writes CEO Dr Eugene Soh in his *CEO Tribune*¹² and Facebook post on the one-year anniversary photo exhibition held at TTSH Atrium from 22 January to 4 February 2021. ■

LIVING WITH COVID-19

FACING A LONG COVID-19 BATTLE

The bad news is that COVID-19 may never go away. The good news is that it is possible to live normally with it in our midst. This means COVID-19 will very likely become endemic,” wrote the three Co-Chairs of the Multi-Ministry Taskforce (MTF), Trade and Industry Minister Gan Kim Yong, Finance Minister Lawrence Wong, and Health Minister Ong Ye Kung, in *The Straits Times*, on 24 June 2021,¹ after 18 months of battling the once-in-a-generation pandemic.

Living with COVID-19 in the foreseeable future has been deemed by leaders and infectious disease experts around the world as a plausibility. This is especially so when the Sars-CoV-2 virus continues to evolve and has mutated over 6,600 times since it emerged in December 2019.²

“The bad news is that COVID-19 may never go away. The good news is that it is possible to live normally with it in our midst ■

MULTI-MINISTRY TASKFORCE (MTF)

With the surge in community cases, TSH Emergency Department had to set up a makeshift holding area to conduct screening for patients.

But what does it mean to *live normally* with COVID-19?

TTSH-NCID, being the vanguard hospital battling the disease, would have to reframe its perspectives, principles and posture with respect to its HOM measures in order to prioritise the safety and well-being of its patients and staff.

PRIORITIES: PATIENTS AND STAFF'S WELL-BEING

At the time of writing (22 January 2022), the number of recorded COVID-19 cases around the world were inching towards the 350-million mark, with COVID-19-related deaths over 5.5 million.³ In Singapore, the number of COVID-19 cases had crossed the grim 300,000 mark, with COVID-19-related deaths standing at 846.⁴ Its daily COVID-19 cases and related deaths, brought about by the Delta variant and the emerging Omicron variant,⁵ required continued vigilance even as the nation entered the “Transition Phase” on 22 November 2021.⁶ Meanwhile, to better manage healthcare system capacity, the Taskforce is planning to nearly double the number of designated facilities for close contacts of COVID-19 cases if necessary. This is to prepare for a possible surge in infections due to the Omicron variant.⁷

The Sars-CoV-2 variants, in particular the dominant Delta and



“Singapore cannot let up in its fight against the disease. If I did 100 percent in 2020, this year I have to do 200 percent – because that is what the Delta variant demands of us ■

PROF LEO YEE SIN
Executive Director, NCID

The surge in community cases also saw NCID expanding its screening capacity.

highly transmissible Omicron variants, are proving to be a stern challenge for many countries to return to “normal”. There has been news of a resurgence of COVID-19 cases in some countries, prompting the re-introduction of stricter movement restriction measures. Reports of breakthrough and asymptomatic infections among the vaccinated have been reported as more studies are

being carried out to investigate the purported risk.⁸

All of this shows that in order to keep the nation safe, efforts to deal with the disease must remain relentless. This means unabated rolling out of vaccination and booster programmes, and establishing robust testing and treatment regimes across the island. On 29 August 2021, the COVID-19 vaccination rate in Singapore

reached a new milestone, with 80 percent of the population having received two doses of the vaccine, making it one of the few nations to do so. It reached 91 percent vaccination rate among the eligible population as of 21 January 2022.⁹

Nonetheless, given the higher virulence of the Delta variant (and now Omicron) that are dominant in the city state, “Singapore cannot let up in its fight



Non-nursing staff being trained under the para-nursing initiative, where volunteers help to ease the strain on the nursing workforce.

against the disease,” warns Prof Leo Yee Sin, Executive Director, National Centre for Infectious Diseases (NCID). In her interview with *The Straits Times* to commemorate NCID’s second anniversary, she observes, “If I did 100 percent in 2020, this year I have to do 200 percent – because that is what the Delta variant demands of us.”¹⁰

In a stark reminder, she adds, “We cannot solely rely on vaccines.” That means a person, even if he or she is vaccinated against COVID-19, should keep his or her mask on, hands clean and guard up.

BEING READY AGAIN

For the hospital, in response to the nation-wide measures to stem the spread of community cases, it meant being ready to provide the necessary capacity to handle the surge in COVID-19 caseload, alongside its continued care for BAU patients.

For instance, during the Phase 2 (Heightened Alert) period between 22 July and 18 August 2021, amid growing and emerging COVID-19 clusters, TTSH-NCID worked closely with MOH to ramp up its COVID-19 operations.¹¹

It was tasked to operate 320 isolation/general ward beds (NCID and CDC2) and increase outbreak ICU capacity. Contingency plans were also put in place to add bed support if and when necessary. Coordinating with MOH, it facilitated the appropriate direct admission and transfers to Community Care Facilities (CCFs), so that the hospital could preserve its beds for those who required hospital care.

Ominously, what had been forecast by the MTF – that Singapore could possibly confront 5,000 new or more COVID-19 cases daily – was becoming a plausible reality.¹² The month of September saw 40 deaths, a new monthly record, with the latest daily new cases spiking above 2,000.¹³ While statistically only 0.2 percent of infected cases would need ICU treatment, 10 percent of patients, particularly the vulnerable such as seniors and those with underlying co-morbidities, would need hospital beds. That meant 500 people might need to be warded for at least a week.¹³

What did all of this mean for hospitals?

Ramping Up Capacity

“We at TTSH-NCID have come full circle in our hospital’s response to COVID-19 to another full-scale activation,” CEO Dr Eugene Soh told the staff.¹⁴

For TTSH-NCID, which handled approximately 35 percent of COVID-19 related hospital admissions nationally,¹¹ it meant urgent re-configuration and ramping up of capacity for COVID-19 patients, and temporarily scaling down BAU capacity. It was a difficult but necessary decision, in the face of anticipated larger base of community COVID-19 cases, and correspondingly, more COVID-19 patients requiring supplementary oxygen and intensive care.

TTSH standby Outbreak ICU (OICU) beds were increased to 90, with a contingency plan to ready 256 OICU beds. Likewise, beyond the two ICU wards (38 beds) at NCID, its general ward beds were converted to ICU-capable beds – with increased manpower support. BAU workload was significantly reduced at TTSH: closing of BAU wards to re-deploy the manpower, and re-opening



Conversion of L11 wards into COVID-19-ready wards.

main TTSH wards on Levels 7 and 11 as COVID-19 beds (to replace those converted to Outbreak ICU beds at NCID). Overall, TTSH-NCID had to pivot more beds, resources and manpower to support COVID-19 operations. It was a mammoth operation on multiple fronts.

At the same time, the hospital also purpose-built an Open Decon Facility to expand its assessment area and opened the NCID Screening Centre (SC) to hold COVID-19 patients awaiting admission or transfers to CCFs. It also set up tents at the Emergency Department (ED) and SC, ready for a further surge of community cases.

Enhancing Staff Support

The new COVID-19 spike in community cases had placed a palpable strain on the staff. Just four months after combatting the COVID-19 cluster within its own battle line, they had to once again ready themselves for another tough fight.

For the 12,000 TTSHians, they had to make sure they care for and protect themselves well in order to care for patients well. The leadership was acutely aware of the pressing need to look after the staff's well-being. Many, from junior staff – doctors to nurses to allied health to support staff – to senior colleagues, HODs and managers had to confront ongoing changes and

a slew of constraints. Everyone was desperately stretched.

To reach out to and support the staff, various HR policies (such as QO and LOA), infection control and safe management measures were initiated to ensure staff's safety and well-being. These essential measures, elaborated earlier in Chapter 4, included rostered routine testing, seeking medical treatment when unwell and “eat alone”, together with access to 3S (Staff Support Staff) and other welfare programmes.

To further enhance staff support, the hospital also rolled out three initiatives:

- Cancel or reschedule all non-essential meetings and training during this period;
- “Project Recharge!” including self-care journals, a wall of reflection, food and beverages;
- “Mental Well-Being Day Off” to appreciate staff's hard work.

All of this was aimed at nurturing the emotional resilience of and support for the “We Are TTSH” family.

RING-FENCING SAFE SPACE

The one-and-a-half-year battle against the scourge of COVID-19 has tested every imaginable HOM protocol TTSH-NCID has painstakingly conceptualised and

rolled out. Yet, while “battle-hardened” to a certain degree, there is no room to relax. The rigour of “being ready, to respond, to recover, only to be ready again”¹⁵ must persist in the face of a virus that defies predictability.

The hospital will summon all its resources and resolve to build itself into a nimble, intelligent nexus of people, data/information and technology/systems to ring-fence safe spaces for its patients and staff.

There are no “convenient” alternatives. To be *ready* 24/7 means forward planning and preparing capacity and staff for every possible outbreak scenario; to *respond* effectively means establishing strategies, measures and functionalities that cover safety, systems, scalability, surveillance and sustainability; and to *recover* well means putting in place continuing measures to protect the well-being of patients and staff, and innovating care models that correspond to the prevailing COVID-19 situation.

COLLECTIVE LEADERSHIP = KAMPUNG SPIRIT

The journey for TTSH-NCID has been arduous since the onset of the COVID-19 battle. Fraught with unprecedented and desperate challenges, even the best efforts poured in to contain the spread could still miss the mark at some points.

Nonetheless, each new wave of setbacks stirs a fresh, defiant “togetherness spirit”, from the frontline to the top-line in the hospital. This is where the culture of collective leadership defines TTSH's *kampung* spirit.

CEO Dr Eugene Soh observes, “Collective leadership is what that has been holding us together and keeping our people moving. It is relationship building and empowering leadership at all levels of our organisation. We do that through building a collective leadership model, where we encourage and enable our staff to engage well, to work in teams, and to work across teams.”¹⁶

All said, no plan ever follows to a tee in any outbreak. At TTSH-NCID, what really holds is its collective, bonded response. Premised on constant nurturing of trusted and caring relationships in



Project Recharge! was part of an ongoing support for staff to promote their well-being.

“ Collective leadership is what that has been holding us together and keeping our people moving. It is relationship building and empowering leadership at all levels of our organisation ■

DR EUGENE FIDELIS SOH
CEO, TTSH & Central Health

between outbreaks, staff from different parts of the organisation rise to the occasion to lead and perform in different areas. These relationships form the foundation to ensure the hospital remain resilient, agile and battle-ready at all times.

Two examples epitomise collective leadership. To relieve nurses stretched by the pandemic, about TTSH’s 150 staff stepped up to be trained in some nursing duties to ease the strain on its nursing workforce. The para-nursing initiative, launched in September 2021, allows these staff, known as para-nurses and who come from various backgrounds, to temporarily carry out less-specialised but essential nursing tasks, such as providing close bedside patient care, collecting data on patients’ vital signs, assisting with turning patients in their beds, and collecting blood samples from patients.¹⁷ TTSH Chief Communications Officer Jennifer Yap, who did a two-hour stint as a “sitter” for elderly inpatients at Ward 7B, reflects, “The little things that we do day in day out for patients are not

insignificant. For the uncles and aunts, we are standing in for the families not by their sides.”¹⁶

Another example is the Swab Operations Rapid Response Initiatives (SORRI). Conceived at the start of the TTSH COVID-19 cluster, the SORRI team members huddled to strategise, coordinate and implement a slew of containment initiatives and implementations to protect and trace the entire 12,000-strong TTSH staff population. These included setting up the swab sites, planning the three staff swab sweeps and instituting Rostered Routine Testing (RRT) regimens.

The pandemic has taken a weighty toll on everyone at TTSH-NCID. However, with collective leadership – TTSH’s *kampung* spirit – the staff have displayed an indomitable yet selfless spirit to work together within, across and beyond the hospital walls.

In the end, the bond forged by collective leadership is stronger than the scourge of the virus.



A big banner to cheer on TTSH staff.

LIVING WITH COVID-19

As Singapore enters into a transition stage of living with COVID-19 as an endemic¹⁸ – referring to diseases that are constantly present within a population, with infection rates maintained at a predictable rate – every resident, firm and healthcare institution would need to adjust its lens – in seeing COVID-19 just like other common diseases such as dengue fever or influenza, and learn to live with it through “public health measures and personal precaution”.¹⁹

While the vaccination rate in the city state has reached 90 percent, vaccination

(including booster shots),²⁰ regular testing, restriction of social gathering and workplace social interactions remain imperative. This is largely due to the dominant Delta variant, which accounted for 99.6 percent of the COVID-19 cases in Singapore between April and August 2021, and thereafter to the highly infectious Omicron variant beginning 2022.²¹

In the end, for TTSH-NCID, it will unceasingly work with MOH, its community partners, and rally its “We Are TTSH” spirit to keep doing what it has been doing for over 177 years – delivering better care for patients. ■



WE ARE TTSH

COVID-19 pandemic could last four to five years.” The grim prognosis was given by then Education Minister (now Finance Minister) and Co-Chair of the COVID-19 Multi-Ministry Taskforce Lawrence Wong when he spoke at the Singapore Perspectives 2021.¹ Going back to post-COVID-19 normal will take time and nobody knows exactly how long it will be. Nothing is certain.

Nonetheless, one thing is certain: for TTSH-NCID, as the 10,000 voices set their minds and hearts to *come together, stay together, work together, and help each other*, they are *stronger together*. This “collective strength” inspires everyone at the hospital to keep serving its patients and protecting the country – regardless of times – “peacetime” or “pandemic”.

Indeed, “we will not rest” aptly epitomises the spirit of the hospital since its inception in 1844.

From being the “Chinese Pauper Hospital” serving the poor and needy during Singapore’s colonial era to becoming the “People’s Hospital” serving 1.4 million residents in the Central Region today, TTSH has evolved to become the second largest acute 1700-bed hospital and the vanguard of national outbreak management. Notwithstanding these striking developments over the decades, it is the hospital’s timeless mission of “doing our best to serve, care and heal” that endures. It steadfastly stirs every TTSHian to fight valiantly in its long history of battling outbreaks and single-mindedly care for patients.

COVID-19 is no different. While it is dubbed by Prime Minister Lee Hsien Loong as “a crisis of a generation”² and severely tested the resilience of everyone, COVID-19 will not daunt the frontline and backline workers at TTSH. In fact, it has presented the 177-year-old institution a rare opportunity to revitalise itself.

The stories captured in the book – the personal and corporate sacrifices made to fight COVID-19; the amazing “working as one” teamwork across hierarchies and departments; leadership in every nook and corner of the hospital campus; the unrelenting focus to care

for patients in spite of inconveniences and barriers; compassion to connect virtually dying patients with their loved ones despite social distancing measures; envisioning a “Hospital without Walls” so care is delivered uninterrupted; the dare to reimagine care post-pandemic – all of this is testament of TTSH’s ethos of “delivering compassionate care” and its resolute quest to break new “care frontiers”.

It is not for any recognition, accolades, or even any sense of “achievement”. It is staying true to its tradition of “caring for the least” by “doing its best”.

The COVID-19 pandemic has presented TTSH with an extraordinary opportunity to renew and reinvigorate its *kampung* spirit, upon which the hospital is built. Together, it has confronted countless outbreaks for more than 175 years, and each time, it prevails. COVID-19 will be no different.

Let’s not fear. Let’s stay strong. “We Are TTSH” will prevail.

Coming together – as one – we become *stronger together; better together*. This would have been a purposeful “outcome” – a most noteworthy gift – TTSH can ever receive from COVID-19. ■



Colleagues coming together as a TTSH-NCID family, affirming each other for their valiant efforts in fighting COVID-19.

REFERENCES

INTRODUCTION

- 1 <https://www.worldometers.info/coronavirus/?%22>. Retrieved on 22 January 2022.

CHAPTER 1

- 1 <https://www.worldometers.info/coronavirus/?%22>. Retrieved on 22 January 2022.
- 2 <https://covidstrep.moh.gov.sg>. Retrieved 22 January 2022.
- 3 Agency for Science, Technology and Research.
- 4 <https://www.straitstimes.com/singapore/health/coronavirus-made-in-singapore-diagnostics-test-implemented-at-hospitals-here>
<https://www.a-star.edu.sg/News-and-Events/a-star-news/news/covid-19/from-singapore-to-the-world-where-fortitude-kit-has-been-deployed-globally>
- 5 <https://govinsider.asia/smart-gov/ihis-tan-tock-seng-hospital-national-centre-for-infectious-disease-exclusive-inside-singapores-covid-control-centre/>
- 6 <https://www.straitstimes.com/singapore/lessons-from-a-pandemic>
- 7 <https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>
- 8 <https://www.bbc.com/news/uk-55227325>
- 9 <https://www.asiaone.com/lifestyle/complete-guide-vaccines-approved-who-and-ema>
https://en.wikipedia.org/wiki/List_of_COVID-19_vaccine_authorizations. Retrieved 13 October 2021
https://extranet.who.int/pqweb/sites/default/files/documents/Status_COVID_VAX_18May2021.pdf
- 10 https://www.gov.sg/article/securing-singapores-access-to-covid-19-vaccines?utm_source=Google&utm_medium=cpc&utm_term=%7B%7D&utm_content=Vaccines&utm_campaign=JnEadditional
- 11 <https://www.channelnewsasia.com/news/singapore/singapore-approves-pfizer-biontech-covid-19-vaccine-phase-3-13769570>
<https://www.hsa.gov.sg/announcements/press-release/interimauth-firstcovid19vaccine>
- 12 <https://www.todayonline.com/singapore/moderna-covid-19-vaccine-approved-use-singapore-first-shipment-expected-march>
- 13 <https://www.channelnewsasia.com/news/singapore/covid-19-first-vaccinations-ncid-healthcare-workers-pfizer-13864346>
- 14 <https://pubmed.ncbi.nlm.nih.gov/34033342/>
<https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/a-new-strain-of-coronavirus-what-you-should-know>
<https://www.nytimes.com/interactive/2021/health/coronavirus-variant-tracker.html>
<https://www.straitstimes.com/singapore/health/omicron-could-be-dominant-covid-19-strain-in-spore-in-2-months-expert>
<https://www.straitstimes.com/singapore/health/singapore-likely-to-see-significant-omicron-wave-measures-in-place-to-cut-risks>
- 15 Stories in #StrongerTogetherBetterTogether.

CHAPTER 2

- 1 www.ttsh.com.sg/About-TTSH/Pages/Corporate-Profile.aspx
- 2 TTSH, NCID battle plan passes test. *The Business Times*, 12 June 2020.
- 3 CEO's Founder's Day Post.
- 4 CEO Tribune, 24 July 2020.
- 5 <https://www.straitstimes.com/singapore/health/hospitals-should-have-flexible-designs-to-adapt-to-changing-needs-says-gan-kim-yong>
- 6 Book interview with CEO, 15 September 2020.
- 7 <http://www.smj.org.sg/sites/default/files/4405/4405e1.pdf>

CHAPTER 3

- 1 <https://www.straitstimes.com/singapore/health/coronavirus-hospitals-convert-wards-speed-up-nurse-training-to-cope-with-surge-in>
- 2 <https://www.straitstimes.com/singapore/lessons-from-a-pandemic>
- 3 <https://www.straitstimes.com/singapore/health/battle-with-covid-19-a-baptism-of-fire-for-ncid>
- 4 <https://www.straitstimes.com/singapore/jurong-west-secondary-student-not-infected-with-covid-19-ttsh-says-it-made-a-mistake>
- 5 TTSH, NCID battle plan passes test. *The Business Times*, 12 June 2020.
- 6 <https://www.straitstimes.com/singapore/health/covid-19-vaccination-milestone-of-80-may-see-further-easing-of-restrictions-experts>
- 7 <https://www.straitstimes.com/world/silent-nights-how-some-countries-are-coping-with-covid-19-amid-surge-during-christmas-season>
- 8 <https://www.bbc.com/news/world-europe-55452262>

CHAPTER 4

- 1 <https://www.straitstimes.com/singapore/health/ttsh-covid-19-cluster-five-patients-have-india-variant-of-virus>
- 2 <https://www.moh.gov.sg/news-highlights/details/3-new-cases-of-locally-transmitted-covid-19-infection-28apr2021-update>
<https://www.straitstimes.com/singapore/tan-tock-seng-hospital-nurse-doctor-and-three-patients-in-general-ward-test-positive-for>
- 3 <https://www.straitstimes.com/singapore/28000-tested-in-effort-to-detect-cases-linked-to-ttsh-cluster>
CEO Townhall, 6 May 2021
- 4 <https://www.channelnewsasia.com/news/singapore/covid-19-virus-variants-india-singapore-what-you-need-know-14746598>
- 5 Statement by Dr Eugene Soh, CEO, Tan Tock Seng Hospital, 30 April 2021.
- 6 *Effective Response Strategy to a Hospital Cluster of the B.1.617.2 Delta Variant of Concern During the COVID-19 Pandemic*, Tan Tock Seng Hospital, 2021.
- 7 HOM: Hospital Outbreak Management.

- 8 <https://www.straitstimes.com/singapore/lockdown-in-two-tan-tock-seng-hospital-wards-to-stem-spread-of-covid-19-now-a-cluster-of>
- 9 Press Release: "Safe and Progressive Reopening of Tan Tock Seng Hospital", dated 17 May 2021.
- 10 Last sentence quoted by Chief Nurse during Staff Engagement Session, 7 May 2021, based on Prema's favourite actress.
- 11 <https://www.channelnewsasia.com/singapore/ttsh-cluster-death-88-year-old-woman-dies-tan-tock-seng-1336676>
<https://www.channelnewsasia.com/singapore/ttsh-cluster-death-70-year-old-man-dies-tan-tock-seng-ward-9d-1388166>
<https://www.tnp.sg/news/singapore/86-year-old-woman-linked-now-closed-ttsh-cluster-dies>
- 12 <https://www.straitstimes.com/singapore/health/long-lines-and-waiting-times-for-free-covid-19-testing-in-wake-of-ttsh-cluster>
- 13 <https://www.straitstimes.com/singapore/28000-tested-in-effort-to-detect-cases-linked-to-ttsh-cluster>
- 14 <https://www.straitstimes.com/singapore/health/tan-tock-seng-hospital-to-resume-admissions-from-tuesday>
<https://www.straitstimes.com/singapore/ttsh-strengthens-defences-in-reopening-but-says-it-will-never-be-able-to-eliminate-all>
Press Release "Safe and Progressive Reopening of Tan Tock Seng Hospital", 17 May 2021.
<https://www.ttsh.com.sg/About-TTSH/TTSH-News/Pages/Safe-and-Progressive-Reopening-of-Tan-Tock-Seng-Hospital.aspx>
- 15 HEPA: High-efficiency particulate air filters. HEPA filters can remove at least 99.97 per cent of airborne particles with a size of 0.3 microns. These include dust, pollen, mould and bacteria.
- 16 <https://www.straitstimes.com/singapore/ward-9d-at-tan-tock-seng-hospital-to-reopen-from-saturday-with-suite-of-enhanced-measures>
- 17 <https://www.channelnewsasia.com/singapore/covid-19-cases-singapore-community-june-6-ttsh-cluster-closed-1836741>
- 18 <https://www.facebook.com/TanTockSengHospital/posts/10159460635338069>
<https://www.facebook.com/TanTockSengHospital/posts/10159467844638069>
<https://motherhip.sg/2021/05/pm-lee-cheers-ttsh-on/>
- 19 <https://www.channelnewsasia.com/singapore/covid-19-ttsh-cluster-discrimination-against-healthcare-workers-1372301>
<https://www.straitstimes.com/singapore/cases-of-discrimination-against-ttsh-staff-pm>
- 20 <https://www.todayonline.com/singapore/heartwarming-kampung-spirit-ttsh-staff-buoyed-support-businesses-community-organisations>
<https://www.straitstimes.com/singapore/tan-tock-seng-hospital-staff-to-get-appreciation-packs-and-ride-vouchers>
- 21 <https://www.straitstimes.com/singapore/tan-tock-seng-hospital-boosts-efforts-to-support-well-being-of-staff>
- 22 <https://www.facebook.com/TanTockSengHospital/posts/10159502599518069>

CHAPTER 5

- 1 <https://www.channelnewsasia.com/news/cnainquirer/inside-singapore-covid-19-screening-centre-defence-disease-ncid-12656312>

CHAPTER 6

- 1 <https://www.straitstimes.com/lifestyle/couples-fighting-covid-19>
- 2 <https://www.straitstimes.com/singapore/a-stand-in-son-or-brother>
- 3 https://www.channelnewsasia.com/news/sport/covid-19-nurse-tokyo-olympics-training-rowing-12956630#cxrecs_s
<https://www.straitstimes.com/singapore/politics/ndr-2021-olympic-rower-and-nurse-joan-poh-embodies-best-of-being-singaporean-says>
- 4 <https://www.channelnewsasia.com/news/singapore/covid19-hospital-lungs-doctor-singapore-ttsh-13000278>
- 5 <https://www.channelnewsasia.com/news/podcasts/sg-covid-diaries/covid-19-diaries-a-volunteer-at-the-screening-centre-at-ncid-12857182>
- 6 <https://www.tnp.sg/sports/team-singapore/silat-fighter-atiq-syazwani-roslan-joins-battle-against-covid-19>
- 7 CEO Tribune, 30 April 2020.
- 8 <https://www.channelnewsasia.com/news/singapore/covid19-tan-tock-seng-staff-porters-housekeepers-12651204>
- 9 <https://southeastasiaglobe.com/migrant-workers-mental-health-singapore/>
- 10 <https://www.straitstimes.com/lifestyle/couples-fighting-covid-19>
<https://www.moh.gov.sg/news-highlights/details/president-s-award-for-nurses-2021>
<https://www.straitstimes.com/singapore/health/covid-19-is-like-a-tap-which-keeps-dripping-says-presidents-award-for-nurses>

CHAPTER 7

- 1 <https://www.ttsh.com.sg/About-TTSH/TTSH-News/Pages/Singapore-last-line-defenders-make-critical-decisions-daily-to-save-patients-in-the-ICU.aspx>
- 2 <https://www.straitstimes.com/singapore/coronavirus-bangladeshi-worker-who-came-close-to-death-a-few-times-defies-the-odds>
- 3 <https://www.channelnewsasia.com/news/cnainquirer/tired-staff-pushing-on-how-ttsh-ncid-responded-covid-19-day-one-13106408>

CHAPTER 8

- 1 <https://www.channelnewsasia.com/news/cnainquirer/inside-singapore-covid-19-screening-centre-defence-disease-ncid-12656312>
- 2 <https://www.todayonline.com/big-read/big-read-untold-sacrifices-frontline-healthcare-workers-they-soldier-against-covid-19>
- 3 CEO Tribune, 1 June 2020.

CHAPTER 9

- 1 “Novel Coronavirus”. *World Health Organization*. Archived from the original on 2 February 2020. Retrieved 6 February 2020.
- 2 <https://ph.ucla.edu/news/news-item/2020/may/front-lines-global-pandemic>
- 3 <https://research.a-star.edu.sg/articles/features/the-fast-track-to-fortitude/>
- 4 <https://www.straitstimes.com/multimedia/a-guide-to-singapores-covid-19-contact-tracing-system>
<https://www.straitstimes.com/singapore/government-aiming-for-70-participation-in-tracetgether-programme-says-vivian-on-first-day>
- 5 <https://www.straitstimes.com/tech/tracetgether-initiative-wins-global-award-for-innovative-use-of-tech>
- 6 <https://ph.ucla.edu/news/news-item/2020/may/front-lines-global-pandemic>
- 7 <https://www.channelnewsasia.com/news/singapore/covid-19-dexamethasone-steroid-severe-cases-ncid-treatment-13202856>
- 8 <https://www.gov.sg/article/how-singapore-is-ensuring-access-to-covid-19-vaccines>
- 9 <https://www.channelnewsasia.com/news/singapore/moderna-covid-19-vaccine-singapore-authorized-hsa-first-shipment-14103204>
- 10 https://en.wikipedia.org/wiki/COVID-19_vaccination_in_Singapore#cite_note-mohvacc-1
<https://www.channelnewsasia.com/singapore/sinovac-vaccine-covid-19-sinopharm-astrazeneca-fully-vaccinated-2096576>
<https://www.channelnewsasia.com/singapore/sinovac-covid-19-vaccine-national-vaccination-programme-three-dose-singapore-2263787>
- 11 <https://www.moh.gov.sg/covid-19/vaccination>. Retrieved on 22 January 2022.
- 12 <https://www.channelnewsasia.com/news/singapore/covid-19-pandemic-could-last-4-to-5-years-lawrence-wong-14038700>

CHAPTER 10

- 1 TTSH, NCID battle plan passes test. *The Business Times*, June 12, 2020.
- 2 *HealthCity Novena: Building a Community of Care*. Tan Tock Seng Hospital, 2019.
- 3 <https://www.straitstimes.com/singapore/lessons-from-a-pandemic>
- 4 <https://www.facebook.com/leehsienloong/posts/today-marks-one-year-since-the-official-opening-of-the-national-centre-for-infec/3603393729723307/>
- 5 BAU: “Business-as-usual” patients.
- 6 <https://www.ncid.sg/Facilities-Services/Pages/default.aspx>
- 7 To keep NCID facilities “warm”, i.e. in operation during a non-outbreak period, TTSH patients are admitted to three isolation wards at NCID, two operating theatres and two ICU wards.
- 8 <https://www.annals.edu.sg/pdf/49VolNo8Aug2020/V49N8p582.pdf>
- 9 <https://www.moh.gov.sg/news-highlights/details/opening-address-by-dr-amy-khor-senior-minister-of-state-ministry-of-health-at-the-singapore-healthcare-management-congress-2018-14-august-2018>

- 10 CEO Tribune, 3 September 2020.
- 11 <https://www.healthhub.sg/about-us>
- 12 <https://www.straitstimes.com/singapore/health/central-command-system-gives-ttsh-and-ncid-birds-eye-view-needed-to-fight-covid-19>
- 13 COVID-19 Care Continuum: Smart Hospital for the Future. *HealthManagement.org – The Journal*. Volume 20, Issue 3, 2020.

CHAPTER 12

- 1 <https://www.todayonline.com/singapore/little-innovations-go-long-way-tan-tock-seng-hospitals-covid-19-fight>
- 2 *HealthCity Novena: Building a Community of Care*. Tan Tock Seng Hospital, 2019.
- 3 *Braving Through Covid-19 as a Kampung*. Tan Tock Seng, 2020.
- 4 Townhall meeting on 19 November 2018.
- 5 <https://www.todayonline.com/singapore/little-innovations-go-long-way-tan-tock-seng-hospitals-covid-19-fight>
<https://www.straitstimes.com/singapore/health/coronavirus-hospitals-convert-wards-speed-up-nurse-training-to-cope-with-surge-in>
- 6 TTSH Workplace from Meta.
- 7 TTSH Workplace Stories.
- 8 https://better.sg/blog/2020/05/10/interview-sudesna-chowdhury-shaina-tan-healthcare-translation-tools-for-migrant-workers?fbclid=IwAR0wtLMojCs3pOf2rxdsqEs-xiQRmKLDl32wJ7K5WVvXkGba_gU0SgBM
<https://www.todayonline.com/singapore/heroes-unmasked-translation-initiatives-pop-bridge-communication-gap-migrant-workers-amid>

CHAPTER 13

- 1 <https://www.straitstimes.com/singapore/health/urgent-bid-to-free-up-capacity-at-public-hospitals-as-cases-surge>
- 2 CEO Tribune, 14 May 2020.
- 3 <https://www.straitstimes.com/singapore/politics/spore-must-press-on-with-strategy-of-living-with-covid-19-and-not-be-paralysed-by>
<https://www.straitstimes.com/singapore/home-recovery-the-default-covid-19-care-arrangement-for-everyone-from-sunday>
- 4 <https://www.ttsh.com.sg/Community-Health/Central-Health-Stories/Pages/Our-COVID-19-Fight-in-the-Community.aspx>
- 5 *HealthCity Novena: Building a Community of Care*. Tan Tock Seng Hospital, 2019.

CHAPTER 14

- 1 <https://www.bloomberg.com/opinion/articles/2020-04-03/coronavirus-doctors-don-t-have-what-they-need-to-stay-safe>
- 2 ALPS is the national procurement agency for medicines.
- 3 <https://www.straitstimes.com/singapore/racing-against-time-to-secure-essential-drugs>
- 4 IHiS: Integrated Health Information Systems (IHiS).
- 5 https://www.ihis.com.sg/Latest_News/voices_of_our_people/Pages/Leveraging-AI-for-a-Command-Control-and-Communications-System-in-a-public-healthcare-institution.aspx

- 6 https://www.youtube.com/watch?v=u_jqPkjvsxY&feature=youtu.be
- 7 <https://mothership.sg/2020/02/free-coffee-for-healthcare-workers/>
- 8 CEO Tribune, 18 June 2020.
- 9 Book interview with CEO, 15 September 2020.

CHAPTER 15

- 1 <https://www.todayonline.com/big-read/big-read-untold-sacrifices-frontline-healthcare-workers-they-soldier-against-covid-19>
- 2 <https://www.straitstimes.com/singapore/health/hospitals-ramp-up-programmes-providing-support-for-staff>
- 3 <https://www.straitstimes.com/world/europe/one-in-5-covid-19-patients-develop-mental-illness-within-90-days-study>
- 4 <https://www.straitstimes.com/sport/st-virtual-run-tan-tock-seng-hospitals-frontliners-keep-fit-to-help-with-fight-against-the>

CHAPTER 16

- 1 <https://www.youtube.com/watch?v=C36hZDEGD8Y>
- 2 <https://www.youtube.com/watch?v=VRLqbaHa3iE>
- 3 <https://www.youtube.com/watch?v=7ccpJUROzA>
- 4 <https://www.youtube.com/watch?v=cTsmXbRNmSI>
- 5 https://www.youtube.com/watch?v=cr_RO4V-j0I
- 6 <https://www.todayonline.com/big-read/big-read-untold-sacrifices-frontline-healthcare-workers-they-soldier-against-covid-19>
- 7 <https://www.facebook.com/TanTockSengHospital/videos/3217512284951370/>
- 8 <https://www.straitstimes.com/singapore/health/coronavirus-70-healthcare-workers-dedicate-the-song-home-to-all-singaporeans>
- 9 <https://www.straitstimes.com/singapore/sing-along-to-home-tomorrow-to-thank-front-line-migrant-workers>
<https://www.youtube.com/watch?v=-psK6lcafIE>
- 10 SAS stands for Staff Appreciating Staff. SAS also stands for Spread A Smile.
- 11 <https://teecheppaper.com>
- 12 CEO Tribune, 5 March 2020.
- 13 <https://www.straitstimes.com/lifestyle/food/bubble-teas-say-cheers-to-health>
- 14 <https://www.straitstimes.com/singapore/peter-lim-donates-1m-in-meals-for-hospital-workers>
- 15 <https://www.straitstimes.com/singapore/ndp-2020-f-15-fighter-jets-to-soar-over-hospitals-heartland-in-tribute-to-front-line>

CHAPTER 17

- 1 <https://www.straitstimes.com/opinion/living-normally-with-covid-19>
- 2 <https://www.straitstimes.com/singapore/health/the-coronavirus-that-causes-covid-19-has-mutated-more-than-6600-times>
- 3 <https://www.worldometers.info/coronavirus/?%22>. Retrieved on 22 January 2022.

- 4 <https://www.channelnewsasia.com/singapore/covid-19-new-cases-deaths-omicron-imported-moh-dec-26-2401641>
- 5 <https://www.moh.gov.sg/news-highlights/details/remaining-vigilant-against-the-omicron-variant>
- 6 <https://www.moh.gov.sg/news-highlights/details/resuming-our-transition-towards-covid-resilience>
- 7 <https://www.straitstimes.com/singapore/14-active-facilities-set-up-for-close-contacts-of-covid-19-cases-12-more-to-be-converted-if-needed-moh>
- 8 <https://www.straitstimes.com/world/united-states/why-the-vaccinated-are-worried-about-covid-19-breakthrough-infections>
<https://www.channelnewsasia.com/singapore/early-clinical-observations-globally-suggest-omicron-covid-19-variant-may-have-higher-reinfection-risk-moh-2359701>
- 9 <https://www.moh.gov.sg/covid-19/vaccination>. Retrieved on 22 January 2022.
- 10 <https://www.straitstimes.com/singapore/health/we-cannot-rely-solely-on-vaccines-to-fight-covid-19-delta-variant-says-director-of>
- 11 Staff Bulletin, 21 July 2021.
- 12 <https://www.todayonline.com/singapore/singapore-preparing-deal-5000-new-covid-19-cases-day-or-maybe-more-lawrence-wong>
- 13 <https://www.channelnewsasia.com/singapore/singapore-new-covid-19-cases-record-sep-30-2-deaths-dormitory-clusters-2212476>
- 14 Staff Bulletin, 27 September 2021.
- 15 TTSH, NCID battle plan passes test. *The Business Times*, 12 June 2020.
- 16 CEO Tribune, December 2021.
- 17 <https://www.straitstimes.com/singapore/health/stretched-by-pandemic-nursing-staff-at-tan-tock-seng-hospital-get-backup-from>
- 18 <https://www.channelnewsasia.com/singapore/singapore-endemic-living-transition-covid-coronavirus-2168366>
- 19 <https://www.channelnewsasia.com/singapore/covid-19-what-happens-when-pandemic-becomes-endemic-1832876>
<https://www.straitstimes.com/opinion/living-normally-with-covid-19>
- 20 <https://www.cnb.com/2021/09/03/singapore-to-roll-out-covid-boosters-to-seniors-immunocompromised.html>
<https://www.businesstimes.com.sg/government-economy/vaccine-boosters-to-start-in-september-for-immunocompromised-those-60-and>
- 21 <https://www.straitstimes.com/world/how-the-delta-variant-upends-assumptions-about-covid-19>
<https://www.channelnewsasia.com/singapore/omicron-delta-covid-19-singapore-brace-bigger-wave-2416581>

CHAPTER 18

- 1 <https://www.channelnewsasia.com/news/singapore/covid-19-pandemic-could-last-4-to-5-years-lawrence-wong-14038700>
- 2 <https://www.channelnewsasia.com/news/singapore/covid-19-pm-lee-national-broadcast-unity-resilience-crisis-12813368>
<https://www.straitstimes.com/singapore/the-crisis-of-a-generation-but-spore-can-still-emerge-exceptional>

