

UNITY IN DIVERSITY: AT GROUND ZERO

It was the middle of March 2020. Singaporeans overseas were flocking home; waves of people from various industries started to stream in – taxi drivers, tour bus drivers, people who worked in tourist attractions or hotels, airports and casinos; droves of migrant workers began to surge. They were all flooding in to the Screening Centre at NCID. The tents to extend the waiting area had not yet been built. There were people everywhere, waiting to be tested for COVID-19.

AT GROUND ZERO: FIRST LINE OF DEFENCE

“That was the day I was truly overwhelmed,” recalls Yip Jun Siang, a radiographer assigned to the Screening Centre at NCID. “I walked in and looked

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“That was the day I was truly overwhelmed . . . I walked in and looked around, and for the first time, all the chairs (at the Screening Centre) were occupied ■

YIP JUN SIANG
Radiographer, Radiography Service

The first action of COVID-19 screening began at TTSH Emergency Department before moving to “ground zero” at the Screening Centre at NCID.

around, and for the first time, all the chairs were occupied. The Screening Centre was fully staffed to handle the sudden surge and teams were mobilised in anticipation of any issues that may arise. At that point, additional manpower was provided to support Radiology. When the forms arrived, they came in stacks of 10 across all three X-ray rooms. Request forms were verified in the system to ensure that the correct procedure is performed. It was chaotic and it took hours of teamwork to complete the X-rays.”

Things were building up to what would be the “Most Terrible Monday”,

23 March 2020, when the Screening Centre saw more than 500 people coming in for tests. The triage nurses worked non-stop for as many as eight hours without a toilet break, taking swabs, and packing the swabs to be sent to the Lab for testing. The radiographers battled reading the films in their PPE, trying to be as accurate as they could even as their goggles fogged up. Freshly-minted pharmacists sent to the Screening Centre underwent a baptism of fire, one of them working so relentlessly he had heart palpitations.

Three months before, the Head of the Emergency Department Adjunct



“We were always anticipating something like COVID-19 . . . We knew that it wouldn’t be a matter of if, but when ■

ADJUNCT ASSISTANT PROFESSOR ANG HOU
Head, Emergency Department

Dr Charmaine Manauis (left) conferring with Assistant Professor Ang Hou.



No let up at the Screening Centre as TTSH-NCID staff screen and test cases due to a spike in COVID-19 cases in February-April 2020.

Assistant Professor Ang Hou, already had an inkling that there was possibly going to be a new outbreak. Starting 2 January 2020, he had begun screening visitors from Wuhan.

“We were SARS central back in 2003, so that’s never left the DNA of the department,” Prof Ang told *Channel NewsAsia (CNA)*.¹ “We were always anticipating something like COVID-19... We knew that it wouldn’t be a matter of if, but when.”

The Emergency Department (ED) was screening for the novel coronavirus before Chinese New Year. Prof Ang told CNA that the number of people coming

“was growing to a scale that we had to move out of (that) physical space.” That was to be an indicator of how fast the virus would spread, but the scale still overwhelmed the Screening Centre staff in March. Despite the extreme stress and chaos, the Screening Centre in that moment was the perfect picture of a team of frontliners working in unison as the first line of defence against COVID-19.

Dr Charmaine Manauis, the consultant in charge of infectious diseases for TTSH’s ED that set up and operated the Screening Centre wrote more than 60 versions of the screening protocol, and trained over 400 doctors to help out in

“ Training themselves to delay urination was just one of many things the staff did so that they could do their jobs faster ■

DR CHARMAINE MANAUIS
Consultant in charge of Infectious Diseases, Emergency Department

the screening process, a job that's quite different from their normal duties. She shared with CNA, “Sacrifices were made by all – when the volume of people was high, and everyone was busy, there was no time for breaks. Additionally, it was a challenge going to the toilet as they needed to de-gown every time. Training themselves to delay urination was just one of many things the staff did so that they could do their jobs faster.”¹

RESPONDING “AS ONE”

At the first peak of COVID-19 infections in March 2020, doctors, nurses, radiographers, pharmacists, and volunteers from across the hospital departments pulled together to meet the growing number of people needing to be screened. Though the effort was led by ED, doctors from various departments, from orthopaedic surgery to urology, came to help.

Senior Nurse Manager James Ang Wei Kiat remarks, “What amazes me is seeing a culture of working together

being built up so quickly. Although the staff come from different hierarchies and departments, I have never witnessed and experienced such a high level of teamwork. Indeed, when you're in crisis, you fight together. There is no drama, social alienation. Everybody is just so united.”

People coming for screening were seated in chairs set apart, and the physician would bring the mobile screening workstation to them and conduct an examination. Following that, the patient went for an X-ray. If the results looked suspicious, they were then swabbed, and directed to the waiting area to await the results of their swab. Those who were cleared remained seated and the pharmacists would bring them their medication, usually upper respiratory tract infection or URTI packs, plus other medication they may require. The seats and surfaces were sanitised after each person vacated.

Each step of this process required a whole list of instructions to prevent contamination and cross-contamination.



The pharmacists labelling medicines at the NCID Pharmacy.

It took not just endurance on the part of the individual, but teamwork of the highest degree – the Screening Centre personnel worked as one to ensure patients were tested accurately in as short a time as possible, and with utmost safety for both patient and healthcare workers.

But it was not without difficulty.

Dr Michael Chia Yih Chong, Senior Consultant, Emergency Medicine, a team leader at the Screening Centre recalls that the doctors had some issues with the process flow in the early stages, because they could not clear patients fast enough. Many of the doctors volunteering were from the Division of Surgery and

were unfamiliar with the electronic medical record system used by ED. “The symptoms were mostly URTI – cough, runny nose, sore throat – the surgical doctors took a thorough history, and the emergency medicine doctors closed the loop by making disposition decisions based on a complicated algorithm of patient's epidemiological risks and clinical findings.

“Looking back, I am grateful for the way our colleagues with us in the Screening Centre reacted to the initial workflow issues. When Radiology realised there were too many patients waiting for X-rays, they graciously increased their



The caseload for diagnostic radiography escalated at the peak of COVID-19 during February-April 2020 period. A radiographer conducting an X-ray on a patient.

manning beyond what was planned, in order to speed up the process. They also committed to give us expedited X-ray reports to help with our disposition decision making.”

Pharmacy also stepped up their manning to cope with the unexpected demand. They opened dispensaries in both high- and low-risk areas in order to reduce movement of their staff across risk zones which helped reduce PPE and time wastage. As the vast majority of patients had similar URTI symptoms, Pharmacy and ED decided to standardise the dispensed medication unless additional medications were necessary. They coined the term the URTI “Happy Meal”, a pre-packed collection of standard medications to treat the common URTI symptoms.

The efforts were being led by a strong and structured chain of command at the top who were constantly getting feedback from the ground staff on what changes were needed. “There’s always constant change,” says Dr Chia.

“It’s so hectic that you just have to work together,” points out Jun Siang. “You have to help and also be helped. We help the nurses with patient transfers, and the doctors come around to assist and everything just happens. Because if it doesn’t, the patient does not get the necessary care in time.”

“THE MOST TERRIBLE MONDAY”

23 March 2020 marked the peak of activity at the Screening Centre: 520 people were screened in a single day.

According to James, the “Most Terrible Monday” was the peak of a wave that had been steadily growing since late February and escalated to boiling point. “It was scary leading the nurses during that period,” he says, adding that this was his first time in the frontline during an outbreak. “There were too many people with respiratory symptoms coming in, they were often fearful and you couldn’t turn them away. People were waiting, the Screening Centre was choked. No matter how many places we tried to open up, the Screening Centre was overwhelmed. It was most overwhelming before the tentage came up.”

The two things happening simultaneously that “nearly broke” the Screening Centre were the surge in public cases and the growing numbers in the migrant workers dormitories. “That period was tough because I had no place to put the patients,” he recalls. “There was one night when there was a ‘Hello Kitty’ queue – in the middle of the night, the nurses in full PPE were using lights from their phones to triage patients outside, along the road.” The “Hello



Specimens are carefully collated, stored in containers and transported to the Lab for tests.

Kitty” queue refers to the extremely long waiting lines that happened outside McDonald’s when the fast food restaurant gave out Hello Kitty dolls with meal purchases.

“It was insane,” says Genevieve Liew, Senior Radiographer. “People were just queuing outside in the hot sun waiting to come in for testing. We had three X-ray rooms with one machine each, so it was such a struggle to handle the overwhelming number of X-ray requests. Later there were separate facilities built up, and we set up portable X-ray machines in the tentage area so

patients could be promptly attended to. Supporting both BAU services and NCID was challenging, and we appealed to MOH to make a nationwide request for volunteer radiographers from other hospitals. Eventually, radiographers from KKH, KTPH, NHGD, and NUH stepped forward to help, and we all rallied together to serve our patients,” says Genevieve.

“At the end of the day, because the patients kept coming fast and furious, if we didn’t get the patients out, the whole place would be choked up in no time,” explains Dr Chia.

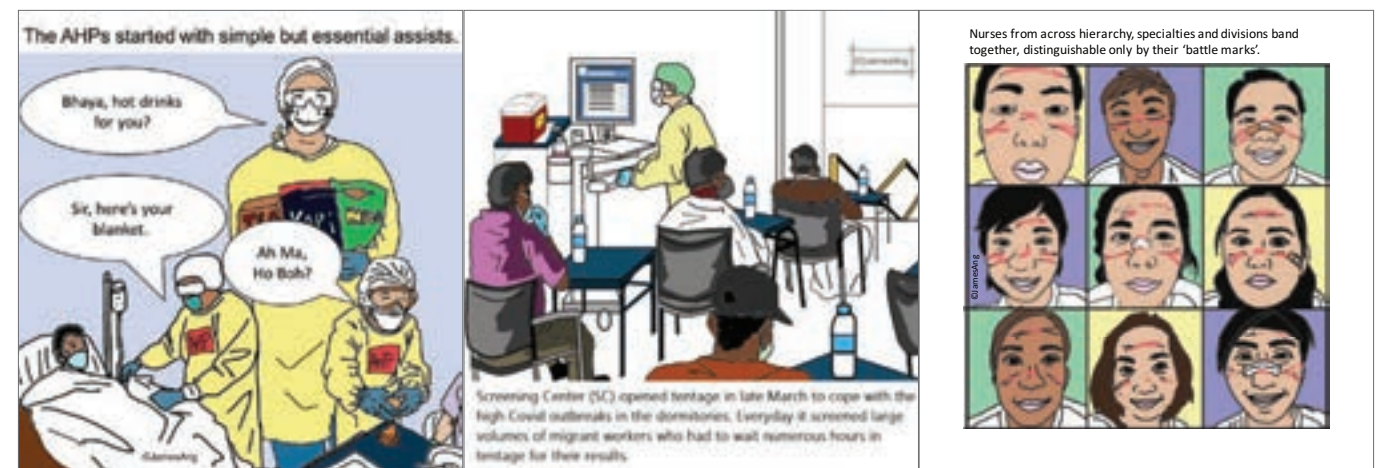
Things were so desperate that James had to consider triggering the standby nurses – these were nurses who had just completed morning shifts in their wards, and to activate them meant they had to reinforce the Screening Centre with little rest. It was a last resort measure. “So I’m now known as the person who pulled the trigger – it had never happened before,” says James, adding that the standby nurses readily stepped back into the fray to fight the battle with the night shift team.

“Everyone recognised the importance of holding the frontline and would do everything in their power to contribute to its success. You pull the trigger and cavalry will come quickly, from infrastructure, resources to staffing. They won’t say no.”

UNITY IN DIVERSITY

They might have come from departments that had never before stepped into NCID. They might never have met their colleagues if not for the pandemic. But like an army, these staff members of TTSH-NCID followed the clarion call to come and fight on the frontlines, sacrificing their personal well-being to the point of not being able to go and relieve themselves for hours on end, sacrificing sleep, sacrificing the safety of their families, all for the mission of containing this outbreak, keeping the nation safe. They set aside differences in department, rank, expertise. Seniors learnt from juniors – whoever had greater experience shared it.

They were all united in diversity against a common enemy, for a common good. ■



Images of actual scenes and expressions captured by Senior Nurse Manager James Ang Wei Kiat.

RELENTLESS: OUR UNSUNG HEROES

COVID-19 presented us with many new challenges,” recalls Kristen Lynn Tan, Senior Executive, Visitor Experience Services (VES), and a mother of a toddler.

“Due to safe management measures and tight restrictions on visitor numbers, we had to turn away countless visitors. Some became angry, some cried, while some grieved and even collapsed in the public area when they found out that their loved ones had passed away without them saying goodbye. My colleagues had to seek their understanding, and at times, play ‘counsellor’ and console them,” she adds. “This went on for months, and many had to double up to take on night shifts, manning not-so-well-lit remote entry points, changing entry

A ground staff doing a thorough cleaning of an ambulance stretcher late in the night.

“Anxiety did grip us sometimes; the risk of infection among healthcare workers is real. But our mission must come first: our patients’ well-being ■

MOHAMED RIDWAN BIN MAHAT
Nurse Clinician I

advisory posters before daybreak, etc. It was exhausting, but we knew we had to press on. I was heartened by my team’s resilience – we had each other’s backs and took turns to motivate one another. Receiving notes of appreciation from the public also kept us going.”

“‘Is this enough? Is this enough?’ We kept asking if the PPE we’d put on was safe enough for us to go about doing our duty,” says Mohamed Ridwan Bin Mahat, Nurse Clinician I, at the Level 7 Wards, where 114 beds were converted

into COVID-19 beds from BAU beds. “Anxiety did grip us sometimes; the risk of infection among healthcare workers is real. But our mission must come first: our patients’ well-being.”

“I struggled wearing the PPE during the long shifts, at times up to 12 hours. We were often drenched in sweat. Everyone had ‘battle scars’ on their faces – bruising, discolouration, breakouts – from the abrasive yet necessary N95-and-goggles combination. On 23 March 2020, when we experienced the ‘Most Terrible Monday’, we had to activate all our on-call radiographers to help with the onslaught of patients, and still we worked through the night,” remembers Genevieve Liew, Senior Radiographer, Radiography Service.

“We had to hurriedly play ‘bridge’ to connect ICU patients at TTSH-NCID with their loved ones,” recounts Tan Tian Wui, Principal Medical Social Worker, Care & Counselling. “Given all the safe distance restrictions, no face-to-face visits were allowed. But these final moments for dying patients and their families are



Staff working long hours at the Screening Centre at NCID in order to prevent a backlog of cases.



A staff pacing at the Screening Centre at NCID.

crucial – they need closure. Thankfully, we had our IT support colleagues set up video conferencing facilities for them to bid farewell. It was the least we could do.”

These are but some of the poignant voices of TTSH’s staff who had gone beyond duty to not just fulfil their responsibilities but meet the myriad needs of the patients and their families. Many such scenarios took dedication, determination, and ingenuity to solve. These are the “unsung heroes” – staff who tirelessly work in different roles and

across departments/specialities, often without glory or recognition, but for the satisfaction of having taken care of a patient well. It is not just “doing a job”, but “fulfilling a mission”.

OUR UNSUNG HEROES

We salute the many who fight COVID-19 shoulder to shoulder. Below are some of these heroes from different professions, departments and communities, and their stories, just a sampling of many more like them.

“Social distancing at home made me realise how much harder it is for people in isolation, away from their loved ones ■

DR KOH LI WEARN
Senior Consultant, Rheumatology, Allergy & Immunology



Dr Koh Li Wearn (seated) with her husband-colleague Dr Ho Eu Chin.

Doctors + Nurses

Dr Ho Eu Chin

■ Senior Consultant, Otorhinolaryngology¹

Dr Koh Li Wearn

■ Senior Consultant, Rheumatology, Allergy & Immunology (RAI)

The natural instinct for parents is to protect their family first, but for a number of TTSH-NCID doctors and nurses on the frontline, their patients came first. Dr Koh Li Wearn, a senior consultant in RAI, and her husband Dr Ho Eu Chin, a senior ENT consultant, volunteered for frontline duty even though they have two young children, aged 13 and 9, who found it hard to deal with their usually-affectionate parents suddenly not being able to hug them. Dr Koh, in her interview with *The Straits Times* says, “Social distancing at home was tough. Although I couldn’t hug and kiss them, I sat with them at mealtimes – they were at one end of the table, I was at the other. It made me realise how much harder it is for people in isolation, away from their loved ones.” Dr Ho adds, “I sometimes worked night shifts, which meant I could fetch her (daughter) from school. She wanted to hug me, but I said, ‘No hugs.’ Being able to pick her up made my day, though.”

Kalaichelvi D/O G Govindaraju
■ Senior Nurse Manager, Level 7 Wards

Sister Kalaichelvi Govindaraju takes care of everyone at Level 7 Wards, from the patients to the cleaners. The SARS veteran told her anxious family, “Don’t worry; Mom will be alright.” And she saw to it that it was for all involved. She stayed with her nurses the first two weeks

to make sure they were prepared: safety huddles daily, infection control checks, enforced breaks, regular reassurance and check-ins. “I kept assuring them, ‘don’t be afraid, it’s going to be alright and we’ll pull through this together.’” In turn, these nurses brought such care and concern to the patients. “We even celebrated an inpatient’s birthday. It was such a rewarding job that those deployed out wanted to come back!”



Sister Kalaichelvi Govindaraju encouraging a migrant worker recovering at a Level 7 Ward.



“The biggest fulfilment during my stint at NCID was having the opportunity to be with my patients in the room during their most vulnerable period, to be their stand-in grandson, son or brother ■

PATRICK LIN YONGXING
Assistant Nurse Clinician, Nursing Research Unit

Assistant Nurse Clinician Patrick Lin was deployed to NCID for five months amid caring for a newborn daughter and two-year-old son.

Patrick Lin Yongxing
■ Assistant Nurse Clinician, Nursing Research Unit²

For Patrick Lin, being one of more than TTSH 500 nurses deployed to NCID ICU, from February to June 2020, meant caring for those who were the most sick from COVID-19. At home, he had a newborn daughter and a two-year-old son. During the worst days of the outbreak, half the beds in the ICU were filled. Looking after those with COVID-19 in the ICU was gruelling and exhausting, even with an augmented team of nurses working shifts to keep the

patients alive. Departing home in the night as his children were being put to bed, reaching the hospital, putting on his PPE and mentally gearing himself up to stand in the gap for the ones who were fighting for their lives, being constantly alert for any change in vital signs – this was Patrick’s life during that period. “It was an intense, tiring duty. Nonetheless, the biggest fulfilment during my stint at NCID was having the opportunity to be with my patients in the room during their most vulnerable period, to be their stand-in grandson, son or brother,” he says.

Joan Poh Xue Hua

■ Senior Staff Nurse II, Renal Centre, National Rower³

Even as the hospital cared for COVID-19 patients, there were BAU patients who needed daily medical attention. Joan Poh is part of a team of six that assists peritoneal dialysis patients; about 200 patients undergo peritoneal dialysis at TTSH. These six nurses also attend to any peritoneal dialysis patients admitted into the NCID for COVID-19 related suspicions. Joan is also a national rower representing Singapore. The 2020 Tokyo Olympics had been her goal, but international sporting plans were up in the air as the pandemic unfolded



Senior Staff Nurse Joan Poh returns to the Renal Centre to care for renal patients.

across the world, as governments called for all hands on deck on the healthcare frontlines. The 29-year-old nurse returned from training overseas, and decided to put her training on hold to return to work in the hospital. To Joan, “It’s the right thing to do,” she told CNA in an interview on 27 July 2020. Returning to serve on the frontline when the country was in need felt like a responsibility and the only right thing to do for Joan. The Tokyo Olympics would eventually be postponed to 23 July 2021. Joan began stepping up on her training whilst continuing to work through the unsettled pandemic. “Even with COVID-19, people are still falling down getting fractures, people are still having kidney failure, people are still having diabetes. We’ll have to try and see the patients who need to be seen during this period. I actually end up thinking about my patients all the time even when I’m not at work because you build that bond you feel accountable for the things that you do.”

Joan eventually competed, and in her Olympic debut, she finished 28th out of 32 competitors. PM Lee Hsien Loong, in his National Day Rally speech on 29 Aug 2021, held up Joan as a shining example of what it means to be “the best of being Singaporean”.



“Being able to differentiate the most serious from the mild cases is actually very useful, because it helps you use hospital resources efficiently to take care of the sicker patients”

DR TERRENCE HUI CHI HONG
Associate Consultant, Diagnostic Radiology

Associate Consultant Dr Terrence Hui examining the diagnostic images of his patients.

Radiologists + Radiographers

Dr Terrence Hui Chi Hong

■ Associate Consultant, Diagnostic Radiology⁴

Surender Reddy Naini

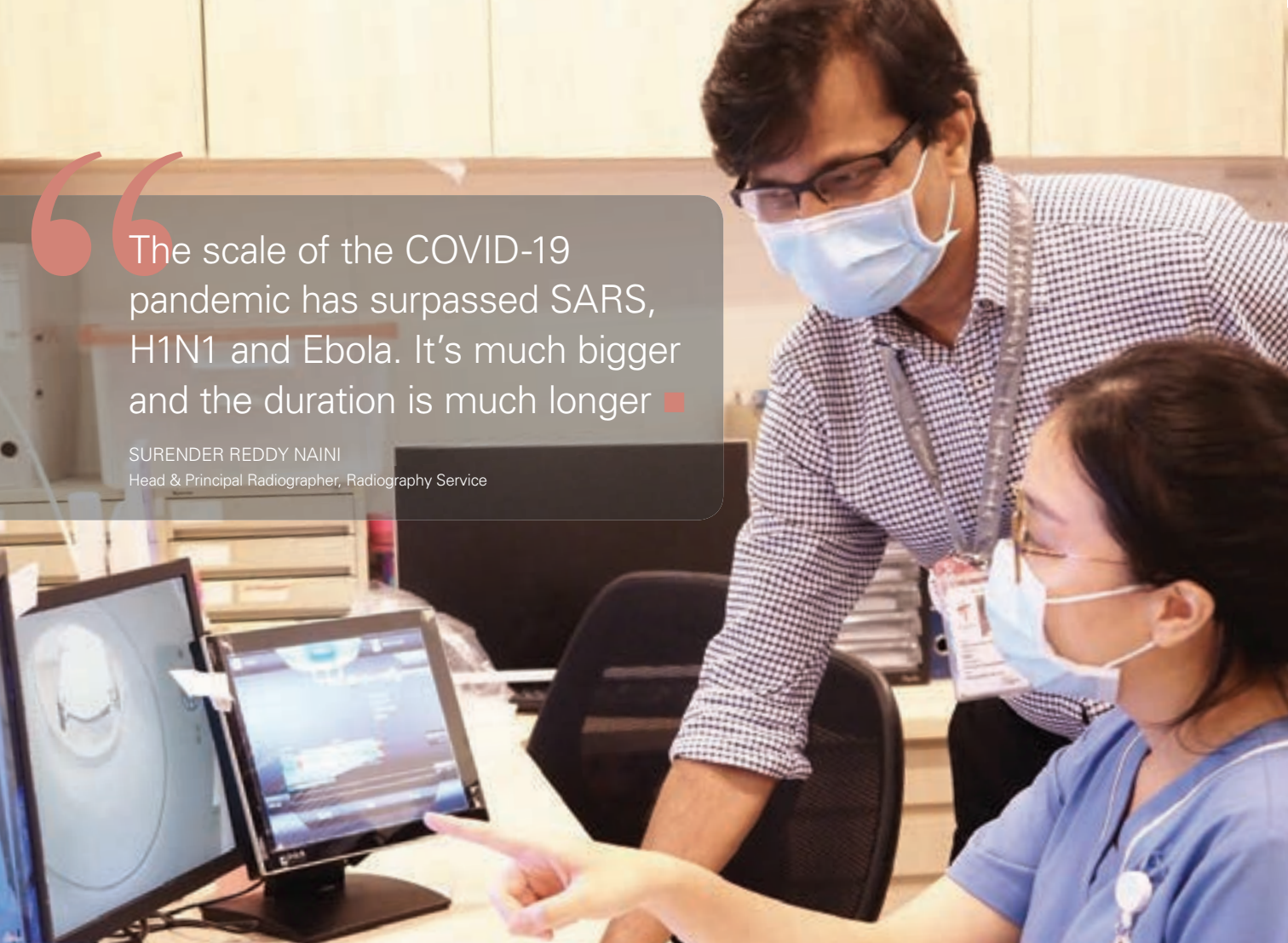
■ Head & Principal Radiographer, Radiography Service

Radiologists and radiographers on the COVID-19 frontline play a vital role in determining the presence of a chest infection and ascertaining its severity. What the X-rays and CT scans show will determine the treatment patients get. They identify the very sick who

need immediate help, especially patients diagnosed with COVID-19 after a swab test. At COVID-19 peak, these radiologists and radiographers worked round the clock. One key task they have is to spot “white shadows”, opacities in the lungs, which point to lower respiratory tract infection, and which could indicate COVID-19 in patients. “Being able to differentiate the most serious from the mild cases is actually very useful, because it helps you use hospital resources efficiently to take care of the sicker patients,” explains Dr Terrence Hui.

“The scale of the COVID-19 pandemic has surpassed SARS, H1N1 and Ebola. It’s much bigger and the duration is much longer ■

SURENDER REDDY NAINI
Head & Principal Radiographer, Radiography Service



Principal Radiographer Surender Reddy Naini in discussion with his colleague.

Principal Radiographer Surender Reddy Naini, who has worked at the hospital for over 25 years, says, “The scale of the COVID-19 pandemic has surpassed SARS, H1N1 and Ebola. It’s much bigger and the duration is much longer.” It takes a few minutes for a radiographer to conduct an X-ray. The images are

electronically uploaded to a server, from which a radiologist accesses the digital X-ray and makes a clinical diagnosis in under an hour. The staff at the hospital’s department of diagnostic radiology comprise radiographers and radiologists as well as nurses, radiographer assistants, admin and ancillary staff.

“It was uncomfortable putting on PPE, and going between two places. But we had to get used to them ■

GAVIN CHEAH JIA SHENG
Senior Pharmacist, NCID Pharmacy

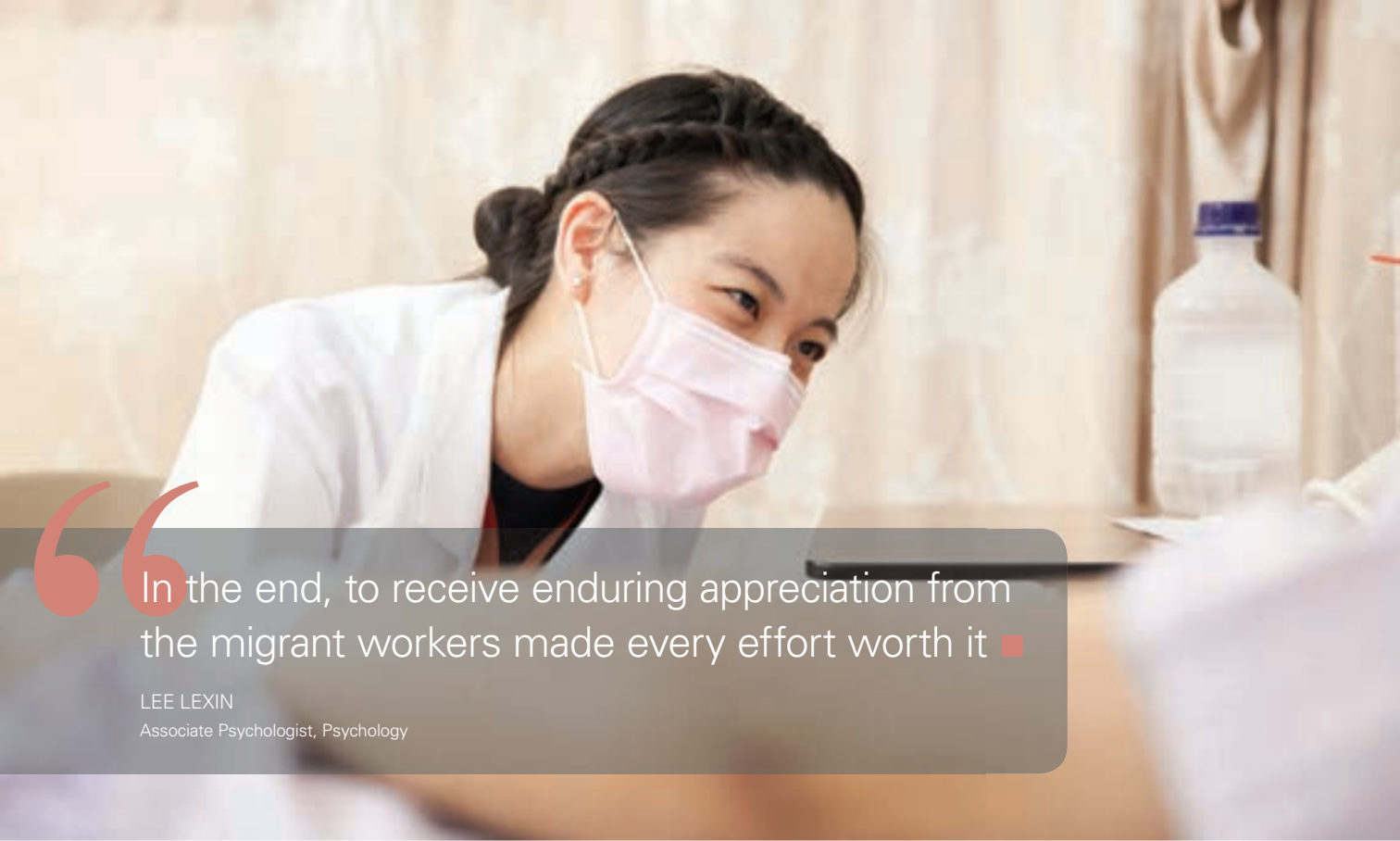
Pharmacists

Gavin Cheah Jia Sheng
■ Senior Pharmacist, NCID Pharmacy

Pharmacists dispense medication to individuals who have been screened for COVID-19 and have upper respiratory tract infection. In the early days of the pandemic, the Screening Centre was divided into low-risk and high-risk areas, and only the low-risk pharmacy was operational. The pharmacist would have to walk from the low-risk section to the high-risk to dispense medication, having to don the essential Personal Protective Equipment (PPE) – then de-gown – before returning to the low-risk pharmacy. The patients remained in their seats while the pharmacists came to them with their medication. This could be challenging with the high workload. “It was uncomfortable putting on PPE, and going between two places. But we had to get used to them. Many of the pharmacy staff needed to learn fast during this period,” says Gavin Cheah, “I also took it as an opportunity to learn.”



A pharmacist dispensing medication in full PPE.



“In the end, to receive enduring appreciation from the migrant workers made every effort worth it ■

LEE LEXIN
Associate Psychologist, Psychology

Associate Psychologist Lee Lexin engaging her patient.

Allied Health

Tan Xueta Ying

■ Senior Speech Therapist, Speech Therapy

Lim Ding Zhi

■ Physiotherapist, Physiotherapy

Atiq Syazwani Roslan

■ Physiotherapist, Physiotherapy

Lee Lexin

■ Associate Psychologist, Psychology

During COVID-19, many allied health practitioners including psychologists, physiotherapists and occupational therapists were redeployed as augmented

staff or volunteered to serve in other areas of the hospital. Tan Xueta Ying, Senior Speech Therapist was deployed as an assistant nurse. Together with her husband, who also works at TTSH, she volunteered on the frontline working with the screening team at the Screening Centre. The couple took on the frontline despite having a two-year old daughter at home, cared for by their parents. In her interview with CNA Radio on 22 June 2020,⁵ Xueta Ying shared, “We thought by us being here on the frontline, the nurses can take a break or tend to sicker patients. Our parents were very

supportive of us serving alongside our nursing colleagues. We felt assured.”

Others, like Physiotherapist Lim Ding Zhi applied his training to help migrant workers who had been sitting for hours waiting to be tested at the Screening Centre. He led them in a simple stretching exercise to loosen stiff joints and muscles. It was an impromptu move that was so well-received that the Allied Health Professionals created a wellness programme for the well and recovering COVID-19 migrant worker patients to enhance their well-being.

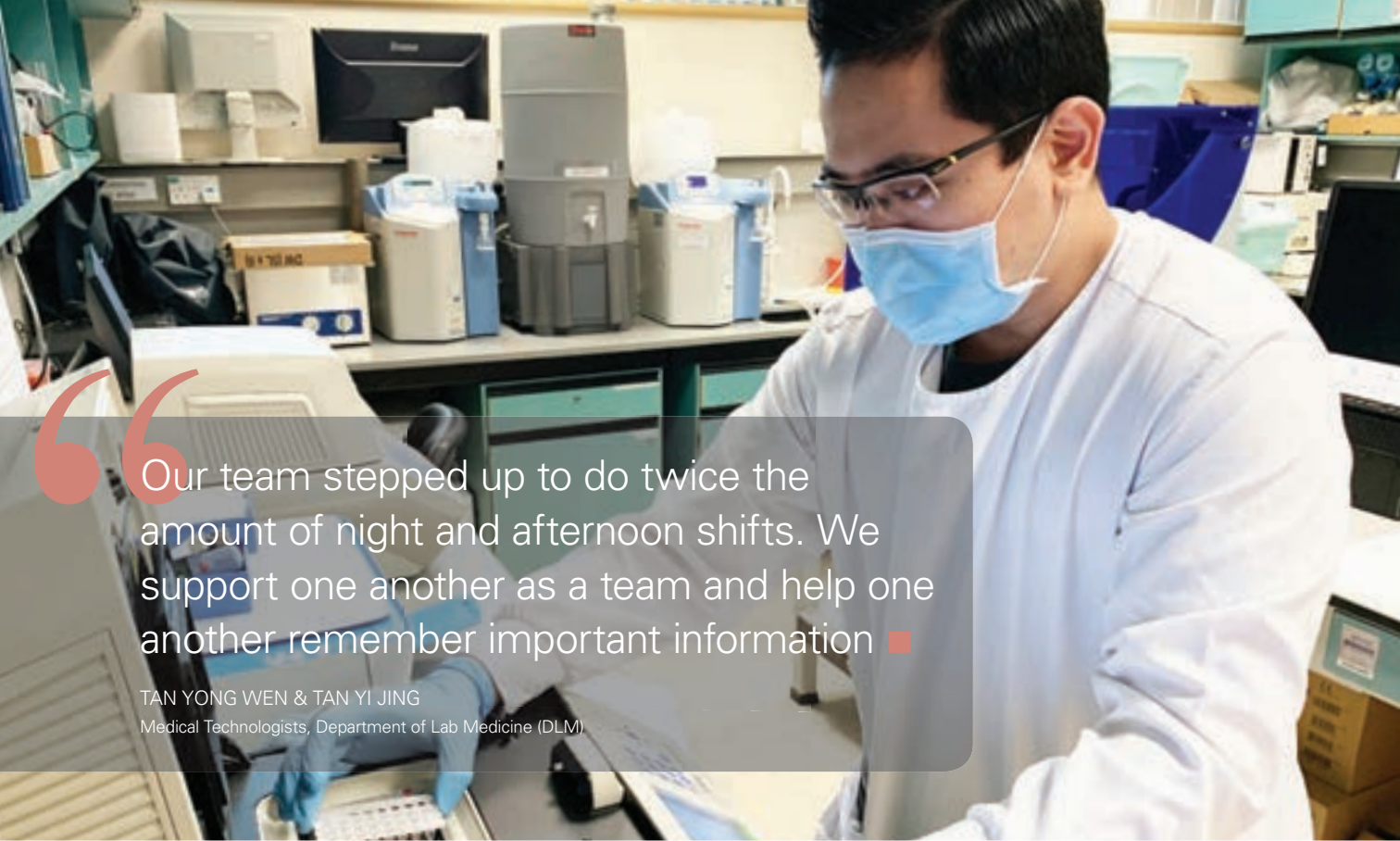
Another Physiotherapist, Atiq Syazwani Roslan, who is also a national silat exponent and a two-time SEA Games medallist, volunteered as a healthcare assistant for a month at Woodlands Lodge Dorm 1. She was tasked to conduct mass screenings every morning, assist doctors, update information daily and perform swab tests at the dormitory.⁶ “I knew that I would have to be physically distant from my family and that I would be near suspected cases of COVID-19. I thought, ‘Why not?’ and that any fear should not stop me from helping the community . . . Now, I miss the work relationships built with my co-workers and the migrant workers during that period – we were calling each other ‘brother’ and ‘sister’ by the end of my deployment. Seeing

them well and how joyful they are made me happy.”

Associate Psychologist Lee Lexin, who was involved in entrance screening before being deployed to the SAF-operated dorm ops, recalls, “It was a memorable experience, from performing the role of an augmented security officer and crowd control at various entrance and exits of the hospital (including the CDC), to co-creating Excel sheets with the doctors with the purpose of improving the workflow at the migrant worker dormitories, I appreciated the united spirit of different groups of people; polyclinic doctors, SAF personnel, and volunteers all coming together to fight the fight together. In the end, to receive enduring appreciation from the migrant workers made every effort worth it.”



Physiotherapist Atiq Syazwani Roslan guiding her patient through a therapy session.



“Our team stepped up to do twice the amount of night and afternoon shifts. We support one another as a team and help one another remember important information ■

TAN YONG WEN & TAN YI JING
Medical Technologists, Department of Lab Medicine (DLM)

Medical technologist Tan Yong Wen at work.

Lab Technicians + Technologists

Tan Yong Wen & Tan Yi Jing

■ Medical Technologists, Department of Lab Medicine (DLM)⁷

The workload for COVID-19 PCR testing at the DLM – one of the highest of any lab in Singapore – jumped nearly threefold in a matter of weeks, from 300 to 800, during the peak of COVID-19 between March and May 2020. The laboratory technicians faced extreme pressure having to ensure speedy turnaround for the tests, working non-stop, yet with precision. The lab

teams did double the number of night and afternoon shifts every month, and voluntarily stayed back to help if the situation called for it. Laboratory staff from all parts of TTSH were cross-trained to run the PCR COVID-19 tests, which require special skills and multiple steps. Tan Yong Wen remembers, “Our team stepped up to do twice the amount of night and afternoon shifts.” Adds Tan Yi Jing, “We support one another as a team and help one another remember important information.”

“There were some abusive visitors. Some threatened, some picked things up to hit us. But most of the time, we put on a smile ■

SHELLEY LAU SUI LANG
Senior Patient Information Associate, Patient Service

Visitor Experience Services (VES)

Shelley Lau Sui Lang

■ Senior Patient Information Associate, Patient Service

Tension brought on by COVID-19 also made work tough for the Visitor Experience Services team. When safe distancing was initially implemented, there was confusion as to what the correct protocols were, and tempers flared. During the Circuit Breaker, no visitors were allowed in the wards. Shelley Lau shares, “There were some abusive visitors. Some threatened, some picked things up to hit us. That was when we pressed the panic button and called security, or sometimes the police were activated. But most of the time, we did what we were trained to do: we put on a smile, gave them options and tried to solve their problems on the spot.”



Senior Patient Information Associate Shelley Lau speaking with a visitor.



The Linen team worked up to a 14-hour shift at the peak of COVID-19.

Housekeeping + Linen Crew

Megala Armugam

■ Inpatient Ward Supervisor, Housekeeping Services

Hamzah Bin Anuarulhadi

■ NCID Housekeeping Team Leader, Housekeeping Services

Issac Asirvatham

■ Senior Executive, Linen Operations

During the peak of COVID-19, Megala Armugam had to thoroughly clean and sanitise ward rooms after the patients were discharged, ensuring that each room was ready for the next patient. This meant non-stop work, being on her feet constantly, cleaning not just rooms but high-touch common areas as well. The workload was heavy, but Megala did her work with purpose: “We look at it as a challenge.”

Hamzah Bin Anuarulhadi of ISS Facility Services was stationed at NCID. He has been separated from his family and loved ones since Malaysia’s lockdown started in March 2020, but despite personal challenges, he approached his work with vigour. “Cleaning frequency had definitely gone up and procedures had to be modified to ensure new cleaning standards. I’m glad my colleagues – many of them are foreign housekeepers – work hard all together, to handle the additional cleaning and disinfecting of wards.”

The Linen team of 22 that oversees 1800 beds – 1500 in TTSH and 300 at NCID – led by Issac Asirvatham, runs on a tight schedule to ensure that no ward is ever without linen. Linen – bedsheets, blankets, towels, curtains, even patients’ pyjamas – are essential items that come into direct contact with COVID-19 patients. During the peak of COVID-19, the turnaround for laundry, which was outsourced, became 24 hours instead of 48. These unsung heroes worked 12- to 14-hour shifts (up from the usual nine) to make sure all their work was properly done and nothing was missed out. “I make sure the schedule is properly drawn up, all the linen is supplied to the required wards,” explains Issac in his interview with CNA.⁸ “We are very important. If we don’t supply linen, patients would be naked!”



Frequency of cleaning and sanitising of ward rooms and other high-touch spaces like labs went up significantly.



A ward staff talking to Chinnappa Sathiyamoorthi, a migrant worker.

“Some migrant workers who were COVID-19 patients were discovered to have terminal diseases. Listening to their stories, you can’t help but empathise with them and their dilemmas ■

HO LAI PENG
Senior Principal Medical Social Worker, Care & Counselling

Counsellors

Dr Chan Lai Gwen

■ Senior Consultant, Department of Psychiatry

Ho Lai Peng

■ Senior Principal Medical Social Worker, Care & Counselling

Dr Chan Lai Gwen volunteered to reach out to migrant workers in isolation dormitories, to help them overcome various mental health issues, arising from anxieties such as missing their families and the fear of falling ill, losing their jobs and being sent home. “The migrant workers may not have awareness of mental health issues, hence may not consider it a major concern. This does not mean that it is any less important, because they face enormous stress from feeling vulnerable without a network of support.”⁹

Medical social worker Ho Lai Peng adds, “Some migrant workers who were COVID-19 patients were discovered to have terminal diseases. Listening to their

stories, you can’t help but empathise with them and their dilemmas. For some workers who had to be sent back home, we fundraised among the staff to help them and their families. They needed our help.”



Migrant workers warded at TTSH-NCID were helped in many ways.

Place captions here.



Ground staff disinfecting and cleaning an ambulance at the end of the day.

“We met different kinds of patients; some were violent. That’s why we also work with the ancillary police force, to assist us in doing our job ■

ZULKIFLI BIN ZAKARIAH
Senior Security Officer, Estate Office

Security + Porters + Ambulance Crew

Zulkifli Bin Zakariah
■ Senior Security Officer, Estate Office

Security personnel are in the unenviable position of having to de-escalate situations where people are being endangered or when an individual causes a commotion. They also escort patients or suspected cases when they are transferred to different parts of the hospital – a job requiring them to take precautions. Zulkifli, a father of two very young daughters, one three years old, and another just seven months, was actively involved in patient transfer during COVID-19. He recalls, “At its peak, we had about 60 transfers per 12-hour shift. It’s now about 20 transfers (October 2020). We met different kinds of patients; some were violent. That’s why we also work with the ancillary police force, to assist us in doing our job.” When asked about how he had been coping at home, Zulkifli admits that his daughters, “cried when they couldn’t hug their daddy.”

The porters and ambulance crew play no lesser roles. They are a key part of a tightly coordinated operational flow to combat COVID-19, moving patients, equipment and other medical paraphernalia between different areas of the hospital’s vast campus, or transporting patients to and from the hospital to various locations on the island.



A porter organising shortlisted items to be ported from point A to B.

THE UNENDING STORIES OF THE “UNsung HEROES”

There are countless stories of extraordinary sacrifices made by the “unsung heroes” – going beyond the call of duty. It is hard-pressed to name them all. There is a certain sincerity and simplicity in their strength. They are people who know what they need to do and what needs to get done. The ones who are truly “unseen” – the housekeepers, the facilities officer, kitchen staff, etc. – have shown us the immense and essential value they bring to the organisation.

For all the challenges COVID-19 has brought about, it has also galvanised the whole of TTSH-NCID. Every staff member sees it as a battle that they have been prepared to fight even before the pandemic. It has been a badge of honour to serve on the frontline, despite great personal sacrifice. Fighting this battle has also revealed that every person in this united force is essential and plays an indispensable part in the whole machinery – whether he is a doctor or

a physiotherapist, a security officer or a foreign nurse, a linen department executive or a lab technician. Many do their work quietly, going into overtime night after night without complaint, expecting nothing but to know that their efforts will pay off and they have helped save lives and protect the nation.



Staff chatting with a patient.

At the end of the day, Dr Koh Li Wearn stresses that the fight extends beyond those who are seen – doctors, nurses, radiographers, therapists – to “the auntie who stands at the bottom of the escalator, cleaning it with disinfectant, just to keep the place going. She’s the hero,” she says.



Cards with appreciation notes – from all walks of life – are constant encouragement to the frontline and backline staff.

Christopher Soh Kok Keng

■ Deputy Director of Nursing (Innovation), TTSH ED¹⁰

Tina See

■ Nurse Clinician I, Infection Prevention & Control

A NOT-SO-TYPICAL WORK DAY FOR NURSING PAIR

The sun has not shown its face yet, but Christopher Soh, Deputy Director of Nursing (Innovation), Emergency Department, is awake and ready to face another hectic day at the Screening Centre at NCID, where he is deployed during the COVID-19 pandemic. His children – a 13-year-old son and a 10-year-old daughter – are beginning to wake up for school. He takes the opportunity to look in on them before he leaves home – it would be good to give them a hug again soon, he thinks. He and his wife, Tina See, are colleagues at TTSH. Tina is a nurse clinician in the Department of Infection Prevention and Control. They head for work and as they arrive, Christopher notes that the SC entrance is already seeing a queue form. He makes his way quickly to SC where his morning shift team is waiting. He leads them in a safety huddle, and they pair up to put on the PPE, ready for a day's work. His night shift nurses are just exiting – they look exhausted. He gives them a nod, a wave, thumbs up to thank them for soldiering through the night. He



Deputy Director of Nursing (Innovation) Christopher Soh with his wife-colleague Tina See.

enters SC and eyes the room of chairs, all filled with individuals present for screening. His nurses are already bringing their mobile screening stations around, conducting swabs. Taking a deep breath, he jumps right in as there are many cases to clear!

The hours fly by. Before he knows it, it's been nearly 12 hours since he arrives.

Though technically, his shift ended hours ago, there is an endless stream of cases, and he wants to help out as much as he can. Finally, the night shift team arrives and Christopher decides to call it a day. He carefully de-gowns, rewards himself with a tub of ice cream from the pantry, then takes a thorough shower. As he leaves NCID he sees a queue outside

SC – it is as if it never moves since this morning. When he reaches home, he realises his wife has also arrived not long before. Their children have put themselves to bed. The couple spend an hour talking, connecting and exchanging notes before they turn in for the night, setting their alarms for another long day tomorrow. ■

SPOTLIGHT: COVID-19 PATIENTS AND CARERS

In the battle against COVID-19, the spotlight is unquestionably on the patients and the carers – the doctors, nurses, allied health professionals such as physiotherapists, occupational therapists, speech and language therapists and dieticians. In this chapter, we follow the story of Mr Raju Sarker, whose remarkable recovery – from near death – epitomises the unrelenting dedication and commitment of carers and the fighting spirit of every COVID-19 patient.

A nurse tending to a patient admitted to an isolation ward at NCID.

“Mr Raju Sarker was at the brink of it. He was doing worse . . . then, suddenly, he was better ■

DR JENNIFER TING SYE JIN
Consultant, General Medicine and Intensive Care Medicine

THE STORY OF RAJU SARKER

He was infected with COVID-19. He suffered every imaginable issue from sepsis to fungus in the blood. He deteriorated and his vital organs began to fail – he came close to death multiple times. Suddenly, he began to improve,

and five months later, he was discharged from TTSH.

The incredible story of Raju Sarker will surely go down as one of, if not the most dramatic and memorable episode in Singapore’s battle against COVID-19.

Raju was Case 42 in Singapore. A native of Bangladesh, the 39-year-old



Resuscitation efforts were relentless at the Emergency Department during the COVID-19 peak.



Raju Sarker readying himself to be discharged, after spending five months at TTSH-NCID.

was one of the first migrant workers to contract COVID-19. He was linked to a cluster at a construction site at Seletar Aerospace Heights. Before he was admitted to TTSH on 8 February 2020, he had visited Mustafa Centre and stayed at The Leo dormitory on Kaki Bukit Road.

By 20 February, Raju was in a critical condition. He had pre-existing conditions – pneumonia, respiratory and kidney problems – before he was infected with COVID-19.

“We will always try our best until we reach medical futility,” says Dr Jennifer Ting Sye Jin, Consultant from General Medicine and Intensive Care Medicine.

“He was at the brink of it. He was doing worse... then, suddenly, he was better.”

Raju had come close to death a number of times. He had trouble breathing on his own, and needed the help of a ventilator. His blood pressure became severely low a number of times, and there was genuine concern on the part of his care team that he would be one of the early COVID-19 casualties.

“He was like the typical ICU patient: every organ was off and it was very hard to support his breathing,” describes Dr Chan Yeow, Senior Consultant, Anaesthesiology, Intensive Care & Pain Medicine. COVID-19 patients in the ICU may require a ventilator to help



A nurse briefing Raju Sarker on his discharge.

“Being the rehab team, we have to push our patients, but we can’t over-push them ■

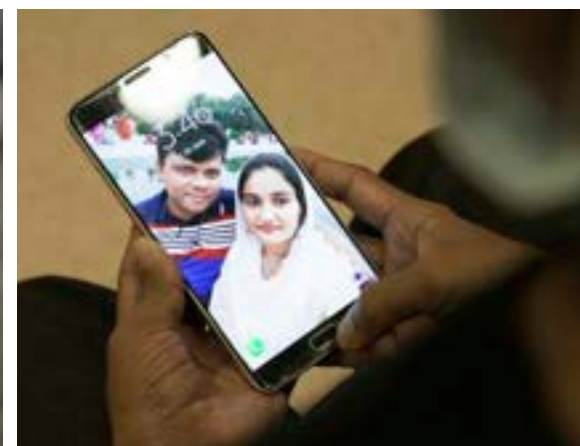
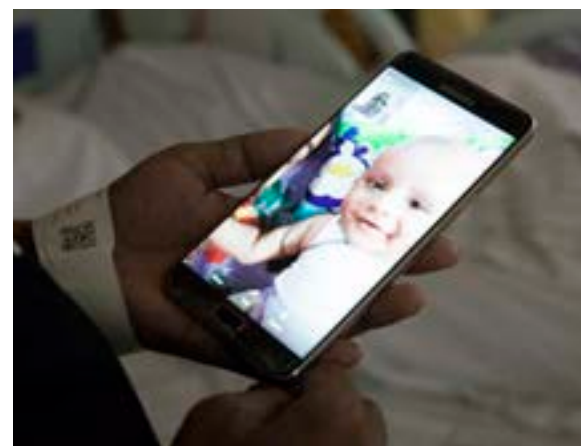
SOH YAN MING
Principal Occupational Therapist, Rehab

them breathe – a tube is inserted down the throat to inflate the lungs and remove carbon dioxide.¹ They may also need a line in the neck and in the arteries. All these procedures carry a degree of risk, and for the patient, it can be very uncomfortable and frightening.

“When you lie prone and there are tubes and lines, you are uncomfortable, you’re fighting,” describes Dr Chan. “So we had to sedate and paralyse him – and then you worry that when you sedate and paralyse you cause injury without knowing. Then he had kidney failure, so we had to dialyse him. It was tough.”

What had made Raju’s situation even more dramatic was that during the time he fell ill, his wife was going to give birth. It became even more of a mission for the team to do everything they could to keep him alive.

“We heard that his wife was very pregnant, and the Foreign Minister of Bangladesh and our Foreign Minister were trying to link them up,” relates Dr Chan. A medical officer and a nurse went into Raju’s room to shoot a video to send to his wife, “but he was lying face down with a breathing tube and was unable to respond.”



Raju Sarker showing images of his newborn son (born during his hospitalisation) and his wife.



A speech therapist assisting a patient.

When Dr Chan and the team heard later that Mrs Raju had given birth, they were all very happy. “I met Raju in the ward and told him he had a son, and he smiled,” he remembers. “I was very gratified.”

Before she met him, Dr Ting had heard so much about the “legendary” Raju who survived many bouts of infection.

“He was really amazing, because he was pharmacologically paralysed for one and a half months to allow the ventilator to support his severely damaged lung,” she says. Her first encounter with him was when he first came out of pharmacological paralysis. “I thought he would have a few more weeks to go, but I was really surprised that he improved very quickly when he just turned the corner.” Raju astounded everyone with his rapid recovery. “Everything was shortened,” marvels Dr Ting. “It was a miracle.”

Dr Ting made the decision to move Raju to the general ward, on account of his improvement. He also began rehabilitation shortly after. One day, she and the ICU physiotherapist went to visit him in the general ward, and the therapist printed out a photo of Raju’s newborn son to surprise and encourage him. “The therapist didn’t just see him as a patient, but embraced him as a human being,” says the doctor.

REHABILITATING TOWARD RAPID RECOVERY

Raju was the first COVID-19 patient to undergo rehabilitation at the TTSH Rehabilitation Centre.

“There was a lot of uncertainty; nobody knew what to expect in the rehabilitation of COVID-19 patients,” says Dr Lui Wen Li, Consultant, Rehabilitation Medicine. “He had a lot of medical complications that needed to be looked through thoroughly, such as heart rate, blood pressure, electrolyte levels, red blood cell count, nutrition status and weight. These complications needed to be managed to optimise his progress in rehabilitation and his functional status.” Based on information and sharing from the ICU team, a COVID-19 rehabilitation team was quickly put together.

Rehabilitation was not easy. “He was medically stable,” says Simon Lau Wing Tai, Senior Physiotherapist, Rehab. “But he was weak, de-conditioned, breathless. So, even doing simple tasks such as going to the toilet, showering, walking, he still needed assistance.”

COVID-19 patients in rehab require strict monitoring, even as they are given tougher and tougher challenges to build strength. “Being the rehab team, we have to push our patients, but we can’t over-push them,” explains Soh Yan Ming, Principal Occupational Therapist, Rehab.

“We work in the ICU as nurses, we still have to stay strong and fight the epidemic, and hope that things will get better ■

LI CAIHUA
Nurse Clinician II, NCID Nursing

But nothing could deter Raju from getting better. “He had so much perseverance and determination, sometimes he just wanted to rush it. On Saturdays and Sundays there was no therapy, and he would ask for exercises he could do by himself. We had to remind him to take it slow, to pace himself. And he would say, ‘I’m already cleared (to undergo therapy)!’”

His fighting spirit inspired the team. “His determination was so great, and he was motivated by his family, by his newborn, to keep improving,” notes Simon.

“Many healthcare professionals are involved in the rehabilitation of a patient,” says Dr Lui, listing rehabilitation physicians, nurses, physiotherapists, occupational therapists, psychologists, speech therapists, medical social workers and dieticians among them. It takes literally a village, and everyone has to be on the same page in terms of information and care plan. Within six weeks, through such teamwork, they had facilitated Raju’s recovery. He regained

muscle strength, endurance and regained functional independence.

“To have him walk, talk, playing sports like soccer, it’s nothing short of miraculous,” says Dr Tham Shuen Loong, Consultant, Rehabilitation Medicine, who oversaw Raju’s transition from the general ward to rehab, and follows up with him now that he has returned to his dormitory.²

A JOURNEY OF PAIN AND HOPE

At its March 2020 peak, TTSH-NCID had 900 COVID-19 patients in its wards while NCID had some 500 COVID-19 patients in its wards.³ Raju was one of a number who were critically ill in the ICU, which saw inevitable deaths.

The first two COVID-19 deaths happened on 22 March 2020 – a 75-year-old woman who had heart disease and hypertension and a 64-year-old Indonesian man who had pneumonia and heart disease.

The impact of the first fatalities was felt, not just by the families of the



A common scene at NCID isolation wards, where ward staff have to don full PPE while caring for patients.

deceased, but also the hospital care team. Dr Ting remembers, “I was concerned about how that friend of ours feels, having done his or her best for the patient, and yet, being the person who lost the first COVID-19 patient.”

Li Caihua, Nurse Clinician II, NCID Nursing, recalls, “We definitely felt sad. But we work in the ICU as nurses, we still have to stay strong and fight the epidemic, and hope that things will get better.”

It’s not just the patients the nurses support, but their family members as well. “All our cases have to be isolated,” Caihua continues. “So if the family members come to visit the patient who is

dangerously ill, they can’t enter the room; they can only see their loved one through the glass window alcove. But our nurses can go in and bring a phone, and if the patient is not intubated, the family can call in and talk to the patient. So at least they can see each other.”

There is another group of “COVID-19 casualties” who don’t even have COVID-19 – these are other patients who come to TTSH because of a life-threatening disease, and who pass away in isolation during the pandemic. Dr Ting describes a young girl who became brain dead, and her family was unable to be with her in her final moments. “After all this, the family donated her organs

to save more lives,” she recalled. “That was the most distressing, yet the most heartening part of this COVID-19 journey for me, even though she was not a COVID-19 case.”

Says Karen Kwa Su-Fen, Head of Care and Counselling Department, “No one should die alone. While COVID-19 time is extraordinary time, with all the safe management measures tightly in place, we try our utmost to grant family members access under exceptional considerations – to connect with terminally ill patients’ *virtually*. That’s why the hospital swiftly set up holding rooms with all the necessary IT equipment for multi-party conference, to discuss medical, legal and end-of-life matters.

“I remember a family member who was based overseas pleading with us, ‘I’ve not seen my dad for two years. I really want to see him.’ Another heartrending story was a Singaporean woman living in Kuala Lumpur, whose father had terminal cancer and was cared for at TTSH. She and her two children drove four hours in the night only to meet with an accident (she emerged unharmed but a motorist died), and thereafter she was stuck at the Woodlands and subsequently Tuas checkpoints due to border restrictions. Thankfully, through sheer determination and assistance from the hospital and Immigration & Checkpoints Authority



“We can’t heal every patient, but we can do our best for every single patient we see ■

DR JENNIFER TING SYE JIN
Consultant, General Medicine and Intensive Care Medicine

Dr Jennifer Ting speaking with a patient.

(ICA), she finally met her dad before he passed on, after a 48-hour ordeal.”

The balance between expressing compassion towards patients (and their loved ones) and enforcing protection measures to protect patients and staff is a fine line. It takes moral leadership and discipline to tread it well.

All said, the journey through this pandemic is filled with tragedies and miracles, but what resonates through

the staff of TTSH-NCID is hope, which translates into banding together and giving their 100 percent for every patient, whether Singaporean or foreigner.

“We can’t heal every patient, but we can do our best for every single patient we see,” says Dr Ting. “And apart from Raju, some of our COVID-19 patients have recovered very well. I had an 89-year-old patient who sang for us after we removed her tracheotomy!”

COVID-19 has challenged healthcare teams even more than SARS did, says Dr Tham. “Someone as complex as a COVID-19 patient takes a multidisciplinary effort. It’s not just one specialist but a team. The efforts put into rehabilitating these patients are unprecedented. This is way beyond what’s been done before. The amount of effort, time and cost is immense. But every bit is worth it.” ■

SELFLESS: SERVING AS ONE

In December 2019, the staff of TTSH and NCID gathered at the new NCID foyer for their annual year-end party. The brand new building had been built with the vision that Singapore would be ready for its next outbreak: it was equipped with a dedicated Screening Centre and 330 beds. But essentially, short of a disease outbreak, it was not an area of high activity by any stretch of the imagination.

“When I was orientating Radiographers in NCID, I would bring them down and every single time I told them, ‘So much space available, you can’t imagine it being filled up,’” says Radiographer Yip Jun Siang. “I saw the X-ray rooms there and I thought, ‘That’s a lot of precaution for something that may never happen.’”

Colleagues from different parts of TTSH-NCID come together to serve on the ground – the Screening Centre at NCID.

“Everyone worked as a team; everyone was very hardworking and responsible ■

DR MICHAEL CHIA YIH CHONG
Senior Consultant, Emergency Medicine

As it turned out, the completion of the NCID building was fortuitous. A month after that party, COVID-19 arrived on Singapore's shores and NCID became ground zero in the fight against the disease.

The fight grew exponentially from week to week, day to day, hour to hour. Too soon, it was all hands on deck for NCID and TTSH – like soldiers, staff from every imaginable department was deployed to serve in all kinds of capacity, from conducting safe entry procedures to taking swabs.

While NCID may be a separate building with a focused purpose of battling infectious diseases, and TTSH is an acute hospital that caters to a full range of medical needs, when push came to shove, the two worked seamlessly to save lives and to keep the nation safe.

Not only that, but the staff in satellite locations such as the Rehabilitation team sited in the Rehabilitation Centre at Ang Mo Kio-Thye Hua Kwan Hospital, as well as community partners such as Ren Ci Hospital pulled together to keep things running in the pandemic.



At the Screening Centre extension, during the peak of screening in February and March 2020.



Frontline staff sorting out administrative work at the Screening Centre at NCID.

IN THE WAR ZONE

The Screening Centre was the heart of the action. In the midst of the Chinese New Year celebrations, Dr Charmaine Manauis led in the setup of the Screening Centre, which took just two days. By 29 January 2020, the Screening Centre was up and running. Dr Manauis also established the screening protocol, which would be followed by over 450 hospital workers – doctors, nurses, allied health workers, and operations personnel from departments across TTSH – deployed to the Screening Centre during the thick of

the pandemic. Among them were more than 50 doctors from the surgery division supporting the two dozen Emergency Department doctors on duty each day.

Whether they were heads of department or senior consultants, all these doctors rolled up their sleeves and “worked like medical officers”, as Dr Manauis described to *Channel NewsAsia*.¹

Dr Michael Chia Yih Chong, Senior Consultant, Emergency Medicine was one of the emergency department doctors who oversaw the operations at the Screening Centre. He ensured that he got to know his team whenever he was on shift –



A staff at the Screening Centre, recording screening details.

his role was to ensure smooth workflow and that all patients received timely care. “Everyone worked as a team; everyone was very hardworking and responsible,” he says.

Allied health workers who experienced a hiatus in their BAU work readily took on new tasks. Principal Occupational Therapist Hong Yun was seconded to the Screening Centre for nine weeks as his regular work at the Rehab department in Ang Mo Kio had been reduced during the Circuit Breaker. “There was a lot to adapt to; the language was different,” he says. “The nurses were great mentors but everything was new. We had a 30-minute walk-through before we started, so we

forced ourselves to memorise these new work procedures.” His tasks at the Screening Centre included swabbing and transferring patients.

Working at the Screening Centre was terrifying for the staff, not just because the work was relentless, but there was real danger being up close with COVID-19-positive patients. But true to the spirit of TTSH, they looked out for one another, from ensuring each other’s PPE had been put on properly, to checking in on each other’s mental and emotional well-being. The stress was real: headaches from wearing goggles, heart palpitations from overworking, the crushing exhaustion and lack of sleep. Yet, united, they soldiered on.

FINDING NEEDS TO MEET

If you stop to think about all the tasks that need to be performed during this COVID-19 season for the many types of patients and staff – from the Screening Centre to the ICU to the wards to rehab – the magnitude is overwhelming.

The Screening Centre staff worked around the clock to clear the crowd and make way for more to come. Everyone from nurses to radiographers to pharmacists to lab technicians put in their 100 percent to keep things moving, doing their best to keep their cool while sweating in full PPE during their eight-hour shifts. Meanwhile, the TTSH Department of Laboratory Medicine was running tests without a break to produce results of the ever-increasing number of swab tests.

The Integrated Operations Coordinating Platform (IOCP) was held every day to bring quick solutions to identified issues. A team, which included the CEO, collectively made decisions on these issues. One critical issue studied was the swab testing protocol. The TTSH Kaizen team quickly convened to examine the workflow – to find ways to smoothen and shorten the processes between Screening Centre, Lab and Housekeeping to reduce the turnaround time for swab testing. As a result, the prototype for a new, quicker way to safely transport the

test tubes to the Lab was subsequently designed by the Centre for Healthcare Innovation Living Lab (CHILL) and created on the spot.

But it wasn’t just the management or IOCP that looked for solutions to needs. When the dormitory numbers began to climb, the Screening Centre faced huge numbers of migrant workers waiting to be tested – the waiting time stretched to 10 hours on some days. The inability to communicate with the workers due to language made things even more difficult.

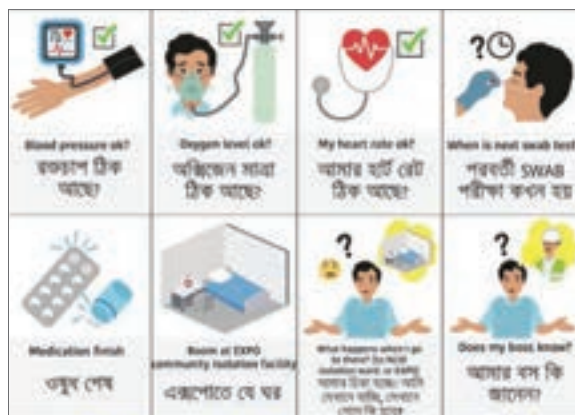
“There was a patient who had a lot of back pain, because of the long waiting time – eight to 10 hours – and he couldn’t sit. So the physiotherapist came and did joint mobilisation for him, and he felt much better after that,” recalls Hong Yun. That simple solution became a programme for the migrant workers who



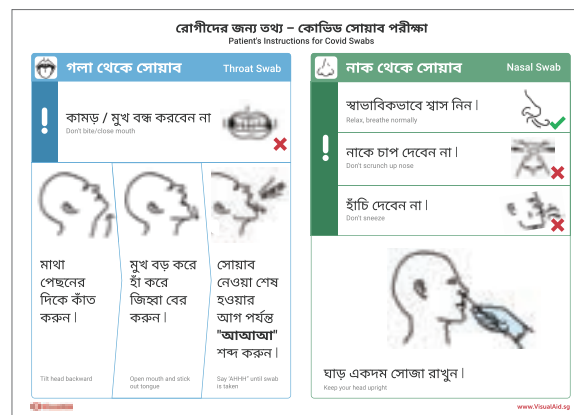
Key heads of departments gathered daily as part of the Integrated Operations Coordinating Platform, led by CEO TTSH.



A ward staff tending to Alam Badsha, a migrant worker.



Simple graphical advisory in a language migrant workers can understand and follow. (These graphic tools are made available on visualaid.sg.)



were waiting for their test results – an allied health worker would lead them in stretching exercises to make their wait more comfortable.

To facilitate communication, Senior Speech Therapist Tan Xuet Ying assisted in coming up with materials providing simple instructions. “When I was first deployed to the Screening Centre, there was already an overwhelming number of migrant worker cases. While there were already initiatives islandwide to address communication breakdown between migrant workers and healthcare workers caring for them, at SC, I observed several areas that could be improved on. I was very lucky to have good camaraderie with the nurses there and my ideas were quickly escalated up and turned into projects.” These included advisories on patient’s individual tables – laminated

sheets of paper in small print of English and Mandarin/Tamil/Bengali informing patients what to expect and standard social distancing precautions; and swab test instructions to patients and FAQs – all with visuals and in different languages.



Augmented physiotherapists leading stretching exercises at the Screening Centre. Photo: Faith Lee, Senior Staff Nurse.

“TTSH was tasked by the Ministry of Health to ramp up its testing capacity from 500 tests a day to 3,000 in three weeks. We were constrained by equipment and manpower. It was very tough ■

DR PARTHA DE
Head, Department of Laboratory Medicine

MANY NEEDS, ONE CAUSE

While the Screening Centre was the epicentre of COVID-19, the ramifications of the outbreak could be felt across every part of TTSH, and even beyond its walls – at partner organisations.

At TTSH’s Lab, which is during peace time one of its most busy departments, COVID-19 increased the pressure many times over. The process of testing is lengthy and tedious, requiring many

steps. Due to air travel and shipping restrictions, the Lab also faced myriad limitations and challenges. Vital equipment and COVID-19 testing reagents could not be made available, and the team had to find ways to do the testing better and faster with zero error while observing safe distancing and safety procedures; and like many other parts of the hospital, the Lab faced a lack of manpower and space.

Dr Partha De, Head of the Department of Laboratory Medicine, points out, “The Lab was put through a severe test; in February, TTSH was tasked by the Ministry of Health to ramp up its testing capacity from 500 tests a day to 3,000 in three weeks. We were constrained by equipment and manpower. It was very tough. Testing is very time-consuming and tiring. There’s no one-step system for testing, the sample goes through many procedures before a result is obtained. And we can’t afford to make mistakes. Plus, we don’t just have COVID-19 tests



The labs in TTSH and NCID have been in full gear since the start of COVID-19.

to run; we still have BAU cases to handle. But everybody’s working hard in this situation.” The lab staff worked overtime, often taking on twice the number of night shifts, all to keep the process running and to clear the growing number of tests as rapidly as they could.

At the ICU, the teams worked round the clock to keep the worst-hit COVID-19 patients alive. Some came close to death, suffering organ failure, requiring ventilators in order to breathe. A few were put on medications to support their blood pressure and circulatory status. The ICU

doctors and nurses were literally lifesavers trying desperately to save every patient.

“As a doctor treating COVID-19 patients in the ICU, I was not without fear. There was a sense of dread, admittedly. Thankfully, together with my colleagues, we formed strong camaraderie and battled together. We don’t give up on any patient. We just kept going; doing what is right for the well-being of our patients,” remarks Dr Chan Yeow, Senior Consultant, Anaesthesiology, Intensive Care & Pain Medicine.



A lab technician examining a specimen.



Members of the Community Health Team caring for an elderly resident at the Lee Ah Mooi Nursing Home.

“ Though I felt some anxiety, it was important to rise to the occasion . . . I learnt so much from everyone ■

CANDICE TAN JIA-EN
Principal Medical Social Worker, Care & Counselling

“While working in the ICU can be intense and stressful, we never lose the *one* focus – keeping our very ill patients alive. Our nursing team learns to have each other’s back and communicate openly with senior colleagues to solve problems,” observes Li Caihua, Nurse Clinician II, NCID Nursing, who has been with NCID ICU Ward since early 2019.

Cleaning became high priority during COVID-19 and was stepped up across the hospital. “We work 12-hour shifts, 7am to 7pm, 7am to 7pm, non-stop except for two-hour breaks. We prepare wards for patients, and clean toilet cubicles in common areas very often. Also, we have to make sure cleaning essentials such as tissues, hand sanitisers, etc., are always topped up because our nursing colleagues and patients have to use them all the time. Plus we have to wear PPE to do cleaning. But we’re happy to do our job and keep patients and staff safe with a clean environment,” describes Megala Armugam, Inpatient Ward

Supervisor, Housekeeping Services.

Staff went where the needs were. Candice Tan Jia-en, Principal Medical Social Worker, Care & Counselling, remembers, “We were assigned to nursing homes as part of TTSH’s community care outreach to carry out swab tests on the elderly when cases of COVID-19 started to surface there. Though I felt some anxiety, it was important to rise to the occasion. My colleagues and I, as part of the Community Health Team (CHT), had to learn very quickly how to perform swab tests and other community care



An “army” of cleaners work tirelessly to ensure a clean environment for patients, staff and visitors at TTSH-NCID.

“We recognise that it’s important for relatives to be able to visit their dying loved one – both culturally and in their grief coping ■

KAREN KWA SU-FEN
Head, Care & Counselling

practices. It was a steep learning curve, but my experience at the nursing homes opened my eyes: I learnt so much from everyone. And to be appreciated by the nursing home staff made the effort and sacrifices worthwhile.”

For Senior Physiotherapist Atiq Syazwani, who was deployed to CDC, the adjustment was a big challenge. “Back in the outpatient wards you have air-conditioning,” she says, “so it was a shock to me how hot it was at CDC, even though the windows were open. When it rained it was even worse because it was so humid. The wearing of PPE adds to the heat. I really wanted to give up. But I coped. We had cold drinks. Colleagues would text to see how I was. I even managed to fast during fasting month – I’m very proud of myself for enduring well.”

Dr Jennifer Ting Sye Jin, Consultant, General Medicine and Intensive Care Medicine notes, “One of most poignant moments as a doctor, facing dying patients, is when I’ve to issue death certificates. As I look at their photos on

their NRICs, against how they look in their ‘last-moment’ state, I could not help but grieve. Apart from acute COVID-19 patients, there are dying patients in the BAU ICU. I remember having to console a family whose young daughter was dying – due to acute asthma – through virtual communication. They had their last moments together – on virtual. Later, I was very touched to know that the parents of the deceased girl supported the organ donation act and donated their child’s organ to save more lives.”

The “one cause” TTSH *kampung* is pursuing is not simply COVID-19 or BAU patients’ well-being. It is also the emotional well-being of their families and loved ones. “We recognise that it’s important for relatives to be able to visit their dying loved one – both culturally and in their grief coping. Being able to be physically with their loved ones to offer support, hold their hands and bid their farewell means a lot to them. Thus, we’ve established various means for them to connect through teleconference or virtually,” explains Karen Kwa Su-Fen, Head of Care & Counselling.



A speech therapist guiding a patient through a session.

Nonetheless, Karen adds, virtual communication mediums such as mobile or computer devices cannot replace the value they place on being at the bedside and able to touch their loved one, especially for those patients who may not be conscious/able to communicate with them verbally. “There are relatives who have travelled a long way and made sacrifices in order to visit their loved ones. It is therefore understandable that they are upset when they are not allowed to visit.”

All said, it didn’t matter what status or which department one belonged to. Everyone who was part of TTSH shared

the same determination to join the fight against COVID-19, in whatever way he or she could.

A SPIRIT OF SACRIFICE AND UNITY

Showing care and making sacrifices for the greater good is in the DNA of the staff.

“There was a sudden influx of migrant workers,” recalls Hong Yun. “We were working in two shifts to allow staff to have enough rest, but that day Team A had finished their shift, but they gave up their break to help Team B tend to the patients. It was a spontaneous decision...



Security officers were deployed to designated areas to ensure safe and secure entries into the TTSH campus.

Maybe it's the culture in TTSH. When we see things that can be done better or can be improved, we just take ownership and do something about it."

Hong Yun's deployment to the Screening Centre had been a positive, encouraging experience. He witnessed the "spirit of unity and sacrifice" in full display. "It's truly inspiring to see people from different backgrounds coming together – putting aside their own agenda and comfort – for the same purpose: to care for patients. This really motivated me," he adds.

Meanwhile, those serving in the Screening Centre and the ICU, where they come into close contact with infected persons, face the dilemma of putting their

own families at risk. Many choose to find temporary lodging so as to not infect their spouses, children, or parents. Others shut themselves up in their rooms once they reach home, cutting off communication with their closest family members.

For Zulkifli Bin Zakariah, Security Officer, Estate Office, work also became more difficult during this outbreak. He found himself facing patients who spat at him because they were angry at the restrictions – "that's why it's important to wear PPE at all times when dealing with patients" – and one violent patient was so upset at not being able to go home that he had to be restrained. Faced with angry patients, he has learnt to tackle situations

calmly. "When one is fire, the other has to be water," he says sagely.

"Over time, the reality that no one can travel sets in; physical and emotional fatigue levels rise," recalls Charmaine Loh, Assistant Nurse Clinician, Clinical Instructors. "A lot of our foreign nurses felt dejected that they could not go home and be with their loved ones; they could only ease their yearning through video calls. Locally, nurses took extra precautions in ensuring the safety of their family at home. In this dire moment, everyone was deeply affected, but everyone pulled together."

In a *Today Online* special report,² Bernalyn Jane Tay, a senior staff nurse with TTSH-NCID had just returned from maternity leave in the first week of February when she was tasked with managing both suspected and confirmed COVID-19 cases. With travel restrictions, Bernalyn Jane's original plans to breastfeed her first-born regularly had to be shelved as she could no longer make trips to send the pumped milk back to Kuala Lumpur in Malaysia, where her baby was, as and when she wanted to. "I really miss my child, but for his safety also, I don't want to always go back as I am currently nursing confirmed COVID-19 cases."

Radiographer Yip Jun Siang found himself in a special situation. He had an engagement ring specially designed and

created for his girlfriend in 2019, and he planned to head to Brisbane to pop the question in early 2020. "It was just one day before I was going to book the flight, when I received news about the Wuhan case. Part of me just said, 'I think we should wait another day or two.' And then the travel ban from TTSH came." He is not too worried about keeping his girlfriend waiting. "Our BTO flat is coming already. She cannot say no already. She is also a part of the frontline, so she understands the situation better than others."

There have been countless stories of sacrifice made by frontline and backline staff. They hunkered down and fought valiantly amid the ceaseless flow of demands coming from all directions. They saw the worth and purpose of each sacrifice and were willing and determined to make them. No sacrifices were too big for them.



A staff engaging a patient during a therapy session.



Panoramic view of HealthCity Novena.

CAMARADERIE IN 'HEALTHCITY NOVENA'

TTSH-NCID did not fight the battle alone. Within HealthCity Novena, its partners were quick on the uptake to support the hospital in taking over or providing step-down care for its patients. Ren Ci Hospital admitted 43 of TTSH's decant patients in a matter of two weeks – no small feat given that some of the patients were complex cases. It demonstrated RCCH's shared, common purpose with TTSH's – patients' well-being – and its willingness to partner TTSH helped to free up critical beds at the main building, in particular during the COVID-19 peak. Moving acute patients to a community setting required work on both sides to ensure that the transition of care from TTSH to RCCH would be seamless for each patient, and that the healthcare resources were effectively utilised in pandemic conditions.

Adjacently, the Kaizen teams at the Centre for Healthcare Innovation (CHI) worked untiringly with clinicians to come up with safe measure solutions such as the low-cost, robust and disposable face shields. They also developed protocols to reduce long queues at the Screening Centre and safe-entry points, and even introduced ways to reduce the use of zip lock bags for COVID-19 test samples.

From research, providing expert opinions to sending volunteers to the frontline operations, academic staff, researchers, students and even alumni from the Lee Kong Chian School of Medicine (LKCMedicine) set aside time, know-how and effort to support TTSH in its COVID-19 fight.

Indeed, ultimately, no system can endure without partnerships, especially in times of crisis. The clarion call for unity in purpose and patient care struck a common chord with every partner. They knew what was at stake. The COVID-19 crisis has evidently shown the immeasurable value of relationships TTSH constantly invests in and forges with its community care partners, in HealthCity Novena and beyond. Learning how to work with each other, amid the strikingly difficult COVID-19 period, only reinforces this partnership. The level of trust, understanding and mutual respect has been inexorably elevated.

NO WASTE OF CRISIS

“Never let a good crisis go to waste,” Winston Churchill said at the end of World War II. This sentiment has been amply echoed by TTSH’s actions through every outbreak since its founding in 1844, from Nipah to COVID-19. There are new lessons to be learnt each



I saw collective leadership at all staff levels from heartfelt engagement efforts to great teamwork to strong networking ■

DR EUGENE FIDELIS SOH
CEO, TTSH & Central Health

Emergency staff rushing to receive a patient ferried by an ambulance.

time, and the hospital becomes better prepared at every turn.

Among the most important is what the hospital has already witnessed this year: that in a crisis, it becomes natural and crucial to give of oneself for the sake of all. This spirit of giving for the greater good is one of the most priceless outcomes of this pandemic.

Indeed, at its worst, COVID-19 kept staff of TTSH on their toes and out of bed. At its best, the challenges it presented brought the best out of

everyone. They emerged stronger, kinder and more introspective of why they do what they do.

As a hospital, TTSH has done well in its response to COVID-19. It is truly amazing how its people across all levels and family groups have pulled and worked together to ensure a hospital response that was well coordinated and ahead of the fast-evolving outbreak situation.³

CEO Dr Eugene Soh remarks, “I saw collective leadership at all staff levels from heartfelt engagement efforts to

great teamwork to strong networking. It has been an incredible journey and I thank each and every one for your hard work and the personal and professional sacrifices you have made.”

Staying united and working as one to combat the pandemic and save lives – that’s a job for TTSH-NCID. If there was any moment in the history of the hospital that has evidenced the strength of its famous “*kampung* spirit”, it would be 2020/2021. ■