



CHAPTER 1



RISING UP TO THE CHALLENGES OF THE PAST YEAR



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The challenge of keeping on top of an ongoing pandemic has been one of healthcare's greatest tests. However, despite the gruelling circumstances, Yishun Health's staff have stepped up to the task. Much of this work has taken place across four main areas, and has been the result of intense collaboration, proactive thinking, and a person-centric mindset. From making patient care and safety a priority, supporting the community, improving processes, and leveraging technology, our people have worked swiftly and creatively to pursue our mission of care.



Flight attendants were trained to become Care Ambassadors to alleviate the workload of healthcare staff

● Living Well

● Living with Illness

● Crisis and Complex Care

● Living with Frailty

● COVID-19 Response

CARE & SAFETY

Our priority in delivering safe care took on greater urgency during the pandemic as we moved swiftly to implement additional infection control measures, simultaneously pivoting to ensure that we meet our ongoing commitments to bring quality, person-centred care to our community.

WINGS FOR WARDS ●

More than 100 Singapore Airlines (SIA), SilkAir, Scoot and Jetstar flight attendants traded their 'wings' for wards and passengers for patients from April to August 2020. Taking on new roles as Care Ambassadors, they underwent training and stepped in to supplement manpower needs brought on by the COVID-19 outbreak. Taking vital signs, feeding, turning patients in bed, helping them with toileting needs, and transferring them around the hospital, these Care Ambassadors provided basic caregiving and service-related support.

Some even took on roles as Service Support Officers (SSO), being screeners, patient greeters, visitor management and tele-visit officers, patient service associates, supply chain coordinators, and pharmacy service support staff, helping to alleviate the increased workload of healthcare staff.

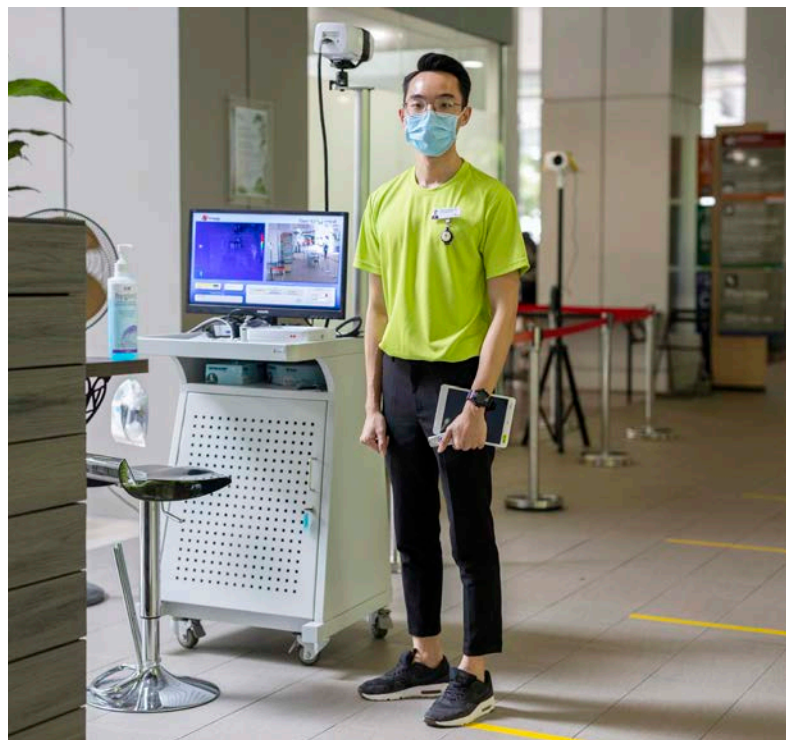
MAKING FUNDAMENTAL CONTACT ●

A large part of the work to contain the COVID-19 outbreak did not take place in just clinical facilities, but across desktops and through phones for the critical work of contact tracing. Contact tracing is an established public health strategy that identifies and isolates anyone who has been exposed to an infectious disease. This enables speedy and effective containment to dramatically decrease the impact of an epidemic or pandemic.

Across Yishun Health, staff from 35 different departments stepped in to help keep operations running 14-hours a day, seven days a week. At its peak, the 70-person team was contact tracing more than 80 cases a day, more than 400 cases a week.

MAKING ACCESS SAFE & SECURE ●

Temperature screening and visitor management were important aspects of COVID-19 security and surveillance. The challenges were many: time pressures, designating entry and exit points in an open-concept hospital, and setting up centralised screening stations. In the initial



Our SSO ready for duty at the lobby!



Our contact tracing team has managed more than 1,800 index cases to-date



days, many hours were spent late at night working out the best processes and layouts. There was also a learning curve – engaging people, fostering compliance, and explaining the necessity of screening.

Despite the obstacles, Yishun Health's Operations team made sure a robust Visitor Management System was ready to oversee the well-being of hundreds of visitors and patients who flow in and out of the hospital each day. They even set up a tele-visit facility to enable communication between patients and their loved ones when no visitors were allowed.

THE HEAT IS ON IN THE KITCHEN ●

Even as many things ground to a halt during the pandemic, some everyday routines became even more essential. In the Yishun Health kitchens, the team had to ensure that there was no disruption to food supplies and meals, and additionally meet the increase in staff meals for clinical and non-clinical areas – while at the same time adapting to pandemic plan protocols. These meals provided patients with the nutrition to get better, and staff with the energy to push on in their various duties.

BEING A FRIEND IN A TIME OF NEED ●

Yishun Health staff showcased their empathy for migrant workers who had been affected by COVID-19. Medical Social Services (MSS) developed a resource kit to address psychological stress. Via teleconference and



Food Services delivering food for staff during shifts



A typical teleconference with patients who are foreign workers involves a medical social worker and a translator

with the aid of translators, the team worked to alleviate the anxieties that had arisen due to job insecurity and prolonged isolation.

Many proactively donated clothes and other necessities from home as well as buying SIM cards and providing handphone chargers to help them keep in touch with their loved ones during their isolation.

The 'Wheels on the Bus' initiative saw staff across the hospital going beyond their duties to chip in and ensure that workers who were admitted had essential items. It served as an outlet for those – be they individuals or organisations – who wished to give, and as a platform for individuals in need to receive.

EASY TO CHEW, SAFER TO EAT

Choking is a growing problem for seniors, and the second-highest cause of accidents after falls. With an ageing population comes growing issues related to frailty, dementia and other conditions, which increase the risk of choking.

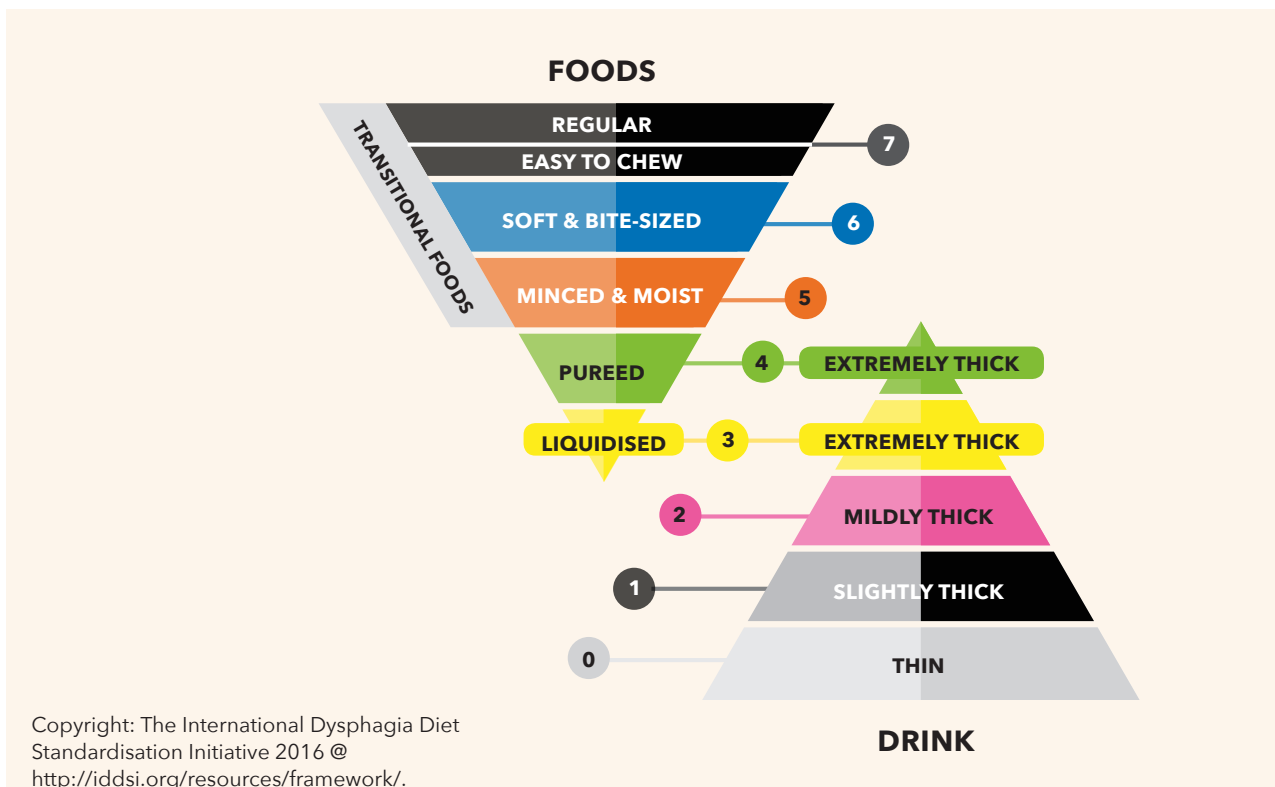
To address this issue, Yishun Health started a Frailty Ready Nutrition Subgroup to review the existing menu for elderly patients and enhance its safety. This builds on the International Dysphagia

Diet Standardisation Initiative (IDDSI) adopted in 2019. The current food texture for soft diets (Level 6 on the IDDSI) is a uniformly chopped or minced form, which can be visually unappealing and is limited in dish options. This can result in nutritional imbalances.



The Easy To Chew team coming together to ensure the texture of food is right for patients with presbyphagia

International Dysphagia Diet Standardisation Initiative (IDDSI) Food Texture Chart





The team – comprising Food Services, Nutrition & Dietetics, and Speech Therapists – identified a more palatable option on the IDDSI, the ‘easy to chew’ texture, which lies between ‘regular’ and ‘soft’. ‘Easy to chew’ refers to food that breaks off easily when cut with the side of a fork or spoon. This allows for more variation in dish options to improve patient appetite, and is also safer for frail patients with presbyphagia (before dysphagia), as well as patients with impaired judgement, including those with dental issues or have had oral procedures.

Since the ‘easy to chew’ diet was rolled out in KTPH in a soft launch in September 2020, there has been an average increase of 3.5% and 4% of such meals served per month in 2020, and in 2021 (till February) respectively. This diet is also being rolled out in YCH.

PARTNERING GPs TO DELIVER DIABETES CARE ●

Due to the COVID-19 pandemic, fewer patient slots were available for diabetes mellitus (DM) appointments at the KTPH Specialist Outpatient Clinics (SOC). To tackle this, a shared care programme was initiated with community General Practitioners (GPs). This overcame the limited efficacy of teleconsultations, as laboratory tests are usually required for diabetes monitoring.

Started on 1 December 2020, the DM Shared Care pilot is a collaboration by the Shared Care Partnership Office, Admiralty Medical Centre (AdMC) and Frontier Healthcare Group. Under this initiative, patients with stable DM are

co-managed by Frontier Healthcare Group GPs. They will see and pay the GP for consultations, tests and procedures, while still receiving subsidised medication from Yishun Health. This helps to right-site patients in the community, grow the capability of GPs, and maintain links to specialist care at Yishun Health. Since its launch, 21 patients have signed up for DM Shared Care and benefited from the programme.

EXERCISE IS MEDICINE ●

In 2020, Yishun Health’s Sports Medicine Clinic renamed itself as the Sports and Exercise Medicine Centre (SEMC). This new name underpins the team’s belief that movement and physical activity are key to prevent and treat many chronic diseases. This sets the tone for its new ‘Exercise Is Medicine (Singapore)’ initiative that will complement the efforts at risk-factor modification and management of chronic diseases for patients and the community.

SEMC aims to drive minimally invasive treatment options for patients with musculoskeletal problems. To support this, SEMC added Tenex, a treatment for recalcitrant tendinopathies, to its modalities. SEMC physicians have also started performing ultrasound-guided injections in the operating theatre alongside orthopaedic surgeons.

SEMC started the Heel Pain Clinic in November 2020 as a one-stop solution for plantar fasciitis and Achilles tendinopathy. This offers coordinated, hassle-free, cost-effective and timely treatments by sports physicians, foot and ankle surgeons, as well as physiotherapists, podiatrists and acupuncturists.



Dr Dinesh Sirisena, Consultant, Sports and Exercise Medicine Centre, performing the minimally invasive Tenex procedure on his patient

COMMUNITY HEALTH RESILIENCE

Yishun Health looked beyond our campus to bolster the health resilience of our community, ensuring that those who needed extra support could access it readily throughout the year. Besides caring for the COVID-19-afflicted and the vulnerable, we also raised patient literacy and capability through education, awareness and skills-building.



One of the ways PHCT supported the community was through assisting swab exercises at nursing homes

HELPING BEYOND OUR CAMPUS ●

Our COVID-19 response went beyond managing cases on campus. Responding to the cases in nursing homes and dormitories, Yishun Health deployed teams to these facilities beginning in April 2020 to expand our scope of care.

The Population Health and Community Transformation (PHCT) team partnered GeriCare and various departments to form swabbing teams. About 100 staff were trained and 1,400 swab tests were conducted across three residential homes, as well as for the staff of Northpoint City mall.

In addition to swabbing, they developed pictorial guides for community care partners to improve awareness, education and recognition of infection control measures; they also trained nursing home staff to conduct swabs independently. The teams made extra effort to manage the fear and anxieties of the senior and frail residents.

The PHCT team's support for nursing homes went beyond swabbing exercises. Doctors stepped in to fill the shortfall in clinical manpower during times when nursing homes had staff under

quarantine order, making clinical decisions for residents who were unwell.

And while the team took precautions to maintain physical distancing, they worked to become even more socially connected. The three Wellness Kampung rallied close to 740 active residents to keep in touch with 2,000 other Yishun residents.

Other members of the MSS team took on new roles, providing on-site administrative support at the CSC Loyang Swab Isolation Facility, helping nurses provide basic patient care in the wards, and working in logistics to coordinate Yishun Health's COVID-19 response.



The PHCT team reporting for swab duty!



A FOCUS ON DIABETES SELF-MANAGEMENT

One of the goals of the AdMC Diabetes Centre is to 'activate' patients towards self-care through individual clinic sessions as well as group education programmes. In FY2020/2021, the team focused on enhancing the content, messaging and delivery mode of its education programmes, especially for those with complex diabetes and diabetes complications.

It built on existing Skills for Life programmes by PHCT, offering it in different languages and via online seminars [see page 22 for more on Skills for Life]. More specific courses were also

developed, including Diabetes Empowerment Programmes on insulin management, lifestyle modifications, managing diabetes during fasting, and more.

Despite a delay in the roll-out due to the pandemic, the team successfully launched the first diabetes-related Skills for Life session in July 2020 via Zoom. Since then, 10 education programmes have been conducted.

HOLISTIC MANAGEMENT OF OBESITY

The Integrated Care for Obesity and Diabetes (ICOD) adapted to the restrictions and disruptions of the pandemic in FY2020/2021

As the Wave Subsides - Obesity Management Beyond COVID-19
3 October 2020, Saturday 2.00pm - 3.45pm
Presented by the Integrated Care for Obesity and Diabetes

PROGRAMME

- 2.00pm - 2.10pm**
Obesity and COVID-19
Obesity is a recognized risk factor for severe COVID-19 and people with obesity will need special care during this period. This talk sets the stage for the afternoon.
Dr Benjamin Lam, Consultant, Family and Community Medicine
- 2.10pm - 2.40pm**
Managing COVID-associated Mental Health and Sleep Difficulties Impacting Obesity
COVID-19 has brought along increased mental health issues which contribute to worsening weight problems. Simple strategies and resources for GPs will be discussed.
Mr Patrick Phor, Senior Clinical Psychologist
- 2.40pm - 3.20pm**
Teleconsultation in Obesity Management
Find out about:
• Current evidence, practices, challenges and take home tips for weight management video consultation
• Exercise history taking and assessment of common musculoskeletal conditions for obese patients
Ms Hedy Cheng, Senior Dietitian
Mr Jozmin Hanson, Senior Physiotherapist
- 3.20pm - 3.35pm**
Bariatric Surgery Referral During the COVID-19 Pandemic
Resumption of bariatric and metabolic surgery during the pandemic must be gradual and prudent. Find out which patients need to be prioritized for surgery during the "new normal", and the steps that have been taken in KTPH to minimize transmission risk during surgery.
Dr Tan Chun Hai, Consultant, General Surgery
Dr Tan Bo Chuan, Consultant, General Surgery
- 3.35pm - 3.45pm**
Q & A

2 CME credits pending approval. Scan QR code to register.
You can view a schedule of all returning CMEs by KTPH at <https://ktp.hk/en/education>
For enquiries, contact our Shared Care Partnership Team at scpteam@ktp.hk or 9114 2819

A Global Health problem
• T2DM and its related complications are a major cause of morbidity and mortality. This remains a problem for global health care
• Bariatric & Metabolic surgery is highly effective in the treatment for not just obesity, but also T2DM
• "Diabetes Surgery" for "Dia-besity"

TeleConsultation
for Exercise Consult and Musculoskeletal Assessment

Who to go first?

- Diabetes
- Hypertension
- Hyperlipidaemia
- COPD
- Heart Failure
- Kidney Disease
- Liver Disease
- Cancer
- Pregnancy
- Frailty
- Comorbidities

Obesity is a chronic complex disease with negative health consequences

- Obesity is now recognised as a chronic complex disease
- Obesity leads to a number of serious complications
- Obesity reduces life expectancy
(At BMI 30-35kg/m², median survival is reduced by 2-4 years and at 40-45kg/m² by 8-10 years)

Strategies for Virtual Diet Assessment

- Use your hand as a guide
- Carbohydrates: 1 cup/bowl/fist/1tsp



The ICOD team is multidisciplinary, and has organised many educational webinars online

On World Obesity Day, staff from KTPH and Tan Tock Seng Hospital led online participants in an exercise session to get their hearts pumping and excited for the day's programme

through focusing more on public outreach and primary care engagement. Dr Benjamin Lam, Family Physician & Consultant, Family and Community Medicine, appeared online and in newspapers to share his insights on the link between sleep deprivation and weight gain, as well as on obesity.

The team also organised webinars, including one for general practitioners. Held on 3 October 2020, it discussed the implications of COVID-19 on obesity and vice versa, managing COVID-related mental health issues impacting obesity, the use of teleconsultation in obesity management, and bariatric surgery during the pandemic.

For the public, a Health4Life webinar took place on 6 March 2021 in conjunction with World Obesity Day. It was a collaborative effort between KTPH, Tan Tock Seng Hospital and National Healthcare Group Polyclinics. The interactive session included an exercise segment, a cooking demonstration, a sharing session with a bariatric patient, and a segment on weight management resources.

The ICOD team was also involved in the organising committee of the Singapore OBES Congress, held in October 2020, and shared their perspectives, experiences and insights.

IMPROVING ORAL CARE FOR INPATIENT SENIORS ●

An oral health education programme piloted in

FY2020/2021 by Geriatric Medicine (GRM) and Dental Surgery departments has improved the overall oral cleanliness of patients in the geriatric ward, resulting in decreased unhealthy signs – a worrying category of oral cleanliness in the Oral Health Assessment Tool performed at admission and discharge.

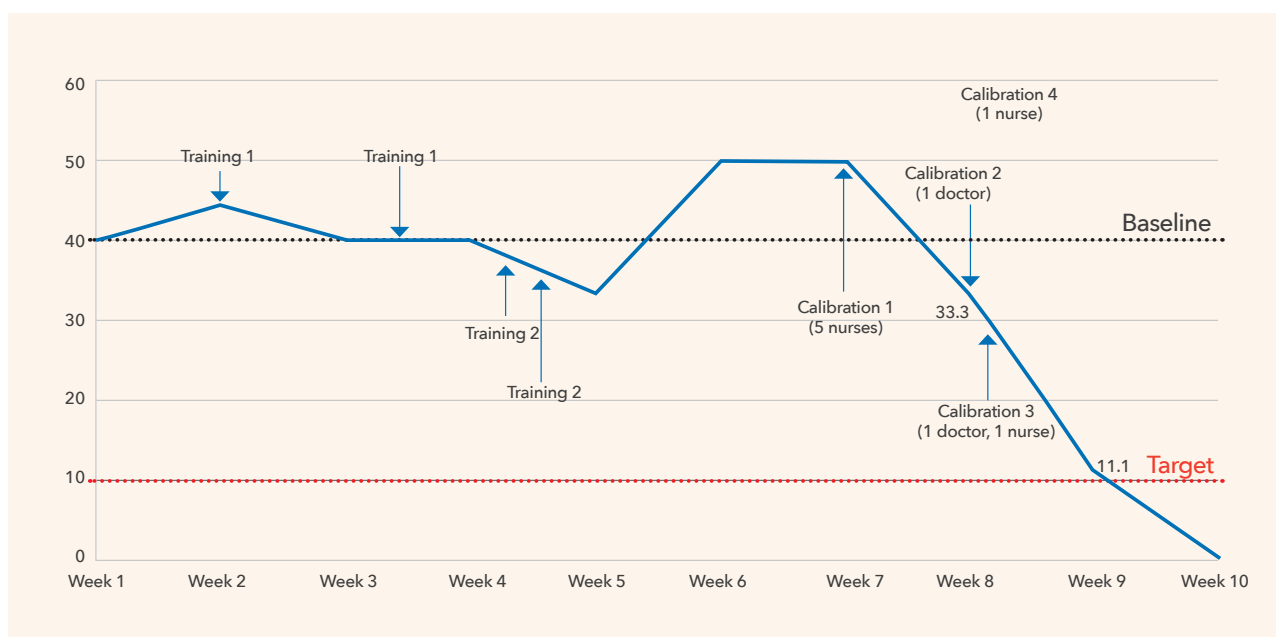
Some 43 staff members – including doctors, nurses, health care assistants, dietitians, occupational therapists, and speech therapists – underwent a comprehensive oral health training course. Putting their learning into practise in the wards resulted in:

- Significant improvement in mean oral health knowledge scores
- Increased confidence in providing oral care for patients and caregiver training
- Increased confidence in recognising oral diseases and knowing when to make a dental referral
- Improved oral hygiene among patients at discharge



During oral health education sessions, participants were divided into smaller groups for discussion and hands-on training with the Dental Team

Percentage of Unhealthy Signs in Oral Cleanliness at Time of Discharge





To further increase oral health awareness in the acute setting, information pamphlets on oral health and oral hygiene in three languages were made available for patients and their caregivers.

GRM and Dental Surgery departments aim to grow the reach of the programme to further train staff to be oral health champions, and guide new nurses on oral health assessments and oral hygiene for geriatric patients.

CAN'T KEEP A GOOD CHAMP DOWN ●

When in-person sessions for the Coaching for Health Action and Management Programme (CHAMP) had to cease for safety, its health action coaches quickly adapted to the online space. They started a Facebook group, CHAMP Connects, and began running sessions via Zoom. CHAMP's health action coaches also worked with physical trainers from PHCT to livestream exercise classes. This helped to maintain support and guidance so that participants continued to be motivated in their healthy lifestyle changes.

ARMING THE COMMUNITY WITH COVID-19 KNOWLEDGE ●●

Yishun Health's long-running Mini Medical School (MMS) reached one of its largest audiences yet in its first online forum. Some 341 'students' signed up for the *Covid-19, 20-21...* webinars, held in December 2020.

In all, three lectures were delivered by speakers from the National Centre for Infectious Diseases (NCID) and NUS Saw Swee Hock School of Public Health. The first covered how and why the global pandemic happened, and Singapore's public health measures. The second was on psychological resilience, and included an interactive session on community preparedness. Capping off the series were interviews with the community to illustrate strength in the commons.

The webinar format allowed for greater interaction and questions, with more time for participants to research, do extra readings, and enhance their understanding of the lecture. At the end of each lecture, students were given a quiz to assess their understanding of the lecture. More than 100 submissions were received for the quiz questions each week.

The webinars were later recorded, edited and uploaded onto the National Silver Academy website for seniors to access and watch at their own convenience.

VIRTUAL SKILLS FOR LIFE! ●●●

To adapt to the restrictions brought on by COVID-19, the Skills for Life! @ Community team reworked their experiential healthy lifestyle programme. This not only ensured continuity for the health-promoting initiative, but also raised the level of outreach in a safe-distanced way.

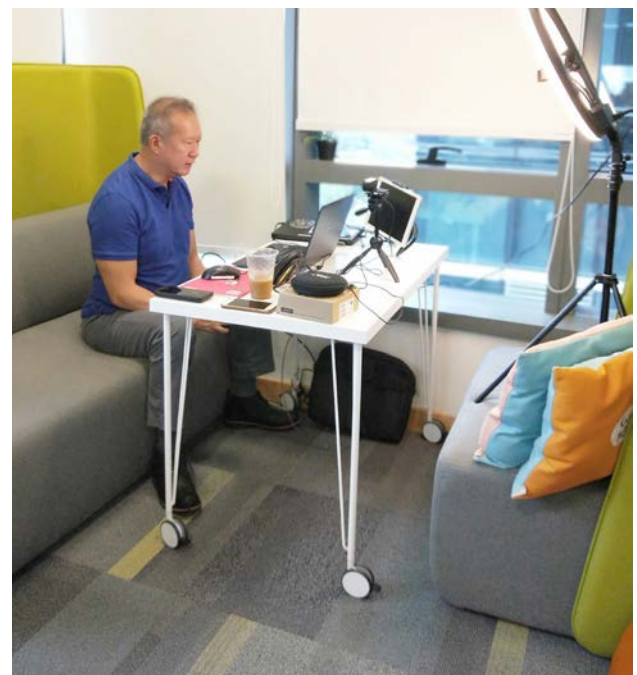
Moving to the online space improved accessibility and convenience for people, allowing the expansion of class size from 15 to 30 per run. In FY2020/2021, five virtual Skills for Life! @ Community sessions were held, benefiting a total of 148 participants. Beyond the sessions, the team also used Facebook to engage and encourage participants to share their experiences.

Skills for Life! @ Community focuses on encouraging people to lower their risk of chronic disease by adopting three health actions:

- No free-sugar
- Half plate of non-starchy vegetables in every meal
- Wholegrain substitution

THE CREATION OF COMMUNITY PRIDE ●●

PHCT's Regional Teams activated their Asset-Based Community Development (ABCD) philosophy to great effect in FY2020/2021, especially in boosting community resilience amid a crisis. In ABCD, we focus on what is strong (asset-based), not what is wrong (deficit-based).



Dr Chan Keen Long, Senior Consultant, Psychological Medicine, anchoring the MMS session over Zoom

By identifying and mobilising these assets, we support residents to take ownership of improving their own health and community.

Our Regional Teams actively highlight opportunities for residents to participate and be included in their community. When residents participate to the extent that they are comfortable and able, they gain belonging, social connection, and a sense of pride and ownership. This improves personal well-being and, over time, shapes a culture of self-help and mutual care.

One initiative rolled out after a conversation with lower-income residents in Nee Soon East was a WhatsApp group called 269AB Community Pride. It was formed for residents to update each other about available resources, and coordinate volunteer efforts for food distribution. The group grew from 12 to more than 70 members, and has become a useful platform for the sharing of social capital. Today, residents use the group to share timely information with each other, make offers and requests, and even support each other's businesses.

CREATING LINKS WITH OUR COMMUNITY PARTNERS

PHCT's Regional Teams look beyond medical needs to build connections between residents, social and community agencies, and local businesses. This multi-level, multi-sectorial partnership led to many co-created initiatives and actions during the COVID-19 pandemic that matched needs with donors and vice versa.

During the Circuit Breaker, the teams heard about the struggles that lower-income residents had with the heat and boredom, as well as difficulties accessing face masks. Residents with long-term conditions also shared that they found it challenging to monitor their health. At the same time, there were others who wished to direct their Care and Support pay-outs towards those in need. This led to the purchase of 50 fans, radios, masks, and automated blood pressure monitors, all of which were distributed to the residents.

The teams also linked up with Amoris Lumine, a choir that offered to distribute Christmas gifts and care packages to residents identified by community leaders who would benefit most. In the run-up to the December 2020 event, Singapore Red Cross also connected the group

to a local barber who wanted to provide free hairdressing services. Sixty-two seniors benefited from this meaningful event, made possible from the joint efforts of residents, community partners, and a local business.

During regular door-knocking efforts in Sembawang, Regional Connectors met a sewing enthusiast who was a member of a Knit & Crochet Facebook group. They had crocheted 500 mask extenders intended for healthcare workers. However, this did not pan out due to infection control measures. Instead, the Connectors suggested sharing the mask extenders with low-income families and partnered them in a distribution that began in February 2021.

AGEING WELL AT HOME

To continue care for patients transiting from hospital to home, and relieve the surging demand for beds in the hospital, the Ageing-In-Place Community Care Team (AIP-CCT) ramped up its capacity to take on more patients with medical needs at home, even over weekends. AIP-CCT repackaged its service to include intensive and continual home rehabilitation for Hip Fracture, Orthopaedic, Neurology, and General Medicine patients.



Behind each online MMS session, there is a dedicated PHCT Team working hard



Foreign domestic helpers formed a support network of their own – Guardians of Wellness Kampung – with members also participating in initiatives like mask distribution



Mr Teoh Gin Wah, WK Coordinator (left), builds connections with everyone who passes through the WK

From April to September 2020, there was a 21% increase in patients enrolled, and 30% increase in home visits were made by the multidisciplinary teams compared to FY2019/2020.

CAREGIVERS, HELPERS & GUARDIANS ●●

Residents are not the only ones who have formed bonds at Yishun Health’s Wellness Kampung (WK). Domestic helpers who accompany their charges also become regulars, forming a support network of their own. Tapping on their connection and skills, WK coordinator, Mr Teoh Gin Wah, encouraged them to form a

group, which has become known as the ‘Guardians of Wellness Kampung’.

Their insights into the needs and well-being of seniors make these domestic helpers an invaluable source of useful information. They act as ‘eyes’ and ‘ears’, looking out for them during WK sessions. During the Circuit Breaker, the Guardians formed a chat group to share exercise videos, recipes and caregiving tips, filling the gap in activities when the WK were closed.

PROCESS ADAPTATION

Adaptation was the name of the game during the highly fluid and uncertain times of the pandemic. From the rapid shoring up of infection control measures and capacity-building in the initial days to more long-term efforts to provide continuing care, the Yishun Health family kept pace – many in full PPE – to expand facilities, services and other functions to meet ever-changing and growing demands.



In the ESW, A&E staff responded rapidly not only to the influx of patients, but also to evolving directives and situations

THE SCREEN TEST

When Singapore confirmed its first case of COVID-19 on 24 January 2020, Yishun Health's Acute & Emergency Care Centre (A&E) responded rapidly. In 48 hours, an Expanded Screening Wing (ESW) was set up outside its doors, ready for patients.

The ESW was eventually extended all the way to the YCH lobby to meet the demands from rising cases in the foreign worker dormitories. To accommodate the large volumes of patients awaiting swab test results, a total of five holding areas (H1-5) were progressively set up between January and May 2020. Manning these areas was a team of doctors, who were complemented by Allied Health Professionals redeployed from a wide range of specialties.



The YCH Lobby was converted to a Holding Area, with staff and necessary equipment ready and accessible



The Nee Soon GRC MPs, NHG Group CEO Prof Philip Choo, Yishun Health Senior Management, and partners from Fullerton Health, Tzu Chi Foundation, and FutsalArena @ Yishun at H5



A site recce being done at one of the YCH wards to convert it into a ward for COVID-positive patients



Even before Circuit Breaker began, the team was already dealing with bed surge and forward planning of ward conversions

A STATE OF CONVERSION ●

From the A&E to the wards and critical care areas, conversions and workflow adaptations were constantly taking place to keep ahead of the cases and ensure patient safety. At the A&E, additional steps were taken to reorganise workflows and spaces so as to minimise interactions and infection risks between patients as well as between staff. 'Hot' and 'cold' zones were demarcated to keep A&E patients – whose critical and co-existing conditions put them at high risk – safe.

As screening, holding and treatment facilities were expanded, numerous measures were put in place to manage and maintain patient flow throughout the hospital system, including tapping on community resources to safely discharge patients back home.

Over at the wards, a conversion planning team of senior administrators, bed management teams, and nurses had to work with urgency and strategic foresight to turn multiple KTPH and



The Post-Anaesthesia Care Unit dedicated beds for non-COVID-19 patients who also require ICU care

YCH wards into COVID-related and operationally ready Intensive Care Unit (ICU) wards. Surge plans had already been proactively raised in late February and, when case numbers rose in April 2020, stable YCH patients were decanted to other community hospitals so the space could be allocated to acute and subacute COVID-19 wards.

At KTPH, more than 60% of wards were progressively converted, while at YCH, all beds were dedicated to COVID-19 patients [see page 30 for a surgeon’s perspective on running a COVID-19 ward].

Over at the critical-care end, steps had to be taken to ensure upstream preparedness for intensive care needs. From early April 2020, KTPH’s 22-bed ICU capacity was progressively increased to 90 beds through the conversion of wards and the Post-Anaesthesia Care Unit. To ensure sufficient medical support for the expanded intensive care facilities, clinical departments had to reorganise their work from eight- to 12-hour shifts.

In all, 120 nurses from varying disciplines were mobilised to support the ICU, undergoing training on patient management in a new care setting. About 40 non-ICU trained doctors also learnt the fundamentals of ICU management, intubation, and ventilator-setting and troubleshooting.

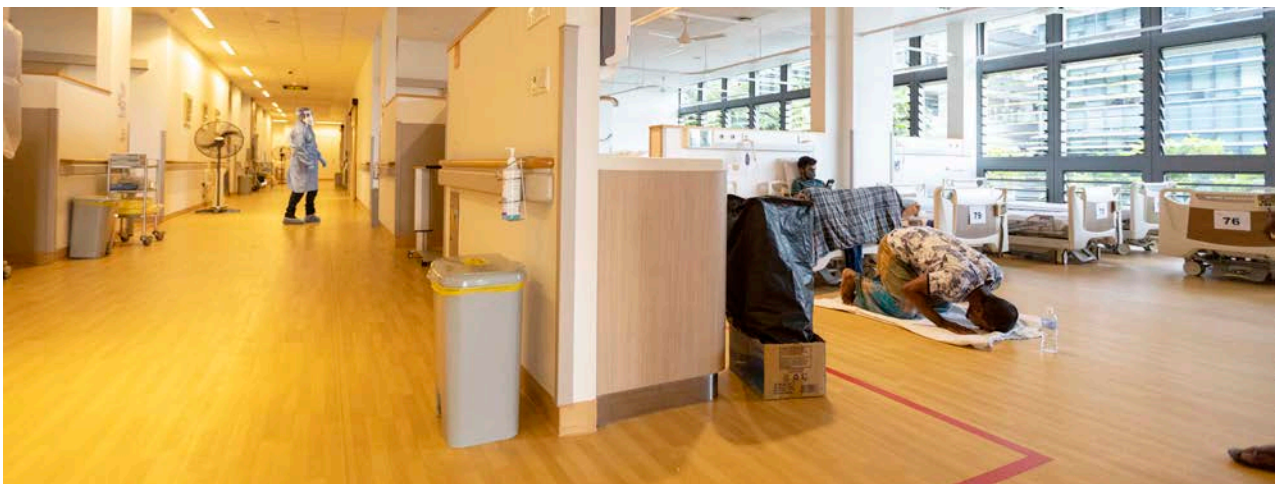
To support the medical professionals deployed to this new specialty, senior nurses who had cared for patients during SARS acted as mentors, sharing their experiences and helping juniors and peers process their anxieties and fears.

FACE DOWN FOR BETTER OUTCOMES

Beyond their day-to-day work, Yishun Health’s ICU nurses and the physiotherapy team developed and rolled out a potentially life-saving practice: using prone positioning for respiratory failure. The team found that encouraging patients to lie on their front resulted in better outcomes. This position improves heart and lung function, clears the airways, and improves oxygen intake in patients with severe respiratory failure associated with COVID-19. It also minimises post-ICU-acquired complications.



The Facilities Management team worked long hours, moving equipment and converting spaces



A converted ward that housed patients who were foreign workers



LOGISTICAL MANOEUVRINGS ●

Retrofitting and converting spaces for infection control facilities and ward conversions was a logistical feat that took the combined effort of multiple teams – from clinical departments to Facilities Management, Security, Materials Management, and Operations Support Services. The vast scope of work included sourcing critical supplies and equipment, relocating staff and patients, coordinating with contractors and suppliers, while also tackling manpower and time constraints.

In tandem with the space reconfigurations was another extensive logistical and planning feat: the moving of patients out of the wards through discharges, transfers and decantments, as well as the conversion, cleaning and reorganising of numerous spaces. This was a massive task undertaken by the Facilities Management department. Meanwhile, allied health, admin



Everyone – including clinical and support staff – has a part to play in Infection Control

and ancillary departments – including Food Services, Environmental Services, Linen, Portering, Security, Visitor Management and Materials Management teams – all had to adapt their workflows to accommodate the new processes in an immense collaborative effort.

A WAVE OF TESTS ●

With hundreds of patients being swabbed, the Department of Laboratory Medicine had to keep pace with the huge volume of tests coming their way. They developed a robust and accurate in-house COVID-19 test, adapting a method from NCID's National Public Health Laboratory. The team also optimised its existing Polymerase Chain Methodology test to identify two specific genes in the COVID-19 genome.

To cope with the exponential increase in the workload, staffing was ramped up by adjusting shifts and deployments. Boosting the numbers were eight volunteers from the NUS Faculty of Medicine who were trained to meet manpower needs. This gave medical technologists who had been working 12-hour shifts since February some much needed reprieve, and added to an increased headcount at the Molecular Diagnostic section from 1.5 to 11. At the height of the crisis, the laboratory could test some 800 samples daily, up from 120 samples per day in January.

PUTTING INFECTION CONTROL AT THE FOREFRONT ●

The long-standing priority of Yishun Health's Infection Control team to tackle infections and the spread of superbugs took on heightened importance during the pandemic. Their work extended from setting up the ESW, adapting the Extended Diagnostic Treatment Unit into an Acute Respiratory Wing, converting General Wards to COVID-19 wards, and sanitising COVID-19 care areas.

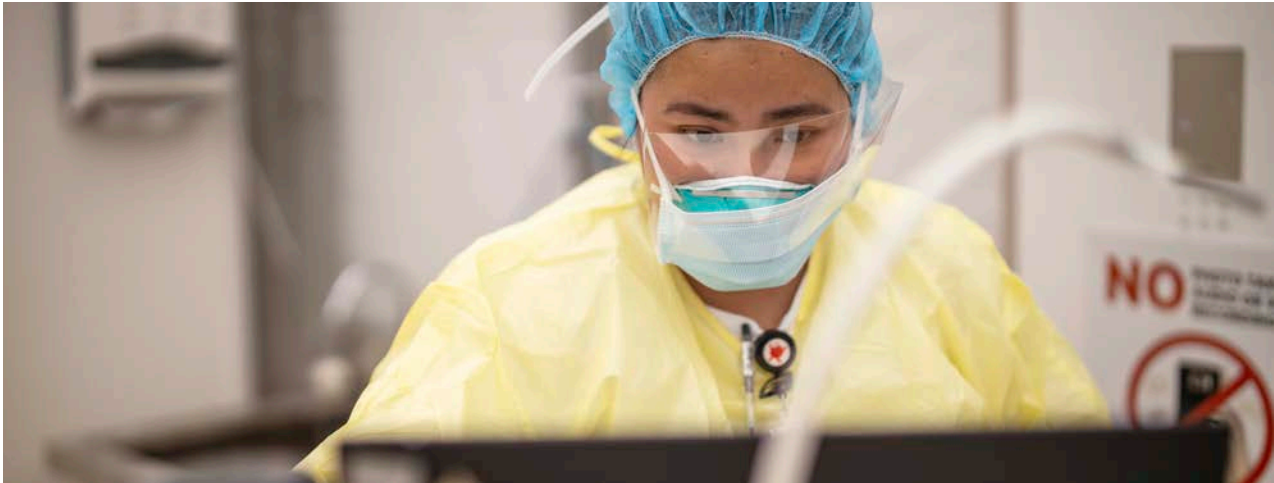
Another challenge was to secure adequate supplies of protective equipment and intensify PPE training – rolling these out with initial live-fitting exercises, posters and teaching videos. The Infection Control team also coordinated the distribution of Powered Air Purifying Respirators, and trained staff working in the converted wards to use these machines, which are typically only used in high-risk areas, such as the ICU and Isolation Wards.

Clinical implementations aside, the team kept up-to-date with the latest developments and knowledge, implementing tile carpets as disinfectant mats to lower viral spread.



Allied Health Professionals were deployed to fulfil roles outside their comfort zones during the pandemic, including Holding Areas and Swab Isolation Facilities





ALLIED HEALTH PARTNERS, ASSEMBLE! ●

Coping with the large volume of cases and workload could have taken the frontliners to the breaking point, but support was at hand – thanks to the valiant involvement of Yishun Health's Allied Health Professionals (AHP) and Pharmacy staff. They provided much needed support in multiple roles across the hospital's and community's pandemic response efforts.

Dental assistants, physiotherapists, occupational therapists, speech therapists, therapy assistants, and more were deployed to screening and holding areas, supporting nurses in basic nursing duties, vital-signs monitoring, and engaging the patients. This included manning H4, one of the holding areas designated for patients as they await their transfer to Community Care Facilities and Community Recovery Facilities. In addition to helping with inpatient care, allied health colleagues played critical operational, logistical and administrative roles at the Contact Tracing Centre as well as the Hospital Command Centre, where 125 AHP and Pharmacy staff were deployed.

Beyond the campus, many also volunteered and trained for secondment to swabbing facilities and Swab Isolation Facilities across Singapore. Medical technologists and radiographers were also called upon to augment the manpower at the NCID.

ON THE FRONTLINE: A SURGEON'S PERSPECTIVE ●

With the physician workforce stretched to capacity, Yishun Health's surgeons put aside their scalpels to assist with COVID-19 clinical responsibilities and patient management. One of them was General Surgery Consultant Dr Clement Chia, who

was tasked to lead a COVID-19 cohort ward comprising patients with mild severity.

He shared his experience in a letter to the journal, *BJS*, identifying three phases of work: preparatory, ward execution, and sustenance. This sharing shed insight on workflows and procedures for PPE-use, clinical management, and zoning, as well as how to target approaches so as to maximise efficiency of interactions with patients in the ward. This optimisation also extended to judiciously planned investigations for resource management and to limit exposure to staff. Tying all this together was the need for leadership and a focus on staff safety and well-being, including the challenges of working in PPE and preventing burn-out.

ENHANCED RECOVERY AFTER SURGERY FOR HEPATOBILIARY SURGERY ●

Better outcomes have been achieved since the Hepatobiliary and Pancreatic (HPB) surgery team rolled out its Enhanced Recovery After Surgery (ERAS) programme in FY2019/2020. A year on, it has reduced the overall length of hospital stay, with lower post-operative complications.

In FY2020/2021, a total of 33 patients received care under the ERAS programme, versus 19 who received conventional care the preceding year. ERAS has:

- Reduced the mean post-operative length of stay from 21 to 10 days
- Reduced post-operative complication rates from 68.4% to 45.5%

The evidence-based multimodal ERAS initiative deploys a standardised protocol for the peri-operative care of HPB surgery patients, covering areas such as:

- Pre-operative screening and counselling
- Pre-operative nutrition, such as immuno-nutrition and avoidance of prolonged pre-operative fasting
- Pre-habilitation and operative mobilisation
- Peri-operative nursing
- Reduction in effects of peri-operative anaesthesia
- Targeted post-operative antibiotics, thromboprophylaxis, early removal of drain and nasogastric tubes, as well as prevention of nausea and vomiting

ENHANCED & STREAMLINED EYE CARE ●

Yishun Health’s Ophthalmology and Visual Sciences (OVS) clinic sees over 4,000 patients a month, a majority of whom undergo regular monitoring for stable eye conditions. To cope with the workload and deliver care more efficiently, the Supplementary Primary Eyecare Clinic (SPEC) was established in July 2017 at AdMC. As of February 2020, SPEC had managed a total of 649 patients.



The HPB team (bottom, L-R) Dr Tan Tzu Jen (Senior Consultant), Dr Tan Ming Yuan (Consultant); (top) Dr Wang Yi Liang (Associate Consultant), Dr Sivaraj Gunasekaran, (Consultant), and Josephine Boo (Assistant Nurse Clinician)

Comparison of SPEC vs E-SPEC

Before SPEC	SPEC [AS IS]		E-SPEC [TO BE]	
Clinic Workload	Clinic Workload	Current SPEC	Clinic Workload	New E-SPEC
Ophthalmologists	Ophthalmologists	Optometrists (75%) Ophthalmologists (25%)	Ophthalmologists	Optometrists (100%)
New, complicated and stable cases	New and complicated cases	Stable cases	New and complicated cases	Stable cases
Ophthalmologists oversee new, complicated and stable cases	Ophthalmologists oversee only new and complicated cases, while stable cases are taken care of by optometrists with ophthalmologists’ physical supervision		Ophthalmologists continue to oversee only new and complicated cases, and stable cases are taken care of by optometrists with ophthalmologists’ virtual supervision	



Results of Implementing Transitional Rehabilitation at YCH Day Rehabilitation Centre

Current model	Problem statement	Solution	Results
Active Rehabilitation (AR): Aimed at improving functional status	Many patients either remain at AR or transit to ME at the DRC, but not into the community. This results in fewer slots for new patients.	Once patients have reached their AR goals, they will go through Transitional Rehabilitation (TR) that aids their integration back to the community for self management.	<ul style="list-style-type: none"> • DRC client population fell from 31.6% to 20.3% • ME clients reduced from 25% to 11% • Increased availability of AR and TR slots • Lead time reduced from 3-4 weeks to 1 week
Maintenance Exercise (ME): Aimed at reducing functional decline			

In FY2020/2021, SPEC was further enhanced. The Enhanced Supplementary Primary Eyecare Clinic (E-SPEC) streamlines care by training optometrists to manage stable cases with virtual supervision by ophthalmologists. This reduces the financial burden on patients and the healthcare system. It also enhances the independence and clinical competency of optometrists. E-SPEC cuts down on visit time and cost as patients need not see an ophthalmologist.

Since the implementation of E-SPEC in September 2020, 183 patients have benefited from this scheme for a total patient cost-savings of \$1,509.75.

ACTIVE TRANSITIONS ●

As initiatives to right-site patients become more ubiquitous, longer lead times for such facilities and resources are arising. To tackle the increasing referral period at the YCH Day Rehabilitation Centre (DRC), YCH piloted a revised model of active transition by adopting the transitional rehabilitation (TR) model suggested by the National One Rehab Framework.

The aim of TR is to help patients integrate back into the community for self-management, where they get support from video consultations, patient education, or community partners. By providing a timeline for this to guide patients, patients will be less dependent on the services of the DRC and can pursue self-management and long-term wellness.

EARLY CATHETER REMOVAL TO PREVENT UTI ●●

The early removal of indwelling urinary catheters (IDC) has been shown to be effective in preventing catheter-associated urinary tract infection (CAUTI). At YCH, the CAUTI team designed and implemented a Trial-Off-Catheter (TOC) protocol over a three-month

period in three out of five wards to encourage the review of its appropriateness. The TOC protocol equips clinicians and nurses with an objective way to assess the appropriateness of IDC use and possible early removal.

Since its trial, which took place from October-November 2020:

- Catheter utilisation ratio fell by 18%
- The rate of CAUTI per 1,000 catheter days dropped by 45%
- 77% of 35 patients assessed with the TOC protocol were successfully weaned off IDC, an improvement of 13% from baseline data
- Appropriate IDC use increased from 42% to 91%
- Zero CAUTI events were recorded post-TOC in all 35 patients enrolled

The protocol has also resulted in time savings for the care team. More importantly, it resulted in better patient outcomes, with lower cost of care, improved patient satisfaction, better mobility, and higher quality of life.

DEAR: LET'S REDUCE POLYPHARMACY ●

Patients with multiple chronic illnesses often face the issue of polypharmacy – having too many medications. This is linked to poor drug adherence and medication-related problems. Many elderly patients and/or caregivers were also non-English speaking and unfamiliar with the concept of deprescribing.

To tackle this issue, YCH's pharmacy began the Deprescribing Efforts And Raising Awareness of Deprescribing (DEAR) initiative. Deprescribing is a planned and supervised process of discontinuation or reducing the dose or frequency of medication that is not useful or causing harm.

Results of DEAR Pilot Programme

Are you aware that you can inform your doctor or pharmacist that you have too many medicines?	
Pre-DEAR	Post-DEAR
14% knew who to inform about pill burden	74% knew who to inform about pill burden
Are you aware of the risks of taking too many medications? List examples out of the 6 risks counselled	
Pre-DEAR	Post-DEAR
54% could not identify polypharmacy risks	11% could not identify polypharmacy risks

YCH's pharmacy team first rolled out a series of posters and educational pamphlets in multiple languages to explain the concept of deprescribing and the risks of polypharmacy, and suggested questions that patients can ask their own pharmacists or doctors. Medication counselling then ran from 1 July to 31 August 2020. During these sessions, 37% of the 35 counselled patients verbalised pill burden. Most left medication management up to

their care teams, while others thought that all medications prescribed are essential.

Results from the DEAR pilot showed an improvement in deprescribing and polypharmacy awareness.

Since October 2020, DEAR has been rolled out to all YCH wards, and the posters have been adapted into TV IPTV slides that are on loop display at hospital lift lobbies to reach out to more patients and caregivers.

TECHNOLOGY

The COVID-19 pandemic has been a catalyst in our accelerated adoption and expansion of digital initiatives. Moving swiftly to leverage IT sustained our ability to avoid disruptions and maintain critical functions in care delivery, medical education, and more.



PHCT's Telehealth initiative met the care needs of the population when face-to-face restrictions kicked in

COMMUNITY NURSING: THE TELEHEALTH WAY

Physical distancing and other pandemic restrictions led to the suspension of various community health outreach efforts, such as face-to-face sessions at PHCT's Community Nursing Posts (CNPs). However, these measures also accelerated our push towards telehealth, and provided an opportune time to create a future-ready model of care delivery to meet the needs of our population, especially vulnerable seniors and those with chronic health conditions.

In June 2020, PHCT began a community health telehealth pilot, rolling out video consultations. These are held in homes or at selected CNPs on an appointment basis. These sessions target two groups of seniors with varying needs:



- Those with stable long-term conditions
- Those with acute medical issues who require closer medical supervision for a period of time

Since June 2020, 300 residents have benefited from 61 home-based and 397 centre-based telehealth sessions. For each session, residents are loaned telehealth kits consisting of a tablet and health monitoring devices, such as automated blood pressure monitors, thermometers, and weighing scales. This enables seniors who are unable to afford digital devices to consult nurses remotely. For a more hassle-free experience and for seniors who are not familiar with digital technology, PHCT staff and/or volunteers conduct home visits to set up the video-conferencing equipment.

NGEMR: ANOTHER STEP TOWARDS OUR ONE CARE PLAN

Yishun Health made more strides in our digital transformation journey and the realisation of our One Care Plan with the adoption of the Next Generation Electronic Medical Record (NGEMR) system. This will enable more public healthcare sector users from multiple care settings to access the same records and provide more efficient care.

On 1 October 2020, the NGEMR Project Management Office (PMO) was set up, and work commenced to align systems for the go-live date, which is scheduled for July 2022. As of the end of FY2020/2021, the NGEMR PMO has onboarded Readiness Officers and Subject Matter Experts, and will subsequently move in phases to conduct workflow conversations, testing, and training. The team aims to ensure that all 5,000 staff are trained, competent, and certified, ready to use the NGEMR.



The DART programme leverages technology to teach eye examination skills to medical students on their ophthalmology rotation

TEACHING IN A PANDEMIC ●

With face-to-face interactions limited due to safe distancing and split teams, Zoom took over as the mode of instruction for medical education. Leveraging technology to enhance teaching, A/Prof Yip Chee Chew, Education Director, Education Development Office (EDO), pioneered the Distance Augmented Real-time Training (DART) programme.

DART utilises flipped classroom, guided mental rehearsals, test-enhanced learning, and cognitive feedback to teach eye examination skills to medical students on their ophthalmology rotation.

The two-module programme consists of self-directed e-learning sessions with instructional videos on eye examination techniques, and a pre-teaching MCQ test, as well as live online demonstrations of examination techniques by the student, with self, peer and faculty assessments. Online classes with case-based discussions and elaborative interrogations are also held. These sessions encourage deep learning by allowing students to link clinical signs with pathophysiological causes. The course ends with a review session for the MCQ test and a Q&A.

STEPPING UP, STEPPING OUT ●

When manpower demands in the hospital rose, the EDO staff unhesitatingly stepped out of their comfort zone to bolster the frontline to become temperature screeners, swabbers, and contact tracers, as well as to provide Command Centre administrative support. Importantly, EDO set up safe and rigorous screenings, including access to PPE, to keep medical students safe while also imparting valuable lessons in mask fitting and infection protocol.

PORTABLE GLAUCOMA SCREENING ●

Screening is an essential aspect of detecting glaucoma early so that sight can be saved. However, one of the challenges is that the test traditionally uses a machine called a Humphrey Visual Field Analyser (HFA), which is expensive and heavy.

The optometrist-run test flashes a series of white light of varying brightness, which takes time and can be subject to human error. The test is also not suitable for wheelchair- or bed-bound patients, as patients are required to sit upright for it. At the same time, HFAs are expensive to maintain, and require additional manpower to operate. Due to these downsides, OVS explored various solutions that are more portable and accessible so that the test can be made more readily available in the community.

Cost comparison of TPP vs HFA

Category	HFA	TPP	Cost Savings
Equipment	\$36,000	\$2,500	\$33,500 (one-time)
Manpower	Optometrist	PSA	\$28,440/year (recurrent)
Value to Patient	\$37 + \$25 (SOC Consultation + Visual Field Test)	\$5 (Functional Screening)	\$57 (92%)



The TPP conducts visual field tests similar to an HFA machine, but presents the visual stimuli on smartphone screens via a VR headset

One of these solutions is the pilot of a Virtual Reality (VR)-based visual field-testing software and Toronto Portable Perimetry (TPP), developed in collaboration with the University of Toronto.

TPP conducts visual field tests similar to a HFA machine, but presents the visual stimuli on smartphone screens via a VR headset. Just like with the HFA, they click a button when they see a light. The difference is that TPP includes a step-by-step guide that OVS developed to be available in not only English, but in Mandarin, Malay and Tamil as well. These immediate reminders lower the chance of inaccuracy. KTPH is the first institution in Asia to embark on this innovative technology.

TPP is cheaper, faster, and can be administered by trained Patient Service Associates (PSAs). Patients lying down can also easily use the headgear.

Another glaucoma screening tool is the Mobile Adjunct to Perimetry System (MAPS). Smaller and more portable than the conventional HFA, MAPS is more affordable and easier to operate. Already in use at AdMC, MAPS brings glaucoma screening into the community, offering greater convenience for residents, and making screenings safer for residents as they do not need to visit the hospital. The test, which can be conducted by optometrists, has been enhanced to eliminate some of the false positive and false negative results that can arise in a conventional test.

A BARRIER OF PROTECTION ●

Healthcare workers caring for patients run the risk of being exposed to aerosolised pathogens, especially in the emergency setting. With the COVID-19 pandemic, this risk of contact with germ-laden respiratory droplets was even more pronounced. To offer more protection to staff, an aerosol shield was designed and customised for use at the A&E. This shield serves as an additional physical barrier to infection, and provides enhanced protection for healthcare staff.

Developed specifically for use in the A&E, and taking into consideration the needs of geriatric patients, the shield forms a clear, physical barrier and is:

- Right-sized, lightweight, and portable
- Adjustable for standing, sitting, and supine patients
- Easy to disinfect
- Fitted with ports for accessibility

IN-HOUSE REHAB FOR COVID-19 PATIENTS ●

While safe distancing helped to reduce the spread of COVID-19, it also has its downsides, especially in the wards. The reduction of daily activities and prolonged periods of isolation



Not only did the *Teh Tarik* workout get patients moving during their admission, it also uplifted the spirit in the wards!

increased the risk of deconditioning and psychological stress in patients due to immobility and a more sedentary routine.

To continue providing rehabilitation services to COVID-19 patients, Yishun Health’s physiotherapists formed a Grub Team to look after 136 COVID-positive patients staying in the four isolation wards. The three-person team physically distanced themselves from their colleagues, and worked from a separate office during the whole period of segregation.

Inspired by the local *kopitiam* drink, they developed the *Teh Tarik* workout, a fun and

simple exercise sequence for patients to follow. The workout was facilitated by nurses and the Grub Team twice a day on weekdays, creating a positive impact on both the physical fitness as well as the mental well-being of patients. Videos of the workout became extremely popular among patients, and were even featured in the media and adopted by some community facilities housing patients with COVID-19. The videos were also shared worldwide through a webinar session by the Singapore Physiotherapy Association.

ENHANCING WOUND CARE WITH ULTRASOUND ●

YCH’s specialty wound care team implemented the use of ultrasound technology to tackle and improve outcomes for chronic and complex wounds. This method has proven to be better than mechanical wound debridement, which is time-consuming and can be uncomfortable for patients.

Ultrasonic Assisted Wound Debridement (UAW) technology uses low-frequency ultrasonic vibrations to gently dislodge dead tissues from the wound bed. This results in less damage to healthy tissues and a pain-free experience, promoting more rapid and complete healing.

The team implemented UAW and improved the care experience, healing and outcomes for patients with chronic and complex wounds, a disabling problem that is traditionally associated with poor quality of life and is a significant burden to patients. Despite disruptions caused by the pandemic, more than 100 patients benefited from UAW in 2020.

Comparison of UAW vs Conventional Mechanical Debridement

	Conventional Mechanical Debridement	UAW	Savings
Average no. of sessions per patient	8	4	4
Minutes per session	30 mins	10 mins	20 mins
Minutes from total number of sessions	240 mins	40 mins	200 mins
Manpower cost (60 mins = \$25)	\$100	\$16.75	\$83.25
No. of Registered Nurses	8	4	4