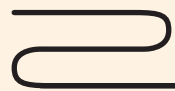


# BETTER TOGETHER

ANNUAL REPORT 2017/2018





# BETTER TOGETHER

Healthcare is a team effort, and even more so with today's challenges. At Yishun Health, we strive to bring together traditionally siloed aspects of healthcare and unify them in a person-centric clinical care model within and throughout our three institutions.

As you turn these pages, you will see just how we have put our five broad strategies into practice to:

- Develop clear care plans for people in the North
- Ensure physician-ownership of all patients
- Improve the way we communicate and engage with our patients and the community
- Build a hassle-free administration system
- Ensure that care is continuously improving

What is unique about our approach is that, in addition to focusing on helping those who are unwell get back on their feet, we also help those who are well to stay healthy. To do this, we have been integrating care across the spectrum of needs, activating transdisciplinary teams, and maximising community resources.

Each chapter articulates how we have developed various integrated programmes for our various patient profiles. These programmes bring together various medical specialties, disciplines and expertise across Admiralty Medical Centre (AdMC), Khoo Teck Puat Hospital (KTPH), and Yishun Community Hospital (YCH) to create an ecosystem of care that reaches far beyond our institutions and into the community.

This synergy between doctors, nurses, allied health professionals, community and social services, as well as caregivers and their families, adds up to a powerful force for good. It showcases the good work that can be done when we unite — and create a healthy community in which we work mutually to be better, together.



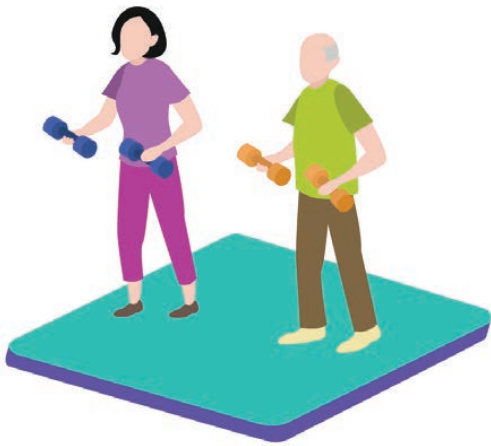
## 7 BETTER TOGETHER



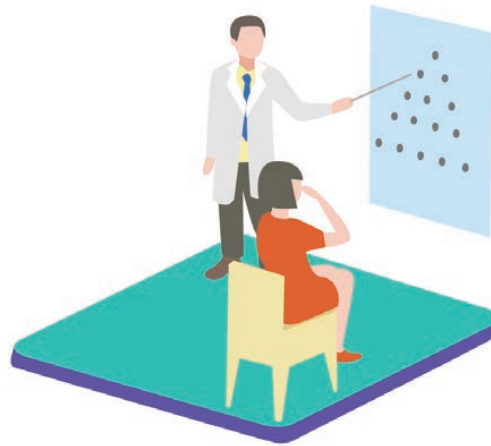
## 29 CRISIS AND COMPLEX CARE

### Connections that matter

This thematic line that you see running through the Annual Report symbolises the links we have nurtured between various medical specialties and disciplines — doctors, nurses, allied health professionals, our patients and their communities. It is a representation of how Yishun Health has fostered the right settings, skill sets, and self-awareness to enable integrated, patient-centric care across our institutions and community.



**13** LIVING WELL



**21** LIVING WITH ILLNESS



**37** LIVING WITH FRAILTY



**47** LEAVING WELL



**53** RESEARCH AND INNOVATION



**61** BUILDING AND RECOGNISING EXCELLENCE



## **VISION**

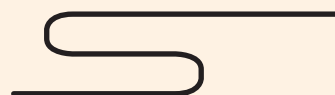
Adding years of healthy life.

## **MISSION**

Provide good quality, affordable and hassle-free healthcare with science, love and wisdom.

## **CARE PHILOSOPHY**

Care that is good enough for our own mothers without making special arrangements.





# A MESSAGE FROM THE CEO

In October last year, we officially became Yishun Health under the National Healthcare Group (NHG). With a new identity, we ushered in a new chapter for our organisation. Our mission remains unchanged and relevant today — to provide good-quality, affordable and hassle-free healthcare with science, love and wisdom.

This new identity presents a wonderful opportunity for our three institutions — AdMC, KTPH and YCH — to collaborate more effectively as one healthcare team. To this end, we have made refinements to the way we deliver care, building upon our existing foundations of clinical excellence, safety and innovation, as well as our integrated, multidisciplinary and transdisciplinary care processes.

## DESIGNING CARE AROUND A PATIENT

At Yishun Health, we believe that our role is not just about bringing health to patients within our hospital, but to the greater community we serve. It is with this in mind that we have developed and adopted a unified person-centric care model for the residents in the north of Singapore. Instead of treating disease in an episodic way, we are moving upstream to help prevent diseases and complications, embracing wellness alongside illness care. For those who are well, we will support them to stay healthy and active. For those who are unwell, we will help them get back on their feet and stay well.

The big challenge in illness care is not only the rise of chronic illness and age-related conditions, but also the increase in the number of complex cases of higher acuity. This leads to fragmented care that inconveniences patients or, in the worst-case scenario, delays timely treatment.

We have made efforts by integrating traditionally siloed aspects of healthcare so patients can be seamlessly cared for and supported in the right place and right time. For such patients, we have introduced the concept of a 'one-care plan'.



This means each patient will be cared for by a primary physician, who leads a transdisciplinary team to ensure that care coordination and case management is seamless and timely. This leads to better patient convenience, compliance and outcomes. Each care plan puts the patient and his or her goals at the centre. These goals are shared with the whole healthcare team, which includes alliances with general practitioners (GPs), primary care networks, polyclinics, outpatient specialists, and other community and social care providers.

We have started an on-going collaboration between the Diabetes Centre within AdMC and the Woodlands and Yishun Polyclinics. Efforts are also underway to cultivate relationships with GPs within the Yishun region. In addition, early conversations with National Healthcare Group Polyclinics (NHGP) have begun to extend the adoption of the one-care plan for the care of diabetic patients as a shared goal.

At KTPH, we have put in place transdisciplinary teams, such as the Hip Fracture Service and the Integrated Care of Obesity and Diabetes. These teams organise care around the patient, spanning the continuum from the acute hospital setting to intermediate care at the community hospital and the transition back home.

This care around patients can also be seen in YCH, where we implemented a new care model for

palliative patients, engaging them through communal and rehabilitative activities for better assessment and treatment.

## SUPPORTING HEALTH IN THE COMMUNITY

Beyond building services and implementing processes for acute care needs and chronic care management within the hospital, we are putting in place right-sited infrastructure and support where people live. Most importantly, we are nurturing mindsets to see healthcare as a continuum and a relationship where everyone has a role to play.

For instance, our population health efforts have expanded greatly beyond health screenings and health awareness. We are reaching out to schools and workplaces, and increasing our presence in neighbourhood social hubs.

For several years, Yishun Health has been building capacity within the community. This is aimed at enabling a culture of self-help and self-care. Some of our signature initiatives include Care from Community, Wellness Kampung, Share a Pot® and Community Nurse Posts. Since last year, we have been implementing place-based embedded Self-Managed Autonomous Regional Teams (SMART) of community nurses.

Our population health team has also been working with the Ministry of Health to enable Community Network of Seniors and with the Silver Generation Office to screen and refer people who need care to Yishun Health for preventive care and medical treatment.

Going forward, our focus will be to scale up these efforts and enable them to form self-organising ecosystems of care, supported by community members and volunteers, the Senior Activity Centres, community nurses, and GPs.

## THE YISHUN HEALTH DNA

Underpinning these concerted moves are a range of initiatives to support care excellence and safety. As an organisation, we continue to push for rational, evidence-based and cost-effective healthcare service delivery governed by standardised protocols and guidelines.

We also strive to nurture a strong culture of safety. Yishun Health launched the Speak Up for Safety framework in 2017. Other ongoing safety

programmes include utilisation management. This is where various practices — such as usage of different drugs and devices for key areas of care — are rigorously monitored. In addition to these, an Antibiotic Stewardship Programme and Hand Washing Campaign are also in place.

Most importantly, we have laid out our roadmap for building a learning organisation that achieves relationship excellence between campus, cluster and community. We will grow the Yishun Health culture and DNA by establishing and communicating with a common language and shared goals.

### YISHUN HEALTH DNA:

- L.O.V.E
- Appropriateness of Care
- Relationship Excellence
- Hassle-free Administration

As we strive to improve healthcare and health, we will also continue to grow as professionals and people. This culture of learning, be it through formal or informal means, refreshes and renews the organisation. It helps us to achieve a greater sense of purpose as we work towards *ikigai* — a reason for being.

I would like to extend my appreciation to everyone for their hard work and contribution over the past year. As we look back and celebrate our achievements, let's also look ahead and co-create new ways to add more years of healthy life for our patients and residents in the North.



**MRS CHEW KWEE TIANG**  
Chief Executive Officer,  
KTPH & Yishun Health



# BOARD OF DIRECTORS



Mr Robert Chew



Mr Tow Heng Tan

# SENIOR MANAGEMENT



Mrs Chew Kwee Tiang

Chief Executive Officer,  
Khoo Teck Puat Hospital  
& Yishun Health



A/Prof Pek Wee Yang

Chairman,  
Medical Board



Dr Pauline Tan

Chief Executive Officer,  
Yishun Community Hospital



Dr Wong Sweet Fun

Chief Transformation Officer;  
Deputy Chairman, Medical  
Board (Population Health);  
Clinical Director, Population  
Health & Community  
Transformation



A/Prof Terence Tang

Chief Medical Informatics  
Officer; Deputy Chairman,  
Medical Board  
(Clinical Informatics,  
Innovation & Patient  
Engagement)



A/Prof Wong Moh Sim

Deputy Chairman,  
Medical Board  
(Clinical Quality &  
Manpower Development)



A/Prof Phoa Lee Lan

Deputy Chairman,  
Medical Board  
(Care Integration &  
Clinical Standards)



Prof James Best



Prof Philip Choo



Mrs Chew Kwee Tiang



Ms Yen Tan

Chief Operating Officer



Ms Low Beng Hoi

Chief Nurse



Ms Magdalene Chai

Chief Human  
Resource Officer



Mr Roger Leong

Chief Financial Officer



A/Prof Tan Kok Yang

Deputy Chairman,  
Medical Board  
(Service Development)



Dr Lee Kok Keng

Medical Director,  
Yishun Community Hospital



Ms Cheong Choy Fong

Director,  
Quality & Risk Management



Mr Donald Wai

Director,  
Hospital Planning & Infrastructure

We would like to thank Mr Alvin Ong, Chief Information Officer (until 15 October 2017) for his contribution.



# HEADS OF DEPARTMENTS

## KHOO TECK PUAT HOSPITAL

<b>Dr Sanjay Patel</b>	Head and Senior Consultant, <i>Acute and Emergency Care Centre</i>
<b>A/Prof Edwin Seet</b>	Head and Senior Consultant, <i>Anaesthesia</i>
<b>Dr Lee Chee Wan</b>	Head and Senior Consultant, <i>Cardiology</i>
<b>Dr Wu Loo Cheng</b>	Head and Senior Consultant, <i>Dental Surgery</i>
<b>A/Prof S Tavintharan</b>	Director and Senior Consultant, <i>Diabetes Centre</i>
<b>Prof Wilfred Peh</b>	Head and Senior Consultant, <i>Diagnostic Radiology</i>
<b>A/Prof Phoa Lee Lan</b>	Head and Senior Consultant, <i>General Medicine</i>
<b>A/Prof Tan Kok Yang</b>	Head and Senior Consultant, <i>General Surgery</i>
<b>Dr Angeline Seah</b>	Head and Senior Consultant, <i>Geriatric Medicine</i>
<b>Dr Michael Wong</b>	Head and Senior Consultant, <i>Health for Life Centre</i>
<b>A/Prof Wong Moh Sim</b>	Head and Senior Consultant, <i>Laboratory Medicine</i>
<b>A/Prof Yip Chee Chew</b>	Medical Director, <i>Admiralty Medical Centre</i>
	Head and Senior Consultant, <i>Ophthalmology and Visual Sciences</i>
<b>A/Prof David Loke</b>	Head and Senior Consultant, <i>Otolaryngology (ENT), Head and Neck Surgery</i>
<b>Dr James Tan</b>	Head and Consultant, <i>Orthopaedic Surgery</i>
<b>Dr Goh Kah Hong</b>	Head and Consultant, <i>Psychological Medicine</i>
<b>Dr Colin Teo</b>	Head and Senior Consultant, <i>Urology</i>
<b>A/Prof Lim Su Chi</b>	Head and Senior Consultant, <i>Clinical Research Unit</i>
<b>Ms Angeline Tang</b>	Head and Deputy Director, <i>Allied Health</i>
<b>Dr Doreen Tan</b>	Head and Chief Pharmacist, <i>Pharmacy</i>
<b>Ms Jenny Goh</b>	Manager, <i>Medical Social Services</i>
<b>Ms Ng Lih Yen</b>	Head and Senior Principal Physiotherapist, <i>Rehabilitative Services</i>
<b>Ms Gladys Wong</b>	Senior Manager, <i>Nutrition and Dietetics</i>
<b>Mr Albert Foo</b>	Head and Assistant Director, <i>Corporate Communications</i>
<b>Dr Ng Yeuk Fan</b>	Deputy Director, <i>Corporate Development</i>
<b>Dr Mary Ho</b>	Director, <i>Clinical Services</i>
<b>Ms Fatimah Moideen Kutty</b>	Director, <i>Operations Admin</i>
<b>Mr Bastari Irwan</b>	Director, <i>Population Health &amp; Community Transformation</i>

*We would like to thank*

*Dr Chan Keen Loong, Head and Senior Consultant, Psychological Medicine (until 31 December 2017), for his contributions.*

## YISHUN COMMUNITY HOSPITAL

<b>Mdm Chua Gek Choo</b>	Director, <i>Nursing</i>
<b>Ms Chua Ee Cheng</b>	Principal Medical Social Worker, <i>Medical Social Services</i>
<b>Ms Chan Sue Mei</b>	Principal Dietitian, <i>Nutrition and Dietetics</i>
<b>Ms Low Suat Fern</b>	Principal Pharmacist, <i>Pharmacy</i>
<b>Mr Adon Chan Hock Kiong</b>	Principal Physiotherapist, <i>Rehabilitative Services</i>

“As Yishun Health, we now have more opportunities for teams across AdMC, KTPH, YCH and Population Health & Community Transformation to collaborate and redesign our care model to meet the healthcare challenges of tomorrow.”

**MRS CHEW KWEE TIANG**

Chief Executive Officer  
KTPH & Yishun Health



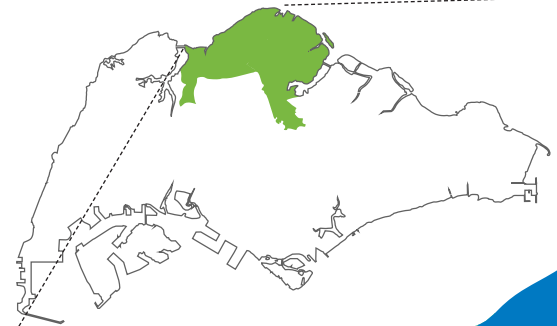
**BETTER  
TOGETHER**



# CARING FOR OUR RESIDENTS IN THE NORTH

To better serve the 800,000 residents in the north of Singapore, Yishun Health has been steadily extending its network of care since KTPH opened in 2010. In 2015, YCH was opened next to KTPH for better care integration. Our latest addition, AdMC, opened in July 2017.

We also have 19 Community Nurse Posts scattered throughout the community, making it easy for residents to monitor their health regularly. To support the community to age well in place, Yishun Health has set up three Wellness Kampung in collaboration with partners to encourage the elderly to drop by daily to participate in activities, socialise, and even volunteer. Similarly, 14 inviting Share a Pot® venues in the North encourage residents to socialise and stay active as they gather for a heartwarming bowl of nutritious soup.



## MARSILING-YEW TEE

### LEGEND

Healthcare Institution	Community Nurse Post
Share a Pot®	Wellness Kampung

\*Other Share a Pot® locations

not shown in the map:

1. **Starlight RC Café Corner**  
718 Tampines St 72
2. **Church of St Vincent de Paul**  
301 Yio Chu Kang Rd
3. **Tembusu Senior Activity Centre**  
3 Eunos Crescent
4. **Agape Village**  
7A Lor 8 Toa Payoh
5. **Anglican Senior Centre (Tampines)**  
117 Tampines St 11
6. **Evergreen Circle Seniors Activity Centre**  
827A Tampines St 81
7. **Meeting Point @ 128**  
128 Lor 1 Toa Payoh
8. **Kallang Community Club**  
45 Boon Keng Rd
9. **Blk 139 Residents' Lounge**  
139 Petir Rd
10. **Sree Narayan Care Centre**  
394 Race Course Rd
11. **Kebun Baru Community Club**  
113 Ang Kio Ave 4

### MARSILING-YEW TEE

Community Nurse Post

1. **Sunlove Senior Activity Centre (Marsiling)**  
3 Marsiling Rd
2. **NTUC Silver COVE Marsiling**  
180B Marsiling Rd
3. **Marsiling Zone 7 RC**  
206 Marsiling Dr

Share a Pot®

4. **Woodlands Secondary @ Marsiling Zone 3 RC**  
123 Marsiling Rise
5. **Church of St Anthony**  
25 Woodlands Ave 1

### SEMBAWANG

Healthcare Institution

1. **Admiralty Medical Centre**  
676 Woodlands Dr 71

Community Nurse Post

1. **NTUC Health Active Ageing Hub**  
676 Woodlands Dr 71
2. **Sunlove Senior Activity Centre @ Golden Saffron**  
764B Woodlands Circle
3. **Sembawang Zone K RC**  
588C Montreal Dr
4. **Sembawang Zone J RC**  
793 Woodlands Ave 6
5. **ACE The Place Community Centre**  
120 Woodlands Ave 1
6. **Care Corner Senior Activity Centre**  
569A Champions Way
7. **Sembawang Zone H Residents' Committee**  
770 Woodlands Dr 60

Share a Pot®

1. **Admiralty Medical Centre**  
676 Woodlands Dr 71
2. **Canberra Secondary @ Golden Saffron**  
764B Woodlands Circle
6. **Care Corner Senior Activity Centre**  
569A Champions Way
8. **Victory Family Centre**  
55 Sembawang Dr
9. **Woodgrove Zone 1 RC**  
521 Woodlands Dr 14
10. **Covenant Evangelical Free Church (Woodlands)**  
90 Woodlands Dr 16
11. **Singapore Anglican Community Services Centre @ Floral Spring**  
426A Yishun Ave 11



## NEE SOON



Healthcare Institution

1. Yishun Community Hospital  
2 Yishun Central 2
2. Khoo Teck Puat Hospital  
90 Yishun Central



Community Nurse Post

3. Wellness Kampung @ 115 (Chong Pang)  
115 Yishun Ring Rd
4. Wellness Kampung @ 765 (Nee Soon Central)  
765 Yishun St 72
5. Wellness Kampung @ 260 (Nee Soon East)  
260 Yishun St 22
6. Thye Hua Kwan Chong Pang Social Service Hub  
131 Yishun St 11
7. Wellness For Life @ Nee Soon South  
839 Yishun St 81
8. Nee Soon East Community Club  
1 Yishun Ave 9
9. Yishun Clover Residents' Committee  
398 Yishun Ring Road
10. TOUCH Senior Activity Centre  
162 Yishun St 11
11. TOUCH Senior Activity Centre  
436 Yishun Ave 11



Share a Pot®

3. Wellness Kampung @ 115 (Chong Pang)  
115 Yishun Ring Rd
4. Wellness Kampung @ 765 (Nee Soon Central)  
765 Yishun St 72
5. Wellness Kampung @ 260 (Nee Soon East)  
260 Yishun St 22
6. Thye Hua Kwan Chong Pang Social Service Hub  
131 Yishun St 11
11. Sree Narayana Mission Home (Singapore)  
12 Yishun Ave 5



Wellness Kampung

3. Wellness Kampung @ 115 (Chong Pang)  
115 Yishun Ring Rd
4. Wellness Kampung @ 765 (Nee Soon Central)  
765 Yishun St 72
5. Wellness Kampung @ 260 (Nee Soon East)  
260 Yishun St 22



# BETTER TOGETHER

Serving our community across the spectrum by thinking about seamless care for five distinct categories of patients.

**W**ith our imminent integration into NHG in October 2017, Mrs Chew Kwee Tiang, CEO, KTPH & Yishun Health, seized the opportunity to map out a new direction for Yishun Health as we continue to care for the people in the North. A/Prof Pek Wee Yang, Chairman, Medical Board, KTPH & Yishun Health, was tasked to lead a core team comprising 16 senior staff from different job groups in June 2017, establishing collective wisdom to build a foundation where actionable items and plans can be formulated to address key issues.

The team took the first steps towards reviewing Yishun Health's overall mission and high level strategies. Two sub-groups were formed within this team; one to gather intelligence on the current situation facing the campus as a whole, the other

to initiate discussions on possible care models, with a focus on care transitions between acute care and the community, and vice versa.

Several months of discussions culminated in a Senior Management Retreat in August 2017, where the Yishun Health Strategic Plan was born. It outlines our five strategies, three themes, and 10 actionable fronts (3T10A), which will help us better support our patients through all stages of health. This includes the unified person-centric clinical care model.

Subsequently, a Work Plan Retreat involving more than 100 Heads of Departments and leaders was held in March 2018, where the management team aligned their vision and goals for the years ahead.

The unified person-centric clinical care model Yishun Health has embarked on has seen us

developing clear care plans for people in the North, raising levels of physician-ownership of patients, and improving the way we communicate and engage with our patients and communities. We are also working behind the scenes to build a hassle-free administration system, and a culture of innovation and excellence to ensure that care is continuously improving. These moves will enable us to work better together as a campus towards enhanced patient and community outcomes.

### THE INTEGRATED CARE MODEL

According to A/Prof Pek, the integrated care model broadens our mission. “Instead of viewing ourselves as just a hospital, we should deliver a model of care that straddles the spectrum — from the acute hospital and the community hospital to empowering the community to stay healthy.”

Central to this idea of integrated care is removing silos and ensuring that doctors have the right capabilities and aptitudes to cross the traditional boundaries of care, says A/Prof Tan Kok Yang, Deputy Chairman, Medical Board (Service Development), KTPH & Yishun Health. “Multidisciplinary care must evolve towards transdisciplinary care. This approach moves away from episodic ad hoc care, enhances the communication and collaboration between every medical professional, and builds a greater sense of ownership of every patient.”

This ethos means we are building a culture where, regardless of where the patient is sited within the campus, our doctors readily cross boundaries to treat them. This results in seamless, timely and integrated right-sited care.

Dr Lee Kok Keng, Medical Director, YCH, shares, “Integrated right-sited care is care delivered by the right people at the right time at the right cost, and where resources flow across traditional silos of care and domains.”

### KNOWING OUR COMMUNITY

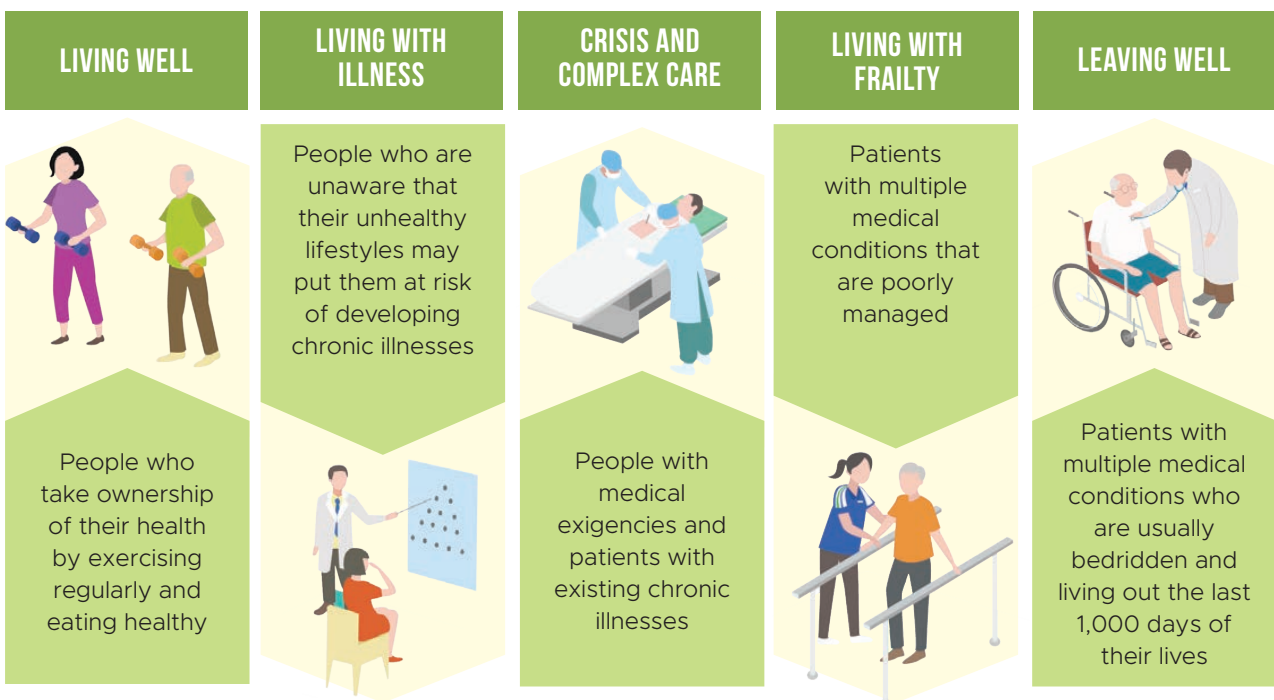
One way we strategically and efficiently deliver care is to take into consideration the unique needs of our patients and community — understanding their profiles, their needs, and the levels of care they require. This knowledge not only helps us better serve and design care, but puts patients at the centre of all our plans and strategies.

### KNOWING OUR PATIENTS

Critical to our unified person-centric clinical care model is a deep understanding of the community we serve. This enables us to develop the right services and deliver these at the right time and stage of health.

**Living Well:** Traditionally, hospitals have focused more on illness care rather than health care. Living Well focuses on nurturing a healthy and happy

## MANAGING THE POPULATION IN THE NORTH





Prime Minister Lee Hsien Loong attended the official opening of Admiralty Medical Centre

population that is functioning well in the workplace, school and community. Our efforts are not just for those without illness but to empower everyone to live well even when ill, frail or dying.

**Living with Illness:** This focuses on transforming primary care and building up the NHG Primary Care Network and developing an empanelment model within the next two years. We aim to achieve a care model for GPs that will mirror team-based care, or through teams at NHGP.

**Crisis and Complex Care:** As we transform the way our hospitals deliver and integrate care for patients, our focus is centred around building relationships, understanding patient's needs to minimise admissions, reducing bed crunch issues, and enabling continuous patient care.

**Living with Frailty:** We focus on enabling care transitions that encompass prevention and early detection of frailty, safe hospital care, and seamless integration that empowers the identified pre-frail and frail populations to stay well in the community, with resultant impact of reduction in ad hoc crises, especially with frail elderly.

**Leaving Well:** We take a holistic approach to support end-of-life patients and enable them to make the choices that they desire, with home support and alternative plans for those without home support. Advanced Care Planning (ACP) is facilitated by healthcare professionals who have trusted relationships with appropriately stratified patients. ACP should be undertaken proactively and not be done only when a crisis or immediate need arises. Time should be allowed for patients to think through, make decisions, and document their care plans and preferred choices.

Yishun Health 3T10A model

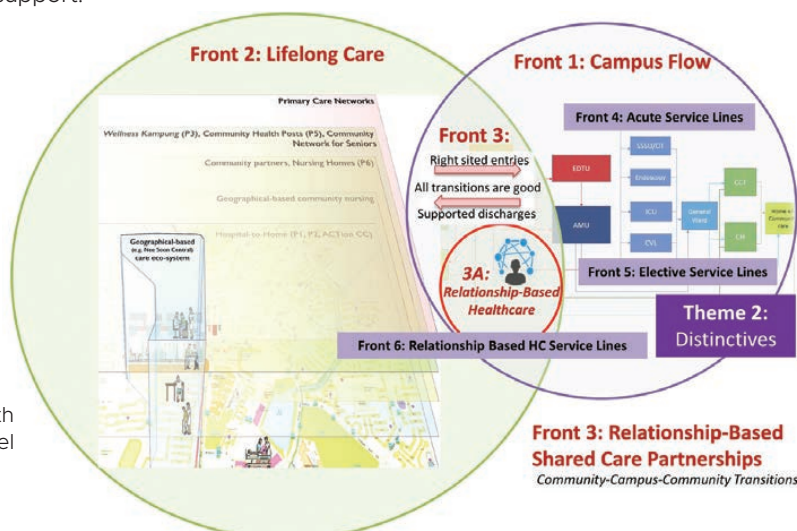
### OFFICIALLY OPEN: ADMIRALTY MEDICAL CENTRE

Yishun Health's AdMC officially received its first patient on 10 July 2017, providing medical and surgical services run by clinical departments from KTPH.

It is sited in Kampung Admiralty, Singapore's first public integrated development by the Housing Development Board to include apartments and features adapted for the elderly. It was set up within Kampung Admiralty to provide convenient holistic care to residents. Kampung Admiralty also comprises a hawker centre, supermarket, active ageing hub, as well as a child care centre.

In a multicultural-themed ceremony, Prime Minister Lee Hsien Loong opened the development. He noted that projects like Kampung Admiralty "promote strong social support and community bonding, and let people in their silver years stay socially engaged, and live safely, healthily and happily".

During the launch, PM Lee toured AdMC and was introduced to the range of medical services. With AdMC, residents in Woodlands and Admiralty will have more convenient access to healthcare services such as specialist diabetes care. The diagnostic and treatment centre will also provide day surgery and treatment for conditions such as cataracts, hand injuries, and hearing loss.



Front 3: Relationship-Based Shared Care Partnerships  
Community-Campus-Community Transitions

“The community health approach broadens the mission of healthcare from curing illnesses to empowering people to manage their conditions in the best way possible.”

**DR WONG SWEET FUN**

Chief Transformation Officer  
Deputy CMB (Population Health)  
Clinical Director, Population Health &  
Community Transformation  
KTPH & Yishun Health



**LIVING  
WELL**



# HAPPY MIND, HEALTHY BODY

Making health a way of life is a key approach for Yishun Health as a health-promoting organisation.

**K**eeping well in all aspects of life — from having a balanced diet and regular exercise to maintaining social ties — boosts both physical and mental health. Taking good care of one's health and inculcating healthy lifestyle choices have a far-reaching impact on the quality of life; it goes a long way to reducing the risk of illness later in life. Be it through encouraging

people to be more active, educating them on how to keep well, or giving them the tools to take their health into their own hands, Yishun Health makes it a mission to reach out to as many people as possible through numerous initiatives and partnerships.

Many of these initiatives are rooted in and stem from not only our institutions, but the community as well.



This is an important feature of our health promotion and illness prevention efforts. The community health approach broadens the mission of healthcare. We are not just about treating illnesses, but empowering people to be active participants in their own wellness.

As exemplified by our Wellness Kampung, we strive to enable these efforts through creating platforms, partnering with service providers and other experts, as well as giving space for the community to design their own programmes.

### WELLNESS KAMPUNG

Health begins at home, in our daily routines, habits and choices. Yishun Health proactively supports the community in sustaining healthy lifestyles through a variety of health promotion platforms.

One of these signature efforts is the community-based initiative known as Wellness Kampung, first launched in 2016. It is an innovative activity centre designed to leverage existing community resources, enhance social interactions, and drive health promotion efforts. Each centre is set up in partnership between Yishun Health, St Luke's Elder Care, and Nee Soon grassroots organisations, forming a public space for residents to gather. Its goal is to create a positive social environment to nurture behavioural and mindset change. This, in turn, nurtures a supported self-management ecosystem for the population.

Today, the centres have become a well-loved feature of the Yishun community, and are hives of activity. Residents drop by daily to exercise, hang out with neighbours and friends, play games, do arts and crafts, attend cooking demonstrations and health talks, and participate in festive gatherings.

Most heartening of all, resident volunteers are playing a bigger role in programme planning and development, underscoring the power of an engaged, activated and empowered people who take ownership of their own health and well-being as well as that of the community.

### NEVER STOP LEARNING @ MMS

Yishun Health's Mini Medical School (MMS) reached its five-year milestone in 2017. Ever since it was started, the MMS has been a platform for improving health literacy through informative and easy-to-understand lectures. To date, there have been 14 runs of MMS, with 4,111 attendees and 1,919 participants and graduates.

Last year, three runs of MMS were held. The first, held in May 2017, was 'Epidemic!! The Sequel' — an extension of the first 'Epidemic' run held in May

## WHO'S WHO IN THE KAMPUNG

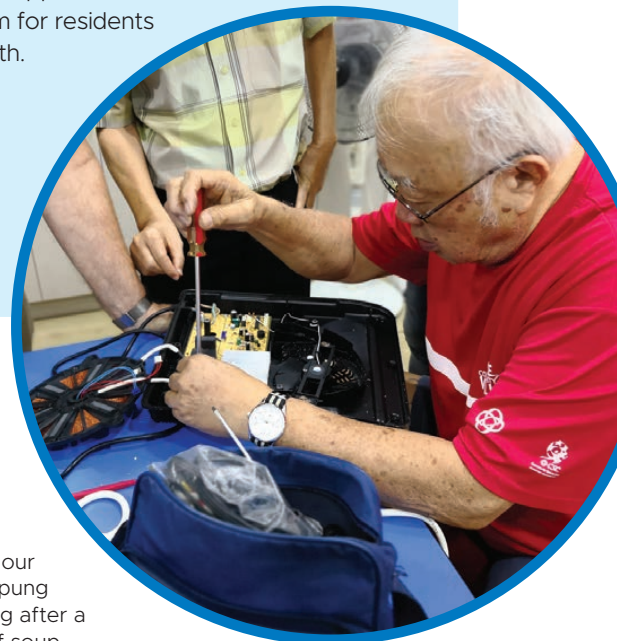
**Centre Managers** like Mary Ong oversee the various programmes at the Wellness Kampung at Nee Soon Central. Besides managing activities, she builds rapport with residents and volunteers to gain an in-depth knowledge of the community's needs.

**Dietitian** Karishma Surtani guides the residents in their weekly cooking classes, gives nutritional advice, and trains volunteer Food Ambassadors, who are resource persons for the community.

**Community Nurses** such as Lee Sok Howang, Tan Wan Ting and Wee Seow Keng use the Wellness Kampung as a key place of contact to screen and counsel patients, and share health advice with them. This puts them in the heart of communities, where they build rapport and become sources of advice and support.

**Residents** are the most important feature of the Wellness Kampung. Not only do they participate in programmes, they step up to volunteer, share ideas, and become advocates for healthy living.

**Social Service & Community Organisations**, such as St Luke's Elder Care and Nee Soon grassroots organisations, play an important role in resource sharing and building a supported ecosystem for residents in the North.



**LEFT:** Four of our Wellness Kampung regulars smiling after a hearty bowl of soup

**RIGHT:** One of our Repair Kakis, Mr Chu, at work



2016. The talk covered the origins and reasons behind epidemics, and how these are detected and contained. This session also included panel discussions and case studies to explore the various ethical and practical dilemmas that healthcare professionals face when attempting to contain the spread of an infectious disease.

The second, held in July 2017, was a re-run of 'Metabolic Syndrome', and covered topics such as the development and management of diabetes, the differences between fat and cholesterol, and the factors influencing weight.

The third, 'Good Life, Good Will, Good End', conducted in January 2018, was a comprehensive look at end-of-life matters, such as advance care planning, grief and bereavement, and palliative care. In an exercise called 'Letter to the Stars', participants were asked to create a piece of artwork, write letters or poems to loved ones who had passed on, or pen their own eulogy. The exercise was a useful way to contemplate existential issues relating to life, death and dying. The letters, poems, eulogies and art were compiled into a poignant display during the last week of the series for all participants to reflect on.

### THE FIRST MMS CONFERENCE

The first MMS Conference was held at KTPH and YCH on 7 October 2017 to commemorate MMS@KTPH's five-year milestone. The one-day conference featured four different breakout tracks for 'alumni members' to review previous MMS topics.

Deputy GCEO of National Healthcare Group (Population Health) Prof Pang Weng Sun also presented 13 MMS 'students' with a Life-Long Learner Award for their regular 'school attendance' since 2015. A special Champion Volunteer Award was also presented to Paul Wong, a former KTPH staff who has been with the MMS team since its inception.

To end the session, the 419 conference attendees recited a pledge led by Dr Michael Wong, Senior Consultant, Family and Community Medicine, KTPH. This pledge, written by Dr Ong Chin Fung, Senior Consultant, Family and Community Medicine, KTPH, and head of the MMS@KTPH planning team, reiterates the core values of MMS: to share knowledge in the service of humanity, put health first, respect teachers and fellow students, and encourage each other to achieve their health aspirations.

### CARING OVER A SHARED BOWL OF SOUP

Eating among friends does more than heighten

the pleasure of a meal — it can foster ties, bolster emotional health, and encourage healthy eating habits. Since its inception in 2014, Share a Pot® has blended protein- and calcium-containing soups with regular group exercise to do all that and prevent frailty at the same time. Over the years, it has kindled a sense of community through volunteering and social participation. More importantly, it allows volunteers, community nurses, Wellness Kampung Centre Managers, and our partners — including religious organisations, Senior Activity Centres, Community Clubs, Residents' Committees, schools and nursing homes — to monitor the well-being of vulnerable seniors in the neighbourhood. To date, there are 25 active Share a Pot® sites, while 1,300 participants have been registered, of which 900 actively attend the programme. The initiative has also enrolled 164 volunteers.

In December 2017, Share a Pot® was awarded the inaugural International Forum (iF) World Design Guide Social Impact Prize. Out of more than 150 entries, the programme emerged as one of the six winners for its innovative approach to addressing frailty in modern Singapore.

**The iF Social Impact Prize recognises solutions that make a positive impact on social issues.**

This is a compassionate and harmonious community with a sympathetic understanding of Asian culture. This soup is good for body and soul as it combines healthy eating with sharing and nurturing a sense of belonging for the elderly. A loving, caring project that allows people to have a positive impact in each other's life is never so hard.

iF SOCIAL IMPACT PRIZE JURY STATEMENT ON SHARE A POT®

## AN ACTIVATED COMMUNITY



**Residents** have taken ownership of the programmes at the Wellness Kampung, proactively adapting, expanding and creating new ones.

**Kampung Buddies** extended their services from meals-on-wheels delivery to befriending stay-alone, at-risk or non-ambulatory residents.

**Repair Kakis** was formed in response to feedback that there were few programmes for men. This is a DIY repair interest group that counts a regular crew of some 12 'Mr Fix-its' from the community.

**Food Ambassadors** are residents who, beyond attending cooking demonstrations, work closely with Yishun Health dietitians to support the community to adopt healthier

eating and cooking habits.

**Intervention programmes** were started in 2017. *New You* is a weekly programme for early dementia patients that combines exercise, cognitive training and stimulation, and social interaction. *Life After Stroke* is a support group for stroke survivors. *Both Sides, Now* is a project about the community's interpretation of living and leaving well — Yishun Health worked with DramaBox and ArtsWok to raise awareness and openness about end-of-life issues.



The wide range of activities at the Wellness Kampung





### HOW SHARE A POT® WORKS

Withdraw and avoid seeking help to maintain dignity



Nutrition talks were held over a week in March 2018 at YCH, Nee Soon Central Zone 4 Residents' Committees and Nee Soon East Community Club. There, dietitians shared the benefits of a plant-based diet and how to plan nutritionally balanced, meat-free meals. Participants were also given plant-based recipe cards for dishes such as Three-Treasure Brown Rice and Old Cucumber Soup.

To further promote the message, the Nutrition and Dietetics team set up a Meatless Monday exhibition at the KTPH lobby for Dietitians Day 2018. That same day, Meatless Monday dishes were also launched at KTPH Foodfare.

The public nutrition talks and roadshow encouraged more than 300 people to commit to Meatless Monday.

### MINDFUL AND PRESENT LIVING

Mental health is an important part of living and ageing gracefully. Research shows that social community encourages interaction and contributes significantly to one's overall well-being, whether for recovery, chronic pain management, or ageing.

In March 2018, the Psychological Medicine department put up various fun and educational activity booths to shed light on mindfulness. Colourful posters also showed people ways to enjoy mundane routines, such as making the bed by 'staying present'. The Mindfulness Programme included tips on

mindful eating, one of the ways that promotes being present and encourages people to enjoy meals and experience greater joy in daily tasks.

**START WITH WHAT'S STRONG, NOT WHAT'S WRONG**



Focusing on frailty emphasises the problem, not the hope for a solution. Positive framing excites people into action.

**DIGNITY, NOT CHARITY**



People who come are not recipients of charity. Participants wash their own bowls and clean up after themselves instead of being served.

**INDIVIDUALLY GOOD, EVEN BETTER TOGETHER**



People come back to be part of the synergy in the community. It is a safety net that removes the stigma of seeking help.

### MEATLESS MONDAY

KTPH was the first hospital to introduce the Meatless Monday campaign. This took place in 2017. Yishun Health has taken the initiative further and expanded the campaign into the community. In March 2018, KTPH and YCH collaborated with four Community Clubs and Residents' Committees to promote the benefits of going meat-free once a week.

### COMMUNITY HEALTH SCREENING

Regular health screening can help pick up risk factors and chronic diseases early, helping people to take responsibility for their health and manage their conditions to prevent any complications. A total of

5,885 participants have been screened under the Population Health Programme in FY2017.

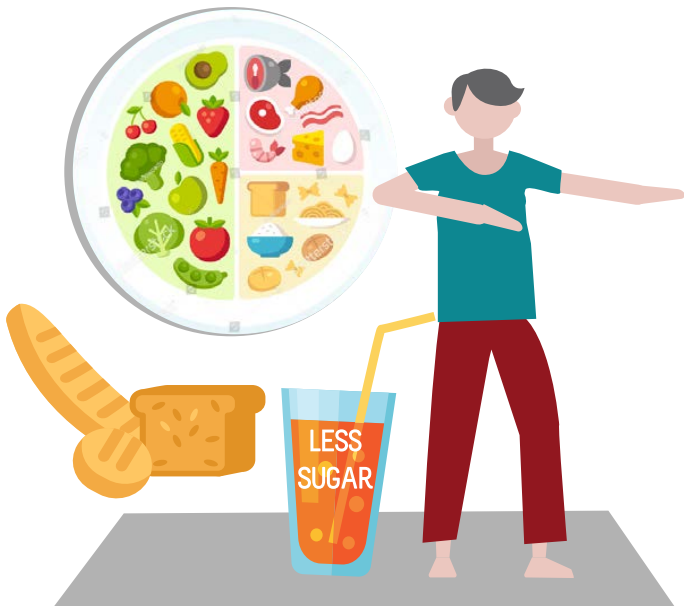
One of the health screenings held in March 2018 was the community Functional Screening by the Population Health team together with our community partners and Community Network for Seniors team. Screenings were done to detect age-related decline of elderly functional ability. As functional decline in vision, hearing and oral health can adversely affect daily activities, older adults who are found to have functional issues are sent for second level screening, diagnosis and treatment.

### COACHING FOR HEALTH ACTION MANAGEMENT PROGRAMME (CHAMP)

CHAMP is a community intervention programme to coach residents in four simple, health-promoting actions:

- Using the Healthy Eating Plate
- Consuming less free sugar
- Substituting with whole grains
- Increasing physical activity

The main focus of the programme does not stop at education; it invites residents to experience lifestyle changes, and eventually make habits out of the four health-promoting actions. In FY2017, 2,000 residents were guided by health action coaches, and many of them saw a positive impact on their lifestyle habits.



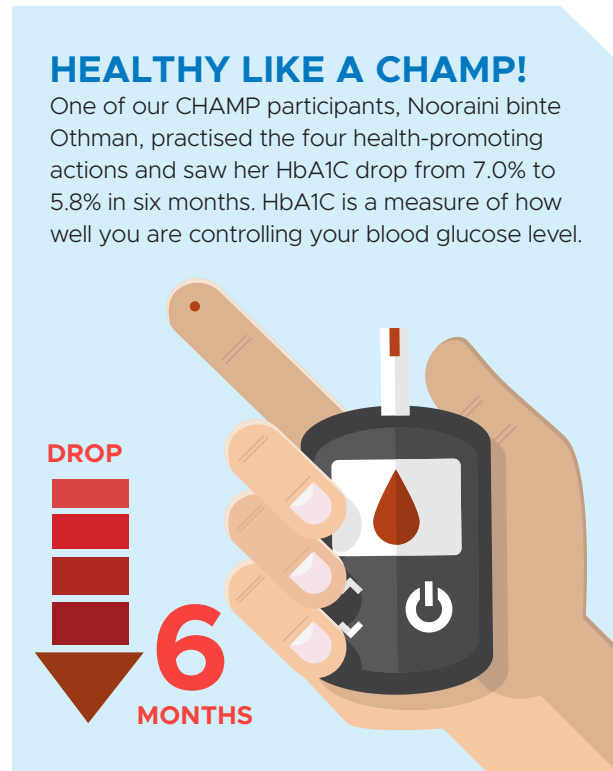
### COMMUNITY NURSE POSTS

The Diabetes Centre and Community Nursing Team formed a Community Nurse Post partnership to take care of complex diabetic patients. These patients typically need more care and have various medical and social issues. To better address their needs, specially trained community nurses spend more time with these patients to address their social needs as

well as encourage medical compliance and lifestyle changes. The Diabetes Centre and Community Nursing Team also hold multidisciplinary meetings so that nurses can provide updates and clinicians can make recommendations, taking into consideration the specific circumstances observed by the nurses in the community.

### HEALTHY LIKE A CHAMP!

One of our CHAMP participants, Nooraini binte Othman, practised the four health-promoting actions and saw her HbA1C drop from 7.0% to 5.8% in six months. HbA1C is a measure of how well you are controlling your blood glucose level.



### BEYOND HEALTH PROGRAMMES

Health is not just the absence of illness. It is about wellness in general — in strength of mind, happiness of spirit, and even the cleanliness and beauty in our environment. At Yishun Health, we strive to build and nurture a sustainable environment as well as an ethos of corporate and social responsibility (CSR).

Our vision of building a 'Hospital in a Garden, Garden in a Hospital' was conceived back in 2005, when former Alexandra Health System (AHS) Group CEO Mr Liak Teng Lit led a team of staff, partners and external consultants on an uncharted journey to build a hospital with a healing environment. Today, nature is an integral part of our institutions, be it AdMC, KTPH or YCH.

Here is a roundup of Yishun Health's achievements in non-clinical activities:

- For building a strong foundation in sustainability by instilling green values beyond staff to engage patients and the wider Yishun community, KTPH was honoured with Singapore's highest environmental accolade. It received the **President's Award for the Environment** on



22 October 2017 from President Halimah Yacob at a ceremony held at the Istana. The President's Award for the Environment, established by the Ministry of the Environment and Water Resources, recognises individuals, educational institutions and organisations that have made outstanding contributions towards environmental and water resource sustainability in Singapore.

- KTPH won the first ever **Stephen R Kellert Biophilic Design Award** in 2017. The award is organised by the United States Green Building Council and International Living Future Institute (ILFI). Biophilic design is an emerging field that promotes health and well-being by creating connections between people and nature in the built environment. Out of 21 entries from all over the world, KTPH won for its innovative and extensive use of biophilic design.

The grounds are designed to stimulate the five senses. There is rainforest-like landscaping, a storm water pond transformed into a lake, lots of natural light and ventilation, as well as lush sky bridges. The greenery, in turn, makes it a natural habitat for butterflies, birds, dragonflies and fish. A champion for biodiversity, KTPH conserves and documents about 700 local and native trees, 700 indoor potted plants, 70 species of birds, and 80 species of butterflies — all of which, in turn, enhance the natural environment of the hospital. In her evaluation, Amanda Sturgeon, Fellow, American Institute of Architects, and CEO, ILFI, said that KTPH “opens the door towards a new kind of building type for the healthcare industry, which considers how the built and natural environment can become part of the healing process”.

- In tandem with the launch of Singapore's Year of Climate Action, Yishun Health kicked off its own **Sustainability Movement** on 29 January 2018.

Organised by the Green Committee, the event mapped out our sustainability framework for a healthy community, sustainable environment, and healthy workforce. A total of 200 people attended the ceremony, along with 18 key vendors and partners, to pledge our commitment to be an environmentally friendly hospital for our patients, staff and visitors.

Attendees then enjoyed a healthy Meatless Monday lunch that featured fruits and vegetables from the KTPH rooftop garden. Staff and partners also brought their own reusable lunchboxes and utensils instead of using disposable cutlery. As part of the launch, exhibition booths were set up at the KTPH lobby to showcase Yishun Health's various sustainability initiatives.

- On 11 March 2018, in celebration of **World Water Day**, Yishun Health and PUB co-hosted a community event to pledge and share the value of water conservation. Guest-of-Honour Er Dr Lee Bee Wah, Adviser to Nee Soon GRC Grassroots Organisations and MP of Nee Soon GRC, graced the event. She acknowledged partner schools and Nee Soon residents for their water conservation efforts.

A champion for biodiversity, KTPH conserves and documents about 700 local and native trees, 700 indoor potted plants, 70 species of birds, and 80 species of butterflies — all of which, in turn, enhance the natural environment of the hospital.

Er Dr Lee Bee Wah (second from right) is joined by Mrs Chew Kwee Tiang (CEO, KTPH & Yishun Health, left) and Mrs Cindy Keng (Director, 3P Network, PUB) in giving the 'thumbs up' to water conservation



“While having a chronic illness has many challenges, it doesn’t mean one cannot live well. What we strive to do is empower patients to manage well, prevent complications, and support them in living their lives to the fullest.”

**A/PROF PHOA LEE LAN**

Deputy CMB (Care Integration & Clinical Standards)  
Head & Senior Consultant, General Medicine  
KTPH & Yishun Health



# LIVING WITH ILLNESS



# EMPOWERED TO TAKE ACTION

Yishun Health goes beyond episodic treatment of specific diseases and organs to provide comprehensive care and training for patients to take charge of their health.

**Y**ishun Health takes a holistic and integrated care approach to support patients living with chronic illness. This is done through education, community screenings and activities, as well as integrated medical services and support in the community.

Our mission of care is built on a foundation of prevention, education and empowerment to grow a self-managed community that is able to take the steps needed to handle their illnesses well and delay the health complications of chronic disease. This, in turn, reduces the need for hospitalisation.

In addition to the numerous programmes that address obesity and diabetes, this chapter also includes initiatives on eye screening and sports medicine.

## **INTEGRATED CARE OF OBESITY AND DIABETES**

The rates of obesity are rising at an alarming rate, leading to a host of related conditions, known as co-morbidities.

At Yishun Health, a new transdisciplinary initiative was launched in June 2017 to tackle obesity not just as a weight loss issue, but comprehensively managing risk factors such as diabetes. The Integrated Care for

Obesity and Diabetes (ICOD) programme is a one-stop platform, where weight loss surgery, medical weight management, and diabetes management are offered in conjunction with psychological care, nutrition recommendations, and physiotherapy. Patients are holistically supported and empowered to achieve their goals by a care team comprising physicians and surgeons, psychologists, as well as allied health professionals such as dietitians, physiotherapists and medical social workers.

The team, which is co-located in a single centre, is able to easily consult each other, assess cases, develop care plans, and optimise medications for seamless care coordination. Some patients may benefit from a non-surgical weight loss programme, while others may need weight loss surgery and major dietary changes. And even as medical and physical aspects are tended to, a psychologist is on hand to offer help on other important issues, such as anxiety, depression and low self-esteem.

This pioneering initiative supports Yishun Health's philosophy of moving beyond episodic treatment of specific diseases and organs to providing comprehensive, long-term care that equips patients with the skills and knowledge to be active participants in their own health.



**THE ADMC DIABETES CENTRE**

The Diabetes Centre opened in AdMC in July 2017. It offers a convenient location for patients to receive high-quality and streamlined specialist diabetes services.

The multidisciplinary team focuses on treating complex diabetes cases and those with end-organ complications. Treatment is customised for each patient, who is also taught self-care and management of his or her condition. Wherever possible, patients are referred back to their GP or the polyclinic to continue their treatment, but those with more complex issues are either co-managed or fully managed by the AdMC Diabetes team. Apart from referrals from KTPH, patients are also referred by GPs and polyclinics to the Diabetes Centre.

**TOP:** The transdisciplinary ICOD team  
**ABOVE:** Activities organised in conjunction with World Diabetes Day



## DRIVING DIABETES AWARENESS AND ENHANCING CARE

Aligned with the national War Against Diabetes, the Diabetes Centre also rolled out a number of diabetes awareness, screening, prevention and management programmes and events in FY2017. Working closely with community partners and government agencies, the Centre successfully organised several major diabetes events and participated in a few others. More than 500 people

from all walks of life participated in these events, and were given the opportunity to learn more about living well with diabetes.

One of these was the Annual Diabetes and Metabolism GP Symposium, held for the first time at AdMC on 14 April 2018. The theme was 'Care of the Complex Diabetic Patient in the Community – AdMC – Old Friends, New Neighbours'. It was well received by nearly 200 GPs and other healthcare

## WHO'S WHO IN ICOD

### **Bariatric and Metabolic Consultant Surgeons**

Dr Tan Chun Hai, Dr Anton Cheng and Dr Tan Bo Chuan determine whether surgery is an appropriate option in collaboration with patients and the ICOD team. Weight loss surgery is the first step in a patient's journey. Pre- and post-operation, the patient is supported by the ICOD team to make long-term lifestyle and dietary changes.

**Weight Management Consultant** Dr Benjamin Lam leads the medical weight loss management team, comprising Dr Jane Han and Dr Ho Ching Yun. They look beyond generic advice to customise approaches. It may mean advice on specific lifestyle changes to adjusting medications for pre-existing illnesses to prescribing new drugs for weight loss.

**Endocrine Consultant** Dr Wee Hui Chia provides endocrinological support for the team. She specialises in managing diabetes and the hormones that are involved in the disease.

**Clinical Psychologist** Mabel Yum and her team, comprising Dawn Chia and Patrick Phor, support patients to develop healthful habits while arming them with coping mechanisms to handle anxiety, stress, low self-esteem, and other issues. There is evidence that shows the importance of psychological, behavioural and social factors in the management of diabetes.

**Dietitian** Hedy Cheng offers advice on healthy eating, and also educates patients on making better food choices for the long term, thus ensuring

that patients get enough nutrition and energy while controlling sugar level and calorie intake.

**Physiotherapist** Muhammad Jazimin bin Haron works out safe exercise programmes for patients who have problems moving because they are severely overweight. He also runs 'pre-habilitation' sessions, which help patients gain strength before bariatric surgery and aid their recovery.

**Nurse Manager** Tracy Teo, along with her nurses Lucy Kong and Hend Rajab Mohd Husain Taleb, manage cases and appointments, and coordinate care to ensure care continuity before, during and after surgery. This ensures that patients have access to long-term support even after they have achieved their weight goals.

**Medical Social Worker** Jenny Goh provides psychosocial support to patients and their families. She also does financial counselling, assesses the home situation, and arranges for the right mix of resources to help the family.

**Plastic Surgeon** Dr Pek Chong Han performs body contouring surgery to improve the patient's body shape and remove excess skin folds after successful bariatric surgery and weight loss. This final phase of body transformation is typically performed after weight loss has stabilised and target BMI has been achieved.

professionals, with A/Prof Pek Wee Yang, Chairman, Medical Board, KTPH & Yishun Health, setting the direction with his welcome and opening address.

### World Diabetes Day

On 18 November 2017, Yishun Health commemorated World Diabetes Day at the Active Ageing Carnival at Kampung Admiralty. The event was organised by AdMC's Diabetes Centre and Woodlands Grassroots and People's Association. Mr Amrin Amin, Grassroots Adviser to the Woodlands GROs, was the Guest of Honour.

The day started with a brisk walk from Galaxy CC to the Kampung Admiralty Plaza, where those with diabetes got to see the impact of exercise with pre- and post-walk glucose checks. There were also group exercises as well as general health and eye screenings. Adding to the healthful day, Yishun Health's Nutrition and Dietetics, Podiatry, Rehabilitation, Renal, Pharmacy, Clinical Research, and Dental departments all set up booths to educate the public on the various aspects of diabetes-related conditions and self-management tips.

### Touch Diabetes 25th Anniversary Celebrations

On 5 November 2017, the Diabetes Centre team was involved in TOUCH Diabetes 25th anniversary celebrations to show community support for people with diabetes. The team joined a convoy of cyclists — many of whom are living with diabetes — in a 90km route across Singapore to raise funds. They



A/Prof Subramaniam Tavintharan receiving the Life Buoy as a token of appreciation

Patients at AdMC's Diabetes Centre are taught the DESMM approach to managing diabetes: **Diet, Exercise, Support, Monitoring and Medication.** These five pillars of diabetes care are presented as interactive displays at the Diabetes Centre to educate patients on the fundamentals of taking better care of their health.

**1**

### Diet

**Be mindful of the amount and type of carbohydrates you eat, as these break down into glucose. Eat small and regular meals throughout the day to keep energy and glucose levels steady.**

**2**

### Exercise

**Just 30 minutes of physical activity a day can improve blood glucose levels in the long term. Regular exercise also helps in weight loss, which can improve blood sugar control.**

**3**

### Support

**Let your family and friends know you have diabetes and the importance of their support. Join a diabetes support group to connect with people and receive motivation.**

**4**

### Monitoring

**Actively monitor and record blood glucose, weight, blood pressure and foot health. Understanding how different foods and activities affect blood glucose levels can support good dietary and lifestyle habits.**

**5**

### Medication

**Know your medications, how they work, and take them at the right time. This can help manage diabetes better and prevent side effects.**



Community nurses attending to residents at a Community Nurse Post

wheeled past major healthcare institutions such as the National University Hospital, Singapore General Hospital, Changi General Hospital, and KTPH. The team also provided specialist medical coverage for the event. To thank the Diabetes Centre team for their support, A/Prof Subramaniam Tavintharan was presented with a token of appreciation.

### Enhancing Integrated Person-Centric Diabetes Care

Moving ahead, the Diabetes Centre team will work towards further integrating care for patients. A plan is being developed to better coordinate care. With clear, value-based outcomes, seamless integration between healthcare teams, and social and community partners, this integrated care plan will provide holistic, continuous care for people with diabetes.

Continuing our history of pursuit for medical excellence, the team is also actively working in the area of clinical and basic research, focusing on a number of impactful studies. Concurrently, they also provide learning and internship opportunities for students and healthcare professionals.

### SMART COMMUNITY NURSING

To enhance community nursing in the north, Yishun Health started its geographically based Self-Managed Autonomous Regional Teams (SMART) in December 2017. The initiative covers the Yishun, Woodlands and Sembawang zones. The teams comprise community nurses and healthcare assistants, who:

- Sense the ground in terms of needs and community assets in each locale

- Provide clinical response and care planning for the five population profiles, from Living Well to Leaving Well
- Strengthen individuals and families through appropriate interventions
- Coordinate between health and social care partners and the community to enable residents to self-manage their chronic conditions

These SMART nurses conduct geriatric and/or functional assessments as well as provide guidance and lifestyle coaching for residents in centres such as Senior Activity Centres and Community Nurse Posts. Importantly, they are given more autonomy to manage their work, and can customise care plans and make joint decisions with clients in their care.

With their understanding of each patient's specific medical, social and even familial and financial circumstances, SMART nurses may make decisions such as cutting down on less essential medication or linking them up with social support services. This makes care less medical, and more holistic and accessible.

Part of the SMART team also provides community screening for residents aged 40 and above, including post-screening intervention programmes such as Skills for Life: Diabetes Management and Coaching for Health Action and Management Programme, or CHAMP (see page 19). For residents who are homebound but require assistance, the SMART team also conducts home-based assessments to understand their needs and assets before referring them to the appropriate care services, where necessary.

## COMMUNITY NURSE POSTS

There are currently 19 Community Nurse Posts in the north. Their services include:

- Basic nursing
- Chronic disease monitoring
- Personalised health and lifestyle advice/coaching
- Early detection of functional limitation through geriatric and functional assessments

The target is to reach 29 Community Nurse Posts and 11 Healthcare Assistants in the northern population of Singapore by the end of 2019.

Community nursing involves the 2S+2C concept: the goal is to achieve 'community-up' instead of 'hospital-down' referrals seen by the Ageing-in-Place Community Care Team (AIP-CCT).

### 2S+2C CONCEPT

**Sensing** Regularly gather information about individuals/clients at risk on a regular basis and address their needs proactively and preventively in a timely manner; this is done by connecting with individuals, families, grassroots organisations, and providers in the community.

**Strengthening** Focus on improving capabilities of individuals and families to conduct self-managed care, as well as equipping community partners with the capability to better support and complement health and social care.

**Clinical Care** Develop the required competency to provide appropriate clinical care through assessment, care planning, interventions, and escalation or de-escalation of care.

**Coordination** Enhance seamless care by coordinating with various levels of the community of carers and partners to maintain optimal quality of life of the individual in the community.

## SPORTS MEDICINE — LOCAL AND GLOBAL

The KTPH Sports Medicine Centre provides full-service care, from the traditional, such as acupuncture, to the latest procedures, such as ultrasound-guided injections of the spine — this

newest treatment was introduced in early 2018 to treat appropriate cases of chronic neck and back pain arising from facet joints of the spine.

The Centre also has ongoing partnerships treating world-class athletes. These include providing medical services to the Professional Golfers' Association European Tour players during their Far East leg, including China, India and Malaysia. Another is with Lagardere Sports Asia to render medical care to the world's top-eight women tennis players at the Women's Tennis Association Finals in 2017 and 2018.

In December 2017, the Sports Medicine team coordinated the medical support and anti-doping programme for the Oceania Powerlifting Championships and Pacific Invitational, in addition to other Powerlifting Singapore events.

In September 2018, they also concluded the inaugural Orthopaedic Surgery and Sports Medicine GP Master Class Series. This is a six-part topical workshop-styled initiative to equip family physicians with theory and practical skills to incorporate into their daily medical practice.



One of the SMART nurses in action, giving advice on nutrition and monitoring a patient's vital signs



### KEEPING AN EYE ON PROBLEMS

Community & Home Eye Screening Services (CHESS) was launched in February 2017 to help early detection and provide comprehensive eye care to the ageing population. The initiative, by the Ophthalmology & Visual Sciences department and the Population Health & Community Transformation team, aims to improve elderly residents' access to eye care and identify eye diseases early through screenings and consultations. It targets residents aged 50 and older, and persons with diabetes of any age who do not have follow-up appointments with an eye doctor and have not seen one in more than a year.



**ABOVE:** Yang Lijun (Optometrist, OVS, KTPH) giving one of the residents an eye screening at the Wellness Kampung  
**BELOW:** Prime Minister Lee Hsien Loong observing a patient using the Macular Amsler Testing App

**First-level Community Eye Screening (FiLCES)** is conducted by community nurses, healthcare assistants and AIP-CCT nurses.

**Second-level Eye Consultation (SeLEC),** a more comprehensive eye screening, is done by optometrists at the Wellness Kampung under the tele-supervision of an ophthalmologist.

SeLEC has also evolved to Second Level Eye Care Team (SeLECT), a novel trans-agency community collaboration by AdMC and NTUC Active Ageing Hub. SeLECT is run by a team of optometrists and elderly NTUC volunteers, with tele-health

consultation by specialist ophthalmologists in AdMC. Elderly residents can be referred for subsidised specialist outpatient treatment at AdMC on the same day within Kampung Admiralty. SeLECT has been well received and publicised in the media.

The CHESS model has reduced specialist referrals to hospitals, increased healthcare accessibility for the elderly and home-bound, and lowered the cost of screening and managing eye conditions.

For revolutionising community eye care by empowering nurses and optometrists to be physician extenders, the team from CHESS picked up the ExCEL Innovative Project award at the 2018 Public Sector Transformation Award.

### MATA: ENHANCING VIGILANCE OVER EYE HEALTH

Age-related macular degeneration (AMD) and diabetic eye disease are common conditions that can cause visual defects. If not diagnosed and treated or managed early, these problems can lead to vision loss. To make screening and self-monitoring more accessible, KTPH's Ophthalmology & Visual Sciences department developed a mobile app as a screening tool to detect abnormalities.

The Macular Amsler Testing App (MATA) replaces the traditional use of paper charts, making the vision test (known as the Amsler test) more accurate and easy to conduct at home. The app has the benefit of:

- Empowering patients to self-monitor
- Increasing compliance to Amsler testing
- Improving test accuracy
- Reducing unnecessary or late referrals
- Shifting patient care from disease management to health management

MATA also has useful educational resources for patients in its homepage, such as patient education modules with links to brochures and reliable healthcare websites.



“When critical illness strikes — be it a heart attack, stroke or broken bone — our priority is to deliver timely and effective care. We ensure that all patients receive the right levels of care and support to get them back on their feet.”

**A/PROF PEK WEE YANG**  
Chairman, Medical Board  
KTPH & Yishun Health



# CRISIS AND COMPLEX CARE



# THE ROAD TO RECOVERY

At Yishun Health, crisis care involves more than just dealing with the immediate issues at hand; it also involves aspects such as prevention, rehabilitation and patient education.

**M**edical emergencies and accidents happen. Situations such as a heart attack, stroke or broken bone are highly distressing to patients and their families. At Yishun Health, our mission is to respond with speed and skill to tackle acute issues, ensuring that medical treatment is given in a timely manner.

This is important because early, accurate diagnosis and prompt interventions are key to resolving medical issues before complications develop. Beyond this, our programmes support patients in their recovery as well. As illustrated by the Hip Fracture Service (HFS), rehabilitation, prevention as well as patient education are all integral aspects in our seamless, patient-centric care model.

Over the last year, we have introduced and made further improvements to our various programmes for crisis and critical care.

### HIP FRACTURE SERVICE

It is estimated that more than 2,500 cases of hip fractures occur annually in Singapore, and the number is expected to rise in tandem with an ageing population.

Hip fractures are more common in older adults because of increased frailty and age-related conditions such as osteoporosis. Such factors predispose them to falls and injuries. While any broken bone is a painful and serious affair, hip fractures in seniors are more worrying because the consequences can be dire.

Yishun Health's HFS was started in 2015 to not only address the acute issues, but to get people back on their feet and prevent future falls. Under

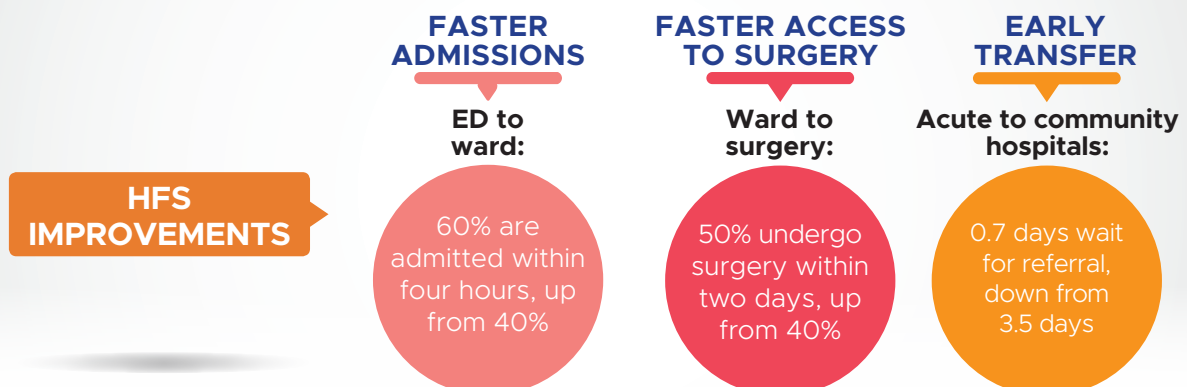
the HFS, a transdisciplinary team — comprising ED clinicians, geriatricians, cardiologists, anaesthetists, orthopaedic surgeons, nurses, allied health professionals (physiotherapists, occupational and speech therapists, dietitians), and case managers — that operates across both KTPH and YCH work together to streamline and improve processes. Since it was started, some 900 patients have benefited from this model of care.

The integrated care experience ensures elderly hip fracture patients are cared for by a specialised team and receive the care needed in the right setting. This includes timelier access to surgery, shortened hospital stays in the acute setting, and earlier initiation of comprehensive rehabilitation in a step-down care setting. This transition of care allows patients to achieve better clinical and functional outcomes, lets them save time and money, and offers them an enhanced quality of life — even after a fall.

## AN INTEGRATED EFFORT FOR BETTER HIP FRACTURE RECOVERY

This collaborative effort has led to improved outcomes:

- The Emergency Department (ED) team streamlined processes, from sequential to parallel, in order to shorten waiting time for investigations and expedite ward admissions: 60% of these patients are now admitted within four hours of presenting at the ED, up from 40%.
- Balancing the need for hip fracture surgeries with other surgical demands in the hospital, patients gained faster access to surgery. On average, 50% of hip fracture surgeries are performed within 48 hours, with some months achieving 60%.
- Previously, poor pain management, lack of information on weight bearing, medical issues, and lack of coordinated care resulted in delay in mobilisation. Today, patients are encouraged to move and walk the day after surgery, aided by physiotherapists and the Acute Pain Service team. Early mobilisation has been proven to accelerate functional recovery and reduce risk of complications, resulting in earlier discharge and shorter stay in the acute setting.
- KTPH and YCH collaborated to improve the flow of processes and communicate better, trimming transfer criteria and processes. The average transfer time of 3.5 days has now been cut short. More than 80% of hip fracture patients are now transferred to YCH on the same or next day.
- A comprehensive prevention programme has lowered surgical site infections (SSIs) from 2.3% in 2015 to 1.4% in 2017. SSIs are an unintended and preventable complication following a hip fracture surgery. Internationally, the rate of SSI is about 9% and about 4.6% of complications are so severe that they require surgery.





## WHO'S WHO IN THE HIP FRACTURE SERVICE

### CLINICAL TEAM

Working with speed, skill and collaboration, these medical professionals manage the acute and critical aspects of care — from surgery through to mobilisation and recovery.

- **ED Consultant** Dr Kanak Naidu leads the A&E team in assessing the patient upon arrival at the A&E, and puts the patient on the hip fracture care pathway.
- **Geriatricians** Dr Su Su and Dr Priscilla Ng front the inpatient physician team to ensure that patients are optimally cared for — pre- and post-operatively — to prevent and minimise complications. Pre-operative and geriatric assessments are performed to assess patients' conditions and decisions are made accordingly.
- **Orthopaedic Surgeons** Dr Yong Ren and Dr Chen Ying Dong communicate treatment options to the patients and their families by assessing and classifying the hip fracture and weighing the risks and benefits of surgery.
- **Anaesthetists** Dr Bin Wern Hsien and Dr Suresh Babu Loganathan work on managing pain for patients, from admission to post-operative care, enabling early mobilisation post-surgery.
- **Cardiologist** Dr Patrick Lim assesses and optimises cardiac conditions pre-operatively to prevent peri-operative cardiac mortality.
- **YCH Medical Lead** Dr Siew Chee Weng receives patients into the community hospital and ensures continuity of care for patients. Conditions are monitored and serious issues that arise are brought to the attention of the acute hospital clinicians for further review and transfer back if deemed necessary.
- Dr Foong Yi Lin, who is part of the **Community Care Team**, ensures that our elderly hip fracture patients receive the appropriate medical management and care support after they transition home. This includes home visits by doctors, nurses, physiotherapists and occupational therapists to assess medical conditions and functional recovery.

### NURSING & ALLIED HEALTH TEAM

Members of this team provide critical support throughout the pre- and post-operative phase to rehabilitation, education and the transition home.

- **Inpatient Nurse (HFS Coordinator)** Hong Ai Ling leads the inpatient nursing team in implementing hip fracture care standards to ensure that patients receive quality care in the wards and that conditions are well managed.
- **Osteoporosis Nurse** Gao Jie educates patients and their families on the importance of osteoporosis treatment, the risks associated and treatment options that are advisable according to the patients' conditions.
- Ensuring timely access to surgery, **Operations Manager** Celeste Yeo facilitates the availability of the operating theatre and communication between the ward and Major Operating Theatre for a smooth flow.
- **Radiologists** turn around scans within four hours, speeding up the process of diagnosis, providing the entire care team with critical information they need to develop care plans.
- **Physiotherapist** Joy Tan assesses patients before and after surgery, and facilitates early mobilisation from post-surgery Day 1 to improve functional recovery. Goal setting is performed and communicated to family and carers, allowing the smooth transition to community hospital.
- **YCH Occupational Therapist** Cara Lee ensures the continuity of care, aiding in the recovery and rehabilitation of patients through optimising the environment and providing aids and appliances to patients to improve their functional outcomes.
- **Speech and Language Therapist** Loo Ai Jia trains nursing staff in performing swallowing assessments, monitors patients with swallowing problems, and works closely with dietitians in the provision of appropriately textured meals for at-risk patients.
- **Dietitian** Tan Chew Sia performs nutrition assessment and develops individualised nutrition care plans to optimise recovery and rehabilitation. She also looks at energy, protein, vitamin and mineral intake, and hydration to boost functional outcomes and bone health.
- **Case Manager** Nurul Ashikin binte Shahri plays an active role in getting to know the patient and his or her family. She conducts financial counselling and proactively starts the patient's discharge care plan to enable a smooth transition of care to the community hospitals and home as necessary.

- **Medical Social Worker** Santhiya Devi d/o Ramasamy works with patients and their families to activate financial schemes and paperwork for nursing homes where required.

### ADMINISTRATION, OPERATIONS & ANCILLARY SUPPORT

These support staff put together the pieces of this transdisciplinary team, bridging gaps and setting processes in motion.

- Lee Ching Ching (**Bed Management Unit**) takes the lead to ensure smooth admissions and discharges for patients.
- Caroline Tan and Ng Hui Min (**Operations**) work on identifying gaps in workflows, coordinating improvement works among team members, tracking and analysis of data, and aiding the team in achieving set KPIs.
- Lynn Shi (**YCH Operations**) ensures continued tracking of data for patients transferred to YCH, and coordinates improvement works with the respective team members.
- **Porters** transfer patients to all the key points of care safely and efficiently, from ED and diagnostics to the wards, operating theatres and even to YCH.

### ACUTE MEDICAL UNIT

Yishun Health launched its Acute Medical Unit (AMU) in February 2017 to provide high-quality rapid assessment, close monitoring, and treatment for patients with acute medical conditions.

With AMU, newly admitted patients are placed in a single ward instead of being scattered throughout the hospital. This allows the multidisciplinary medical team to initiate rapid diagnosis and treatment, especially in the hours when doctors are spread more thinly.

Patients stay for an average of 72 hours, during which the team develops, reviews and communicates a care plan. The team also conducts multidisciplinary huddles to optimise team communication and decision-making. Patients who require further treatment are transferred to inpatient wards, while those who get better are discharged. Suitable patients are moved to a comfortable discharge lounge while awaiting medicine or transport. This frees up beds for unwell patients.

To raise the level of care, patients in the AMU:

- Receive priority investigations (laboratory and radiology)
- Are seen by a consultant on weekend evenings
- Benefit from enhanced nursing and junior doctor staffing



The transdisciplinary team conducting a huddle, discussing hip fracture patient Mdm K's care plan



Patients are assessed by the HFS consultant after admission via the ED

AMU has put in place data-driven continuous improvement efforts. Its performance indicators include rates of inpatient mortality, average length of stay (ALOS), and time to initial nursing and medical assessment.

After almost a year of operation, AMU solicited feedback from stakeholders and modified the admission criteria to better meet patient needs. With the revised criteria, AMU now concentrates its efforts on sicker patients and those with no clear diagnosis, as they are most likely to benefit from the enhanced resources. Since its inception, AMU has seen a reduction in patients' ALOS compared to similar patients in other general wards, resulting in about 4,000 bed days saved over a year.

AMU continues to evolve and adapt. It recently collaborated with YCH to admit patients directly from YCH to AMU if they need acute care. This reduces the need to send them to the busy ED. This embodies the spirit of AMU to provide rapid assessment and care for patients with acute medical conditions, regardless of referring discipline.

To share their experience and model of care, AMU team members have visited SGH and TTSH, and have hosted teams from IMH, TTSH and Woodlands Health Campus. The AMU team was awarded a Silver award in the NHG Team Recognition awards in 2018 for their multidisciplinary work model and data-driven learning.

### ICU DATABASE

The Intensive Care Unit (ICU) is a highly dynamic medical environment that tackles complex and critical cases. Medical conditions are often in flux, and the team must be able to respond with speed, accuracy and safety to unexpected changes in patients' medical states. An ageing population, multiple medical conditions, and increasing amounts of data will make ICU care even more complex.

To streamline the flow of data, enhance patient safety, and improve medical decision-making, the Surgical ICU (SICU) established its DSRB-registered database in 2011 to record the numbers and pertinent clinical details of each patient.

Initially, data entry was conducted by trainee doctors on an ongoing basis in a prospective manner. The data was then checked by a senior advanced practice nurse, and then analysed by a senior intensivist. Over 12 months, data on 1,800 admissions were entered into a database maintained in the ICU computer. This system was subsequently automated to flow in from the ICU's IntelliSpace Critical Care and Anaesthesia software programme into a computerised ICU database.

Today, this valuable data bank is used for monthly ICU data analysis by the nursing administration, and duly distributed amongst ICU leads. The continued recording of this data will potentially provide administrative and clinical insights into the SICU patient population, and a basis for future research. The data can also be used to study mortality trends in a qualitative manner.

## HEART FAILURE CLINIC

Despite significant advances in therapies, heart failure remains a major healthcare burden with high mortality and morbidity rates. Patients also suffer from a poorer quality of life and are often readmitted. In fact, heart failure is the most common cause for recurrent admissions to cardiology.

In order to improve outcomes for heart failure patients, Yishun Health started an early post-discharge multidisciplinary heart failure clinic in 2015. This clinic is run by advanced practice nurses, cardiac pharmacists, and heart failure consultants. They review patients in a timely manner from two weeks through to six months post-discharge. During these visits, patients receive reinforcement of heart failure education, early evaluation of heart failure status, heart failure medication optimisation, preventive measures (e.g. device implantation in eligible patients), and vaccinations.

The multidisciplinary heart failure clinic has led to a significant reduction in 30-day readmissions, from 11% in 2015 to 5.1% in 2017. There was also a significant improvement in patient's functional status and quality of life.

## REFINEMENT OF THE HEART ATTACK PATHWAY

Patients who present with a heart attack (known as an ST-elevation myocardial infarction) require timely critical intervention and coordinated care between both the emergency and cardiology departments.

To ensure timely diagnosis and treatment, both departments have made further refinement to the heart attack pathway. This includes training and feedback in the identification of borderline electrocardiograms, and timelier referral and decision-making, all leading to an improvement in patients receiving emergency percutaneous coronary intervention (a non-surgical procedure that uses a small catheter to get to the heart arteries and unblock them, thereby stopping a heart attack).

Patients now routinely receive this treatment within 90 minutes, while the median door-to-balloon time in FY2017 is now 47 minutes, down from 56 minutes – a saving of nine critical minutes.

A new initiative was also started in 2018. The Singapore Civil Defence Force sends the electrocardiogram to the ED while the patient is still en route, so that preparations can be made. We have also started activating the heart attack team to reduce unnecessary delays.

## EXTENDED DIAGNOSTIC TREATMENT UNIT: CT CORONARY ANGIOGRAM PROTOCOL

Chest pain is one of the top complaints in most EDs worldwide. In KTPH, cardiology is one of the top three admitting disciplines, making up 11% of our admission load.

Investigations into the cause of chest pains may take some time. Patients who turn up at the ED with chest pain typically have to see a cardiologist, schedule a diagnostic scan, and return to the hospital again to receive their results.

In February 2017, the ED introduced a new CT Coronary Angiogram (CTCA) Protocol for its Extended Diagnostic Treatment Unit (EDTU). Patients with a moderate HEART score, who are at higher risk of developing cardiac events such as a heart attack, are given faster access to a CTCA. A CTCA is a non-invasive scan that allows doctors



### Before: Patient waits approximately 42 days and 3 appointments for CTCA result



### After: CT scan done and report made available within 2 days





Dr Jerry Goo (left) and Dr Pek Chong Han lead the Oncoplastic Breast Reconstruction Clinic

to view and evaluate the arteries that supply blood to the heart.

The new protocol enhances risk stratification and allows patients to receive the appropriate care for their risk profile. It also greatly cuts down the time taken to diagnose a heart condition. Instead of multiple appointments and over a month of waiting, patients are admitted to the 23-hour EDTU and will receive their CT scan and report the next day.

As of January 2018, 208 patients have been assessed under the new protocol, and 45% were discharged with no need for follow-up. This translates to 285 outpatient appointments saved. More importantly, this new streamlined interdisciplinary care protocol improves the patient experience, increases safety, and ensures that those at risk are assessed early to receive appropriate care.

### **ONCOPLASTIC BREAST RECONSTRUCTION CLINIC**

Breast cancer is the most common cancer afflicting women in Singapore. With the improved survival rates of women after undergoing breast cancer surgery, it is important to maintain the aesthetic outcome.

As such, KTPH's oncoplastic breast reconstruction service is a natural extension of the current KTPH breast unit. It aims to provide optimal

## **Beyond treatment for breast cancer, breast reconstruction plays a big role in the overall recovery and healing process.**

coordinated patient care for the treatment of breast cancer and benign breast diseases. The service sees the plastic surgery and breast surgery teams working closely together to bring breast reconstruction to breast cancer patients. The goal of the reconstructive surgery is to offer surgical options to help people return to normality, and enhance emotional and physical well-being, self-esteem, quality of life and cosmetic satisfaction. Beyond treatment for breast cancer, breast reconstruction plays a big role in the overall recovery and healing process.

### **ENHANCED PERIOPERATIVE CARE IN EMERGENCY SURGERY**

Yishun Health led the way when it established Singapore's first acute surgical unit in 2014, known as the Emergency Surgery and Trauma (ESAT). Emergency and trauma surgery is usually urgent in nature and performed on very sick patients.

Compared with the conventional system, where all emergency surgeries are attended to by the surgeon on call in addition to his or her daily elective workload, ESAT has a dedicated team. This effectively allocates manpower resources to provide prompt and timely care for patients in ED. In 2018, the ESAT team was featured at the NHG Team Recognition Awards.

This model of care separates acute and elective surgical workflows with the existing manpower resources to:

- Provide consultant-led, efficient, coordinated and accessible acute care for patients
- Reduce time to surgical review and surgery, resulting in decreased length of stay and hospital costs without compromising quality and safe patient care

These improvements in efficiency are attributed to enhanced collaboration and daily communication between the ESAT team, ED, operating theatre, intensive care unit, and the allied health and nursing staff. Going forward, ESAT aims to further streamline surgical care pathways and collaborate with physicians specialising in geriatrics to improve acute care in an ageing population.

“More than coping with the challenges of an ageing society, we must find ways to innovate, leverage resources, and facilitate ways to enable people to live well, safely and independently — for as long as they can — in their own home and community.”

**DR ANG YAN HOON**

Senior Consultant, Geriatric Medicine  
KTPH  
Lead for Ageing-in-Place Community Care Team  
Yishun Health



# LIVING WITH FRAILTY



# AGEING IN PLACE

We believe in providing total, person-centred care for the frail and ageing among our community.

One of the challenges of an ageing population is the concomitant rise in ageing-related conditions. There are about 500,000 people in Singapore who are aged 65 years old and above. Of these, about 10% are frail and suffering from multiple problems, such as falls, arthritis, dementia, immobility, incontinence, chronic diseases (diabetes, hyperlipidaemia and hypertension), and social isolation.

Yishun Health aims to keep older adults who are affected by these issues healthy and robust for as long as possible — and to do this in the community

that they are familiar with. This stems from our firm belief in person-centred care that must go beyond the biomedical to include psychological and social aspects.

In tailoring care plans for patients, we consider their personal history, values and preferences to ensure that the person is always at the centre of care and that, over and above medical needs, we tend to the key tenets of their quality of life.

## **CARITAS iCOMMUNITY @ NORTH**

Patients with dementia can be challenging to manage, especially in the home. Often, patients



and caregivers require long-term support and help. To improve the care for frail older persons with dementia and support ageing in place, Yishun Health rolled out the CARITAS iCommunity @ North in 2012. The goals of care in this integrated care model are spelled out in its name:

- **C**omprehensive
- **A**ccessible
- **R**esponsive
- **I**ndividualised
- **T**ransdisciplinary
- **A**ccountable
- **S**eamless

CARITAS extends hospital dementia care into the community through links with day-care centres and home care providers (case management, counselling, caregiver support and training, home help, home medical and nursing care) and primary care providers.

Specialising in dementia, a transdisciplinary team of doctors, nurses, physiotherapists, occupational therapists, speech therapists, medical social workers, psychologists and pharmacists works with these community partners. Patients and their caregivers have ready access through a phone call or email to a patient care manager as their main point of contact. This heightens the responsiveness to ad hoc as well as long-term needs.

The team and their community partners meet weekly to discuss care plans, update each other on the status of patients, and share recommendations so that team members can act on each other's inputs to offer timely and proactive care. Today, CARITAS — together with partners such as St Luke's Eldercare, SWAMI Home, Sree Narayana Mission, AWWA, Thye Hua Kwan Moral Society, Montfort Care, NTUC Eldercare, Club Heal, Agency for Integrated Care, Community Networks for Seniors, and Yishun Health's Ageing-in-Place Community Care Team — serves more than 800 patients with dementia with differing levels of frailty and co-morbidities in the North.

A group exercise session organised by the CARITAS team

## WHO'S WHO IN CARITAS

**Community Care Partners**, such as day centres, home care services, and eldercare services, play a central role in providing day-to-day care and services. They act as main points of care on the ground, ensuring reliable and accessible care. In turn, they are supported by Yishun Health's transdisciplinary geriatric care team.

**Physicians** Dr Rachel Cheong, Dr Nieh Chih Ming, Dr Ng Chong Jin, Dr Chen Shiling and A/Prof Philip Yap ensure that patients have an individualised care plan, and that clinical issues are adequately managed. More importantly, they motivate and ensure team members take to heart the CARITAS principles in care delivery.

**Nurses** Koh Hui Mien, Tan Shi Ya and Christina Tai, and **Occupational Therapists** Giang Thuy Anh and Denise Chen, work together with caregivers to plan appropriate activities or interventions to improve the well-being, function and mobility of the patients with dementia. They also match interventions appropriate to the needs and capabilities of the patient to help upkeep a good quality of life.

**Pharmacists** Low Suat Fern, Carol Chan and Larissa Tan educate patients and their family members on the purpose of medications and their possible side effects. They also check on medication compliance and explain its importance.

**Medical Social Workers** Dorea Quek and Jenny Goh make sure that the patient and family receive support, be it in the form of funding, grants or access to services. They also makes sure that caregivers receive adequate help and assistance such as training or respite care.

**CARITAS Nurse** Fazila binte Nijal, with **CCT** and **SMART Nurses**, conduct regular home visits to provide medical and nursing care. During these visits, they tend to all needs, be they medical or social. They also look out for the well-being of the caregivers.

**In every CARITAS team, a patient care manager acts as the main point of contact for the patient and his family. This ensures care continuity and reassures caregivers that help is just a phone call or SMS away. He or she fosters an enduring relationship with the patient and family, and ensures that the different parts of the team are all kept abreast of important issues.**



Members of the CARITAS team having a discussion

## **ADAPTING TO COMPLEXITY: A BETTER WAY TO TACKLE DEMENTIA CARE**

Dementia poses many challenges. It has a significant impact on healthcare costs, increases caregiver stress, and reduces the quality of life not only for those with dementia, but their families as well. The disease is often complex and co-exists with other chronic illnesses. This underscores the need for a care model that is both holistic and individualised.

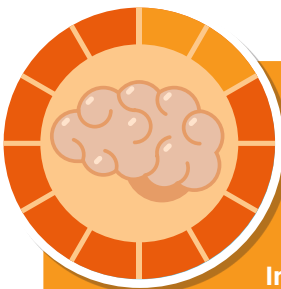
CARITAS is an example of a complex-adaptive system (CAS) that factors the potential changes and fluctuations into the patient's condition. Instead of a rigid system based on predictable outcomes, CAS is open to dynamic circumstances. As it is made up of interdependent and semi-autonomous team members (doctors, nurses, care providers, etc.), it is self-organising. Each team member is able to adapt to less predictable and unplanned situations, which is pivotal to keeping pace with patients' and caregivers' changing needs.

Care is delivered primarily through a patient care manager drawing on the team's resources, affording the team consistent two-way communication to discuss about the patients. Telemedicine is also utilised to provide decision support for primary and community care providers. Besides service providers, family members of persons with dementia (PWD) are actively engaged and empowered in the development of care plans and delivery of care for the PWD.

The impact of CARITAS was evaluated in a pilot study on 97 patients. After three to six months under the programme, patients and their families reported improvements:



There was a **significant reduction** in patients' behavioural problems and caregiver burden



There was an improvement in overall quality of life across all dementia severities. Importantly, those with higher dementia severity saw more **marked improvements**



The programme was also found to be **cost-effective**

The team presented these findings at the Global Conference on Integrated Care in 2018 and was named Best Oral Presentation.

**To further improve dementia diagnosis and referral in primary and community care, a web-based app was also developed. This innovation clinched first prize in the 'Better' category of the Yishun Health Kaizen Competition 2017, and was featured at the Future Med Conference 2017.**



Dementia-prevention activities for the elderly are held at the Wellness Kampung

### CAMIE

Yishun Health first started a restraint-free care ward called CAMIE (Care for the Acute Mentally Infirm Elder) in 2012. Since then, the ward has provided evidence that a restraint-free setting leads to better clinical outcomes and is also cost-effective. The findings were published in a research paper in the prestigious *Alzheimer's & Dementia* family of journals in December 2017.

The CAMIE ward was also featured as a full page article in *The Sunday Times* in July 2017, highlighting the enhanced patient outcomes in terms of better patient well-being, mobility and function, as well as decreased challenging behaviour.

### FORGET US NOT

Aside from hospital- and homecare-based dementia programmes, Yishun Health has led the way in community awareness about dementia since January 2016. Forget Us Not is a dementia-friendly community initiative in partnership with the Lien Foundation and Alzheimer's Disease Association. Since it started, it has trained more than 20,000 lay people from more than 90 organisations to recognise the signs of dementia, learn tips to stave off dementia, and provide assistance to people with dementia who need help. The latest organisations trained in FY2017 include SingPost, SMRT and stallholders of Kim San Leng Coffee Shop at Bishan. The Forget Us Not programme has expanded beyond the North and into the Thomson and Toa Payoh districts.

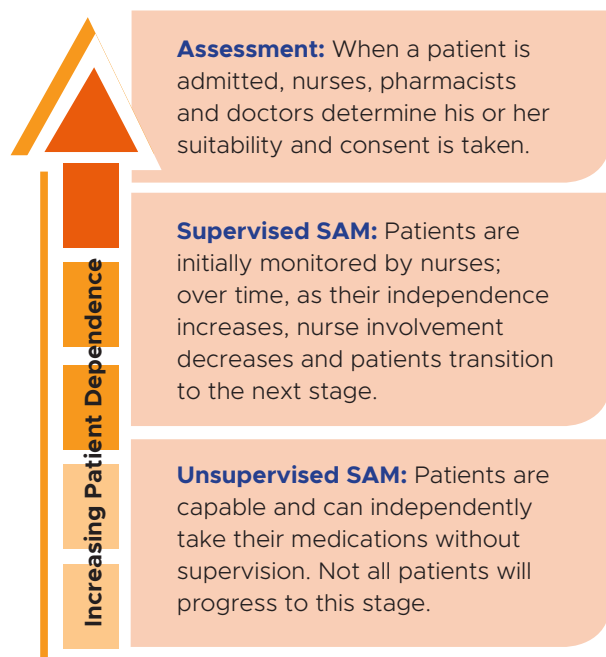


### SELF-ADMINISTRATION OF MEDICATION

YCH's Self-Administration of Medication (SAM) initiative empowers patients to manage and consume their own medication correctly and safely, even after being discharged from hospital.

SAM improves compliance with medication regimes to enhance safety, improve self-management of illness, and decrease the rate of re-hospitalisation. As of April 2018, 148 patients have been recruited for the initiative.

SAM is conducted in these stages:



Out of the 148 YCH patients participating in SAM, 119 patients completed the programme upon discharge, 69 patients progressed to unsupervised SAM, and the remaining 50 continued with supervised SAM upon discharge. The hospital will continue to review SAM and develop new qualitative measures to ensure patients benefit from a high level of safety and independence upon discharge.

### EXTENDING CARE FOR AGEING IN PLACE

Formed in 2011, Yishun Health's Ageing-in-Place Community Care Team (AIP-CCT) is a post-discharge, nurse-led home visit service that ensures comprehensive clinical, psychosocial and home environmental support and care for patients at home. The multidisciplinary team comprises nurses, doctors, therapists, pharmacists, medical social workers, and healthcare assistants. The goal is to help patients and caregivers manage well at home and in the community.

### Transitioning from Hospital to Home (H2H)

At the start of FY2017, along with the rest of the regional health clusters in Singapore, AIP-CCT merged its Frequent Admitter Programme and Transitional Care Programme, and transitioned to the H2H programme, which is administered by the Agency for Integrated Care (AIC). H2H aims to help patients with multiple medical conditions reduce their risk of re-admission by offering them services such as home nursing, home therapy, and home medical care.

AIC acts as the main coordinator of data throughout Singapore and uses a predictive model to identify patients who have high risk of readmissions. This move consolidates existing home transitional care schemes run individually by hospitals, making it more effective as it pools manpower resources.

AIP-CCT retrieves the list of patients predicted to have high risk of re-admission for enrolment into the H2H programme. The team coordinates with the Care Coordinators (CCs) in the wards to triage and identify patients who may need help managing their conditions at home. For patients who were not flagged by the predictive list but have been recognised to require home visits post-discharge, the CCs and clinicians in the wards are able to raise a clinical referral to AIP-CCT. For FY2017, almost 3,000 patients were enrolled into the H2H programme.

### Preventing Re-Admissions through Telephone-Based Consultation

AIP-CCT has started a new initiative where Triage Specialists from the Customer Contact Centre are roped in to manage Level 1 patients identified from the predictive list who have a high risk of hospital re-admission.

Level 1 patients have multiple medical problems that are stable and do not require home visits as the first line of management. However, they can benefit from post-discharge continuity of care with basic chronic disease education, monitoring, and medication management, which can be managed by telephone follow-ups.

Under this arrangement, the Triage Specialists telephone patients and assess their condition following discharge from the hospital. They may also do medication screening and disease-specific assessments. They educate patients and caregivers on their chronic medical conditions to prevent them from getting worse. This support also aims to reduce ED attendances and re-admissions. From April 2017–September 2017, 1,087 telephone calls were made to 474 patients.



An AIP-CCT nurse visiting one of her charges at home

Of 102 patients sampled:

- ED attendances fell from 2 to 0.8
- Admissions fell from 1.8 to 0.6

The initiative also aims to increase the level of patient education and improve self-management. An assessment found that 58% of patients with diabetes and 64% of patients with congestive cardiac failure did not understand their conditions well. This has led to enhanced efforts to roll out education and counselling on chronic diseases, medication management, and symptom monitoring.

### **AIP-CCT Home Visit Volunteer Programme**

The AIP-CCT officially started its home visit volunteer programme in April 2017 by recruiting its own pool of volunteers, who visit and befriend patients at their homes. Many of the patients under the programme live alone and/or have limited or no social support.

Apart from befriending, volunteers also do simple exercises with the patients, remind them to take their medications, and help with housekeeping and grocery shopping. This regular interaction builds



rapport and enhances social well-being. More importantly, the volunteers are able to spot potential problems and flag these to the nurse-in-charge. This helps to improve the vigilance of isolated and frail older persons, and increases timely interventions to prevent hospital admissions.

Since the volunteer programme started, more than 70 people have been recruited, 80% of whom are aged above 50 years old, allowing for a better patient-volunteer match and promoting senior volunteerism and active ageing as well. Almost 50 AIP-CCT patients have benefited from their services.

**AIP-CCT Goes Mobile**

To improve workflow and raise productivity, the enhanced Ageing-in-Place System (AIP System) was introduced in February 2017. In the past, clinicians had to take hard-copy notes during home visits and

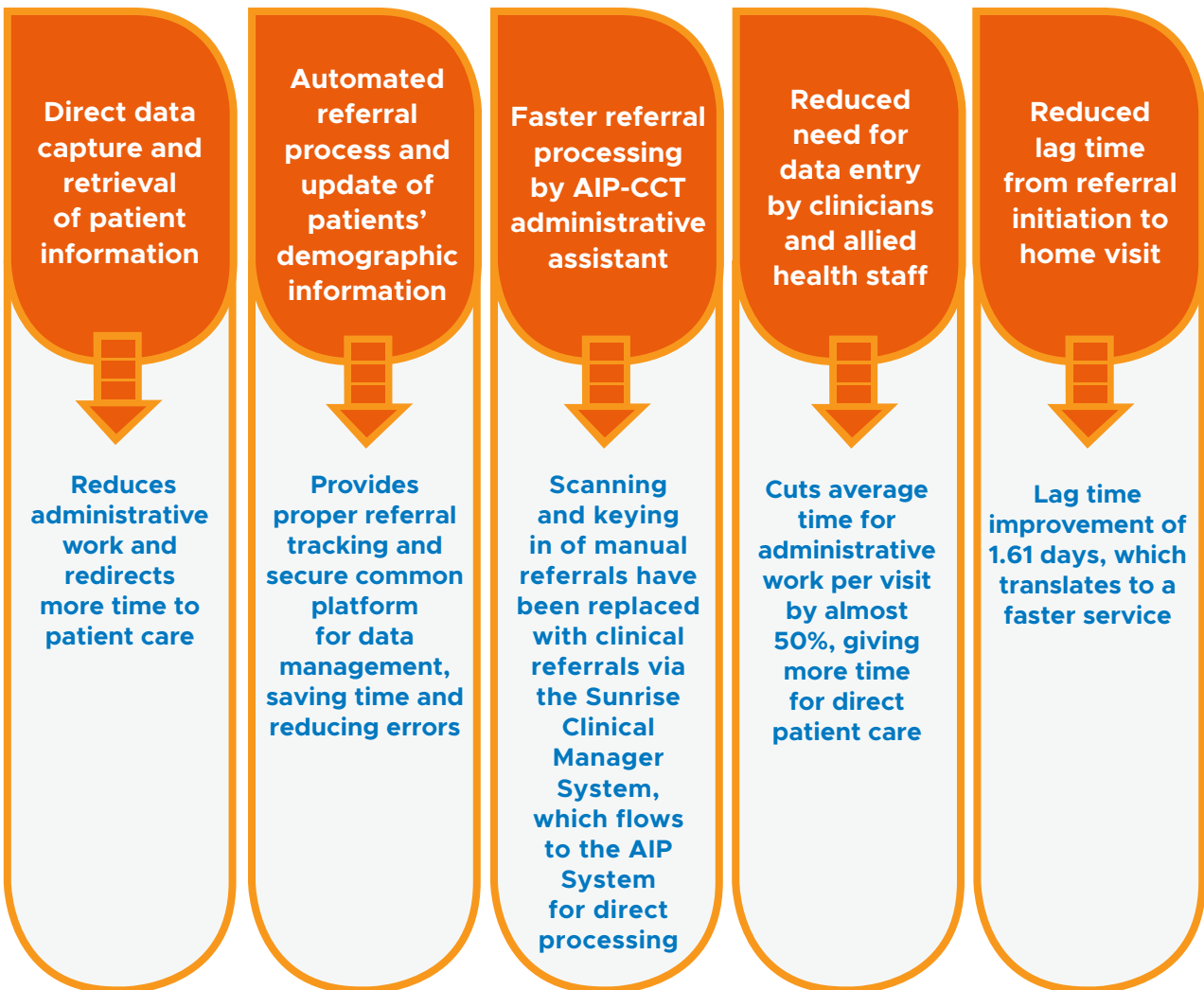
transfer the information into the computer back at the office.

The enhanced AIP System provides a common, portable IT platform so that assessments and notes can be taken on-the-go. This data can be collected and shared across all Yishun Health institutions — AdMC, YCH and KTPH — and accessed by the whole team so that informed decisions can be made. In addition, this system offers the capability to collect lifelong health and social information important for holistic care.

**Blood Specimens On-The-Go: The 'Keep Cool' Project**

One of the many conveniences for patients on the AIP-CCT programme is that they do not need to head to the hospital to do blood tests; instead, tests can be taken in the comfort of their own home.

**KEY BENEFITS OF THE AIP SYSTEM**





The AIP-CCT team came up with a portable solution: a small and lightweight insulated insulin injection pouch that stores the specimen at below 25°C.

To keep these specimens fresh and cool, the AIP-CCT team came up with a portable solution: a small and lightweight insulated insulin injection pouch that stores the specimen at below 25°C. Frozen water for the injection pouches also keeps the blood sample cool.

## ADVANTAGES OF THE 'KEEP COOL' PROJECT



### PATIENTS

No need for trips to the hospital for blood tests

Keeps sample fresh thus minimising the need for repeat blood taking



### NURSES

Safer and more efficient process that reduces the need for bulky cooler bags

Enhances professionalism and increases staff confidence



### ORGANISATION

Reduces need for repeat visits and blood tests, saving time, cost and resources

Supports seamless, person-centric care model

### Extending Care Through Collaboration

One of the challenges with patients who are frail with age-related conditions such as dementia, and/or multiple existing chronic illnesses is that they require long-term care. However, long-term follow-up at the hospital level can become expensive and resource-heavy. To leverage existing services and offer continuity of care, Yishun Health has rolled out several initiatives to ensure patients receive adequate support and do not fall through the cracks.

- While AIP-CCT provides time-limited multidisciplinary care, the Home Nursing Foundation (HNF) provides long-term physical and mental care, as well as social support. Since 2015, AIP-CCT has been collaborating with HNF for AIP-CCT patients to ensure continuity of care. Last year, a study was done to evaluate the effectiveness of this partnership.

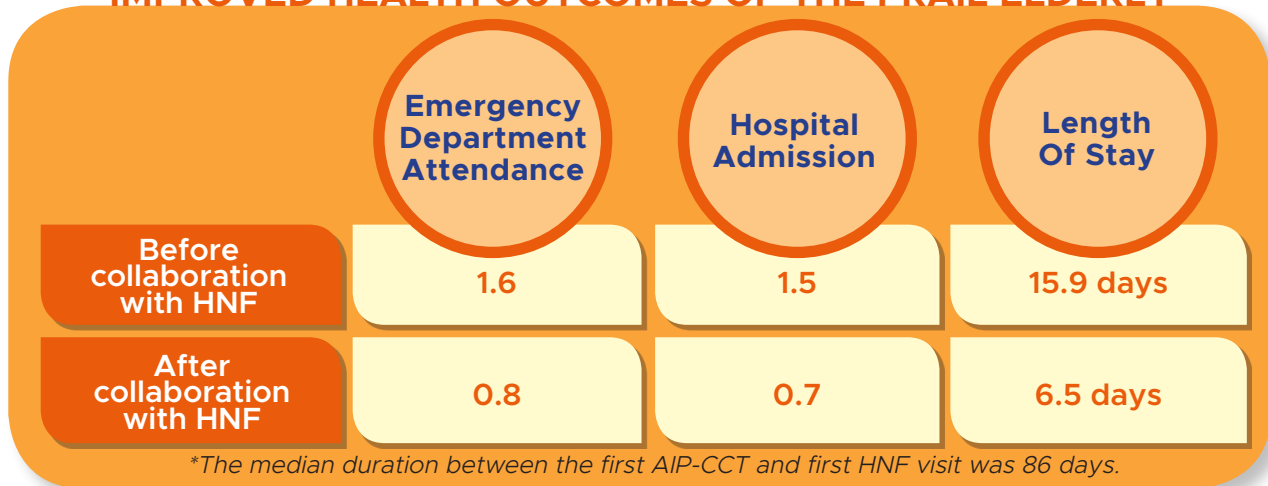
Between July 2015 and August 2017, 112 AIP-CCT patients were referred to HNF for long-term home nursing and home medical and/or home therapy. This also included services such as procedural care, health education, medication administration, follow-up care for chronic illness, caregiver training and/or personal care.

The study found that the AIP-CCT and HNF collaboration improved the health outcomes of the frail elderly in the community, with reduction in ED attendances, hospital admissions, and the length of stay.

- GeriCare@North aims to increase access of nursing homes to specialised geriatric care in an efficient and cost-effective manner via teleconsultations. We also strive to enhance care of residents in nursing homes by providing clinical care and training for nurses such as Advance Care Planning (ACP) and palliative care. Today, GeriCare@North



## IMPROVED HEALTH OUTCOMES OF THE FRAIL ELDERLY



collaborates with eight nursing homes to provide teleconsultation services and training.

- AIP-CCT also collaborates with Yishun Health’s outpatient Diabetes Centre to improve glycaemic control, and reduce diabetes outpatient visits and unnecessary acute hospital utilisation in older adults with poorly controlled diabetes. Suitable patients from the Diabetes Centre are referred to AIP-CCT for home visits to monitor blood glucose, check their insulin-injection technique, and educate the patient and their family on diabetes management.

Treatment plans are also reinforced and medications, including insulin, may be adjusted in consultation with diabetes clinicians. In addition, AIP-CCT and diabetes clinicians conduct monthly discussions.

A retrospective comparison of patients’ HbA1c\* before their first AIP-CCT home visit and between one and 12 months after their first AIP-CCT home visit found good outcomes. The utilisation of hospital services six months pre- and post-AIP-CCT visits was also compared. A total of 40 patients (leading to 41 home care episodes) were

co-managed between 2015 and 2017, of which 30 were referred from the Diabetes Centre.

Thirty-two HbA1c tests were compared. The mean HbA1c of patients pre-first home visit was 9.5%, which improved to 8.6% post-visits. There was also a statistically significant reduction of 0.8 Diabetes Centre visits per patient post-visits, and a small reduction of emergency department attendances and hospital re-admissions.

- AIP-CCT works closely with the Wellness Kampung (read more about this model of care on page 15) to care for frail and ageing patients. These centres provide a community space that encourages patients to practise self-care through activities that promote healthy living, building relationships, and lifelong learning. About 60 of the regular participants of Wellness Kampung activities are AIP-CCT patients.

The social interaction, resident-driven programmes, and informal care network have fostered mutual care and reciprocity, enabling patients to receive psychosocial support in their community. This has improved health outcomes, and led to a much better quality of life for the frail elderly in the community.

*\*HbA1c, also known as glycated haemoglobin (A1c), reflects a person’s average blood glucose levels over the previous three months, and indicates how well the person’s diabetes is being controlled. This blood test is routinely performed in people with type 1 and type 2 diabetes mellitus.*

### POSITIVE RESULTS

Mr Tan, 51, was single and stayed alone. He had end-stage renal failure, stroke, and other conditions. An AIP-CCT nurse managed his health conditions and successfully supported him to quit smoking. She also recommended him to the Wellness Kampung for exercises and purposeful activities. Through daily engagement, Mr Tan’s mood improved, his diet became healthier, and he grew more active.

Through AIP-CCT, Mdm Sim, 67, received a fall risk assessment and medication counselling. Introduced to Wellness Kampung activities to address her social isolation, Mdm Sim’s social circle has since expanded. She has started to exercise regularly and, through participation in Wellness Kampung’s group classes, her gait has also improved.

“Palliative care is a branch of medicine that seeks to alleviate pain and discomfort, and works towards positive spiritual and personal growth amidst the grief during the final stages of life-limiting illnesses, when curative treatments no longer work. Far from giving up on hope, it offers patients and their families a way to immortalise memories and life lessons, to find closure and comfort at the end of life.”

**DR ANGELINE SEAH**

Head & Senior Consultant  
Geriatric Medicine  
KTPH



**LEAVING  
WELL**



# DIGNITY AND PERSONHOOD AT THE END OF LIFE

Someone close to death is more than the sum of his or her illnesses. End-of-life patients should be recognised for their personhood, addressed with dignity, and made to feel as comfortable as possible.

**A**t the end of life, illness and frailty can shift the focus of care to managing disease symptoms and attending to basic needs and bodily functions. While this brings comfort and dignity, it is also important to recognise personhood — a person’s perception of who they are and how they are seen by others.

At Yishun Health, palliative programmes such as HOPE and CARE strive to do just that: reinforce a dying person’s dignity and recognise them as someone with a history, memories, hopes and dreams.

These initiatives are just some of many the modes of palliative care, which comes under the Department of Geriatric Medicine. This type of care is not just for those at the end of life; it is an approach that provides patients and their families with a supportive environment focused on relieving physical, psychosocial and spiritual distress. This comprehensive, person-centered care may also be offered concurrently with curative care in both inpatient and outpatient settings. The goal is to offer patients and their families assistance, be it through medical support, home care, or access to funds or equipment. It is about moving beyond meeting medical needs to improving quality of life, such that a person’s preferences for care can be achieved.

Over the years, Yishun Health has stepped up its ongoing efforts to better cater to and proactively raise awareness of end-of-life issues.

## HOPE AND CARE

The Holistic Patient Evaluation through Communal Activities and Rehabilitative Engagement (HOPE and CARE) programme brings patients and the palliative care team together in a novel way.

Eating, drinking and playing games are things that are mundane and simple to people, but for many patients, these are things that cannot be taken for granted. In YCH’s palliative ward, these activities have been incorporated into a hospital round that allows a multidisciplinary team to assess and manage patients in a group setting.

Under HOPE and CARE, patients gather for a group rehabilitation session followed by snacks and table games. Often, volunteers and family members participate in the fortnightly sessions. They are joined by a team comprising palliative care physicians, physiotherapists, occupational therapists, speech therapists, dietitians, social

Games such as Jenga are some of the activities at HOPE and CARE that patients can take part in





## WHO'S WHO IN HOPE & CARE

**Palliative Physician** Dr Laurence Tan observes and assesses patients' energy levels, alertness and how they interact with others to determine their overall physical and mental function.

**Physiotherapists** Clement Liew and Halim Zul Fahmi engage patients in activities to evaluate their mobility, range of motion, pain and other physical movements. This helps them to design appropriate levels of exercise for patients to maintain their well-being.

**Speech Therapists** Choo Wan Ling and Chew Woon Ki assess patients' swallowing function while the patients are enjoying the snacks and drinks. While observing the patients, they also assess for any communication deficits. Thereafter, they will prescribe suitable rehabilitation exercises where needed.

**Occupational Therapist** Ang Hwee Yee watches for small clues, such as how a patient holds a cup or a building block, to understand how well the patient is coping with activities of daily living. She assesses cognitive function, executive function, dexterity, mobility and how a patient interacts with their environment.

**Dietitian** Chan Sue Mei observes how well a patient is eating to determine appetite. This allows her to design nutrition plans based on patients' needs.

**Medical Social Worker** Lim Siao Ee interacts with patients and their families to assess how they respond to people in a social setting. By observing their mood and how engaged they are with the activities, she can evaluate the psychological and social health of patients.

**Pharmacist** Chen Li Ting observes whether patients are familiar with their medications as they are being served. She intervenes with educational efforts on the medication indications and side effects.

**Nurse Manager** Nurashikin binte Sidek and her team of nurses get to engage with patients away from the bedside and in different ways. It builds rapport and gives them a chance to observe patients' symptoms, ability for self-care, and the competence of their caregivers.

**TOP:** Dr Laurence Tan ensures that patients are physically and mentally comfortable at the sessions

**MIDDLE:** Clement Liew engaging his patients in activities alongside Halim Zul Fahmi

**BOTTOM:** Chan Sue Mei ensures that each patient eats adequately with enough nutrition



## HOPE and CARE is really about breaking down the invisible wall between healthcare workers and patients, allowing patient-centric, transdisciplinary and multidisciplinary care to occur while everyone is having fun.

workers, pharmacists and nurses. During this joint multidisciplinary round, the team observes and assesses patients to obtain real-time information about their mood, pain, tiredness and function. Compared to bedside assessments done individually, this allows transdisciplinary care to occur with increased productivity.

Beyond saving time, increasing productivity, and enhancing communication, the most important aspect of HOPE and CARE is how it improves the quality of care through being patient-centred. Patients are able to receive medical and rehabilitation intervention despite the limitation of time and the patient's flagging energy level. HOPE and CARE is really about breaking down the invisible wall between healthcare workers and patients, allowing patient-centric, transdisciplinary and multidisciplinary care to occur while everyone is having fun.

### **ADVANCE CARE PLANNING**

One of the key ways Yishun Health is addressing end-of-life issues is through our Advance Care Planning (ACP) programme.

ACP is a series of conversations between individuals, loved ones, and healthcare professionals on what matters to a person in life, illness and death. This includes having a sense of control, having loved ones close by, or finding spiritual fulfilment. This allows individuals to articulate their care wishes in a plan, which guides the medical team in the event that they lose the ability to make decisions.

ACP reduces crisis decision-making for family members and safeguards a person's best interests by ensuring medical decisions are made in accordance with their goals of care. It respects the autonomy of patients and gives them an opportunity to fulfil their last wishes.

First launched in 2013 at Yishun Health as a pilot in various departments, ACP is now an integral part of many of our programmes and departments. As of FY2017, we completed 420 general ACPs and

1,591 Preferred Plans of Care (PPCs), and have documented more than 2,400 ACPs for individuals at every stage of health and at various locations – in our wards, outpatient clinics, patients' homes, and even Wellness Kampung. We have also reached out to over 9,000 people at ACP events held in the community.

More specifically, we have rolled out more strategic initiatives related to ACP:

### **Disease-Specific ACP (DSACP) for Renal Patients**

General ACP and PPC are tailored for healthy and terminal patients respectively. To better address the specific concerns and needs of patients with chronic progressive renal disease, Yishun Health introduced DSACP for renal patients.

### **Driving Early ACP Discussions**

Under an enhanced ACP 2.0 strategy, Yishun Health has begun to drive ACP awareness in the community, promoting it as part of routine healthcare in primary care and outpatient settings. This shifts ACP conversations earlier in the disease trajectory before a crisis.

This proactive approach is more effective as discussions can be carried out in a comfortable, unhurried setting. ACP talks have been given at Senior Activity Centres, the National Library Board, Wellness Kampung, and other community sites.

The first ACP clinic, held at the Wellness Kampung @ 765 Nee Soon Central on 6 July 2017, emphasised one key message: it's never too early to discuss your care preferences with family and friends. Conducted in both English and Mandarin, the clinic offered a suite of eldercare activities and health literacy talks. Residents were given ACP workbooks and asked to consider and write down their care preferences. They were then encouraged to sign up for an appointment with an ACP facilitator. Wellness Kampung @ 765 Nee Soon Central now hosts the ACP clinic every Thursday from 2pm–5pm.



### Talking About End-of-Life Issues

Yishun Health worked closely with Both Sides, Now (BSN) on a two-year project, which ended in September 2018, in Chong Pang. Initiated by Drama Box and ArtsWok Collaborative, BSN aims to normalise end-of-life conversations. Through holding art workshops, talks and public performances in the heartlands, BSN is working to create communities comfortable with talking about end-of-life issues, where individuals and families are able to help one another make informed decisions about living well and leaving with dignity.



In October 2018, Yishun Health also delivered a host of workshops, talks and exhibitions at our national libraries to spark conversations on what gives life meaning and what is important to us at the end of it. Led by the Singapore Hospice Council, more than 20 institutions have come on board the *Live Well. Leave Well* campaign to raise public awareness on palliative care, advance care planning, and end-of-life matters in the community.

**ABOVE:** Mr K Shanmugam (fifth from left), Adviser to Chong Pang GROs and MP for Nee Soon GRC, paid a visit to the BSN exhibition

### Training to be ACP-proficient

We have made inroads to train doctors, nurses, medical social workers, and other healthcare professionals to be ACP facilitators. As of FY2017, we have:

- **Run 37 ACP courses for facilitators and advocates**
- **Trained 216 Yishun Health staff as ACP facilitators**
- **Trained 523 Yishun Health staff as ACP advocates**
- **Honoured 90% of preferences**

### TAKING CONTROL

When her elderly mother was admitted for a serious bout of pneumonia in 2017, Ms P remembers how difficult it was to make an informed and rational decision about their mother's care. Many of her family members were stationed overseas and unable to come to an agreement, so they were at a critical time, recalls Ms P. "There were so many questions asked at the crucial moment; we didn't know what we were saying 'yes' or 'no' to."

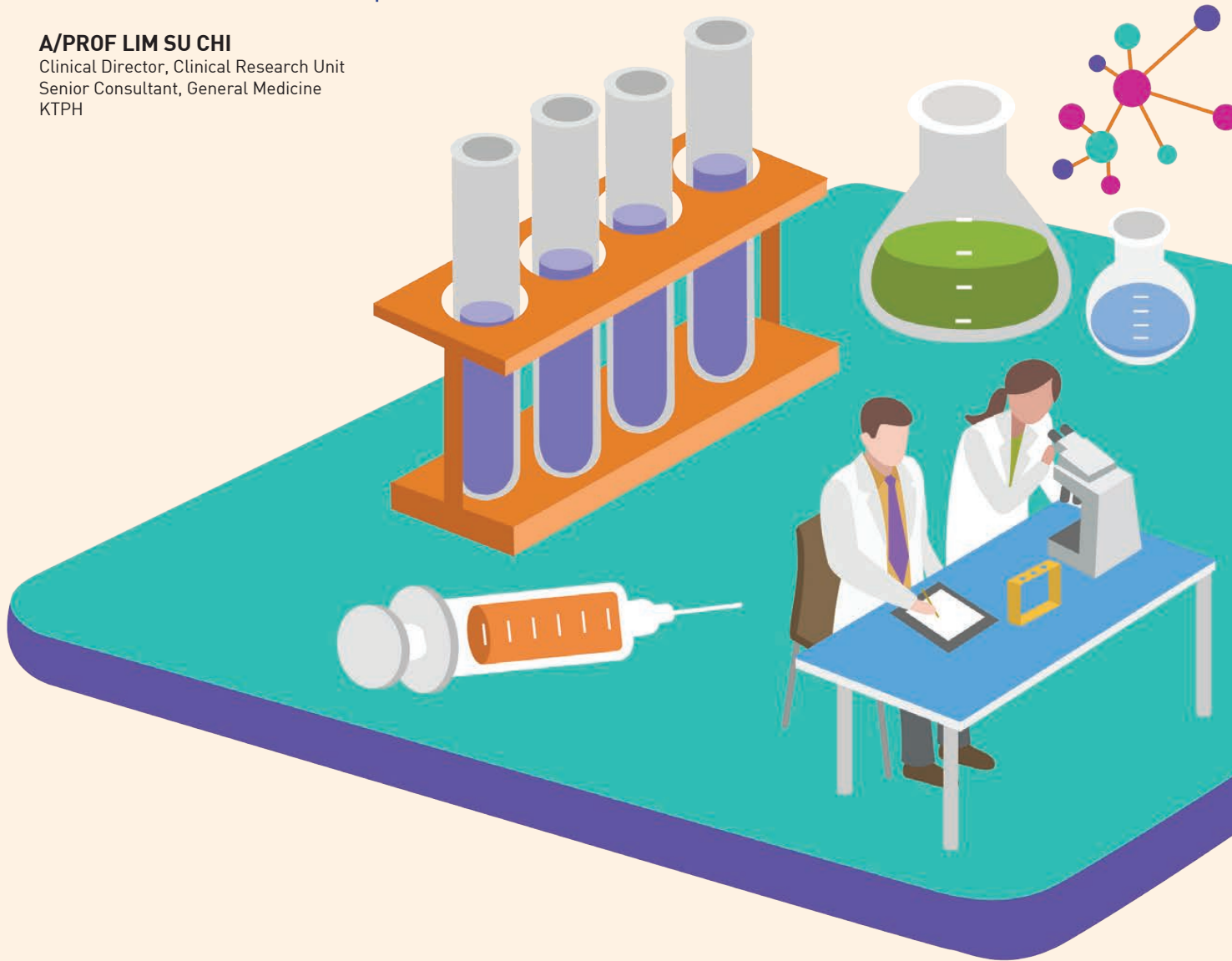
So when Ms P learnt about ACP from a Yishun Health volunteer, she was interested and shared the information with her sister. This led to them documenting a plan for their mother, who had by then recovered. When Ms P's mother was admitted again in 2018, the family knew exactly how she preferred to be cared for.

It was then that Ms P decided to file an ACP for herself, as she wanted to be the decision maker for her life while she was still healthy and able. "It is better that we decide for ourselves. If others have to decide for you, there will always be doubt or division," she advises. "I feel I'm in control because I've made this decision in advance, and I'll be sparing my family the burden of making a decision at a crucial time, when they'll be so disturbed by my illness."

“Yishun Health embraces the tri-cycle model (clinical service, teaching and research) for excellence in healthcare. As such, involvement in research is part of our calling as healthcare providers, and is a natural extension of care for our patients.”

**A/PROF LIM SU CHI**

Clinical Director, Clinical Research Unit  
Senior Consultant, General Medicine  
KTPH



RESEARCH  
AND  
INNOVATION



# TOWARDS BETTER CARE

Over the years, Yishun Health has been growing its healthcare research. In FY2017, we made further inroads into tackling important healthcare challenges that Singaporeans will have to face.



Our mission to provide good-quality, affordable and hassle-free healthcare with science, love and wisdom has guided our various translational research activities.

Last year, Yishun Health's clinician scientists, doctors and other healthcare professionals were involved in research into diabetes, cholesterol disorder, and perioperative medicine to explore, ask questions, and drive better understanding of diseases and their complications. This helps to develop more effective methods for prevention and management.

This spirit of curiosity and creativity has also driven our continuous improvement projects. While not all of these are directly related to patient care, they enable us as an organisation to be more efficient and productive. They are also safer and more cost effective, so that we can invest more time and resources in the people that matter most: our patients.

One important facet of our work in driving continuous improvement and excellence is the Alexandra Health Fund (AHF), which has supported 15 key programmes directed at improving the quality of life of our patients through research, innovation and education. The Fund was incorporated in September 2014 as a registered charity under the Charities Act. Since

its incorporation, AHF has benefited more than 300 patients each year by providing financial assistance.

This has gone towards supporting transportation and home care needs, as well as durable medical equipment, consumables, and medical treatment. The key focus of this financial aid is to allow patients to continue living independently in the community. One new programme funded in FY2017 is IDEA, which focuses on enabling diabetic patients to self-manage their conditions and address challenges faced on a daily basis.

Other AHF developments in FY2017 include:

- Alignment of the Fund to NHG as part of the national restructuring of healthcare institutions into three clusters
- The successful renewal of our IPC status for another three years (2018–2021)
- Expanding the scope of funding as Yishun Health grows to include AdMC

As of March 2018, AHF has \$139 million in its coffers, up from \$126 million. Apart from investment returns, the growth in funds is attributed to donations and KTPH surpluses.





**\$150,000**

Donations from an NHG Board member (and former AHS Board member)

**\$100,000**

Funding for a nursing scholarship from KTPH Patron Ms Mavis Khoo

**\$2.5m**

KTPH surplus that will fund community projects

**\$6.4m**

KTPH surplus that will fund HR development

### **BETTER CARE THROUGH RESEARCH** **MODY Registry: Maturity-Onset Diabetes of the Young Registry**

Maturity-onset diabetes of the young, or MODY, is a form of diabetes caused by a single gene mutation (i.e. monogenic).

Monogenic diabetes typically affects people below the age of 35 and is estimated to affect 0.5–1% of people with diabetes. In Singapore, this translates to about 2,500–5,000 people with MODY.

Due to overlapping clinical features, MODY can often be misdiagnosed as type 1 diabetes or type 2 diabetes. This may lead to treatment that is both costly and ineffective. More significantly, there are more than 20 genes that may be involved in causing MODY, and each denotes a subtype. Different MODY subtypes have different treatment options and carry different risks of developing secondary diabetic complications involving vital organs such as the kidney and/or the heart.



Accurate diagnosis is crucial to benefit such patients and drive more optimal treatment and management of complications. To this end, the KTPH-NHG MODY Registry, funded by AHF, was set up in April 2017 to:

- Raise awareness of the condition and perform genetic testing for individuals who potentially have MODY
- Facilitate optimisation of treatment with accurate genetic diagnoses
- Provide MODY-related counselling for affected individuals and their families
- Create a platform for gathering longitudinal data to better understand and treat MODY

To date, 35 patients have been entered into the registry, 80% of whom have benefited directly from genetic testing in terms of disease management. The team hopes to continue to engage more potential MODY patients and their physicians via their web portal and outreach activities such as World Diabetes Day, Mini Medical School@KTPH, and the Diabetes General Practitioner Symposium.

### **DYNAMO: Diabetes study in Nephropathy And other Microvascular cOmplications**

In recognition of the increasing need for new approaches to treating and managing diabetic nephropathy (DN), the National Medical Research Council has awarded an Open Fund-Large Collaborative Grant (OF-LCG) of nearly \$25 million over five years to a multidisciplinary, multi-institutional team to conduct DYNAMO.

A/Prof Lim Su Chi, Clinical Director, Clinical Research Unit, KTPH, is one of four Principal Investigators leading this project, which aims to address the problem of DN in Singapore, and explore new approaches for treatment.

DN is a devastating complication of diabetes that causes significant morbidity, mortality and human suffering. In Singapore, the incidence of DN as a cause of end-stage kidney disease is among the highest in the world. Despite the substantial public health burden associated with DN, its molecular pathogenesis is not well understood, and no new drugs that address it have been introduced in nearly 20 years.

DYNAMO seeks to work towards reducing diabetic kidney disease in Singapore by 30% within the next five years by understanding the disease and its complications better, thus laying the foundation for the development of more effective methods for diabetes prevention and management.

## DYNAMO seeks to work towards reducing diabetic kidney disease in Singapore by 30% within the next five years by understanding the disease and its complications better.

### **FH CARE: Familial Hypercholesterolemia: Case identification Assessment and Reduction in adverse Events**

Familial Hypercholesterolemia (FH) is a genetic disorder where one or a few defective genes impair the body's ability to remove low-density lipoprotein (LDL, or bad cholesterol) from the blood. The prevalence of FH is estimated at 1 in 250 in the general population, which translates to 22,000–27,500 people in Singapore. However, more than 90% of those with FH are unaware of their condition. Patients with FH who are untreated have more than 20 times risk of premature cardiovascular disease. This risk can be averted with early lipid-lowering therapy.

FH CARE is an initiative led by A/Prof Tavintharan Subramaniam, Director and Senior Consultant, Diabetes Centre, AdMC. This multi-centre study involves Yishun Health, Tan Tock Seng Hospital, National Healthcare Group Polyclinics, National Heart Centre Singapore (NHCS), National University Hospital Singapore, National University of Singapore, Singapore General Hospital, KK Women's and Children's Hospital (KKH), Changi General Hospital, Sengkang General Hospital and Singapore Heart Foundation.

The goal of FH CARE is to better identify those with FH through diagnosis and active cascade screening. This allows identified individuals to start early or intensify lipid-lowering treatment to reduce morbidity and mortality associated with this condition. With support from Yishun Health's endowment fund, FH CARE has piloted a programme at KTPH, NHCS and KKH, sequencing 250 index patients and 90 family members to date. Another objective of FH CARE is to improve public awareness of FH; to this end, the team has organised outreach events and activities for GPs, medical students, and the public.

### **Recognising Excellence in Research and Education**

Yishun Health clinicians and allied health professionals were recognised and rewarded in various arenas for their efforts in improving patient care.

A/Prof Yip Chee Chew, Head and Senior Consultant, Ophthalmology and Visual Sciences, was awarded the Health Professions Education Research Investigator Gold award at the 2017 Singapore Health and Biomedical Congress for his study on the use of the 'micro-CEX' to replace mini-CEX as the end-of-posting test for medical students. Micro-CEX involves more but significantly shorter sessions of standardised, focused assessments of important entrusted professional activities (EPA) and interactive feedback (using a modified Pendleton's model). It is aligned to the learning outcomes to drive students' learning, and works on the less-is-more principle. The increased sessions enabled more student and tutor feedback opportunities.

A/Prof Edwin Seet, Head and Senior Consultant, Anaesthesia, collaborated with the Agency for Science, Technology & Research and the Singapore University of Technology and Design to determine the feasibility of a novel non-intrusive mattress using microbend fibreoptic sensors for vital sign and apnoea detection. The study was published in the Engineering journal *IEEE Access* in December 2017. This cutting-edge research will pave the way for further applications of this technology in the acute hospital setting and also in the community. Sylvia, Research Officer, Clinical Research Unit, was

also awarded the Gold in the Best Poster Award (Allied Health) at the Singapore Health and Biomedical Conference 2017 for her project on diabetic patients who smoke. She found that these patients have a higher risk of developing kidney failure, suggesting that smoking cessation should be recommended to diabetic patients to avoid kidney failure. Additionally, this project was also featured in a news programme on Capital Radio 95.8 FM on 11 October 2017.

Dr Zhang Xiao, Senior Epidemiologist, Clinical Research Unit, was awarded the Bronze in the Best Poster Award (Basic Science/Translational Research) at the Singapore Health and Biomedical Conference 2017 for identifying a variation in a gene that can potentially be targeted to treat latent autoimmune diabetes of adults (LADA). LADA is a poorly understood type of diabetes that is caused by an autoimmune disorder.

Dr Angela Moh, Senior Research Officer, Clinical Research Unit, was featured in national Mandarin daily *Lianhe Zaobao* for her finding that increased obesity is associated with a decrease in kidney function.

Dr Serena Low, Consultant, Clinical Research Unit, won the Best Investigator Award at the 2017 Actualizing the Future Endocrine Science Congress.

### NATIONAL MEDICAL RESEARCH COUNCIL AWARDS AND FUNDING

Date	Recipient	Project	Grant	Duration
10 April 2017	A/Prof Lim Su Chi	Metabolomics of Progressive Diabetic Kidney Disease in Young-Onset Type 2 Diabetes — A Prospective Study	NMRC Clinician Scientist Award	3 years 1 month
1 May 2017	Mrs Chew Kwee Tiang and A/Prof Yip Chee Chew	Singapore Imaging Eye Network (SIENA)	NMRC Centre Grant	4 years
1 July 2017	A/Prof Lim Su Chi	DYNAMO: Diabetes study on Nephropathy And other Microvascular cOmplications (biomedical cores to support, facilitate and translate research in diabetic nephropathy)	Open Fund — Large Collaborative Grant	5 years 1 month
1 July 2017	Mrs Chew Kwee Tiang	Common and Complex Chronic Conditions — Focus on Cohorts and Clinical Epidemiology	NMRC Centre Grant	4 years



## BETTER CARE THROUGH INNOVATION

### Electronic Kanban Replenishment Inventory System

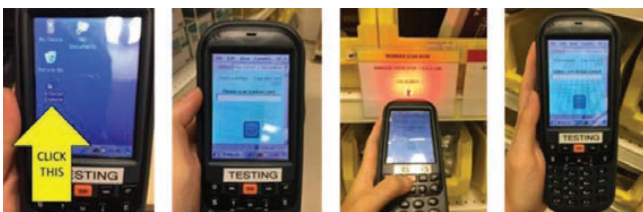
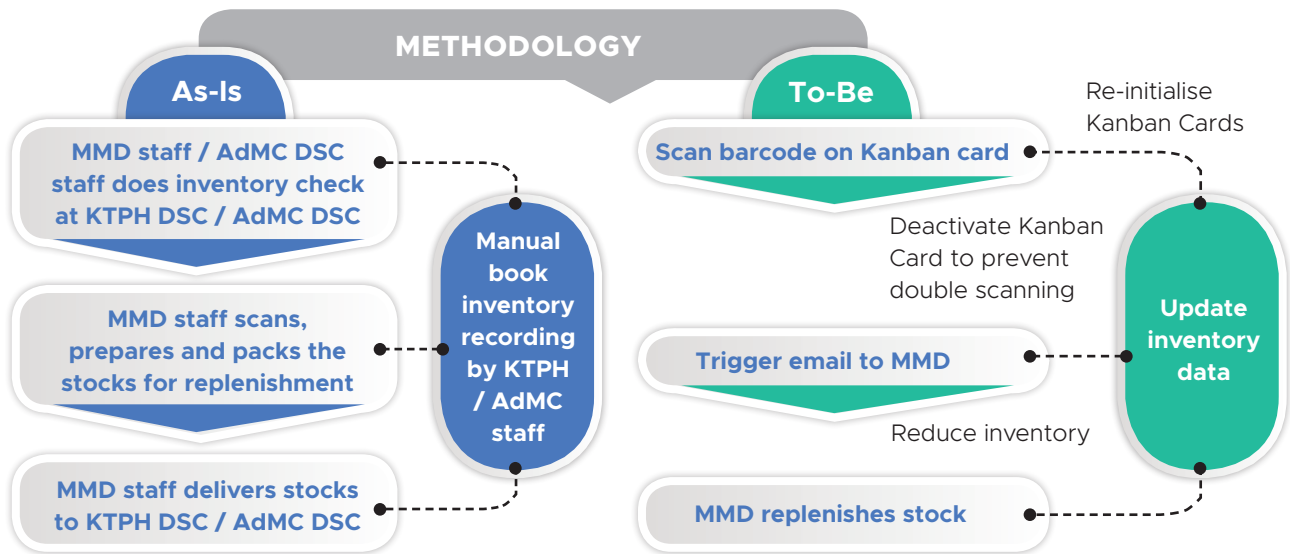
To improve the overall efficiency in surgical consumables stock management, the Ophthalmology and Visual Sciences department collaborated with Day Surgery Centre (DSC), Biomedical Engineering, Operations, and the Materials Management Department (MMD) to create a hassle-free e-inventory system to track and replenish stock in a timely manner without physical inventory checks. Called Electronic Kanban Replenishment Inventory System (E-KRIS), the system uses the Kanban\* approach and deploys barcode scanning to trigger replenishment and self-stocking.

This saves time as inventory changes are automatically updated and can be viewed by all parties involved. This electronic inventory

**\*Kanban is Japanese for ‘visual card’. A card is used to signal steps in a production / inventory system to make the replenishment cycle more visible to ‘supplier’ and ‘buyer’. The system’s highly visual nature allows teams to communicate more easily on what work needs to be done and when.**

surveillance reduces the number of physical checks needed and drives greater efficiency. Stocks can also be more accurately managed with fewer errors.

The system, which was developed for KTPH and AdMC’s Day Surgery Centre, has since been rolled out to KTPH’s pharmacy services and AdMC’s specialist outpatient clinics.



### MANPOWER SAVINGS

KTPH Day Surgery Centre

\$2,400

AdMC Day Surgery Centre

\$24,480

### DEPARTMENTS INVOLVED

Biomedical Engineering

Day Surgery Centre

Finance

Materials Management

Operations

Ophthalmology and Visual Sciences

# The Medication Management Workgroup aims to influence and support appropriate, safe and efficacious prescription of medications for patients.

## Electronic Collection of Type and Screen

The Laboratory Medicine department, in collaboration with the Office of Clinical Informatics, implemented an electronic process for the collection of Type and Screen specimens. This improvement makes the entire blood transfusion process, from collection to transfusion, entirely electronic. This includes bi-directional communication between the Blood Bank Information System and the Electronic Medical Record System, and is a first in Singapore.

The fully electronic system improves patient safety by ensuring the blood product is issued to the same patient that the type and screen sample was collected from, thanks to electronic patient identification. Additionally, the system allows for better data collection that can be used to improve blood utilisation, reduce wastage, and improve efficiencies.

## Point-of-Care Equipment Refresh

The Laboratory Medicine department refreshed all of the hospital's Point-of-Care Testing (POCT) equipment. This exercise included 125 glucose meters, six blood gas analysers, three coagulation meters, eight cholesterol meters, two urinalysis dipstick readers, and one pregnancy test from three different equipment vendors. All the meters are interfaced with the Laboratory Information System and results are automatically transmitted into the Electronic Medical Record. Yishun Health will perform about 800,000 tests per year by means of POCT.

## Driving Medication Safety and Efficacy

Yishun Health's Pharmacy department has taken a proactive and collaborative approach to address the various challenges surrounding medication safety. Guiding the overall direction and goals, we set up the Medication Management Workgroup, which aims to influence and support appropriate, safe and efficacious prescription of medications for patients.

Since it was set up in April 2017, it has evolved from identifying inappropriate polypharmacy to looking at medication appropriateness. The goal is to influence

practice with research to improve patient therapy outcomes through drug optimisation.

Other initiatives to support medication safety range from nurturing an open and transparent culture of trust and addressing polypharmacy to updating drug prescription protocols for better patient outcomes.

## A Ruler for Medication Safety

Medication errors are avoidable, and the Pharmacy department goes to great lengths to prevent them from happening. When errors do occur, the medication safety team focuses on systems and processes at the root of the problem. This builds a safety culture that is just, flexible and one that supports reporting and learning.

To this end, the department has developed a Ruler for Medication Safety. The Ruler flags worrying trends objectively through a review of near misses and hospital incident reporting tools. In addition to this, regular coffee talks are held to understand why certain errors occur, and flag challenges and



E-KRIS presentation at the Kaizen Festival



A pharmacist sending medication via the pneumatic tube system

concerns. It is hoped that the Ruler and talks will address errors and their root causes holistically, as well as:

- Create an atmosphere of trust
- Encourage and reward people for providing essential, safety-related information
- Explicitly state what constitutes acceptable and unacceptable behaviour

### Saying Appropriate Yes through Yishun Health Empowerment Sheet (SAY YES)

In tandem with the Ministry of Health’s Appropriate Care Guide on type 2 diabetes mellitus, the Pharmacy and Therapeutics Committee implemented a new initiative in November 2017.

Saying Appropriate Yes through Yishun Health Empowerment Sheet (SAY YES) encourages the appropriate use of oral hypoglycaemic agents. This has led to the increased use of more cost-effective drugs.

The second SAY YES initiative will focus on oral anticoagulants to drive their appropriate use. The workgroup has also expanded its needs analysis on de-prescribing, with a focus on reducing harm. Recent and current research look at de-prescribing anti-diabetic agents to reduce the risk and avert hypoglycaemia and its consequences. They aim to develop evidence-based resources for healthcare providers to prescribe appropriately.

### iRight4Me: Using Genes to Improve Drug Effectiveness

For patients who have undergone stent or balloon procedure for a heart attack, medications are prescribed to prevent future heart attacks. Antiplatelet drugs such as ticagrelor and clopidogrel prevent the blood from forming a harmful clot; they

work together with aspirin to lower the chance of another attack or stroke occurring.

Under American and European guidelines, the drug ticagrelor is recommended over clopidogrel as it is more effective. However it is more expensive and costs about \$174 a month. To drive more appropriate care, the Pharmacy department has delved into pharmacogenomics to identify patients who have the right levels of a specific enzyme that make them more responsive to clopidogrel. Under the TargetPACS initiative, genetic testing is used to identify patients with a high level of the liver enzyme CYP2c19. Such individuals respond just as well to clopidogrel as they do to ticagrelor.

New workflows developed in partnership with the Cardiology department will see patients with high enzyme activity being offered clopidogrel during their follow-up visits. This may amount up to \$1,848 worth of savings a year for these patients. Going forward, more genotype testing services will be rolled out to other specialties.

### Pick & Go: Faster Pharmacy Pick-Ups After Discharge

The Central Discharge Pharmacy initiative was piloted in June 2018 for patients warded in KTPH’s Tower B. The aim was to increase efficiency and facilitate faster dispensing of discharge medicines.

The Pick & Go service, developed in collaboration with the Nursing department and Inpatient Operations, has shown positive results and good patient response: 96% of patients received their medicines within 15 minutes of arriving at the pharmacy, and close to half of them waited just five minutes. This service will be rolled out to more patients in the coming months.

“Just like Yishun Health’s 5 Pillars of Health, we also have 5 Pillars of Learning and Development — from training individual skills in professional competency and relationship management to building up our organisation by training the next generation of leaders.”

**MS MAGDALENE CHAI**  
Chief Human Resource Officer  
KTPH & Yishun Health



# BUILDING & RECOGNISING EXCELLENCE



# OUR PEOPLE, OUR PRIDE

While the day-to-day privilege of bringing comfort, care and healing is reward enough, this does not mean that we let excellent service, expertise and professionalism go unrecognised. We are proud of staff who have received awards for their dedicated service and care.

## **NATIONAL AWARDS** **Distinguished Senior Clinician** **Award 2017**

Prof Wilfred Peh, Head and Senior Consultant, Diagnostic Radiology, KTPH, received the Distinguished Senior Clinician Award in 2017. The award recognises significant contributions to the medical profession, the Singapore public healthcare sector, and the international community in the areas of clinical service, education and research.

Prof Peh is a respected academic, lecturer and radiologist, and is also a prolific writer. He has published 491 publications in medical journals, and written eight books and 58 book chapters to date.

Since joining Yishun Health (then Alexandra Health) in 2009, he has developed KTPH's radiology department, personally interviewing every applicant, and growing it to its present strength of some 160. Apart from this, he has built up the subspecialty capabilities of the department; in particular, the interventional radiology service. This service provides effective treatment to patients with reduced morbidity.

Under his leadership and vision, the department has also upgraded its hardware capabilities and improved its efficiencies to offer timely treatment to patients. Among his many achievements, Prof Peh — who received his full professorship at age 39 — is also the Founding President of the Asian Musculoskeletal Society (1999–2003), inaugural 1998 Radiological Society of North America Editorial Fellow, inaugural 2000 and 2001 ASEAN Association of Radiology Visiting Professor, and 2003 International Skeletal Society President's Medallist.



Prof Wilfred Peh received his award from then AHS Board Chairman Ms Jennie Chua

## **National Outstanding Clinical** **Quality Champion Award 2018**

For her dedication, professionalism and invaluable contribution to healthcare, A/Prof Wong Moh Sim, Deputy Group Chief Quality Officer, National Healthcare Group (NHG), and Deputy CMB (Clinical Quality & Manpower Development), KTPH & Yishun Health, was conferred the National Outstanding Clinical Quality Champion Award at the 2018 National Medical Excellence Awards.

A/Prof Wong has served as Yishun Health's Department Head of Laboratory Medicine for 16 years. During this time, she has improved operational efficiencies and set strong standards. Under her leadership, her team is able to meet a turnaround time of less than 45 minutes for 95% of all laboratory results from the Emergency Department. Apart

from this, she has contributed in many other ways to raise safety and clinical standards. As the first Patient Safety Officer during our Alexandra Hospital (AH) days, she led the organisation to its maiden JCI accreditation in 2005. She continues to empower staff to be advocates for patient safety as Chair of the Patient Safety Collaboration Workgroup.

Beyond her work within Yishun Health, A/Prof Wong sits on various external committees, such as the Singapore Healthcare Improvement Network (SHINe), the NHG Critical Laboratory Results Collaborative, the Association of Clinical Biochemists, and the Technical Advisory Committee for Chemical Metrology at the Health Sciences Authority.

The National Outstanding Clinical Quality Champion Award recognises her exemplary contributions to developing and advancing the field of patient safety, and her inspiring dedication in designing interventions for sustained clinical quality.

### 11th Tan Chin Tuan Nursing Award 2017

The 11th Tan Chin Tuan Nursing Award for Enrolled Nurses (ENs) was held on 23 October 2017. The highest accolade for ENs in Singapore, the award was presented to 10 nurses, including Nur Shafina binte Rizal Ar, Senior Assistant Nurse, Ward B76, KTPH, who received the third prize. She received her award from Guest-of-Honour Mr Amrin Amin, Senior Parliamentary Secretary, Ministry of Home Affairs & Ministry of Health. Shafina personifies care that goes beyond, going the extra mile after her shift to communicate personally with her patients. In fact, she has been bestowed the KTPH Service Champion Award many times. She also volunteers in the community, motivating others to lead healthy lifestyles through her positivity and energy.

### President's Award for Nurses 2018

Ms Shirley Heng, Deputy Chief Nurse, KTPH & Yishun Health, received the President's Award for Nurses on 1 August 2018. This is the highest accolade in the nursing profession,

**RIGHT:** A/Prof Wong Moh Sim received her award from Minister for Health Mr Gan Kim Yong

**BELOW:** Shafina (middle) at the Tan Chin Tuan Nursing Award ceremony

**BOTTOM:** Ms Shirley Heng (second from left) received her award from President Halimah Yaacob





and acknowledges nurses who reflect great competency, leadership, and an innovative spirit.

Shirley has contributed to nursing developments at institution, cluster and national levels. For instance, she played a key role in taking KTPH (then Alexandra Health) into the digital age. Apart from migrating nursing work into an electronic environment, she also implemented Inpatient Electronic Medical Records to raise safety, productivity and information sharing. Shirley has also led nursing teams to develop and actualise integrated clinical services, such as a Transit Ward and Acute Medical Unit. During her secondment to MOH as Assistant Chief Nursing Officer, she also participated in the National Nursing Taskforce and Future Nursing Career Review Committee.

### **Courage Fund Healthcare Humanity Awards 2017**

The annual Courage Fund Healthcare Humanity Awards recognises outstanding healthcare workers across Singapore for their dedication to patient care. On 25 April 2017, two KTPH staff were among the 98 award winners who received their award from Minister for Health Mr Gan Kim Yong.

### **Dr Colin Teo Chang Peng**

*Head and Senior Consultant, Urology*

Dr Teo is a leading advocate for safe and effective treatment, combining his medical expertise with compassion and a personal touch. Despite his hectic

schedule, Dr Teo makes time to volunteer for medical missions, and has led numerous disaster relief missions. With the aim of providing sustainable medical humanitarian support, Dr Teo established a cluster-wide project titled Mission ATHENA, which stands for AHS Team for Humanitarian Effort and National Assistance. More than 200 staff have signed up for it.

### **Sangeetha d/o Sodimani**

*Assistant Nurse Clinician, Ward B86*

Soft-spoken and kind-hearted, Sangeetha is a nurse who cares deeply for her patients. She often develops close bonds with them and takes time to help them overcome problems during their transition back home. Once, she took the extra effort to teach a patient's family how to care for his tracheostomy — a tube in the neck that allows air to enter the lungs. This gave the patient the confidence to recuperate at home. Outside of work, Sangeetha goes on mission trips, where she provides basic medical aid or education to villagers. Sangeetha also volunteers locally at the Rainbow Centre, where she supports teachers in lessons for young adults with severe multiple disabilities.

### **National Healthcare Innovation and Productivity Medals 2017**

At the inaugural FutureHealth Conference on 8 November 2017, KTPH's Community Home Eye Screening Service (CHESS) and Integrated Hip Fracture Service (HFS) were winners of the National Healthcare Innovation and Productivity (HIP) Medals 2017. Organised by the Ministry of Health, the annual award acknowledges, showcases and celebrates teams from healthcare and community care institutions that have achieved excellence in care redesign, automation, IT and robotics, and workforce transformation.

CHESS was recognised for providing an accessible and cost-saving solution for early detection and management of eye conditions in residents of northern Singapore. CHESS revolutionised community eye care by empowering nurses and optometrists to be physician extenders. From February–September 2017, more than 1,200 residents were screened. The scalable model has increased healthcare accessibility for the elderly and homebound, and lowered the cost of screening and managing eye conditions. Its First-level Community Eye Screening (FiLCES) is conducted by community nurses, while its Second-level Eye Consultation (SeLEC) is done by optometrists — these have led to substantial savings of 84.1% and 78.4% respectively, and reduced specialist referrals to hospitals.



The Integrated HFS was recognised for providing coordinated, transdisciplinary hip fracture care for elderly patients. The team facilitates the quick and smooth preparation of the patient for surgery and subsequent convalescence and rehabilitation. They successfully reduced mortality and complications for our patients. The average length of stay has also dropped significantly, from 15.2 days in 2015 to 10.6 days in 2017.

### **National Day Awards 2017**

Held on 21 November 2017, the National Day Awards recognise merit and service to Singapore

#### **Commendation Medal Winners**

- **Fatimah Moideen Kutty**

*Director, Operations Admin*

Fatimah has contributed greatly to many

improvements in the organisation since our Alexandra Hospital days. In 2005, as Chief Pharmacist, Fatimah helped pilot the first Medication Reconciliation System for Inpatients in Singapore. The system enables pharmacists to view the current medication and medication history of patients to help doctors make better decisions, reduce duplication, and avoid drug interactions. The system was eventually rolled out across Singapore. Five years later, as Deputy Director of Human Resources at KTPH, Fatimah led a team that helped standardise the medication-use process in nursing homes in Singapore.

- **Angela Lim**

*Deputy Director, Finance and Accounting*

Since joining in 2001, Angela has risen to manage and lead the hospital's Management Accounting function. She was instrumental in the establishment of KTPH in 2010, setting up the requisite accounting systems and finance-related functions. Since then, Angela has contributed to the smooth operation and financial viability of KTPH, working together with senior management to assist and advise them on funding and financing. Angela was also involved in the establishment of Yishun Community Hospital and Admiralty Medical Centre, working tirelessly to develop models of care catered to current healthcare challenges.

Turn to page 79 to view the full list of National Day Award winners from Yishun Health.

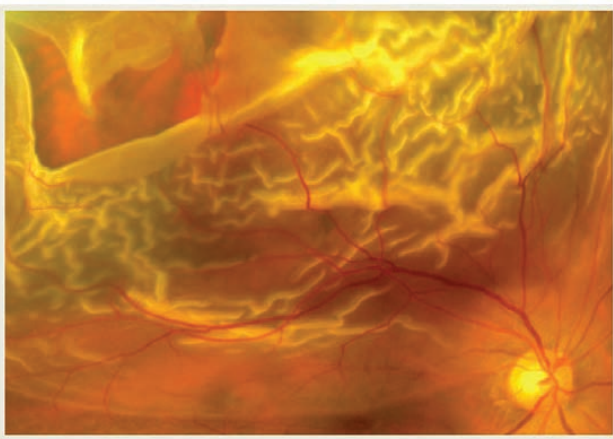
### **Excellence in Public Service Awards 2017**

The annual Excellence in Public Service Awards celebrate and recognise the efforts of staff working in the public sector. On 19 May 2017, five KTPH staff received their awards from Mr Peter Ho, Head, Civil Service, for outstanding service.

A Theresa, Inpatient Healthcare Assistant, Ward B85, received the PS21 Star Service Award for going beyond the call of duty. Apart from basic patient care and assisting nurses, Theresa consistently goes out of her way to help patients, assisting them after office hours and using her own money to buy items to make their stay in hospital a more pleasant one. She even paid the taxi fare for a patient who could not afford it but had difficulties taking the bus due to a leg injury.

Senior Principal Physiotherapists Ng Lih Yen and Chua Ying Lynn, and Senior Physiotherapists Kylie Siu and Melissa Heng received the PS21 Star Service Team Award. When a patient with a spinal injury





Retinal Detachment with Horseshoe Tear

came to the KTPH Eye Clinic and could not be transferred without a hoist, the team immediately sprang into action to assist the clinic despite having a full patient load. They brought a hoist and a recliner wheelchair for the patient so he could comfortably sit through his eye examination. The team also remained with the patient to monitor his blood pressure and comfort level.

**COMMUNITY & PROFESSIONAL AWARDS**  
**Institute of Medical Illustrators**  
**Affiliate Award 2017**

Albert Sim, Senior Imaging Specialist, Ophthalmology and Visual Sciences (OVS) department, KTPH, was awarded the Institute of Medical Illustrators (IMI) Affiliate Award at the 49th IMI Annual Conference, held at the University of Nottingham in the United Kingdom.

The IMI was founded in 1968 to set and maintain standards for the medical illustration profession. It brings together and represents clinical photographers, healthcare designers, medical artists, and clinical video producers not just in the United Kingdom, but all around the world. The IMI Affiliate Award is given to the best entry in photography, design or video from a member of an affiliated organisation.

Albert, who actively participates in worldwide ophthalmic imaging, has won other prizes for his work, including the Australian Institute of Medical and Biological Illustration (AIMBI)'s Best Digital Ophthalmic Imaging award in 2013 and 2016.

**Gesture of Appreciation from Admiralty Community**

KTPH was presented with a trophy for its Sight for Students programme run by the OVS department at the WeCare @Admiralty: Ready for School event on 25 November 2017.

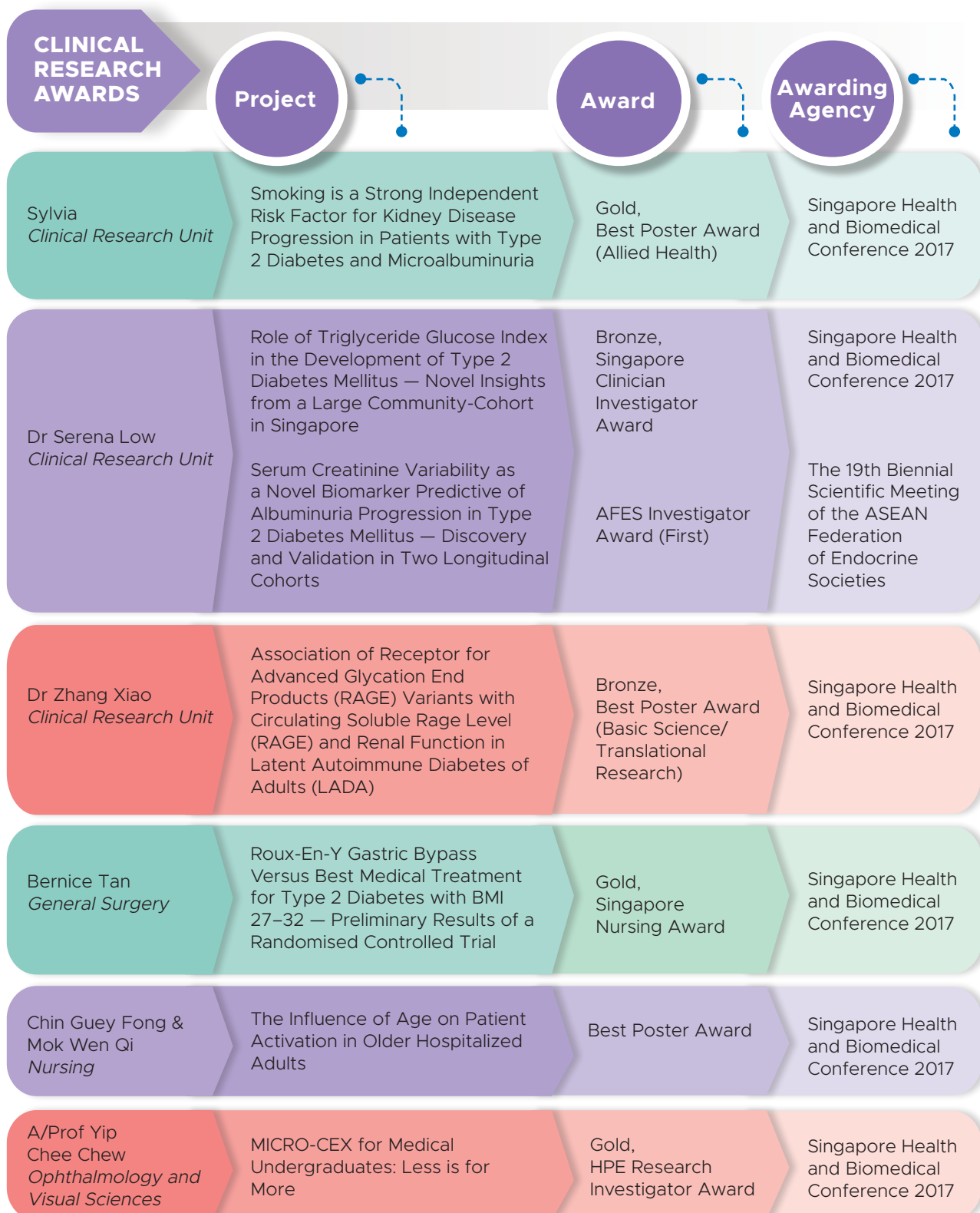
Launched in 2015 by Dr Benjamin Chang, Senior Consultant, OVS, and Dr Ong Ee Lin, former KTPH medical officer, Sight for Students provides free eye prescription checks and spectacle vouchers. Funded by AHF, it benefits children from five to 12 years who have subnormal vision and come from underprivileged backgrounds. The programme has since sponsored

eye health screening for close to 140 children and handed out 120 spectacle vouchers.

### Singapore HEALTH Awards Excellence Award 2017

Yishun Health was awarded for its efforts in building

a health-promoting hospital. It received the Health Promotion Board's Helping Employees Achieve Life-Time Health (HEALTH) Excellence Award on 10 October 2017. The biennial award recognises companies with outstanding workplace health promotion practices.





# A SHARED MISSION OF CARE

We believe that our success and ability to deliver our mission of care lies in the people within our organisation. Our staff across the spectrum of clinical, administrative and ancillary health services touch the lives of all patients in some way or other.

**A**s we grow and evolve as an institution, we strive not only to expand and innovate our services, but nurture our talents, refine our mission of care, and inculcate shared values that bring us together as a team and family.

This shared mission of care underscores the importance of sessions such as our Vision Alignments, Townhalls, Quality Conventions, as well as improvement activities that emphasise our pursuit of learning, commitment to improvement, and

creation of a culture of care. Over and above these, we strengthen our bonds with each other through events, celebrations and shared activities.

## **BUILDING OUR PEOPLE Yishun Health Vision Alignment**

Senior management delivered a total of nine such sessions in 2017. These events reinforce staff understanding of Yishun Health's mission, vision and goals through strategies that support the national, NHG and Yishun Health initiatives.

## **Kaizen Festival 2018**

Yishun Health held its third annual Kaizen Festival on 18 April 2018 to continue driving the spirit of continuous improvement. The festival is an evolution of The Good Ideas Forum that was held when Yishun Health was known as Alexandra Hospital.

In her opening address, Mrs Chew Kwee Tiang, CEO, KTPH & Yishun Health, highlighted the history of the organisation's Kaizen culture and the enduring relevance of 'Think Think Do, Think Do, Think Do', which has inculcated a thinking-and-doing mindset among staff. She also encouraged staff to pursue a learning mindset.

This year's festival included three educational and fun-filled fringe workshops. As part of the Kaizen Poster Competition, 72 shortlisted posters — out of the 141 entries received — were displayed at the KTPH Learning Centre. Of these, three finalists from each category were announced at the close of the festival.

## **Quality Convention**

The 2017 Quality Convention focused on the twin topics of mindfulness and patient safety. Mrs Chew Kwee Tiang, CEO, KTPH & Yishun Health, reminded staff that safety and quality stem from being present, and putting our hearts into what we do. This mindfulness translates into everyday excellence in our daily work. The keynote speaker, Dr Saamdu Chetri, Executive Director, Gross National Happiness Centre, Bhutan, shared on 'A Better Self Through Mindfulness'. He noted that a good life can be achieved through embracing contentment and gratitude.

## **NHG Workplace Health Forum**

The sixth Workplace Health Forum (WHF) was hosted by Yishun Health on 2 March 2018. This year, the forum was broadened to become an NHG cluster event. Dr Michael Wong, Head and Senior Consultant, Health for Life Centre, spoke on Living Well @ Workplaces. To build a culture of living well, it must go beyond ad hoc activities and become integrated into everyday living, he stressed. Other members of the NHG family shared their work on Workplace Weight Management (KTPH), Vaccination for Employees (Tan Tock Seng Hospital) and Mental Well-being at Work (Institute of Mental Health).

## **A CULTURE OF LEARNING**

Yishun Health awarded more than 80 in-service sponsorships and scholarships to staff in 2017, enabling them to upgrade their competencies through local and overseas formal education programmes, ranging from certificate to PhD levels.

**Yishun Health awarded more than 80 in-service sponsorships and scholarships to staff in 2017, enabling them to upgrade their competencies through local and overseas formal education programmes, ranging from certificate to PhD levels.**

Twenty-four clinicians were also sponsored to participate in the HMDP fellowship programmes abroad. Over and above these, Yishun Health holds regular events and initiatives to reinforce the pursuit of lifelong learning, and professional as well as personal development.

## **Speak Up for Safety**

The Speak Up for Safety programme was introduced in February 2017 to train and empower staff to raise patient safety concerns with colleagues through graded assertiveness communication skills, and respond gracefully when questioned. Since then, more than 4,400 staff have been trained. Staff surveyed were more aware of the need to speak up when they observed behaviours that could compromise safety, and had greater confidence to address issues that they were concerned about.

This programme has been part of Yishun Health's staff orientation programme since August 2017, and regular publicity campaigns are held to reinforce the importance of speaking up for safety using the C.O.D.E. (Check, Options, Demands, Elevate) approach.

To reinforce this culture, we took the opportunity to network with leaders of hospitals from Australia and the United Kingdom who are also adopters of the initiative. We co-hosted these organisations during a study visit organised by the Cognitive Institute and KK Hospital in February 2018.



One of the highlights of the Trainees Engagement Day was the Human Library initiative, where junior doctors interacted with senior citizens — our patients and regulars at the Wellness Kampung — who shared inspiring stories of their health challenges and how they found courage to overcome them

### Learning Through Community of Practice

Aligned to the KOLP framework, Yishun Health launched social platforms to enable continuous learning and development for staff. This includes a Community of Practice (COP), where staff with common interests in particular fields come together to learn, validate and share best practices.

In July 2017, a COP was organised for in-house facilitators of The 7 Habits of Highly Effective People™ programme. Joined by Mrs Chew Kwee Tiang, CEO, KTPH & Yishun Health, and Ms Magdalene Chai, Chief Human Resource Officer, KTPH & Yishun Health, participants shared the motivational factors that led them to become facilitators, as well as the different facilitation techniques and activities used to engage their learners.

Another event, held in April 2018, was organised to further promote sharing and learning among a wider group of more than 170 in-house facilitators. Guest speakers and veteran facilitators Dr Douglas O’Loughlin and Mr Ng Choon Seng shared on ways to design sessions to help participants connect, and useful techniques for effective questioning and listening. The in-house facilitators also had the opportunity to network, share and learn from one another.

### Educating the Next Generation

KTPH’s Education Development Office (EDO) was set up in 2013 to oversee, coordinate and implement the aims and targets of the pre-employment clinical training (PECT). KTPH continued to handle an increase in clinical training volume under the PECT

funding scheme. Duke-NUS, the National University of Singapore’s Yong Loo Lin School of Medicine, and Nanyang Technological University’s Lee Kong Chian School of Medicine also came under the PECT framework.

In June 2017, KTPH received the first batch of Diagnostic Radiography students pursuing a degree qualification from Singapore Institute of Technology (SIT). This was concomitantly associated with increased appointments and involvement of more Diagnostic Radiography clinical educators.

In collaboration with the Residency Program Office (RPO), EDO took charge of the logistics and organisation of the Hospital Clinical Pathological Conference (CPC), as well as various workshops, seminars, events and celebrations of teaching excellence.

In August 2017, RPO partnered NHG Health Outcomes and Medical Education Research (HOMER) and Sengkang General Hospital to deliver a Medical Education Qualitative Research Workshop in KTPH. The inaugural Trainees Engagement Day, held in July 2017, was a novel way to introduce young doctors of KTPH to the campus’ holistic approach towards healthcare.

In all, 273 teaching faculty from different professional groups attended faculty development workshops and courses funded by EDO; 48 clinical educators received conference sponsorships from EDO; 10 went on overseas conferences and 38 attended the 15th Asia Pacific Medical Education Conference held in January 2018.

## Terrorism Preparedness

Stepping up from the organisation's ongoing basic self-defence training for frontline staff, ward personnel underwent a series of scenario-based training and were taught how to defend themselves and their patients from an assailant. They learnt basic techniques in negotiation, teamwork and the use of improvised self-defence items.

In collaboration with the Community Policing Unit from Yishun North Neighbourhood Police Centre, the SG Secure programme was conducted to equip staff with the aim of sensitising, training and mobilising our organisation to prevent and deal with terror attacks. Key topics included staying alert, united and strong as a community.

## Personal Data Protection Act (PDPA)

In keeping up to date with new legislations, a PDPA module was incorporated into Yishun Health's mandatory orientation programme for new staff. The training emphasised the importance of maintaining confidentiality and safeguarding the privacy and data of patients and visitors.

## CELEBRATING AS ONE

Celebrating together as an organisation, team and family enables Yishun Health to foster strong bonds of camaraderie. We also take time to recognise and appreciate our staff during our annual Dinner and Dance, and at the AHS Awards Ceremony.

## Honouring the Pursuit of Learning for Nurses Day 2018

At this year's Nurses Day, we celebrated our nurses' tenacity and achievements. The day also marked

the launch of the Mavis Khoo Nursing Leaders Scholarship. The scholarship was named after Patron Ms Mavis Khoo, who was also the Guest of Honour for the event. She sponsored the scholarship to groom high-performing nurses with potential to be future leaders. This scholarship offers nurses unique learning and development opportunities in areas such as leadership, change management, policy studies, behavioural sciences, and economics.

## Celebrating Our Achievements

The AHS Awards Ceremony celebrated the achievements and contributions of our staff on 29 September 2017. Special mention was given to staff who were recognised for their loyalty and dedication to the organisation during the Long Service Award segment.



**ABOVE:** A/Prof Pang Weng Sun (right) with recipients of the 40-Year Long Service Award

**RIGHT:** Guest-of-Honour and Patron Ms Mavis Khoo (centre) unveiled a scroll to launch the scholarship





## Festivities

### • Chinese New Year

Yishun Health staff and volunteers gathered to celebrate Chinese New Year on 28 February 2017. The highlight of the celebration was definitely the *rao kou ling* showdown, where the emcees challenged participants to recite Chinese tongue twisters.



### • Ramadan

On 16 July 2017, Parliamentary Secretary (Home Affairs and Health) and Member of Parliament (Sembawang GRC) Mr Amrin Amin joined us for an *iftar* — breaking fast — celebration. Other guests included residents from Jamiyah Home for the Aged, the Pertapis Children’s Home, and our Yishun Health staff and volunteers.

### • National Day

On 23 August 2017, we celebrated Singapore’s 52nd birthday with performances from the children of The Little Skool House and our friends from the Healthcare Services Employees Union. Mrs Chew Kwee Tiang, CEO, Yishun Health & KTPH, noted how the organisation’s mission of care aligned with the theme of Prime Minister Lee Hsien Loong’s speech at the National Day rally that year: ‘Start life right. Stay healthy. And live smart’.



## TOGETHER IN WORK, PLAY & HEALTH Energised for a Healthy Culture

On 6 April 2018, AdMC bustled with energy as participants attended various engagements organised jointly by NHG’s Living Well committee and the Johnson & Johnson Human Performance Institute. A total of 192 staff from NHG institutions attended the engagements, with 53 of them from Yishun Health.

Aimed at building a culture of health, the Energy for Performance (E4P) and Train-the-Trainers sessions activated participants through energy management, and marrying that with their purpose in life. Participants learnt the importance of strategic recovery, such as doing short bursts of exercise and having light, frequent meals throughout the day.

Collectively, they were empowered to become advocates for health within their own spheres of influence at the workplace. The trainers also emphasised that “one cannot add hours to one’s days, but can add more energy to those hours”. To complement this, a Resilience Course was organised to address staff burnout. Through opportunities for reflection, they identified areas for change. At the end of the session, participants were paired with buddies for their own ‘90-day missions’, taking action through building helpful rituals.



Building a culture of an active and healthy lifestyle through the E4P programme



Group exercises have always been a fixture among staff activities

### Developing Holistic Wellness

Under the guidance of Dr Chan Tat Hon, Programme Director, Health for Life, Yishun Health's Health Advocacy Course was revamped to educate staff on the theory of healthy living and to actively involve them in setting health goals, developing personal action plans, and committing to a healthier lifestyle. Participants were challenged to complete one of the following health initiatives for four to six weeks:

- Adhere daily to the Healthy Eating Plate portions
- Consciously avoid 'free sugars' in beverages
- Substitute white for whole grain
- Achieve at least 10,000 steps per day

In the second part of the programme, participants returned to share their experiences and challenges in completing their chosen health initiative, and participate in group consultations with the qualified health coach and their support groups.

### LifeWorks Transition Programme

As part of fostering an ageless workplace, we introduced the LifeWorks Transition Programme to staff aged 50 years and above. Organised by the Centre for Seniors, the programme addresses the concerns of the mature worker, such as career, re-employment, health and family.

Participants were guided on a journey to discover their life goals, individual strengths and weaknesses, and learnt how to cultivate a positive mindset on work and life. The programme also reinforced the importance of staying healthy and active, and taking part in family and community engagements. Feedback from participants revealed many had started the journey to overcome their fear of uncertainty and navigate challenges in this phase of life with confidence and support. As of end-March 2018, 53 staff have participated in the LifeWorks Transition programme.

### A Health-Promoting Hospital from Within

The Fitness Challenge is a yearly affair that encourages our staff to exercise regularly as part of our 5 Pillars of Health. More than 3,500 staff participated in our 2017 Fitness Challenge, which ran for two weeks from 28 August. Staff also competed to see who could be the overall top scorers in their age and gender groups.

### Hiking Labrador Park and the Southern Ridges

The first NHG Bonding Activity for FY2017 saw 127 staff from across 10 NHG institutions hike over 12km through Labrador Park and the Southern Ridges.



Held on 9 December 2017, the activity was aimed at fostering bonding through healthy lifestyle activities. It was a great way to enjoy the outdoors and connect with staff from other NHG institutions.

**Inter-Departmental Games**

We believe that an organisation that plays together, stays together. This principle has long driven our popular inter-departmental games, which builds ties through sport. In FY2017, we held a total of five inter-departmental games. These five games formed a league series, where departments continually participate to come out on top. Our latest champion is the Department of Diagnostic Radiology, which clinched both the Championship and Most Participated titles. They not only won the most

points in the league, but also had the largest number of staff participating in the games.

**Staying Fit and Having Fun**

Group exercises have long been part of our staff activities, and over 600 staff members joined the classes in FY2017. Last year, we introduced 16 different exercise classes, including yoga, pilates, muay thai, and belly dancing. We also held four trial classes for Capoeira, Systema, Spinout (a mobile spin class) and Zumba Strong.

**A Trip to Kuala Lumpur**

On 3 and 4 June 2017, 31 Yishun Health staff and their family members went on a trip to Kuala Lumpur. There, they visited the Twin Towers and King’s Palace; they also did some bargain hunting in Chinatown. In addition, the group visited a Hakka Village and a centuries-old train station to experience country life, and learn more about history and tradition.

**CORPORATE AND SOCIAL RESPONSIBILITY (CSR)**

**Partnering SG Enable**

As part of our organisation’s commitment to build an inclusive workforce, Yishun Health partnered SG Enable, an agency dedicated to enabling persons with disabilities. Under this partnership, SG Enable links students with an internship at Yishun Health for



**LEFT:** The inter-departmental games are popular for building ties through sports

**BELOW:** Staff from various NHG institutions bonding over healthy activities



**RIGHT:** Ms Cheng Oi Lin, a job coach with SG Enable, with two students assigned to pack medication at the KTPH Pharmacy

**BELOW:** Students and KTPH staff singing together at the 'Beyond the Rainbow' concert



on-the-job training opportunities that equip them with employability skills.

In FY2017, 11 students embarked on a 40-week internship programme, and were assigned to various departments across KTPH and YCH, including the Pharmacy store, Linen department, and Environmental Services department.

Ms Cheng Oi Lin, a job coach with SG Enable, expressed her appreciation to Yishun Health for the partnership; in particular, the support from co-workers and supervisors. "It was a great opportunity for the students to gain experience in the world of work. Being able to learn new skills and interact with others in an open environment has given them a real boost in confidence."

### Flea for Good

Yishun Health held its second CSR Flea Market at KTPH Learning Centre in January 2018. The effort raised more than \$5,000, all of which will go to our five adopted nursing homes: All Saints Home, HCA Hospice Care, Singapore Christian Home, Sree Narayana Mission, and Villa Francis Home for the Aged.

Yishun Health staff also regularly volunteer at these nursing homes. They organise fun activities to engage the residents there, bringing cheer to them, especially during festive seasons, such as Christmas and Mid-Autumn.



### Care Beyond the Rainbow

On 1 December 2017, Yishun Health partnered the Rainbow Centre Yishun Park School to organise a concert, titled 'Beyond the Rainbow', at the KTPH main lobby. It was part of our effort to extend care to people beyond the hospital and in the heart of the community.

The concert was also a platform to create greater awareness, understanding and support for people with special needs. Talented students from the school performed an exuberant rendition of classical and modern compositions on piano and in a handbell ensemble. Along with the concert, fundraising efforts included booths that sold home-brewed oyster plant drink and coffee coupons from Bettr Barista. All proceeds were donated to the Rainbow Centre Yishun Park School for the training and development of students.



## FAUNA AND FLORA



72

Species

**Birds**



97

Species

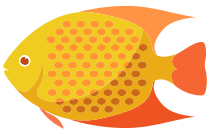
**Butterflies**



28

Species

**Dragonflies & Damselflies**



100

Species

**Fish**



70

Species

**Plants**



7

**Rooftop Gardens**

## ENERGY



0.5%

Decrease from 32,235,694 kWh

**Electricity Consumption**



4.4%

Decrease from 98,996 m<sup>3</sup>

**Potable Water Consumption**



2.0%

Increase from 174,081 m<sup>3</sup>

**NeWater Consumption**



3.8%

Decrease from 1,651,000 kg

**General Waste**



15.1%

Decrease from 627,210 kWh

**Gas Consumption**

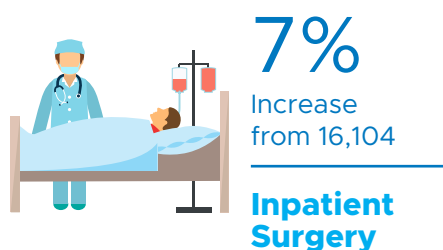
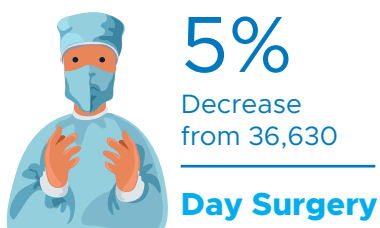
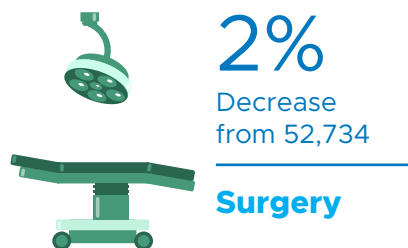
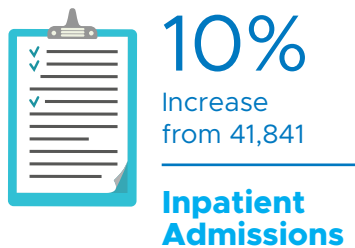
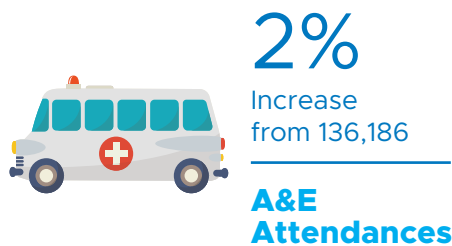
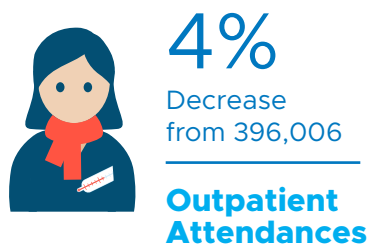
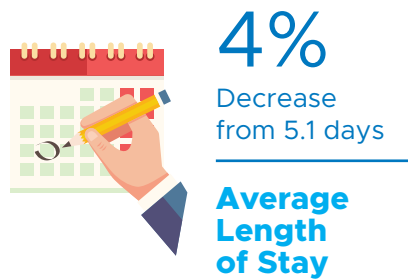
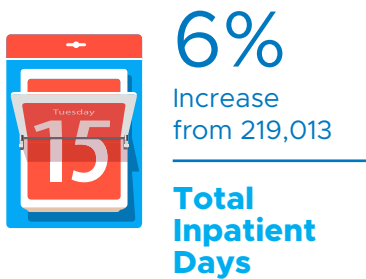
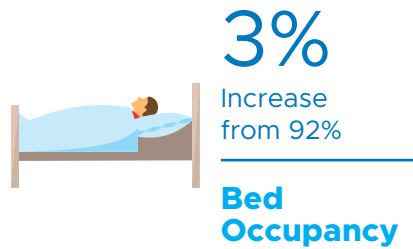


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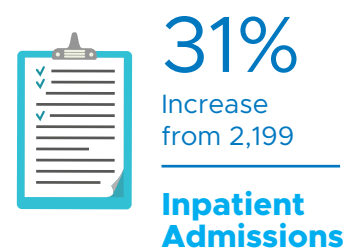
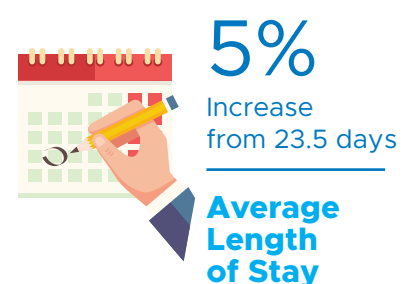
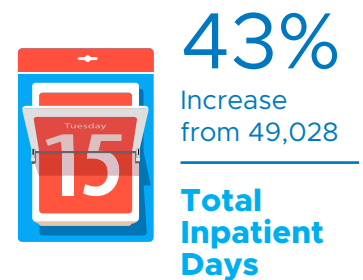
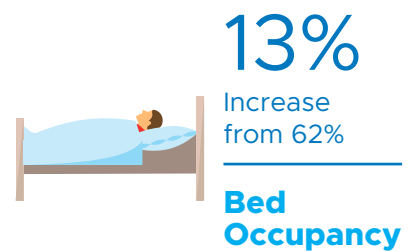
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## KHOO TECK PUAT HOSPITAL



## YISHUN COMMUNITY HOSPITAL





APRIL 2017

**HEALTHCARE HUMANITY AWARDS 2017**

- ▶ **Dr Colin Teo**  
Head and Senior Consultant,  
Urology, KTPH
- ▶ **Sangeetha d/o Sodimani**  
Assistant Nurse Clinician,  
Ward B86, KTPH

MAY 2017

**NATIONAL HEALTH IT EXCELLENCE AWARDS 2017**

- ▶ GeriCare@North

**EXCELLENCE IN PUBLIC SERVICE AWARDS 2017**

**PS21 Star Service Award**

- ▶ **A Theresa**  
Inpatient Healthcare Assistant,  
Ward B85, KTPH

**PS21 Star Service Team Award**

- ▶ **Ng Lih Yen**  
Senior Principal Physiotherapist,  
Rehab Services, KTPH
- ▶ **Chua Ying Lynn**  
Senior Principal Physiotherapist,  
Rehab Services, KTPH
- ▶ **Kylie Siu**  
Senior Physiotherapist,  
Rehab Services, KTPH
- ▶ **Melissa Heng**  
Senior Physiotherapist,  
Rehab Services, KTPH

JULY 2017

**4TH ENABLING EMPLOYERS AWARD**

**Certificate of Recognition**

- ▶ KTPH

**Best Newcomer**

- ▶ YCH

**Enabling Buddy Award**

- ▶ **Davis Chew**  
Supervisor, YCH

**NURSES' MERIT AWARD 2017**

- ▶ **Liu Xiaoyan**  
Senior Nurse Manager,  
Ward B65, KTPH
- ▶ **Nurashikin binte Sidek**  
Nurse Manager,  
Ward D68, YCH
- ▶ **Chin Guey Fong**  
Senior Nurse Clinician,  
Ward B76, KTPH
- ▶ **Chen Yanyan**  
Assistant Nurse Clinician,  
ICU 2 (Surgical), KTPH
- ▶ **Farhana binte Salim**  
Assistant Nurse Clinician,  
Ward B105, KTPH
- ▶ **Ratnasari Yawierin**  
Assistant Nurse Clinician,  
Acute & Emergency Care, KTPH
- ▶ **Ma Than Than Mon**  
Senior Staff Nurse,  
Ward B105, KTPH

## AUGUST 2017

### NATIONAL DAY AWARDS 2017

#### The Commendation Medal

- ▶ **Fatimah Moideen Kutty**  
Director,  
Operations Admin, KTPH
- ▶ **Angela Lim**  
Deputy Director,  
Finance & Accounting, KTPH

#### The Efficiency Medal

- ▶ **P Sivamalar d/o Palaniappan**  
Nurse Clinician,  
Major Operating Theatre, KTPH
- ▶ **Ang Poh Lian**  
Senior Staff Nurse,  
Nursing Administration, KTPH
- ▶ **Kamisah binte Hassan**  
Assistant Nurse Clinician,  
Day Surgery Centre, KTPH

#### The Long Service Medal

- ▶ **A/Prof Subramaniam Tavintharan**  
Director and Senior Consultant,  
Diabetes Centre, AdMC
- ▶ **Julita binte Sarmiten**  
Senior Nurse Manager,  
Ward A62, KTPH
- ▶ **Thenmoli d/o R Periasamy**  
Nurse Clinician,  
Orthopaedic Surgery Clinic, KTPH
- ▶ **K Vasantha Devi**  
Principal Assistant Nurse,  
General Medicine Clinic, KTPH
- ▶ **A/Prof Wong Lee Yuen**  
Senior Consultant,  
Orthopaedic Surgery, KTPH
- ▶ **Fauziah binte Saban**  
Nurse Clinician,  
Major Operating Theatre, KTPH
- ▶ **Tan Kim Ann**  
Assistant Nurse Clinician,  
ICU 1 (CCU), KTPH

## SEPTEMBER 2017

### DISTINGUISHED SENIOR CLINICIAN AWARD 2017

- ▶ **Prof Wilfred Peh**  
Head and Senior Consultant,  
Diagnostic Radiology, KTPH

## OCTOBER 2017

### SINGAPORE HEALTH AWARD 2017

- ▶ **Corporate Excellence Award**  
▶ Yishun Health

### INSTITUTE OF MEDICAL ILLUSTRATORS AFFILIATE AWARD 2017

- ▶ **Albert Sim**  
Senior Imaging Specialist,  
Ophthalmology & Visual Sciences, KTPH

## NOVEMBER 2017

### NATIONAL HEALTHCARE INNOVATION AND PRODUCTIVITY (HIP) MEDALS 2017

- ▶ Community Home Eye Screening Service (CHESS)
- ▶ Hip Fracture Service (HFS)

### PRESIDENT'S AWARD FOR THE ENVIRONMENT

- ▶ KTPH

### INAUGURAL STEPHEN R KELLERT BIOPHILIC DESIGN AWARD

- ▶ KTPH

### 11TH TAN CHIN TUAN NURSING AWARD 2017

- ▶ **Nur Shafina binte Rizal Ar**  
Senior Assistant Nurse,  
Ward B76 , KTPH

## DECEMBER 2017

### INTERNATIONAL FORUM (iF) WORLD DESIGN AWARD 2017

- ▶ **Social Impact Prize**  
▶ Share a Pot®



DEPARTMENT	AUTHORS	TITLE OF PAPER	JOURNAL	VOLUME	PAGE NO.
Acute and Emergency Care	Toh Hong Chuen	Evaluation of a Pilot Programme on Diagnostic Thoracic Ultrasound Curriculum for Acute Care Physiotherapists	Australasian Journal of Ultrasound Medicine	20(4)	147–154
Acute and Emergency Care	Toh Hong Chuen	Man with Back Pain and Fever	Canadian Journal of Emergency Medicine	20(2)	313–314
Acute and Emergency Care & Geriatric Medicine	Sanjay Patel, De Leon Jasmyn Angon, Tan Sok Keng	Predictors of Poor Neurological Outcome After Stroke Thrombolysis: A Perspective from Singapore	Emergency Medicine Australasia	29	52
Anaesthesia	Edwin Seet Chuen Ping	Noninvasive Vital Signs Monitoring for Sleep Apnea Patients: A Preliminary Study	Institute of Electrical and Electronics Engineers Access	6	2506–2514
Anaesthesia	Naville Chia, Prasad Murukuti, Lynn Yeo	An Unexpected Case of Diphtheria – The Need for Vigilance	Journal of Emergency and Critical Care Medicine	2(2)	–
Anaesthesia	Joselo Macachor	Chronic Ophthalmic Pain and Pain Syndromes: Causes and Management	Principles and Practice of Ophthalmic Anaesthesia	–	351–362
Anaesthesia	Geraldine Cheong Pei Chin, Venkatesan Kumaresh, Koh Kwong Fah, Edwin Seet Chuen Ping	Prevailing Practices in Airway Management: A Prospective Single-Centre Observational Study of Endotracheal Intubation	Singapore Medical Journal	59(3)	144–149
Anaesthesia & Clinical Research Unit	Shahla Siddiqui, Resham Lal Gurung, Audris Chia, Wang Jiexun, Lim Su Chi, Edwin Seet Chuen Ping	Cytokine Profile of Severe Sepsis Patients in a Multiethnic Population	Critical Care Medicine	46(1)	701
Anaesthesia & Ophthalmology and Visual Sciences	Chandra Mohan Kumar, Edwin Seet Chuen Ping, Joselo Delute Macachor, Maheshwar Bakthavatsalu, Audris Chia	Effectiveness of Single Injection Sub-Tenon's Block for Pars Plana Vitrectomy and Associated Procedures	New Frontiers in Ophthalmology	3(5)	1–4
Cardiology	Michael Liang, Tan Huay Cheem, Adrian Low	Three-Year Follow-Up Optical Coherence Tomography of Under-Expanded Drug-Eluting Stent In-Stent Restenosis Treated With ABSORB Bioresorbable Vascular Scaffold Following Ultra-High Pressure Pre-Dilatation	Journal of Cardiology Cases	17(1)	4–8
Clinical Research Unit	Sharon Pek Li Ting, Sanjaya Dissanayake, Jessie Fong, Michelle Lin, Chan Zit Liang, Justin Tang I-Shing, Sum Chee Fang, Lim Su Chi, Tavintharan Subramaniam	Spectrum of Mutations in Index Patients with Familial Hypercholesterolemia in Singapore: Single Center Study	Atherosclerosis	269	106–116
Clinical Research Unit	Ong Yi Hong, Koh Woon Pay, Ng Mei Li, Tam Zhi Yang, Bernard Boehm, Lim Su Chi	Glutamic Acid Decarboxylase and Islet Antigen 2 Antibody Profiles in People with Adult-Onset Diabetes Mellitus: A Comparison Between Mixed Ethnic Populations in Singapore and Germany	Diabetic Medicine	34(8)	1145–1153
Clinical Research Unit	Joel Lim Guanyi, Ang Su Fen, Clara Tan Si Hua, Jessie Fong Choi Wan, Lim Su Chi	Cessation of Multiple Daily Insulin Injections in a Person with Twenty-Nine Years of “Type 1 Diabetes”	Diabetes Case Reports	2(122)	–
Clinical Research Unit	Serena Low Kiat Mun	Effect of Sodium-Glucose Co-Transporter 2 Inhibitor on an Obese Patient with Long-Standing Type 2 Diabetes and Solitary Kidney	Diabetes Case Reports	1(116)	–
Clinical Research Unit	Serena Low Kiat Mun, Lim Su Chi, Zhang Xiao, Zhou Shiyi, Yeoh Lee Ying, Allen Liu Yan Lun, Subramaniam Tavintharan, Sum Chee Fang	Development and Validation of a Predictive Model for Chronic Kidney Disease Progression in Type 2 Diabetes Mellitus Based on a 13-year Study in Singapore	Diabetes Research and Clinical Practice	123	49–54

DEPARTMENT	AUTHORS	TITLE OF PAPER	JOURNAL	VOLUME	PAGE NO.
Clinical Research Unit	Serena Low Kiat Mun, Zhang Xiao, Keven Ang, Darren Yeo Su Jian, Joel Lim Guanyi, Yeoh Lee Ying, Allen Liu Yan Lun, Subramaniam Tavintharan, Sum Chee Fang, Lim Su Chi	Discovery and Validation of Serum Creatinine Variability as Novel Biomarker for Predicting Onset of Albuminuria in Type 2 Diabetes Mellitus	Diabetes Research and Clinical Practice	138	8-15
Clinical Research Unit	Moh Mei Chung, Sum Chee Fang, Subramaniam Tavintharan, Sharon Pek Li Ting, Yeoh Lee Ying, Zhang Xiao, Lim Su Chi	Association of the Anti-Angiogenic Factor Secreted Protein and Rich in Cysteine (SPARC) with Vascular Complications Among Chinese Type 2 Diabetic Patients in Singapore	Journal of Diabetes and its Complications	31(7)	1222-1227
Clinical Research Unit	Zhang Xiao, Serena Low Kiat Mun, Sum Chee Fang, Subramaniam Tavintharan, Yeoh Lee Ying, Liu Jian Jun, Li Na	Arterial Stiffness is an Independent Predictor for Albuminuria Progression Among Asians with Type 2 Diabetes — A Prospective Cohort Study	Journal of Diabetes and its Complications	31(6)	933-938
Clinical Research Unit	Liu Jian Jun, Subramaniam Tavintharan, Sum Chee Fang, Lim Su Chi	Profiling of Plasma Metabolites Suggests Altered Mitochondrial Fuel Usage and Remodeling of Sphingolipid Metabolism in Individuals With Type 2 Diabetes and Kidney Disease	Kidney International Reports	2(3)	470-480
Clinical Research Unit	Resham Lal Gurung, Yiamunaa M, Sylvia, Liu Jian Jun, Lim Su Chi	Short Leukocyte Telomere Length Predicts Albuminuria Progression in Individuals With Type 2 Diabetes	Kidney International Reports	3(3)	592-601
Clinical Research Unit	Sharon Pek Li Ting, Sum Chee Fang, Yeoh Lee Ying, Simon Bing Ming Lee, Wern Ee Tang, Lim Su Chi, Subramaniam Tavintharan	Association of Apolipoprotein-CIII (apoC-III), Endothelium-Dependent Vasodilation and Peripheral Neuropathy in a Multi-Ethnic Population with Type 2 Diabetes	Metabolism	72	75-82
Clinical Research Unit	Zhang Xiao, Serena Low Kiat Mun, Keven Ang, Yeoh Lee Ying, Subramaniam Tavintharan, Sum Chee Fang, Lim Su Chi	Microvascular Endothelial Function is an Independent Predictor for Albuminuria Progression Among Asians with Type 2 Diabetes — A Prospective Cohort Study	Microcirculation	25(4)	e12453 – e12454
Clinical Research Unit	Zhang Xiao, Chee Wai Kitt, Sylvia, Subramaniam Tavintharan, Sum Chee Fang, Lim Su Chi, Kumari Neelam	Association of Plasma Osteopontin with Diabetic Retinopathy in Asians with Type 2 Diabetes	Molecular Vision	24	165-173
Clinical Research Unit	Lim Su Chi, Dorajoo Rajkumar, Zhang Xiao, Wang Ling, Ang Su Fen, Clara Tan Si Hua, Yeoh Lee Ying, Ng Xiao Wei, Li Na, Chang Su, Sylvia	Genetic Variants in the Receptor for Advanced Glycation End Products (RAGE) Gene were Associated with Circulating Soluble RAGE Level but not with Renal Function Among Asians with Type 2 Diabetes: A Genome-Wide Association Study	Nephrology Dialysis Transplantation	32(10)	1697-1704
Clinical Research Unit	Resham Lal Gurung, Yiamunaa M	Genetic Markers for Urine Haptoglobin is Associated with Decline in Renal Function in Type 2 Diabetes in East Asians	Scientific Reports	8(1)	5109
Clinical Research Unit	Liu Jian Jun, Sharon Pek Li Ting, Keven Ang, Subramaniam Tavintharan, Lim Su Chi	Plasma Leucine-Rich alpha-2-Glycoprotein 1 Predicts Rapid eGFR Decline and Albuminuria Progression in Type 2 Diabetes Mellitus	The Journal of Clinical Endocrinology and Metabolism	10(102)	3683-3691
Clinical Research Unit & Ophthalmology and Visual Sciences	Zhang Xiao, Serena Low Kiat Mun, Kumari Neelam, Wang Jiexun, Keven Ang, Darren Yeo, Yip Chee Chew, Subramaniam Tavintharan, Sum Chee Fang, Lim Su Chi	Direct Medical Cost Associated with Diabetic Retinopathy Severity in Type 2 Diabetes in Singapore	PLoS One		doi: 10.1371/journal.pone.0180949



DEPARTMENT	AUTHORS	TITLE OF PAPER	JOURNAL	VOLUME	PAGE NO.
Diabetes Centre	Anthony Chao, Sum Chee Fang, Benjamin Lam, Anton Cheng, Serena Low Kiat Mun, Lim Su Chi	Effect of Bariatric Surgery on Diabetic Nephropathy in Obese Type 2 Diabetes Patients in a Retrospective 2-Year Study: A Local Pilot	Diabetes and Vascular Research	15(2)	139–144
Diabetes Centre	Li Shao Yan, Yee Kuan Hao, Koh Seow Ken, Wong Yip Fong, Yeoh Lee Ying, Serena Low Kiat Mun, Sum Chee Fang	Short-Term Outcomes of Patients with Type 2 Diabetes Treated with Canagliflozin Compared with Sitagliptin in a Real-World Setting	Singapore Medical Journal	59(5)	251–256
Diabetes Centre & Pharmacy	Dorajoo Sreemanee Raaj, Jessica Goh Hui Fen, Lim Su Chi, Alexandre Chan	HbA1c Variability in Type 2 Diabetes is Associated with the Occurrence of New-Onset Albuminuria Within Three Years	Diabetes Research and Clinical Practice	128	32–39
Diagnostic Radiology	Cynthia Assimta Peter, Dinesh Singh	A “Doughnut” in the Abdomen	Abdominal Radiology	42(3)	973–974
Diagnostic Radiology	Sivasubramanian Srinivasan, Dinesh Singh, Ashish Chawla	The Embedded Organ Sign	Abdominal Radiology	42(1)	330–331
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Diagnostic Radiology	Shikhare Sumer Nrupendra, Shimpi Trishna Ramesh	Axial Torsion of Meckel's Diverticulum	ANZ Journal of Surgery	–	1445–2197
Diagnostic Radiology	Ashish Chawla, Sivasubramanian Srinivasan, Lim Tze Chwan, Pulickal Geoiphy George, Jagadish Shenoy	Dual-Energy CT applications in Salivary Gland Lesions	The British Journal of Radiology	90(1074)	1–6
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Diagnostic Radiology	Ali Syed Zama	Surveillance of BIRADS 3 Lesions	The Breast Journal	23(5)	617
Diagnostic Radiology	Ashish Chawla, Dinesh Chinchure, Wilfred Peh Chin Guan	Greening the Radiology Department: Not a Big Mountain to Climb	Canadian Association of Radiologists Journal	68(3)	234–236
Diagnostic Radiology	Abeer Mohamed Al-Riyami, Tan Hsien Khai, Wilfred Peh Chin Guan	Imaging of Ankle Impingement Syndromes	Canadian Association of Radiologists Journal	68(4)	431–437
Diagnostic Radiology	Ali Syed Zama, Loi Hoi Yin, Khor Lih Kin, Arvind Kumar Sinha, Poon Li Mei	18F-FDG PET/CT Scan Can Predate Clinical Presentation in Acute Appendicitis	Clinical Nuclear Medicine	42(9)	409–411
Diagnostic Radiology	Sivasubramanian Srinivasan	Dual-Energy CT in Colorectal Cancers: Beyond the Density Measurements	Diagnostic and Interventional Radiology	23(6)	479–480
Diagnostic Radiology	Ashish Chawla, Khin Yadanar Thein, Jacklyn Lau, Shimpi Trishna Ramesh	Severe Chest Pain in an Elderly Woman	Emergency Medicine Journal	34(4)	248
Diagnostic Radiology	Ashish Chawla, Niraj Dubey, Chew Kian Ming, Dinesh Singh, Vishal Gaikwad, Wilfred Peh Chin Guan	Magnetic Resonance Imaging of Painful Swollen Legs in the Emergency Department: A Pictorial Essay	Emergency Radiology	24(5)	577–584
Diagnostic Radiology	Pratik Mukherjee, Ashish Chawla	Film Quiz: Sudden Onset Acute Neck Pain with Hemiparesis — Pearls and Pitfalls	Hong Kong Journal of Emergency Medicine	24(3)	154–159
Diagnostic Radiology	Ashish Chawla, Jerome Bosco, Lim Tze Chwan, Vishal Gaikwad, Raymond Chung	Systemic-Pulmonary Artery Shunt: A Rare Cause of False-Positive Filling Defect in the Pulmonary Arteries	Journal of Medical Imaging and Radiation Oncology	61(1)	82–84

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Diagnostic Radiology	Sivasubramanian Srinivasan	Powdered Gloves: Time to Bid Adieu	Journal of Postgraduate Medicine	64(1)	67–68
Diagnostic Radiology	Vijay Krishnan, Ashish Chawla, Wilfred Peh Chin Guan	Unusual Presentation of Lung Cancer as Skeletal Muscle and Subcutaneous Metastases	Lung India: Official Organ of Indian Chest Society	34(5)	485–487
Diagnostic Radiology	Shikhare Sumer Nrupendra, Niraj Dubey, Wilfred Peh Chin Guan	Bone Tumours: Radiographic Pitfalls	Pitfalls in Musculoskeletal Radiology	–	597–619
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Diagnostic Radiology	Sivasubramanian Srinivasan, Chou Hong, Wilfred Peh Chin Guan	Clinics in Diagnostic Imaging (174). L5 Vertebral Superior Facet Osteoblastoma (OB)	Singapore Medical Journal	58(2)	79–84
Diagnostic Radiology	Vijay Krishnan, Lim Tze Chwan, Wilfred Peh Chin Guan	Clinics in Diagnostic Imaging (175). Corpus Callosum Glioblastoma Multiforme (GBM): Butterfly Glioma	Singapore Medical Journal	58(3)	82–84
Diagnostic Radiology	Paul See Poh Lye	Clinics in Diagnostic Imaging (177). Medical Meniscus Bucket-Handle Tear with Medial Oblique Meniscomeniscal Ligament	Singapore Medical Journal	58(5)	241–245
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Diagnostic Radiology	Dinesh Singh, Ashish Chawla, Wilfred Peh Chin Guan	Clinics in Diagnostic Imaging (184)	Singapore Medical Journal	59(3)	159–162
Family and Community Medicine	Lim John Wah	Textbook of Occupational Medicine Practice 4th Edition. Chapter For: Reproductive Disorders	World Scientific	–	549–580
General Medicine	Claude Renaud	Doing Less Rather Than More in Asymptomatic Central Vein Stenosis: The Debate Continues	Journal of Vascular and Interventional Radiology	28(10)	1415–1416
General Medicine	Allen Liu Yan Lun, Wang Jiexun, Milind Nikam, Lai Boon Cheok, Yeoh Lee Ying	Low, rather than High, Body Mass Index is a Risk Factor for Acute Kidney Injury in Multiethnic Asian Patients: A Retrospective Observational Study	International Journal of Nephrology	doi: 10.1155/2018/3284612	
General Medicine	Claude Renaud, Nikam Milind, Allen Liu Yan Lun, Lim Eng Kuang, Seow Ying Ying, Yeoh Lee Ying	Outcomes of a Nephrologist-Driven Tunnelled Dialysis Catheter Insertion Service in South East Asia	The Journal of Vascular Access	18(4)	279–283



DEPARTMENT	AUTHORS	TITLE OF PAPER	JOURNAL	VOLUME	PAGE NO.
General Medicine	Nikam Milind, Allen Liu Yan Lun	A Rare Anatomic Variant of a Single-Conduit Supraclavicular Cephalic Arch Draining into the External Jugular Vein Presenting with Recurrent Arteriovenous Fistula Stenosis in a Hemodialysis Patient	Journal of Vascular Surgery Cases and Innovative Techniques	3(1)	20–22
General Medicine & Clinical Research Unit	Allen Liu Yan Lun, Yeoh Lee Ying, Lim Eng Kuang, Serena Low Kiat Mun	Long Term Outcomes of Patients With Type 2 Diabetes Attending a Multidisciplinary Diabetes Kidney Disease Clinic: Multidisciplinary Diabetes Kidney Disease Clinic	Journal of Diabetes	doi: 10.1111/1753-0407.12626	
General Medicine & Clinical Research Unit	Yeoh Lee Ying, Allen Liu Yan Lun, Serena Low Kiat Mun	The Effect of Long-Term Glycemic Variability on Estimated Glomerular Filtration Rate Decline Among Patients with Type 2 Diabetes Mellitus — Insights from the Diabetic Nephropathy Cohort in Singapore	Journal of Diabetes	9(10)	908–919
General Medicine & Laboratory Medicine	Ooi Say Tat, Rama Narayana Deepak	Clinical and Molecular Epidemiology of Carbapenem-Resistant Enterobacteriaceae Among Adult Inpatients in Singapore	Clinical Infectious Diseases	64(2)	68–75
General Surgery	Anthony Chao, Sum Chee Fang, Benjamin Lam Chih Chiang, Anton Cheng, Serena Low Kiat Mun, Lim Su Chi	Effect of Bariatric Surgery on Diabetic Nephropathy in Obese Type 2 Diabetes Patients in a Retrospective 2-Year Study: A Local Pilot	Diabetes & Vascular Disease Research	15(2)	139–144
General Surgery	Marc Ong Weijie, Tan Chun Hai, Anton Cheng	Prevalence and Determinants of Vitamin D Deficiency Among the Overweight and Obese Singaporeans Seeking Weight Management Including Bariatric Surgery: A Relationship with Bone Health	Obesity Surgery	–	1–8
General Surgery	Pek Chong Han	Biobrane Dressing for Paediatric Burns in Singapore: A Retrospective Review	Singapore Medical Journal	–	1–16
General Surgery	Bernice Heng Qi Hui, Dinesh Chinchure, Reyaz Moiz Singaporewalla	Clinics in Diagnostic Imaging (183)	Singapore Medical Journal	59(1)	12–16
General Surgery	Alkhalifah Nawaf, Lee Wei-Jei, Tan Chun Hai, Ser Kong-Han, Chen Jung-Chien, Wu Chun-Chi	15-Year Experience of Laparoscopic Single Anastomosis (Mini) Gastric Bypass: Comparison with Other Bariatric Procedures	Surgical Endoscopy	–	1–8
General Surgery	Ng Zhixu, Sheryl Ng, Vincent Nga, Teo Kejia, Sein Lwin, Chou Ning, Tseng T Yeo	Intradural Spinal Tumors — Review of Postoperative Outcomes Comparing Intramedullary and Extradural Tumors from a Single Institution's Experience	World Neurosurgery	109	229–232
Geriatric Medicine	Yu Junhong, Philip Yap Lin Kiat, Liew Tau Ming	The Optimal Short Version of the Zarit Burden Interview for Dementia Caregivers: Diagnostic Utility and Externally Validated Cutoffs	Aging & Mental Health	–	1–5
Geriatric Medicine	Felicia Tay Hui En, Claire Thompson, Nieh Chih Ming, Nieh Chih Chiang, Koh Hui Mien, Jessie Tan, Philip Yap Lin Kiat	Person-Centered Care for Older People with Dementia in the Acute Hospital	Alzheimer's & Dementia: Translational Research & Clinical Interventions	4	19–27
Geriatric Medicine	Toh Hui Jin, James Alvin Low, Lim Zhen Yu, Yvonne Lim, Shahla Siddiqui, Lawrence Tan	Jonsen's Four Topics Approach as a Framework for Clinical Ethics Consultation	Asian Bioethics Review	–	1–15
Geriatric Medicine	Ng Tze Pin, Ma Shwe Zin Nyunt, Gao Qi, Wee Shiou Liang, Philip Yap Lin Kiat, Yap Keng Bee	Elderly Nutritional Indicators for Geriatric Malnutrition Assessment (ENIGMA): Development and Validation of a Nutritional Prognostic Index	Clinical Nutrition ESPEN	22	54–63

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