CHAPTER

04

FIVE SEGMENTS OF CARE

NHG's River of Life framework is designed to meet the evolving needs of our population. It is a fundamental shift from fragmented, episodic, hospital-based care to integrated, person-centred, relationship-based care. This evolving approach to population health involves engaging multiple stakeholders across diverse settings, and is framed by our five Segments of Care — Living Well, Living with Illness, Crisis and Complex Care, Living with Frailty, and Leaving Well.

LIVING WELL

WELLNESS AT EVERY STAGE OF LIFE

Singapore is a developed country and its ageing population is projected to increase to 19 per cent by 2030 (*see Figure 1*). This challenges our healthcare system in three interconnected facets: rising Frailty, increasing prevalence of chronic disease, and greater adoption of poor lifestyle habits typical of urban, fast-paced societies. If left unchecked, it will likely generate greater demand for, and utilisation of, healthcare services.

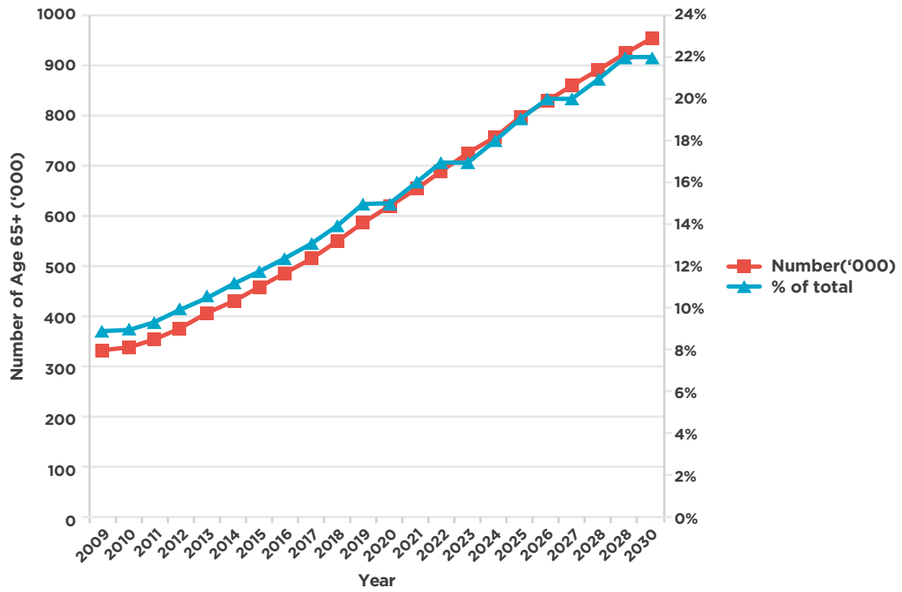


Figure 1: Projection of Ageing in Singapore

To effectively address these trends, and help the population live well in all stages of health (Living Well, Living with Illness, Living with Frailty, and Leaving Well) in the River of Life framework, NHG is pushing for three paradigm shifts in healthcare delivery:

1. **From a one-dimensional (physical) to holistic (including mental and social) definition of health** where care not only focuses on treating disease and infirmity, but involves proactive and consistent management of one's physical and psycho-social well-being
2. **From disease-centric to community-based, preventive person-centred care** where healthcare practitioners prioritise both the individual's and community's ownership of health, knowledge, and self-efficacy over the standard medical agenda of diagnosis
3. **From a mindset that living well not only applies to people who are disease-free, but that it also includes people across all health states,** in spite of disease, Frailty, and even up to the End-of-Life (EOL)

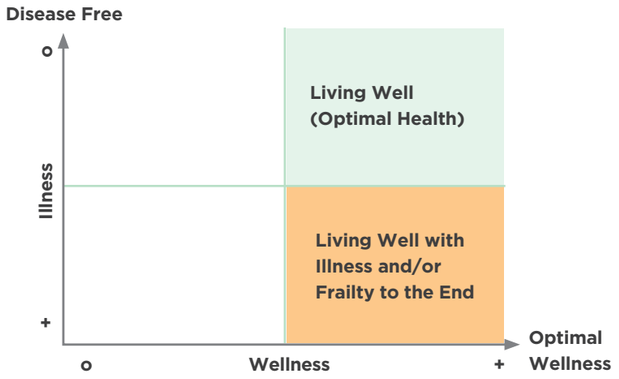
"EVERYONE WANTS TO LIVE WELL AT EVERY STAGE OF OUR LIVES, BE IT WHILE WE ARE AFFLICTED WITH ILLNESSES OR EVEN AT THE END-OF-LIFE. AS HEALTHCARE PROVIDERS, WE SHOULD BE IN THE COMMUNITY TO HELP OUR POPULATION LIVE WELL BY IMPROVING THEIR PHYSICAL AND PSYCHO-SOCIAL ENVIRONMENT, SOCIAL SUPPORT, AND BY EQUIPPING THEM WITH SKILLS TO CARE FOR THEMSELVES AND EACH OTHER."

DR WONG SWEET FUN, CHIEF TRANSFORMATION OFFICER & DEPUTY CHAIRMAN MEDICAL BOARD, CLINICAL DIRECTOR, POPULATION HEALTH & COMMUNITY TRANSFORMATION, KHOO TECK PUAT HOSPITAL & YISHUN HEALTH

The **Living Well** segment of care thus focuses on optimal wellness regardless of one's health state and adopts a Two-Dimensional Model (*see Figure 2*) in which:

- **Healthy persons** enjoy a longer duration of being disease-free and possess optimal wellness
- **Persons who have illness, Frailty, or EOL conditions** can still continue to experience optimal wellness by managing their conditions

Figure 2: Two-Dimensional Model of Living Well



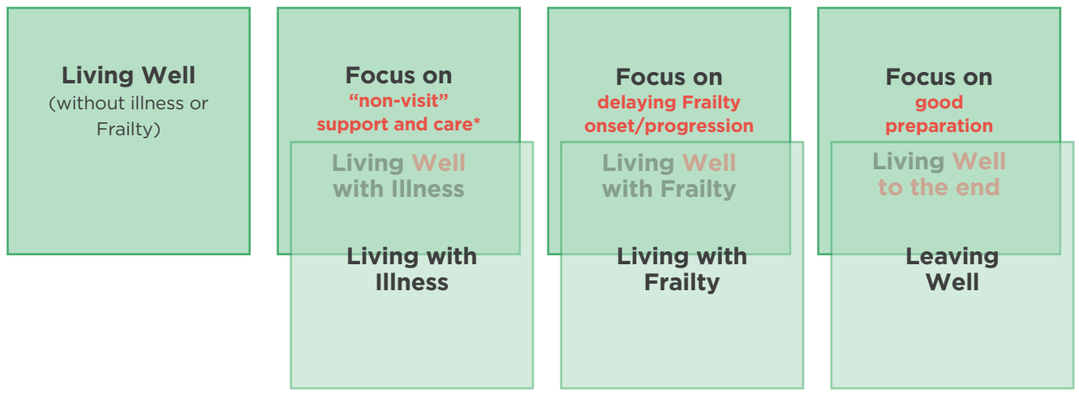
EMPOWERING OUR POPULATION TO LIVE WELL

Living Well focuses on nurturing a healthy and happy population that functions well in schools, workplaces, and the community. We aim to create a '**culture of health ownership**', where everyone is able to live well and independently, and enjoy quality of life at every stage of their lives, even when ill, Frail, or dying.

In the past decade, NHG has initiated several proactive and preventive programmes, with a view to move care upstream and help our population live well. Our efforts in these areas include engaging multiple stakeholders in schools and workplaces to empower people to adopt healthy lifestyle behaviours and habits, as well as capacity and capability building in the community to ensure that our population is supported to live well. These initiatives target individuals across four primary health states — those who are currently well (Living Well), those who have chronic conditions (Living with Illness), the elderly who are Frail (Living with Frailty), and those approaching EOL (Leaving Well) (*see Figure 3*).

Figure 3: Living Well across Four Health States

LIVING WELL MAPPED TO NHG POPULATION SEGMENTS



*** "Non-Visit" Support and Care**

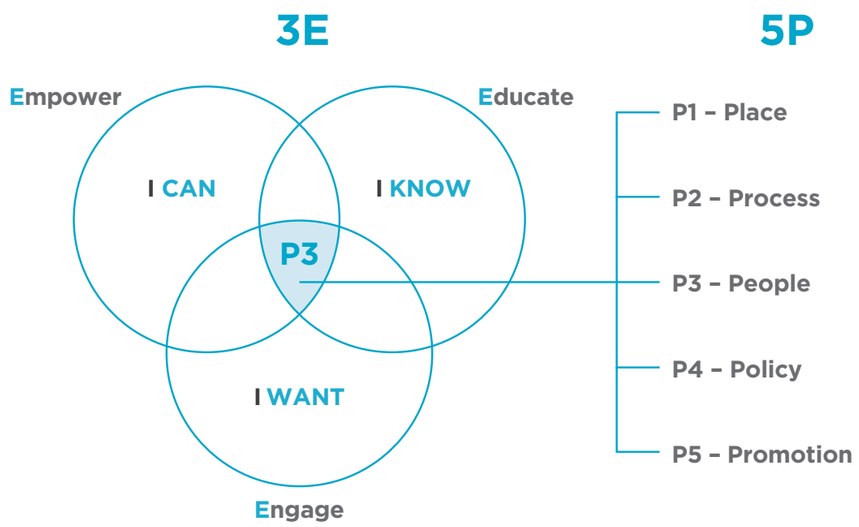
- Lifestyle modifications
- Habits and routines
- Chronic disease self-management

LIVING WELL WITHOUT ILLNESS OR FRAILTY

Poor lifestyle choices in childhood and early adulthood have a detrimental impact on our health as we age and can be a barrier to the goal of living well. We aim to build a culture of health by equipping the population with the resources to make the right lifestyle choices, and by empowering them to take ownership of their health at an early stage of their life. NHG's health education initiatives make medical knowledge accessible across various demographic groups, and help people put to practice what they have learnt.

NHG uses the **3E5P Framework** to guide the planning of such programmes and interventions – **E**ducation ('I know/I know how to'), **E**ngagement ('I want to') and **E**mpowerment ('I can/I am able to') to drive improvements through the five aspects of **P**lace (environmental nudges), **P**rocess (choice architecture), **P**eople (role modelling), **P**olicy (social norms), and **P**romotion (health awareness) (*see Figure 4*).

Figure 4: 3E5P Framework



The 3E5P framework emphasises a whole setting approach (i.e. whole school, whole workplace, and whole community), which takes into account the environment and its various factors:

- **Place** – Environmental nudges (both physical and on-line) remind people to make changes for healthier living, such as making staircases accessible and visible so that people find it easy to take the stairs. Making the environment conducive for change enables us to make "healthy choices easier choices".
- **Process** – using choice architecture to modify the way people make choices so that the default is always the healthier choice, for example, by placing healthier drink choices at eye level in vending machines.
- **People** – this includes all the stakeholders who contribute, support, influence and/or are at the receiving end. For example, in a school health programme, we target not only the students, but also the teachers, administrative and support staff, parents, community partners, and vendors, among others. Key personnel in a particular setting (such as senior management in the workplace) who are role models can also influence social norms.
- **Policy** – policies can guide people towards certain behaviours and over time, influence social norms. For example, workplaces that mandate healthy catering at official events will influence dietary choices over time.
- **Promotion** – adopting communication strategies to propagate healthy living messages and raise awareness of health issues, thereby building the branding of the programme/intervention to increase reach and "buy-in" of the target audience.

NHG's partnerships with stakeholders in schools, workplaces, and the community help to build a culture of health in the spaces and social settings that people spend most of their time in. Some of these initiatives include:

Living Well@School

NHG's vision for Living Well@School is to activate youths to embrace healthy lifestyles so that they grow up to be healthy adults. By identifying how to build intrinsic motivation, educating and empowering young people with applied healthy lifestyle skills in their natural environment, we can enable the long-term sustainability of the healthcare system. NHG's approach for Living Well@School involves partnering the Ministry of Education (MOE), and empowering schools to implement a holistic health system so that they can effectively engage and educate students, parents, and teachers to embrace healthy lifestyles. We work with students to integrate a growth mindset (shown to build resilience, self-motivation, and a desire to learn) with a health curriculum that teaches them, for instance, how to read nutrition labels and choose healthy foods. These pilot programmes have begun to show some positive results with children as young as six. We have also trained more than 1,000 teachers from over 300 schools to become health coaches for their students. Furthermore, we have reached out to parents through social media to empower them to cultivate healthy habits in their children.

Living Well@Work

In Singapore, approximately 68 per cent of our population is in the workforce, and they spend more than half their day at work. This underpins the need for us to leverage the workplace to foster healthy living. NHG aims to add years of healthy life not only to our own workforce, but to employees of the 66,000 organisations registered in the Central Region. To this end, several initiatives have been devised to propagate a flourishing 'Culture of Health', for example, a prototyping grant that encourages ground-up health promotion interventions. With such initiatives, we hope to realise our aspiration for a workforce that is physically, mentally, and spiritually fit to experience joy in work and in life.

Community Health Assessment Team (CHAT)

CHAT is a national outreach and mental health programme launched in 2009. CHAT supports projects targeted at young people by providing expertise and information to improve mental health awareness, reduce stigma, and promote social cohesion. CHAT also provides confidential and personalised mental health checks for persons aged between 16 and 40.

Community of Hope (CHOPE)

Woodlands Health Campus's (WHC) community engagement efforts are anchored by CHOPE, which aims to create a **C**ommunity of **Hope** in the North. *CHOPE X Schools* works with schools to co-develop programmes that build a sense of community and wellness in our youths. Starting with two classes in 2016, *CHOPE X Schools* has since reached over 2,200 students through experiential learning initiatives, mentorship, and youth volunteerism. *CHOPE X Workplaces* partners business entities and private corporations to play a more active role in community support, through corporate sponsorship of wellness programmes, volunteering, and creating inclusive workplaces for persons with chronic conditions or physical disabilities. Through *CHOPE X Community*, WHC's Community Transformation Office (CTO) works proactively with community partners to engage residents on initiatives geared towards health promotion, education, and empowerment.

Mini Medical School (MMS)

MMS was initiated by Khoo Teck Puat Hospital (KTPH) in 2013 to make medical science education accessible to the public, and raise health literacy and self-efficacy. MMS equips the community to become life-long learners and active co-managers of health. Since 2013, there have been over 4,200 attendances across 13 runs, and over 1,700 unique students have participated, aged between nine and 89.

Coaching for Health Action and Management Programme (CHAMP)

CHAMP advocates ground-up participation in learning about how to develop healthy lifestyle habits and practices. CHAMP started with about 97 participants when it was launched in April 2017, and has since benefitted about 1,339 participants, as of October 2017. This group-coaching initiative focuses on four lifestyle goals — healthy plate, reducing/eliminating sugar intake, increasing physical activity, and wholegrain substitution.

Start Right

'Start Right' equips individuals with the knowledge and tools to make lifestyle changes by educating them about the different types of carbohydrates, food label reading, and healthier cooking methods.

Community Intervention Programmes (CIPs) for Obesity

The prevalence of overweight and obesity has increased in Singapore over the last two decades. It is a major risk factor for cardiovascular diseases, including pre-diabetes and diabetes. In fighting the War on Diabetes (WoD), NHG is moving upstream to tackle excess weight among patients and residents living in the Central Region. Using a tiered approach, people of different health profiles (based on their Body Mass Index (BMI)) and pre-existing medical conditions are risk-stratified and actively engaged to participate in CIPs to help them get active and lose weight for better health. The NHG FitterLife Programme is one such initiative. A 12-week programme, participants are led by health coaches and fitness instructors in a series of physical activities and health talks. Topics include nutritional and exercise tips, coping strategies, and stress management.

LIVING WELL WITH ILLNESS

For people living with chronic diseases to live well, they need to be equipped and activated to manage their illnesses beyond hospital walls. It is also critical to identify at-risk individuals and deploy early interventions to prevent/delay the onset of chronic disease. NHG has rolled out health promotion and screening initiatives in the community to address this need:

Community Screening

Community cardiovascular screening (diabetes, hypertension, cholesterol) and functional screening enable residents to understand and take actions to improve their health conditions, and physical and sensory functions. Referred or walk-in residents are reviewed, and appropriate interventions (such as medication reconciliation, assessments and education on fall risk, and health education) are undertaken.

Community Health Screening (Taxi Driver Programme)

Yishun Health, together with Singapore Mass Rapid Transit (SMRT) and the Health Promotion Board (HPB), piloted a preventive health screening and coaching programme at the SMRT Taxi Customer Service Centre to encourage workplace health. Taxi drivers who bring their vehicles for servicing can use the wait time to screen for chronic conditions such as high blood pressure, high cholesterol, diabetes, and obesity. This enables them to take ownership of their health pre-illness, or during the early stages of chronic disease.

Health Promotion and Preventive Care (HPPC)

The National Healthcare Group Polyclinics's (NHGP) Health Promotion and Preventive Care (HPPC) Department and the Singapore Heart Foundation (SHF) collaborated on a month-long series of road shows on heart disease prevention in September 2017, reaching out to about 400 patients at five polyclinics. Under this initiative, NHGP dietitians and physiotherapists conducted workshops to share tips on healthy eating and exercise, designed to prevent heart disease. An SHF facilitator also ran a Dispatcher-Assisted First Responder CPR demonstration to raise awareness on life-saving techniques to mitigate a heart attack.

Response, Early intervention and Assessment in Community mental Health (REACH)

Since 2007, REACH has been playing the role of consultant and external advocate of mental health to schools, Voluntary Welfare Organisations (VWOs), and General Practitioners (GPs). REACH's multidisciplinary team (comprising medical physicians, clinical psychologists, medical social workers, occupational therapists, and nurses) helps students with emotional, social, and/or behavioural issues within the community. It continues to expand its services across the country, partnering school counsellors and case management teams to identify students with mental health issues. Where necessary, guidance specialists and educational psychologists from MOE render additional support.

Community Wellness Clinic (CWC)

CWC set up by the Institute of Mental Health (IMH) is a one-stop centre that focuses on a continuum of mental health care, from prevention to treatment and rehabilitation. Located in Queenstown and Geylang, each CWC is fully staffed with a multidisciplinary team, comprising psychiatrists, psychologists, occupational therapists, community psychiatric nurses, counsellors, medical social workers, and case managers. This provides comprehensive and integrated Community Care for our patients.

Community Health Posts (CHPs) and Community Nurse Posts (CNPs)

Launched in 2016 at three Resident Committees (RCs) within Toa Payoh West, CHPs in the Central Zone help residents with pre-onset and early-stage chronic conditions to better manage their health through regular follow-ups. Health Coaches advise residents on lifestyle changes, weight management, and how to set personal goals for diet and exercise. Such engagement with the residents builds trust and spurs them to take greater ownership of their health. Presently, there are 36 CHPs located at RCs, Community Centres (CCs), VWOs, and Wellness Centres. In the North, residents can go to any of the 20 CNPs for chronic disease monitoring, health counselling and coaching, lifestyle modification group activities, medication monitoring, functional screening (hearing, vision, and oral health), fall risk assessment, and memory tests.

Centre for Health Activation (CHA)

Launched in October 2017, TTSH's CHA aims to empower patients, caregivers, and volunteers to go beyond managing their own health to support other patients through customised training and volunteering opportunities.

LIVING WELL WITH FRAILTY

The need to fight Frailty is most urgent given Singapore's rapidly ageing population. To combat Frailty, we aim to delay its progression through managing the physical, mental, and social needs of the population. Through a robust support network of partnerships, we help enable those who are Frail to live well and age-in-place in the community. We work with the population to co-create spaces that can foster communal bonds and alleviate social isolation.

Community Health Teams (CHTs)

In March 2018, TTSH's Transitional Care team was reorganised into seven CHTs. Each CHT is anchored by a Community Nurse and a network of providers in each neighbourhood to facilitate health engagement, care coordination, and ageing-in-place through partnerships with healthcare and social care organisations. CHTs empower residents with the skills and knowledge for self-care. Services are also co-created together with the residents to meet their needs through sharing and learning of health practices.

Wellness Kampung

Wellness Kampung enables the Frail elderly to age-in-place within the community, through wellness and active ageing initiatives, such as healthy cooking demonstrations, daily exercise and recreational activities, and health screenings. The first three Wellness Kampung sites were opened in 2016 and are mainly helmed by residents of the community. There are currently about 122 volunteers across the centres.

LIVING WELL TO THE END

To enable the population to leave well, NHG's initiatives focus on meeting the EOL care needs of our population and providing adequate preparation for the End-of-Life. This includes caring for individuals at every stage of health and not just those who are nearing death. A key challenge is to reduce the stigma surrounding EOL discussions.

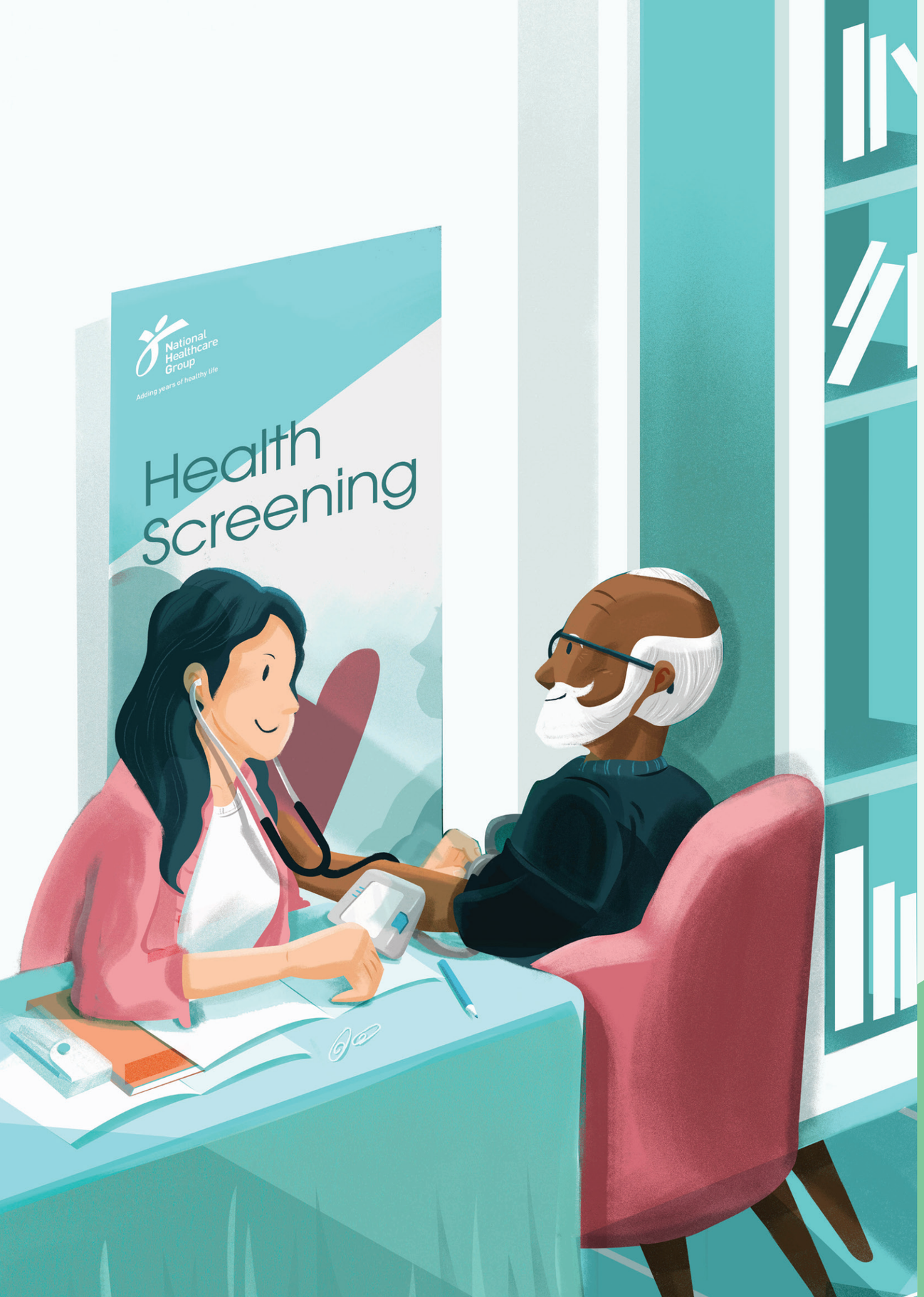
Proactive Advance Care Planning (ACP) provides a platform for conversations on EOL care, and allows people to make informed choices on their respective care plans that reflect their personal wishes and preferences. Across NHG, doctors, nurses, medical social workers, and other healthcare professionals are trained to help individuals understand and document their values, beliefs, and care preferences through ACP.

THE NEXT STEP

We are increasingly engaging our community partners so that we are able to gather relevant socio-economic data and information, define the most pressing issues, and address them more effectively. This will help us have a deeper and clearer picture of the social determinants of health which influence our patients and vulnerable sub-populations. We will continue to synergise our efforts with community-based organisations, tapping on their resources, expertise, and technologies to support the community holistically.

For effective community engagement, discourse must begin, and remain rooted in, the community. Participatory methods allow healthcare providers to build relationships with communities in the process of developing relevant solutions, and help promote a sense of ownership. While metrics for programme evaluation have not yet been developed, personal efficacy – willingness of individuals to monitor their health progress – and community efficacy – willingness and ability of community to be a self-sustaining ecosystem – are two indicators of progress towards health.

It is pertinent to be receptive and adaptive across a range of plausible futures. Most importantly, we have to activate the population and tap on ground resources to spread these good practices of enabling optimal health.



CHAPTER

04

LIVING WITH ILLNESS

BUILDING A ROBUST PRIMARY CARE ECOSYSTEM FOR SUSTAINABLE HEALTHCARE

CHANGING POPULATION DEMOGRAPHICS AND PATIENT PROFILES

Over the past decade, Singapore's population has grown by 25 per cent. By 2030, one in four Singaporeans will be aged 65 and over, as compared with one in eight today. The ageing population will pose several challenges to the healthcare system, such as:

- An increasing prevalence of chronic diseases in the population, including diabetes mellitus, hypertension, and hyperlipidaemia
- A rise in Frailty

There is also a growing proportion of the population with poor lifestyle habits leading to rising incidence of obesity, a risk factor for many non-communicable diseases. These changing demographics combine to create greater demand for healthcare services, and therefore, higher healthcare costs.

A strong Primary Care sector is the foundation for a good healthcare system. In the face of these challenges, one of the key strategic shifts in the National Healthcare Group Polyclinics's (NHGP) Primary Care Transformation is the emphasis on moving from reactive care to proactive care, from doctor-centric care to team-based care, anchored by a strong relationship between patients and the multidisciplinary team that cares for them.

EVOLVING PRIMARY CARE

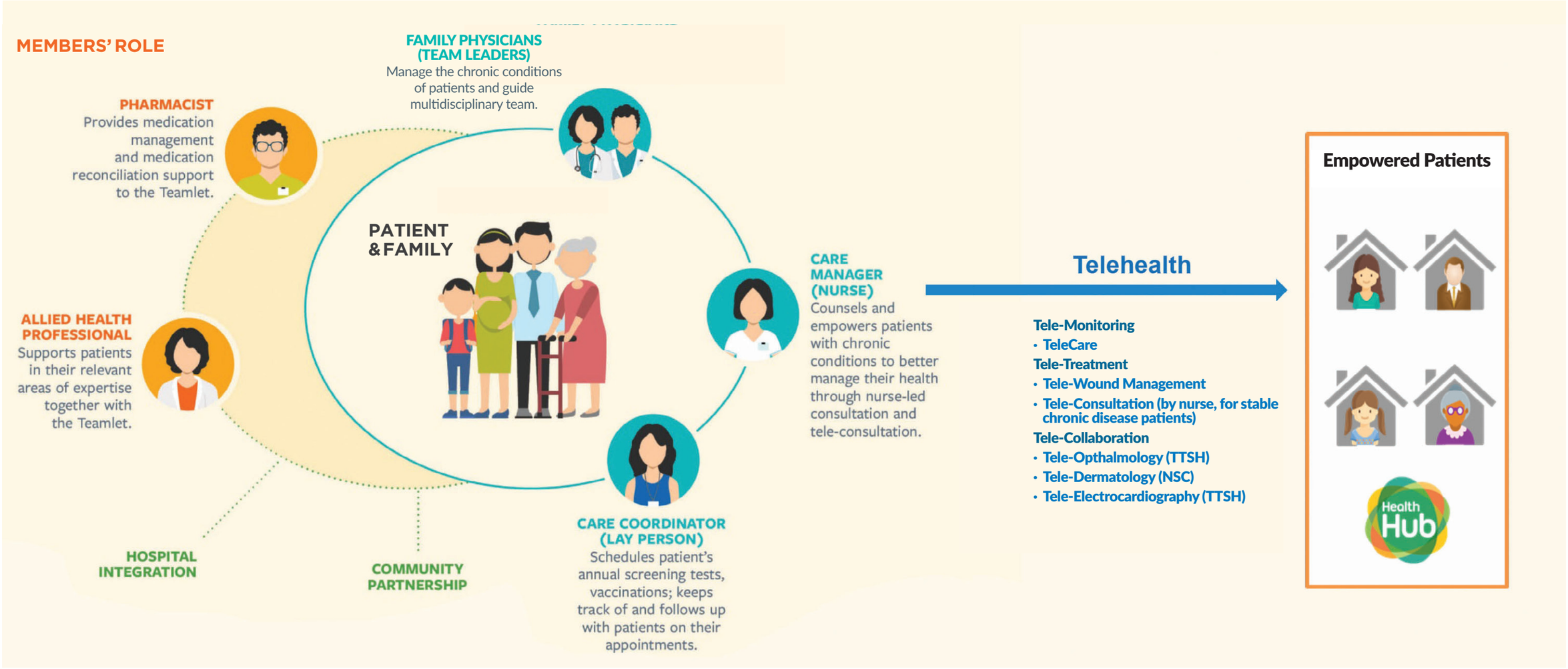
To future-proof our healthcare system and meet the demands of changing population demographics and patient profiles, Primary Care has to evolve. Primary Care transformation efforts include:

- Providing relationship-based care
- Leveraging telehealth technology
- Right-siting care
- Bringing care closer to home

PROVIDING RELATIONSHIP-BASED CARE

NHGP seeks to empower patients living with chronic diseases through relationship-based Primary Care, which is delivered by a dedicated team of healthcare professionals. Over time, trust is formed between patients and the healthcare team, leading to greater engagement, activation, and better health outcomes. This model of healthcare delivery, known as NHGP's Teamlet Care Model, was piloted in 2015 and is now operational in all NHG Polyclinics.

Figure 1: Teamlet Care Model



NHGP's Teamlet Care Model

Helmed by a multidisciplinary team of healthcare professionals, NHGP's Teamlet Care Model fosters a strong patient-provider relationship over time, including the integration of physical and mental health with social care issues, thereby offering comprehensive and holistic care to the patient.

Each Teamlet comprises two Family Physicians (FPs), a Care Manager (a nurse trained in chronic disease management), and a Care Coordinator (a lay person trained in preventive health) to provide integrated care in a Primary Care setting. Each Teamlet is further supported by Allied Health Professionals (AHPs) based on a holistic care framework, hence meeting medical, functional, psychological and social needs (*see Figure 1*). Shifting away from the one-size-fits-all approach, the Teamlet Care Model stratifies patients' health risks based on their individual medical conditions and associated complexity. In doing so, the Teamlet is able to tailor care bundles for each risk stratum, thus optimising resource allocation and achieving person-centred care.

The Teamlet Care Model has been effective. A study conducted in August 2018 to evaluate the health outcomes of the first cohort of patients empanelled in Teamlets showed that they had improved significantly for chronic disease management. Those enrolled were more likely to go for preventive health screenings (for example, diabetic eye and foot screenings, pap smears, and mammograms), and to better control their diabetes. Teamlet patients also halved their risks of Emergency Department (ED) visits for diabetes and hypertension-related problems. Additionally, they were more satisfied with their care, attributing it to the model's person-centred approach.

As of January 2019, NHGP has 27 Teamlets across six polyclinics, and it has enrolled close to 120,000 patients with chronic conditions.

Seamless and Integrated Care

Primary Care works hand in hand with hospital specialists to integrate care around patients. This is especially important for patients with complex care needs, such as psycho-social issues and complex medical conditions. For example, shared referral protocols and shared care between Primary Care and specialists enable patients to receive care in the community and avoid unnecessary hospital visits, thus encouraging right-siting of care. The eventual goal is to create **One Care Plan** for patients that can be applied across multiple care settings. Such collaborations between Primary Care and our various partners take place through multidisciplinary case discussions as well as telehealth platforms.

"AS THE CORNERSTONE OF OUR HEALTHCARE SYSTEM, PRIMARY CARE WILL PLAY AN EVEN BIGGER ROLE BY CONTINUING TO INTEGRATE AND COORDINATE CARE. AS WE TRANSFORM HEALTH, WE MUST WORK WITH OUR SOCIAL CARE PARTNERS, OUR PATIENTS, AND THEIR CAREGIVERS TO BUILD RELATIONSHIPS FOUNDED ON TRUST."

DR KAREN NG, DIRECTOR, CLINICAL SERVICES, NATIONAL HEALTHCARE GROUP POLYCLINICS

LEVERAGING TELEHEALTH TECHNOLOGY

NHGP leverages technology to enable the efficient management of patients and minimise the need for physical visits. This saves time and money for patients, and also frees up clinicians' capacity at the polyclinics for patients who require face-to-face consultations. Telehealth initiatives include the following:

Tele-DERM

Tele-DERM is a collaboration between the National Skin Centre (NSC) and NHGP that enables patients to receive appropriate care for less complex skin conditions more conveniently in the community, thereby reducing specialist referrals. First implemented in Hougang Polyclinic in January 2016, FPs use a secure web-based platform to discuss patients' skin conditions and treatment options with dermatologists at NSC. As of December 2018, 4,200 dermatology cases were reviewed under Tele-DERM, of which 32 per cent were treated by NHGP doctors without having to be referred to NSC.

Tele-Electrocardiography (Tele-ECG)

Tele-ECG advocates patient-centred care through collaboration between the polyclinics and hospitals. Through Tele-ECG consultations, avoidable referrals to cardiology Specialist Outpatient Clinics (SOCs) are reduced, thus allowing for right-siting of care. From April 2016 to December 2018, 825 of 1,070 Tele-ECG cases (or 77.1 per cent) avoided referrals. Such saved referral appointment slots at the SOCs have resulted in shorter lead times for the necessary and more urgent cases.

Tele-Ophthalmology

With Tele-Ophthalmology, NHGP patients with diabetes are able to receive their assessment for diabetic retinopathy and other ocular conditions efficiently. Two-field images taken at the polyclinics are transmitted to the ocular imaging centre through a secure web-based platform. Results are transmitted back to the polyclinics within the same day. This ensures effective follow-up with patients, according to the National Healthcare Group Eye Institute's (NHGEI) recommendations.

Tele-Wound Care Monitoring

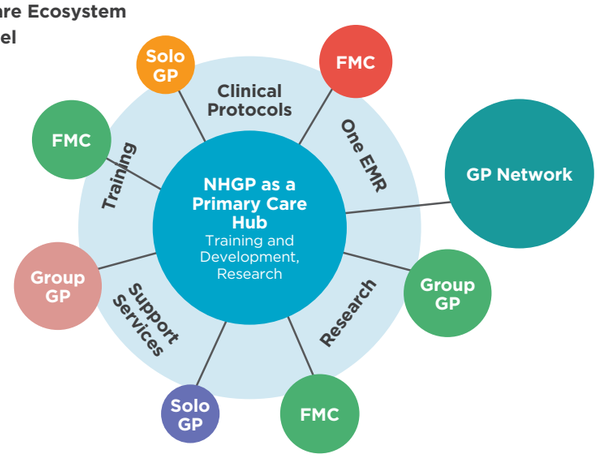
Tele-Wound Care Monitoring was rolled out to all NHG Polyclinics in June 2016. Patients are taught how to perform wound dressing and encouraged to care for their wounds at home. To ensure that the wounds heal progressively, patients email photos of their wounds to nurses for assessment and follow up over the phone. To date, about 700 patients have benefitted from this programme, and have been saved nearly 1,200 physical visits to the polyclinics.

RIGHT-SITING CARE

Our Primary Care ecosystem operates as a "Hub-and-Spoke" model, with NHGP as the Primary Care Hub (*see Figure 2*). Strong partnerships between NHGP and the various "spokes" – General Practitioner (GP) Networks (also termed "Primary Care Network (PCN)"), and Family Medicine Clinics (FMCs) increase the overall Primary Care capacity for the management of chronic diseases.

This coordinating service across public and private healthcare providers is made possible for lower-income individuals through financial schemes, such as the Community Health Assist Scheme (CHAS), which facilitate the movement of patients from the polyclinics to private GPs through subsidies.

Figure 2: The Primary Care Ecosystem – A Hub-and-Spoke Model



Primary Care Network (PCN)

In January 2018, NHG launched the first PCN, known as the Central North-PCN (CN-PCN). Since then, 30 GPs have signed on to the CN-PCN, with clinics primarily located in the geographical areas of Woodlands-Yishun and Hougang. The CN-PCN leverages GPs' existing infrastructure and network to bring together solo and small-size GP practices, facilitating the right-siting of patients with chronic illnesses.

Besides enhancing the GPs' capabilities in chronic disease management, the PCN also allows GP clinics and polyclinics to leverage economies of scale through shared resources, and to collectively manage population health. For example, the National Healthcare Group Diagnostics (NHGD) offers patients with diabetes on-site retinal eye-checks and foot screening through its Mobile Community Health Centre, under the PCN partnership. This has led to higher participation rates in screenings. NHG further adds value to GPs by providing them with support services and training, managing funds, liaising with the Ministry of Health (MOH), and sharing clinical protocols for chronic disease management.

Family Medicine Clinics (FMCs)

NHG has collaborated with private GPs to develop FMCs, which reorganise GP practices to work in multidisciplinary teams, such that patients receive team-based care closer to home. To date, there are eight FMCs in Singapore, three of which are collaborating with NHG in right-siting efforts. As of January 2019, NHGP has right-sited 19,165 patients with chronic illness to the three FMCs.

BRINGING CARE CLOSER TO HOME

To meet the demands of Singapore's complex healthcare needs, care is increasingly being brought closer to home. Community-based care is encouraged by raising awareness and educating the public on preventive care, referrals of patients to community partners, and activating community partners as capable resources of help and support post-discharge.

Memory Clinics

To meet the needs of the ageing population, Memory Clinics were started in NHG Polyclinics in collaboration with Tan Tock Seng Hospital (TTSH), Khoo Teck Puat Hospital (KTPH), and the Institute of Mental Health (IMH). FPs and Care Managers (CMs) have been upskilled to manage patients with dementia in the Primary Care setting. The first of such collaborations started in 2012 between Ang Mo Kio Polyclinic and TTSH, and Yishun Polyclinic with KTPH. Since then, Memory Clinics have been implemented in five of the six polyclinics, with Ang Mo Kio Polyclinic and Hougang Polyclinic providing additional services to diagnose dementia in Primary Care. As of December 2018, more than 800 patients have been managed by the Memory Clinics.

Public Education Programmes

To enhance healthcare delivery to the population and build a culture of health, NHGP has been strengthening its community engagement. Through educational programmes and outreach events, the public learns the importance of healthy lifestyle choices, and are encouraged to gain a better understanding of common diseases. One programme that embodies this vision is the Lighter Life weight management programme, which seeks to engage and empower patients with chronic diseases to achieve healthy weight loss. With increased health literacy, practical health advice, and behavioural change techniques, patients are able to improve their disease management and well-being through sustained dietary, physical activity, and behavioural lifestyle changes. The community-based programme involves a multidisciplinary team of doctors, AHPs, nurses, and health consultants in Primary Care and community settings. The programme also collaborates with Sport Singapore for community on-boarding, and incorporates expertise from both clinicians and active lifestyle experts for patients with chronic conditions. This is to achieve sustained improvement in chronic disease management and well-being.

To promote an active lifestyle and preventive care to a wider audience, NHGP works closely with community partners to organise outreach activities, such as community walks and roadshows. It also harnesses multiple media platforms to share such messages.

BUILDING MENTAL HEALTH CAPACITY IN THE COMMUNITY

Addressing mental health issues in the community is important because it enables early identification of mental health cases, as well as early intervention. Therefore, building capacity for mental health-related services in the community is crucial for the holistic health of the population. Patients are more likely to seek help at the polyclinics, due to increased convenience and less stigma. They are empowered to manage their own health through building rapport and trust with multidisciplinary teams, thus enabling greater continuity of care, particularly for those with co-morbid chronic physical conditions.

Health and Mind Service (HMS)

HMS, a collaboration between IMH, NHGP, and KTPH, aims to improve access to mental health services in the community. FPs in the polyclinics manage persons with common mental health issues – such as depression, anxiety, insomnia, and adjustment disorders – through the provision of clinical care, assessment, diagnosis, stabilisation, and treatment.

This care arrangement not only reduces stigmatisation by offering treatment in a community setting instead of a hospital, but encourages patients and caregivers to seek help early. HMS has seen 5,991 new patients between October 2012 and December 2018. Key achievements include 84.1 per cent of patients showing a reduction in their ratings for functional impairment in work, social, and family life, and 98.1 per cent reporting satisfaction with services provided.

Triaging Referrals to Community Partners

In November 2017, IMH began triaging referrals as part of efforts to right-site persons with mental health issues to the appropriate community partners. Based on their mental health needs and risks, patients were appropriately matched to the providers best suited to manage their condition. Besides IMH SOCs, they were referred to community partners such as FMCs, GPs, and Voluntary Welfare Organisations (VWOs). As less complex cases are right-sited to community partners, the SOCs at IMH have experienced reduced waiting times for patients in need of tertiary-level mental health assessment and management. It has also led to an improvement in the default rate of clinic attendance. To date, IMH has triaged about 3,000 referrals to the hospital. About eight per cent of them have been right-sited to the community.

IMH Aftercare Programme

IMH rolled out its Aftercare Programme in Sin Ming and Ang Mo Kio in 2015 to provide case management support for patients with high social care needs, post-discharge. It was extended to Kembangan-Chai Chee in 2016 and Kreta Ayer-Henderson in 2017. The Case Manager (CM) works closely with locale-specific community partners – Family Service Centres (FSCs) and VWOs – to co-manage and care for patients through joint home visits. The community partner carries on with care provision, and the CM facilitates the smooth flow of information and service link-ups, particularly when there are signs of deterioration or relapse. The Aftercare Programme has helped reduce patients' re-admission rates, ED visits, and missed appointments.

THE NEXT STEP

NHGP's Primary Care Transformation journey has just begun and thus far, results have been promising. The collective vision for patients who are *Living with Illness* is for them to become activated partners in their own care, stay active in their community and lead good quality lives, thus resulting in better health outcomes. Going forward, we seek to:

- **Improve patient activation**, and actively promote individual ownership of health. An activated patient is a co-owner of personal health, which includes maintaining physical and mental health and taking the initiative to engage in follow-up consultations with the healthcare team.
- **Drive behavioural change** with engaged individuals, by tapping on resources available in the community to pursue health.
- **Improve healthcare-social sector integration** by building stronger and wider partnerships with a range of community-based social care providers so that care offered is holistic and person-centred.

These goals, coupled with a strong Primary Care ecosystem, will go far to support our aim of a value-driven, relationship-based, and sustainable healthcare system.

CHAPTER

04

CRISIS AND COMPLEX CARE

BRIDGING HOSPITAL CARE AND COMMUNITY CARE

Acute hospitals provide Crisis and Complex Care to individuals who become severely unwell due to a specific event like a fall or traffic accident, or those who develop complications from chronic diseases. A significant function of the hospital entails the treatment, maintenance and stabilisation of such exacerbation and/or complications and medical emergencies. Our acute hospitals – Tan Tock Seng Hospital (TTSH) and Khoo Teck Puat Hospital (KTPH) – seek to provide safe, quality, and reliable care.

CHALLENGES OF AN AGEING POPULATION AND INCREASED DEMAND FOR ACUTE SERVICES

Singapore's healthcare system was developed to serve the population needs of the past, with acute hospitals built to primarily serve the more episodic healthcare needs of a young population. But with our rapidly ageing population, and increasing prevalence of chronic diseases and rising healthcare costs, the current hospital-centric model of care is unsustainable.

With the greying population, more old and Frail patients may require hospitalisation. Over the past decade, the proportion of patients aged 65 and older admitted to the public healthcare sector has increased from 28.6 per cent in 2006 to 33.4 per cent in 2013[1]. These patients also tend to stay longer in the hospital where the Average Length of Stay (ALOS) has risen from 7.8 days in 2010 to 8.2 in 2013[2]. In recent years, the surge in demand for acute care services has led to a bed crunch in public hospitals.

At NHG, the proportion of patients requiring crisis care at the time of their first visit was found to increase exponentially with age, from 12.7 per cent in the 60–64 age group and 27.1 per cent in the 75–79 age group to 52.6 per cent in the above 85 age group[3]. Thus, we have adopted a multi-pronged strategy to help reduce avoidable hospital admissions, with focus on preventive care.

NHG CRISIS AND COMPLEX CARE STRATEGY

NHG's Crisis and Complex Care five-year strategy (2016 to 2020) focuses on the following key deliverables:

- To fulfil, with excellence, the capacity and complex demands for acute tertiary care in our hospitals in Central Singapore;
- To deliver appropriate treatment within hospitals, with Intermediate and Long-Term (ILTC) partners, and in the community; and
- To provide a high level of clinical and patient-centred value, outcomes and satisfaction across the population

Priority areas that have been identified for the next three years cover:

- Community Partners and Home Capability Enablement for patients by deploying our specialist teams to facilitate home care by partner organisations;
- Specialist Outpatient Clinics (SOCs) and Ambulatory Care to advance excellence by establishing new innovations and best practices to link specialists with Primary and Community Care clinicians in multi-faceted ways;
- Elderly Care initiatives to cover all aspects of senior care to meet the needs of the ageing and Frail population; and
- Patient Education Excellence to integrate the pedagogical methods of education and engagement of the patient and family for activation and self-care

To meet these areas, NHG uses the Crisis and Complex Care Framework, which gives the parameters and action items across a patient's entire care journey, from the Emergency Department (ED) to inpatient admission and to discharge.

Besides expanding care services into the community, our acute hospitals will continue to build upon established foundations of clinical excellence to deliver standardised, evidence-based treatments at low cost, and achieve value-driven outcomes.

For patients who are acutely ill and require emergency care, optimisation and expansion of clinical pathways to deliver more timely and effective treatment are being implemented, such as offering ambulatory alternatives to inpatient care. For patients with stable but chronic conditions, shared care programmes and right-siting arrangements between SOCs and Primary Care and Community Care partners allow patients to effectively manage their conditions closer to home. We are also adopting an integrated approach to implement elderly care initiatives to manage our Frail population across various settings, including the ED, inpatient care and discharge.

[1]"News Highlights." BED CRUNCH. Accessed March 06, 2019. https://www.moh.gov.sg/news-highlights/details/bed-crunch.
[2]"News Highlights." BED CRUNCH. Accessed March 06, 2019. https://www.moh.gov.sg/news-highlights/details/bed-crunch.
[3]Lim, Wee Shiong, Wong Sweet Fun, Ian Leong, Philip Choo, and Pang Weng Pang. "Forging a Frailty-Ready Healthcare System to Meet Population Ageing." *International Journal of Environmental Research and Public Health 14, no. 12 (2017): 1448. doi:10.3390/ijerph14121448.*

CARING FOR OUR POPULATION WITH CRITICAL AND COMPLEX CARE NEEDS

'Crisis and Complex Care' focuses on ensuring health and quality lives for our population with critical and complex care needs, and to deliver it in an effective, thoughtful, and coordinated manner. Initiatives developed include the setting up of ambulatory care facilities, integrated care models, development of a suite of geriatric surgical services and geriatric perioperative care, and reorganisation of care delivery at SOCs.

Dedicated Emergency Care Services and Shift Towards Ambulatory Care

The ED is historically one of the busiest places in a hospital. Upon arrival, patients will be screened and triaged to the respective consultation areas, before undergoing more comprehensive assessment of their condition and care needs. With this on-going demand for acute services, several interventions have been put in place to reduce waiting times, improve access to more timely care, and reduce unnecessary hospital admissions.

In November 2014, KTPH set up its Emergency Surgery and Trauma (ESAT) Unit — a dedicated acute surgical unit performing emergency surgery for patients admitted to the ED. This model of care separates acute and elective surgical workflows with more effective allocation of manpower to provide prompt and timely treatment. Since its implementation, ESAT has halved the average waiting time from ED to operating theatre, reduced the average ALOS from 4.5 days to 4.0 days and the average length of ICU stay from 8.3 days to 4.7 days, as well as decreased surgical complications and overall mortality rate from 1.9 to 1.0 per cent.

TTSH expanded and relaunched its Emergency Diagnostic and Therapeutic Centre (EDTC) in January 2011, to offer standardised treatment protocols, focused nursing care and more frequent consultant reviews to enable patients admitted to the ED with serious but stable conditions to be discharged within 24 hours. The EDTC covers 18 conditions, including asthma, appendicitis, and pneumonia. Besides reducing time and costs to patients, more beds are freed up in TTSH's main wards to treat patients with more critical conditions.

The Medical Ambulatory Centre (MAC) at TTSH was launched in January 2015, housing both the Medical Day Centre and Sleep Laboratory together in one facility. It offers a wide range of procedures and treatments, including blood transfusion, bone marrow aspiration, chemotherapy, as well as bedside and radiological procedures, allowing patients to be treated and discharged within 24 hours. Inpatient bed capacity is thus freed up for acute hospital admissions, reducing waiting time and unnecessary delays in treatment.

In September 2016, KTPH opened an Extended Diagnostics and Treatment Unit (EDTU) to better manage bed demand. Patients admitted to the EDTU are observed for up to 24 hours and receive intensified therapy and extended diagnostic testing without having to be warded. They are then discharged with follow-up advice or admitted to the inpatient wards for further treatment, thus allowing for more accurate assessment and management of their care needs. Since it started operations, the daily average number of EDTU patients has increased from five to 14. As of March 2017, a total of 2,157 patients have been treated at the facility, translating to reduced inpatient admissions.

KTPH's Acute Medical Unit (AMU), opened in February 2017, provides high-quality, rapid assessment, close monitoring, and treatment for patients with acute medical conditions. Services include enhanced staffing levels, comprehensive clinical investigative services such as pathology and radiology, as well as proactive and expedited specialist referral and review where needed. Patients stay in a single dedicated ward for an average of 72 hours, allowing fast diagnosis and acute treatment by a multidisciplinary medical team. Patients who require further attention are transferred to inpatient wards, while those who improve are discharged. This model enhances patient safety and turnaround to enable timely discharge. Since its inception, the AMU has saved more than 4,000 bed days a year. Patients from Yishun Community Hospital (YCH) who require acute care are also admitted directly to AMU, thus reducing unnecessary admissions and processes via the ED.

"WE VIEW EACH AND EVERY PATIENT AS A PERSON; NOT JUST A SUFFERER OF DISEASE. WE NEED TO TAKE INTO ACCOUNT THE PSYCHOLOGICAL AND SOCIAL DIMENSIONS OF ILLNESSES. THE ULTIMATE HOLY GRAIL IS WE BECOME ONE SYSTEM OF SHARED ACCOUNTABILITY."

ASSOCIATE PROFESSOR CHIN JING JIH,
CHAIRMAN MEDICAL BOARD,
TAN TOCK SENG HOSPITAL & CENTRAL HEALTH

BUILDING ELDERLY-FRIENDLY SERVICES AND IMPROVING INPATIENT CLINICAL EXCELLENCE

With Singapore's ageing population, there has been a steady increase in the proportion of hospital admissions and ED attendances among elderly patients over the past decade. Nationally, persons aged 65 and older make up between 21 and 40 per cent of ED attendances, using proportionally more ED services than any other age group[4]. To better manage this demand, initiatives catering to the complex needs of these seniors have been implemented.

ED Geriatric Screening and Intervention

All patients aged 65 and above admitted to TTSH ED undergo risk stratification, followed by rapid geriatric screening and intervention for at-risk seniors. Interventions include the timely management of identified clinical issues, and where necessary, referrals to the physiotherapist and occupational therapist, the geriatric assessment clinic, post-acute care at home services, and community support services. Upon discharge, patients are advised on how to better manage their health at home, including falls prevention, sleep hygiene, dietary habits, and physical activity. This ensures that potentially avoidable admissions among older adults are reduced.

Geriatric Assessment Clinic

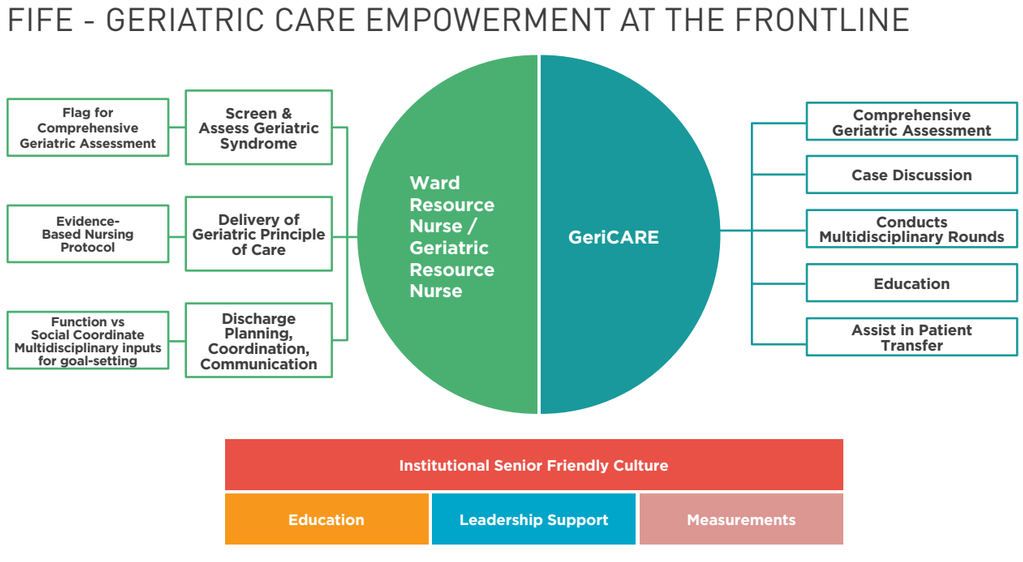
The Geriatric Assessment Clinic at TTSH provides comprehensive geriatric assessments for persons aged 65 and above, to identify and manage geriatric syndromes, sensory impairment, functional disability, and psycho-social issues, to avoid unnecessary admissions. The Clinic receives referrals from the ED and other disciplines, as well as polyclinics and GPs. Patients are initially assessed by a nurse clinician, followed by an evaluation by a geriatrician. Depending on identified needs, the patient is then seen by the rest of the multidisciplinary team such as physiotherapists, occupational and speech therapists, pharmacists, dietitians, or social workers for holistic care.

Framework for Inpatient Care of the Frail Elderly (FIFE)

Formulated in 2014, FIFE promulgates geriatric principles of care at TTSH (i.e. beyond the Geriatrics Department), and makes it senior- and Frailty-friendly. The needs of elderly patients are identified early to prevent or reduce complications, and there is facilitation of timely discharges and appropriate care transition through tight coordination across settings. Appropriate therapeutic goals are also set for elderly patients with advanced disease across different disciplines.

FIFE adopts a two-pronged approach where the Geriatric Comprehensive Assessment and Rehabilitation for Elders (GeriCARE) team and Geriatric Resource Nurses/ Ward Resource Nurses (WRNs) work closely to deliver integrated and comprehensive geriatric care services to Frail elderly patients across different disciplines (*see Figure 1*). These services include screening and flagging of at-risk elderly patients who require comprehensive geriatric assessment, early discharge planning, serving as a single point-of-contact to communicate between family/caregivers and the care team, and implementing delirium prevention interventions.

Figure 1: Framework for Inpatient Care of the Frail Elderly (FIFE)



[4]Gan, Eveline. "At Emergency Departments, More Patience for Elderly Patients." *TODAY*, February 10, 2018. Accessed March 6, 2019. https://www.todayonline.com/singapore/emergency-departments-more-patience-elderly-patients.

FIFE is currently in its third year of implementation, and interim results show improved quality of care. An evaluation by Health Services and Outcomes Research (HSOR) using data from the first year of implementation revealed that FIFE patients experienced a risk reduction of pressure ulcers by 40 per cent.

Geriatric Frailty Unit (GFU)

To better manage and care for Frail elderly patients, KTPH's Department of Geriatric Medicine established the GFU in February 2016. The GFU applies a novel approach, where patients are grouped according to their Clinical Frailty Score (*for more information, see p.83*), instead of more traditional classification means such as age, diseases or syndromes. Current interventions provided at the GFU include a Listening Clinic, care needs assessment, medication and dietary reviews, and development of a future care plan, including crisis planning in event of medical issues such as breathlessness.

The Listening Clinic allows the patient's family members and caregivers to clarify their doubts, understand the patient's medical condition and prognosis. It also provides the medical team an opportunity to broach Advance Care Planning (ACP) discussions and other End-of-Life issues, and better understand the patient's individual values, goals, and expectations.

Integrated Hip Fracture Care

Hip fractures are commonly seen in persons aged 65 and older due to an increased risk of falls and injures as a result of age-related conditions such as osteoporosis. As hip fractures are debilitating injuries with life-threatening complications, it is vital for these patients to receive timely treatment to regain their mobility and independence.

To improve the quality of hip fracture care for older persons, both TTSH and KTPH have implemented an integrated care programme. Under the programme, patients gain timelier access to surgical services, shortened hospital stays in the acute setting, and earlier initiation of comprehensive rehabilitation in a Community Care setting. A multidisciplinary team of ED clinicians, geriatricians, orthopaedic surgeons, nurses, Allied Health Professionals (AHPs), and case managers work closely together to provide holistic care, as well as streamline and improve processes across both care settings. This seamless transition of care allows patients to achieve better clinical and functional outcomes, time and cost savings, and an enhanced quality of life.

At TTSH, implementation of its Integrated Hip Fracture Pathway programme has resulted in increased hip fracture surgeries performed within 48 hours and a reduction in the ALOS from 12.4 days to 10.9 days[5]. Similarly, KTPH's Hip Fracture Service (HFS) has benefitted some 900 patients since its launch in 2015. On average, 50 per cent of hip fracture surgeries are performed within 48 hours. The average transfer time of 3.5 days has reduced to 0.7 days, with more than 80 per cent of hip fracture patients being transferred to Yishun Community Hospital on the same or next day.

Early Mobilisation at Intensive Care Unit (ICU)

Patients at KTPH's Surgical Intensive Care Unit (SICU) may spend several days lying in bed due to their critical illness, which increases the risk of muscle wastage, deep vein thrombosis, and chest infections. To help accelerate functional recovery and reduce ALOS, a multidisciplinary team comprising physicians, physiotherapists, nurses, and respiratory therapists implemented the early mobilisation project. Under the project, suitable patients spend 30 to 45 minutes a day completing at least three out of five weight-bearing exercises aimed at strengthening muscles to prevent them from wasting away.

From November 2015 to May 2016, about 85 per cent of SICU patients have benefitted from early mobilisation. Their average length of ICU stay has shortened from 3.3 days to 2.5 days, which in turn led to a shorter ALOS of 12.4 days as compared with 12.7 days. The initiative has expanded to the Medical Intensive and Cardiac Care Units at KTPH.

Enhanced Recovery after Surgery (ERAS)

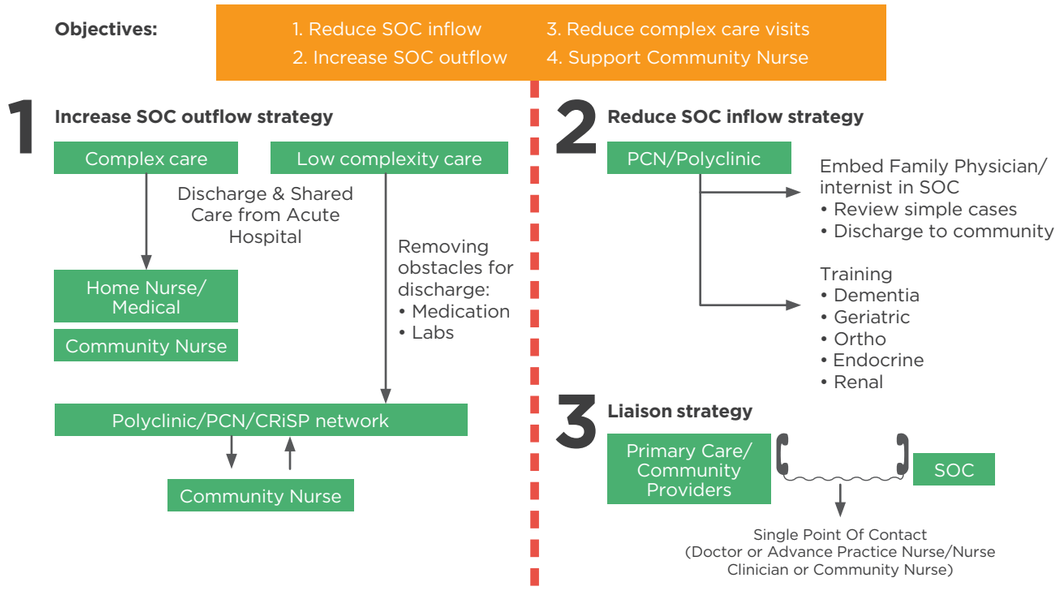
TTSH's ERAS programme facilitates early recovery for patients undergoing major surgery based on protocols designed from best practices across the patient's entire care journey, from pre-operation to discharge. Interventions include removal of dietary restrictions both pre- and post-surgery, and early mobilisation post-surgery. A study of 78 colorectal surgery patients treated using ERAS and 298 treated under traditional protocols found that their ALOS dropped from 10.6 to 7.9 days with the new system[6]. The percentage of patients suffering surgical complication more than halved from 17.1 to 7.7 per cent, and the rate of re-admission reduced from 8.1 per cent to 1.3 per cent[7].

REORGANISING SOC CARE

As Singapore's chronic disease burden grows and more patients present with multiple co-morbidities, the demand for specialist services will rise. To minimise the need for SOC referral and hospitalisation, chronic care plans focusing on patient activation for self-management of their conditions and shared care models between SOCs and Primary Care partners to handle more complex cases within the community have been developed (*see Figure 2*).

[5]Cheong, Seng Kwing, Dr. "Doc Talk: Smoother Recovery with Integrated Care." *The Straits Times*, May 15, 2014.
[6]Boh, Samantha. "New System Offers Better Outcomes after Surgery." *The Straits Times*, September 10, 2016. Accessed March 6, 2019. https://www.straitstimes.com/singapore/new-system-offers-better-outcomes-after-surgery.
[7]Boh, Samantha. "New System Offers Better Outcomes after Surgery." *The Straits Times*, September 10, 2016. Accessed March 6, 2019. https://www.straitstimes.com/singapore/new-system-offers-better-outcomes-after-surgery.

Figure 2: Reorganisation of Care at SOCs



Community Right-Siting Programme (CRiSP)

Launched in 2014, CRiSP is a collaboration between TTSH and General Practitioners (GPs) to appropriately review and right-site stable patients with certain chronic conditions, such as asthma, diabetes, hypertension, ischemic heart disease, and stroke, from SOC to GP for continual management. This is achieved through patient education, financial counselling, shared care protocols and arrangements for the specified conditions, and monitoring of patients' progress for 12 months after their discharge from the SOCs. TTSH also provides training and support such as diagnostic and lab services to these GP partners.

Besides allowing for seamless, patient-centric care, CRiSP has helped reduce the number of repeat SOC visits, in turn shortening the wait times for patients. Since 2014, more than 3,000 patients have benefitted from the programme, saving about 12,000 SOC visits[8]. In addition, the number of GP partners engaged has increased from 10 in 2014 to 120 at present, and the number of conditions they can manage has also increased from three to 30[9].

GPNext

GPNext is a collaboration between TTSH and Primary Care partners in Central Health, focused on the discharging of stable, ambulatory patients from the hospital's ED to GPs. It was officially launched in October 2018.

Patients with chronic but stable conditions, and whose care can be managed by GPs within the community, are referred to a nearby GP, Family Medicine Clinic or polyclinic after their ED admissions. GPNext currently covers 14 medical conditions across five clinical specialties (urology, general surgery, orthopaedics, general medicine, and respiratory and critical care medicine), such as lower back pain, asthma, and urinary tract infection.

Besides GPNext, TTSH also set up the Coordinating Advisory Care Team (CoACT), made up of specialists, nurses and right-siting coordinators who serve as dedicated links between GP partners and the hospital. GPs can update and speak to the specialists directly about the patients' conditions, and in the event they deteriorate, the CoACT can help coordinate and expedite specialist appointments at the hospital. This brings about greater convenience and cost savings to patients, as well as more effective optimisation of resources for TTSH.

Diabetes Centre

The KTPH Diabetes Centre moved to Admiralty Medical Centre (AdMC) in July 2017, providing greater convenience for patients referred from KTPH, GPs, and polyclinics in accessing high-quality and streamlined specialist diabetes services within the community. The multidisciplinary team focuses on treating complex diabetes cases and those with end-organ complications. Care plans are customised to target each patient's unique needs, and patients are educated on self-care and how to manage their 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.

[8]Lim, Min Zhang. "Scheme Enables GPs to Follow up on TTSH Emergency Patients." *The Straits Times*, September 23, 2018. Accessed March 6, 2019. https://www.straitstimes.com/singapore/scheme-enables-gps-to-follow-up-on-ttsh-emergency-patients.
[9]Lim, Min Zhang. "Scheme Enables GPs to Follow up on TTSH Emergency Patients." The Straits Times, September 23, 2018. Accessed March 6, 2019. https://www.straitstimes.com/singapore/scheme-enables-gps-to-follow-up-on-ttsh-emergency-patients.

Integrated Care of Obesity and Diabetes (ICOD)

Launched in June 2018, KTPH's ICOD programme is a one-stop, hassle-free platform where weight loss surgery, medical weight management, and diabetes management are offered in conjunction with psychological care, nutrition recommendations, and physiotherapy. ICOD co-locates a cross-disciplinary team of physicians, surgeons, psychologists, dietitians, physiotherapists, and medical social workers in a single facility. This offers seamless transdisciplinary care for the full spectrum of needs of patients with diabetes and obesity, as well as other related, co-existing conditions. Diagnoses, prognoses and medications that address all these conditions can now be performed and prescribed in one place, affording these patients greater convenience and targeted treatment for good outcomes.

THE NEXT STEP

To ensure long-term sustainability and quality of our healthcare system, we are moving upstream towards proactive and preventive care, as well as working with Primary Care and social care partners to ensure our patients and population remain supported in the community. Within the hospital system, we are increasing coordinated care efforts to manage patients as they transition along the spectrum of care and at different settings. This entails adopting a more holistic approach to managing all aspects of care of these complex patients and implementing transdisciplinary care models. We also intend to improve our current funding mechanism and are working on several pilot schemes to test new funding models that enable integrated, seamless and value-based care, and right-siting of care.

"A KEY CONCEPT AT THE HEART OF WOODLANDS HEALTH IS DEVELOPING CARE AROUND THE PATIENT'S JOURNEY. OUR GOAL IS TO STRING TOGETHER THE DIFFERENT CARE NEEDS OF THE PATIENTS SUCH THAT IT FEELS INTEGRATED AND SEAMLESS. THIS NOT ONLY REQUIRES US TO UTILISE SMART TECHNOLOGIES, BUT TO DEVELOP DIFFERENT MINDSETS ABOUT PROVIDING CARE."

ASSOCIATE PROFESSOR NICHOLAS CHEW, GROUP CHIEF EDUCATION OFFICER, NHG & CHAIRMAN MEDICAL BOARD, WOODLANDS HEALTH CAMPUS

"WE WILL ORGANISE AND INTEGRATE CARE AROUND OUR PATIENTS SO THAT THE PROCESS IS LESS CUMBERSOME. INSTEAD OF VIEWING OURSELVES AS JUST A HOSPITAL, WE SHOULD DELIVER A MODEL OF CARE THAT STRADDLES THE SPECTRUM FROM ACUTE HOSPITALS TO COMMUNITY SETTINGS, AND EMPOWER OUR POPULATION TO STAY HEALTHY."

ASSOCIATE PROFESSOR PEK WEE YANG, CHAIRMAN MEDICAL BOARD, KHOO TECK PUAT HOSPITAL & YISHUN HEALTH

CHAPTER

04

LIVING WITH FRAILTY

BUILDING A FRAILTY-READY HEALTHCARE SYSTEM

Frailty is a geriatric syndrome that is characterised by "diminished strength, endurance and reduced physiologic function that increases an individual's vulnerability for developing increased dependency and/or death"[10].

Frail older adults often display symptoms such as muscle degeneration and weakness, slowness, exhaustion, and reduced physical activity, and have been shown to have a higher risk of adverse health outcomes including disability, falls, hospitalisation, and mortality.

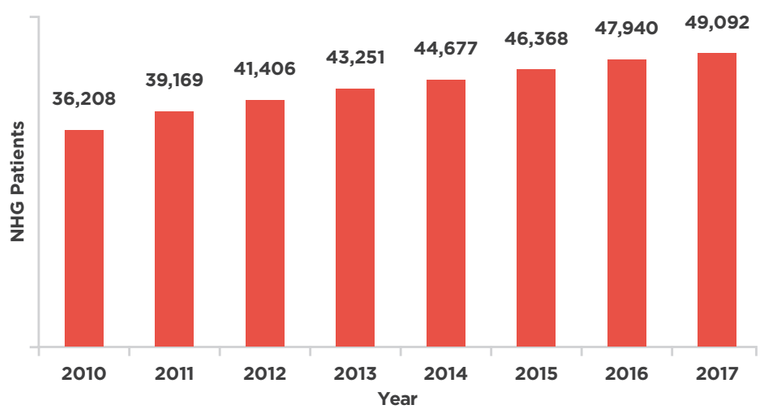
While the term 'Frailty' is often used to refer to physical health, Cognitive Frailty and Social Frailty are increasingly being recognised as important aspects to an individual's health. Individuals who are both physically Frail and cognitively impaired have been found to be more at risk of functional disability, poor quality of life, and mortality, as compared with those who are only physically Frail. Similarly, loneliness and social isolation have been associated with negative health outcomes and a higher Frailty risk.

CHALLENGES OF AN AGEING POPULATION

With Singapore's rapidly ageing population, Frailty is most imminent. In 2017, one in eight Singaporeans was aged 65 and over. By 2030, the number of seniors in Singapore is projected to double to more than 900,000, with one in four Singaporeans aged 65 and over[11].

Nationally, there has been a steady increase in the prevalence of Frailty. Local studies have found that between 5.3 per cent and 6.2 per cent of community-dwelling older adults in Singapore are Frail, while rates of pre-Frailty range from 37 per cent to 42.3 per cent. This rising trend of Frailty conditions has also resulted in an increase in the number of Frail patients seen at healthcare facilities. Over the past decade, the number of Frail patients seen at NHG Institutions rose from 36,208 patients in 2010 to 49,092 patients in 2017 (*see Figure 1*).

Figure 1: Rising Trend of Frail Patients across NHG Institutions



At present, the 20 per cent of patients living in the Central and North regions who utilise 84 per cent of healthcare costs are more likely to be Frail and many have chronic conditions. In particular, patients who have Frailty conditions utilise five times more healthcare costs than patients who have chronic diseases, especially Emergency Department (ED) attendances and hospital admissions. Those who are most Frail (in their final year) utilise the most healthcare resources.

With Frailty being a key driver of our healthcare utilisation and costs today, it is clear that care delivery needs to transform to ensure long-term sustainability and quality of care for our seniors. Moving upstream towards preventive care and capability building in the community, as well as integration of health and social services are needed to meet the complex care needs of our Frail elderly population.

[10]Morley, John E., Bruno Vellas, G. Abellan Van Kan, Stefan D. Anker, Juergen M. Bauer, Roberto Bernabei, Matteo Cesari, W.c. Chumlea, Wolfram Doehner, Jonathan Evans, Linda P. Fried, Jack M. Guralnik, Paul R. Katz, Theodore K. Malmstrom, Roger J. Mccarter, Luis M. Gutierrez Robledo, Ken Rockwood, Stephan Von Haehling, Maurits F. Vandewoude, and Jeremy Walston. "Frailty Consensus: A Call to Action." *Journal of the American Medical Directors Association 14*, no. 6 (2013): 392-97. doi:10.1016/j.jamda.2013.03.022.
[11]"News Highlights." SPEECH BY DR AMY KHOR, SENIOR MINISTER OF STATE FOR HEALTH, AT THE 9TH INTERNATIONAL AGEING ASIA INNOVATION FORUM, 15 MAY 2018. Accessed March 06, 2019. https://www.moh.gov.sg/news-highlights/details/speech-by-dr-amy-khor-senior-minister-of-state-for-health-at-the-9th-international-ageing-asia-innovation-forum-15-may-2018.

ADDRESSING THE FRAILTY WAVE: BUILDING A FRAILTY-READY HEALTHCARE SYSTEM

NHG has developed the **Frailty Framework** which operationalises the River of Life (ROL) framework, and addresses the impact of Frailty (*see Figure 2*). It details the parameters and action items for each care segment in the care continuum, which are inter-operable as patients may transition between segments over time.

Figure 2: NHG Frailty Framework

FRAILTY FRAMEWORK

Living with Illness
1. CFS as regular patient check
2. Ability to do CGA + Intervention
3. Common Specialist Clinics
   - Memory
   - Falls
   - Incontinence
4. Risk Assessment of Elderly
   - Target the Mild/Moderate Frail for intervention

   Start with Polyclinic
   - PCN/FMC
   - GPs
5. Develop Tight links with Social Care Services

Crisis and Complex Care
1. Identify if the 20:80 rule applies to pop at risk for hospitalisation
2. CFS at ED
   Identify pop at risk of re-admission/admission
3. Re-org Pre-Hospital → Surgical / Medical / Geriatrics
4. Plan for inpatient team to review patient beyond 4 hour wait
5. Modification to FIFE
   - Identification
   - Swift CGA
   - Discharge Hub → Hand off / Transition
6. Inpatient → a) Short Stay b) Complex [Sub-acute/ Rehab/Comm]
7. SOC → a) Transient b) Permanent
8. Clinical Service → Theme Based
9. Transient Home Support [2 weeks]: ED/Inpatient

Living with Frailty

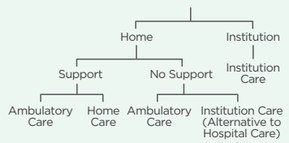
In Transition | Transient | Permanent

1. Identification
2. Care Plan + Advance Care Planning
3. Tight Case/Care Coordination + Hand off
4. Continuing Community Link

Living Well
1. Identify + Strengthen
2. Community Level
3. Medical Light
4. Locality Based
5. Matrix

Touch · Sensing · Help · Strengthening · Hold
Community Nursing
Touch · Direct Care · Help · Care Coordination · Hold

Leaving Well
1. Identification of the most Frail [last 1 year]
   - Care Plan
   - ACP



Zonal
1. Network
   - Zonal
   - Working

   a) Health/Social
   b) Info Sharing/ Care Plans
   c) Fast Link

NHG
1. Strategy
2. Coordination

IT
1. CFS
2. PHI (or equivalent) auto populated
3. Tag the most Frail Tag "ACP"
4. Allows Sharing + Hand Offs of Care Plans
5. Access by Community Teams
6. Notification of Primary Team on admissions
7. Patient Stays; Information Moves

HSOR / Public Health
1. Using Frailty as a Measure Is there a 20:80
2. PHI
3. Current longitudinal on National History of Frailty – Well/Mild/ Moderate/Severe
4. Impact of Intervention Programmes

Financial
1. Financial Transformation

Legend

CFS Clinical Frailty Scale;
CGA Comprehensive Geriatric Assessment;
PCN Primary Care Network;
FMC Family Medicine Clinic;
ED Emergency Department;
FIFE Framework for the Inpatient Care of the Frail Elderly;
PHI Population Health Index

For the elderly who are mostly well ('Living Well') or mildly Frail ('Living with Illness'), a place-based system of care will be piloted to address eldercare issues in the community. Simple, sustained interventions, such as exercise, nutrition, falls prevention, cardiovascular risk and functional screening, public education on good chronic disease management, and healthy weight maintenance will enable seniors to maintain independence and avoid hospital admissions for as long as possible.

For the elderly who are acutely ill ('Crisis and Complex Care'), standard care and evidence-based treatments will continue to be delivered at low cost with value-driven outcomes. The development and implementation of integrated care models to address the complex needs of the ageing and Frail population within hospitals are also being optimised.

For the Frail elderly ('Living with Frailty'), we develop their care plan, as well as coordinate their needs across providers in social and health care settings to reduce crisis events and re-admissions.

People who are most Frail (in their final year) are also identified under 'Leaving Well', where we initiate conversations with patients on their care preferences in the form of Advance Care Planning (ACP).

NHG adopts the Clinical Frailty Scale (CFS), which uses clinical descriptors and pictographs of activity and functional status to grade Frailty on a scale ranging from very fit (1) to terminally ill (9), and predict adverse outcomes in older adults (*see Figure 3*). This allows us to work closely with our community partners such as the Silver Generation Office in providing the first response to meet the elderly based on their observed care needs (*see Figure 4*). Services include providing health screenings for the well population (CFS of 1 to 3) at community spaces, lifestyle coaching, and proactive home visits by Community Nurses to provide personalised care for the mild to moderate Frail elderly (CFS of 4 to 6). Post-discharge care and palliative care for the Frail to severely Frail elderly (CFS of 7 to 9) at their homes or Nursing Homes are also in place.

Figure 3: Clinical Frailty Scale

CLINICAL FRAILTY SCALE

1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.

5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs* (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9. Terminally Ill - Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

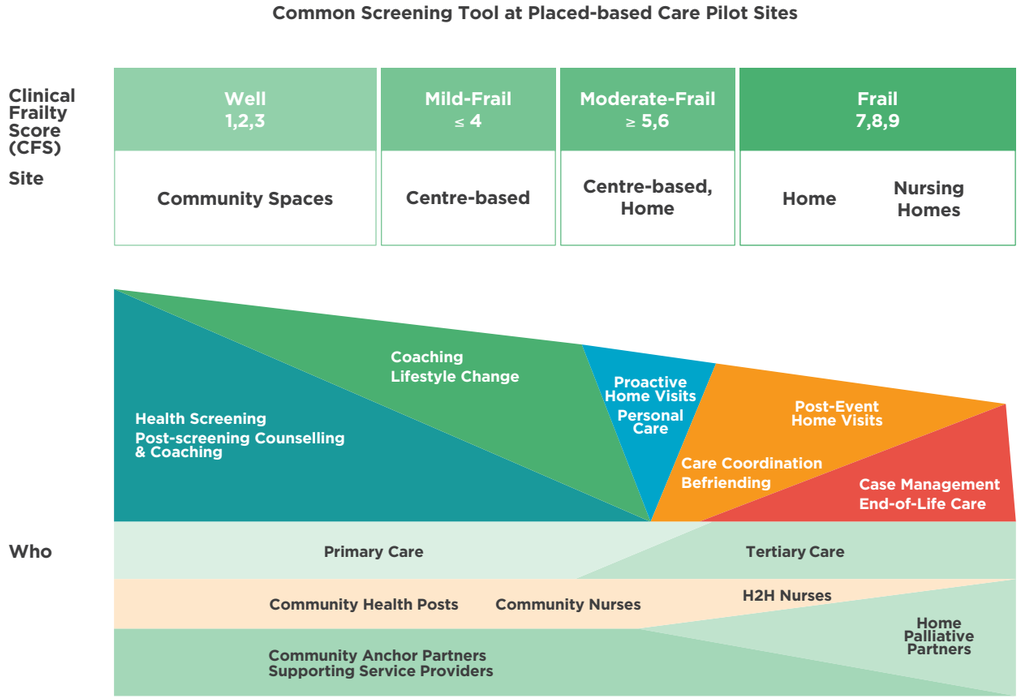
In severe dementia, they cannot do personal care without help.

*IADL = Instrumental Activities of Daily Living

* 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

DALHOUSIE UNIVERSITY Inspiring Minds

Figure 4: The Eldercare Framework



A key workforce enabler in the Frailty Framework is Community Nursing, which is made up of nurses deployed at the community level to sense, strengthen, care, and coordinate (2S+2C) health issues for patients who are pre-Frail, Frail, with chronic diseases, and those in the End-of-Life phase (*for more information, see p.106*). The 2S+2C roles are:

- **Sensing** involves gathering information about individuals and patients who are at risk, and addressing their needs in a timely manner.
- **Strengthening** involves improving the capabilities of individuals and families for self-care, and equipping community partners to deliver care.
- **Caring** includes developing the requisite competencies to provide appropriate assessment, care planning, interventions, as well as escalation of care.
- **Coordination** involves enhancing seamless care by working closely with various levels of community partners and care providers.

CARING FOR OUR PRE-FRAIL AND FRAIL POPULATION

'Living with Frailty' focuses on identifying and empowering both the pre-Frail and Frail population, and enabling smooth transitions between care settings to help reduce crisis events. The four key areas of focus include:

- Identification of Frail patients
- Employing One Care Plan across providers in both health and social settings, and initiating ACP discussions
- Efficient care and case coordination when transiting from hospital to community and home
- Continuous contact with patients through collaborations with community partners

Our efforts in these key areas include community-based, active ageing initiatives to facilitate the prevention and early detection of Frailty, care stabilisation in the hospital, followed by seamless transitional care and post-discharge support for a care ecosystem within their neighbourhood. This reduces acute crisis episodes and unnecessary emergency hospital admissions.

DELAYING ONSET OF FRAILTY

To facilitate the early detection and delay the onset of Frailty, community-based initiatives that strengthen the physical, mental, and social well-being of seniors have been developed. These activities ensure access to care and social services that support ageing-in-place, with greater emphasis on health promotion and disease prevention.

Wellness Kampung

Wellness Kampung is an initiative, comprising a network of three wellness and senior care centres, that provides a range of health and social programmes, creating a support network for residents to inspire each other to adopt healthier lifestyles. It was launched in April 2016.

The centres are open spaces where seniors gather and take part in programmes that help them to keep physically, socially, and mentally active. These include healthy cooking demonstrations, daily exercises, recreational activities, health-related activities such as health screenings, health literacy education, intervention programmes, as well as care services such as day care and rehabilitation to enable the elderly to age-in-place within the community. Since April 2016, over 1,900 Wellness Kampung residents have been registered.

Share a Pot®

Share a Pot® is a community-based project to improve the nutrition and fitness of Frail seniors. Based on the principles of good nutrition, physical activity and social networking, the initiative aims to "build brain (cognitive reserve), brawn (muscle), bones, and bonds (social engagement and reciprocity)".

Vulnerable seniors in the neighbourhood are identified and encouraged to make weekly visits to centres within their community to interact, exercise, and enjoy a nutritious soup-based meal. Beyond these regular meet-ups, seniors also take ownership of their own fitness by tracking the steps they take daily with a pedometer. These initiatives help slow down both physical and mental decline, and provide seniors with the opportunity to engage in meaningful activities and expand their social circle, thus combatting the cycle of isolation.

Seniors are motivated to stay independent and active, eat well, and self-manage chronic conditions in the community. They also undergo periodic physical, functional, and psycho-social assessments, ensuring that any decline can be picked up early for intervention. As of September 2018, there are 26 active Share a Pot® sites across Singapore, and about 1,000 out of 1,800 registered participants are active attendees.

Share a Pot® was awarded the inaugural "*International Forum (iF) World Design Guide Social Impact Prize 2017*" in December 2017, where it was recognised for its innovative approach to addressing Frailty in Singapore.

OPTIMISING HOSPITAL CARE

The Frail elderly often present with multiple chronic conditions, as well as functional and psycho-social issues. These seniors tended to have longer Length of Stay (LOS) when hospitalised, which in turn led to a bed crunch within public healthcare in recent years.

To counter this phenomenon and address the complex care needs of these patients, an integrated approach was adopted for implementing elderly care initiatives across various settings, including the ED, Specialist Outpatient Clinics (SOCs), and inpatient care.

ED Geriatric Screening and Intervention

All patients aged 65 and above who are admitted to Tan Tock Seng Hospital's (TTSH) ED undergo risk stratification, followed by rapid geriatric screening and intervention for at-risk seniors. Interventions include the timely management of identified clinical issues, and where necessary, referrals to the physiotherapist and occupational therapist, the geriatric assessment clinic, post-acute care at home services, and community support services (*for more information, see p.75*).

Geriatric Assessment

The Geriatric Assessment Clinic at TTSH provides comprehensive geriatric assessments in persons aged 65 and above, in order to identify and manage geriatric syndromes, sensory impairment, functional disability, and psycho-social issues, to avoid unnecessary admissions. Depending on identified needs, the patient is then seen by other members of the multidisciplinary team such as physiotherapists, occupational and speech therapists, pharmacists, dietitians, or social workers for holistic care (*for more information, see p.75*).

Framework for Inpatient care of the Frail Elderly (FIFE)

Formulated in 2014, FIFE promulgates geriatric principles of care throughout TTSH (i.e. beyond the Geriatrics Department), and makes it senior- and Frailty-friendly. The needs of elderly patients are identified early to prevent or reduce complications, and there is facilitation of timely discharges and appropriate care transition through tight coordination across settings. Appropriate therapeutic goals are also set for elderly patients with advanced disease across disciplines (*for more information, see p.75*).

Geriatric Frailty Unit (GFU)

To better manage and care for Frail elderly patients, Khoo Teck Puat Hospital's (KTPH) Department of Geriatric Medicine established the GFU in February 2016. The GFU applies a novel approach, where patients are grouped according to their Clinical Frailty Score instead of more traditional classification means such as age, diseases or syndromes (*for more information, see p.76*).

CARE IN THE COMMUNITY

To ensure a smooth transition from hospital to home and prevent unnecessary re-admissions for Frail elderly patients, good discharge planning and post-discharge support are necessary. This is often provided by multidisciplinary teams who visit and support these patients in their homes initially after discharge, and ensure that caregivers are able to provide proper care thereafter.

Community Health Teams (CHTs)

TTSH's Transitional Care Service was reorganised into seven CHTs in March 2018, merging the Hospital-to-Home (H2H) Programme and the Community Nursing Programme. Each CHT is anchored by a Community Nurse with support from doctors, Allied Health Professionals (AHPs), medical social workers, and health coaches, and is co-located within community facilities across seven sub-zonal areas – Ang Mo Kio, Bishan, Geylang, Hougang, Novena-Kallang-Rochor, Serangoon, and Toa Payoh. The CHTs work with social and community partners to enable health engagement, care coordination, and ageing-in-place by:

- empowering residents with the skills and knowledge for self-care and self-management of health issues
- preventing Frailty progression through early detection and intervention
- providing case management that leverages on collective strengths and capabilities
- co-creating services to meet residents' needs in an activated community through the sharing and learning of best practices

Ageing-In-Place Community Care Team (AIP-CCT)

KTPH's AIP-CCT is a post-discharge, multidisciplinary, nurse-led home care service that offers clinical, psycho-social, and environmental support to patients and their caregivers. Patients and caregivers are equipped with the knowledge and skills to deal with various aspects of their care needs to maintain health, independence, and prevent complications at home, thereby reducing the chance of re-admissions. Since its implementation, the AIP-CCT has been successful in optimising the use of hospital resources and reducing hospital admissions by 67 per cent[12].

In 2017, AIP-CCT joined the H2H Programme run by the Agency for Integrated Care (AIC). The H2H programme uses predictive modelling and algorithms to identify patients at risk of frequent hospital re-admissions. It helps patients manage their chronic and co-morbid conditions at home through services such as home nursing. These patients are identified by Care Coordinators in the wards. In 2017, about 3,000 patients were enrolled in the H2H programme.

Dementia-Friendly Communities

For seniors living with mental health conditions such as dementia, initiatives to improve awareness and understanding of the condition, as well as to better support them and their caregivers in the community have been implemented. For example, the Lien Foundation and KTPH jointly launched the "Forget Us Not" initiative in January 2016, and set up a Dementia-Friendly Community (DFC) in Yishun.

Under the initiative, KTPH trains community partners, schools, businesses, and members of the public on the common signs and symptoms of dementia, and how to reach out to or communicate with Persons With Dementia (PWDs). Members of the public are empowered with the knowledge and skills to recognise and assist PWDs in the community, thus allowing PWDs to move around safely in a secure environment. This in turn helps alleviate the stress of their caregivers. As of March 2018, KTPH has trained some 20,000 people from 90 organisations nationwide[13]. Five more DFCs have been set up across Singapore: MacPherson, Hong Kah North, Bedok, Queenstown, and Fengshan[14].

In addition, each DFC features "Go-To Points" that lost PWDs can be escorted to by members of the public. These go-to points also serve as community resource centres for caregivers to get information about dementia, attend classes, and access relevant support services. As of May 2018, there are 70 Dementia Go-To Points nationwide[15].

TRANSITION TOWARDS LONG-TERM CARE (LTC) AND END-OF-LIFE (EOL) CARE

For patients with long-term care needs and the very severely Frail elderly in their final year, joint initiatives with Nursing Homes and hospices facilitate access to seamless and holistic care during their transition to LTC and EOL care. This enables them to spend more time in their homes and in the community. Nursing Home staff are trained and equipped to better manage the challenges of LTC and EOL care, as well as facilitate ACP conversations:

Project Care

Since 2009, Project Care has been an on-going collaboration between TTSH and affiliated Nursing Homes in the Central Region, to reduce unnecessary admissions to hospitals through the identification of residents with poor prognosis. This also involves ACP services, care coordination and upskilling of Nursing Home staff in managing geriatric and common EOL symptoms (*for more information, see p.93*).

GeriCare@North

GeriCare@North is a partnership between KTPH and Nursing Homes in the North to enhance Nursing Home care for Frail elderly residents through tele-consultations and specialised geriatric care training. KTPH currently collaborates with eight Nursing Homes to provide tele-consultation services and training in areas such as geriatric care, palliative care, and ACP (*for more information, see p.93*).

[12]Lim, Wee Shiong, Wong Sweet Fun, Ian Leong, Philip Choo, and Pang Weng Pang. "Forging a Frailty-Ready Healthcare System to Meet Population Ageing." *International Journal of Environmental Research and Public Health* 14, no. 12 (2017): 1448. doi:10.3390/ijerph14121448.
[13]Teo, Joyce. "More Help at Hand for Dementia Patients." *The Straits Times*, March 13, 2018. Accessed March 6, 2019. https://www.straitstimes.com/singapore/health/more-help-at-hand-for-dementia-patients.
[14]Choo, Felicia. "Yishun to Become Friendlier for Lost Dementia Patients." *The Straits Times*. May 14, 2018. Accessed March 6, 2019. https://www.straitstimes.com/singapore/health/yishun-to-become-friendlier-for-lost-dementia-patients.
[15]Choo, Felicia. "Yishun to Become Friendlier for Lost Dementia Patients." *The Straits Times*. May 14, 2018. Accessed March 6, 2019. https://www.straitstimes.com/singapore/health/yishun-to-become-friendlier-for-lost-dementia-patients.

THE NEXT STEP

Singapore's rapidly ageing population will result in an unprecedented surge in Frail older persons with complex care needs that render the current healthcare system unsustainable. Developing a Frailty-ready healthcare system will require both upstream and downstream interventions spanning the care continuum, from health promotion and disease prevention among older adults, to ensuring our Frail elderly remain independent and resilient in the community.

While we continue to focus on strengthening the capabilities of our community and social partners and creating a strong support network for our Frail elderly to age-in-place, we are also exploring the development of information and data sharing systems. The goal is to start a Frailty Registry, where the health status of the elderly can be monitored and tracked, and any decline can be picked up early by their primary and secondary care teams. This would facilitate a deeper understanding of the context and living environment of each elderly person, allowing care teams to implement more targeted outreach programmes, as well as the seamless transfer of patients from one care setting to another.

"AT THE INDIVIDUAL LEVEL, WE NEED BEHAVIOURAL CHANGE, SUCH AS THE ADOPTION OF HEALTHY LIFESTYLES TO SLOW THE PROGRESSION OF FRAILTY. AT AN ORGANISATIONAL LEVEL, THERE NEEDS TO BE A CULTURAL CHANGE THAT BRINGS US TOGETHER IN AN ALLIANCE OF PROVIDERS TO CARE FOR OUR FRAIL POPULATION. AT A NATIONAL LEVEL, WE NEED TO BE MORE *KAMPUNG*-LIKE SO THAT OUR COMMUNITIES CAN JOIN HEALTHCARE PROVIDERS IN CARING FOR THE FRAIL AMONG US."

ASSOCIATE PROFESSOR IAN LEONG, CLINICAL DIRECTOR, DIVISION FOR CENTRAL HEALTH, TAN TOCK SENG HOSPITAL & CENTRAL HEALTH

CHAPTER

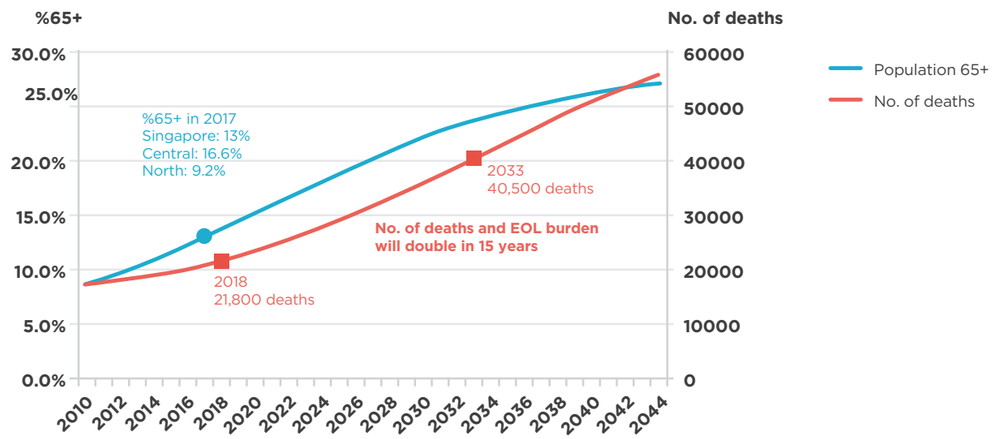
04

LEAVING WELL

MAKING END-OF-LIFE CARE MORE ACCEPTABLE AND ACCESSIBLE IN THE COMMUNITY

As Singapore's population ages, the prevalence of Frailty and chronic disease will increase in tandem. It is projected that the number of deaths and the demand for End-of-Life (EOL) services will double in 15 years (*see Figure 1*).

Figure 1: Projection of Growth in Elderly Population and Deaths in Singapore



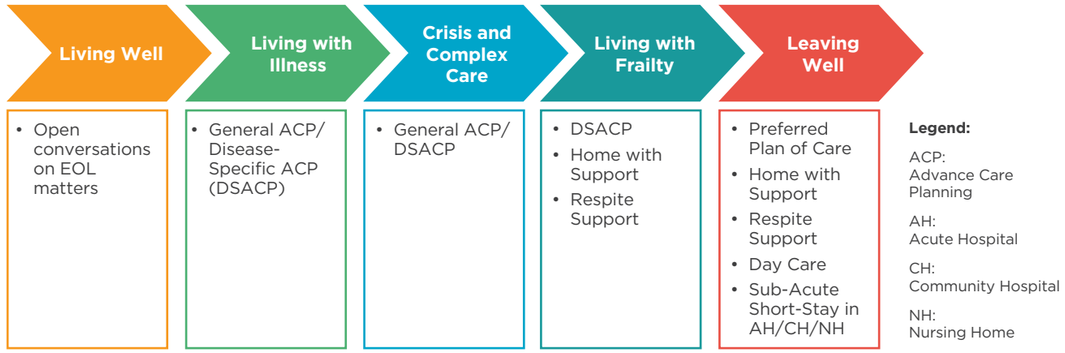
EOL care emphasises patient-centred care, and encompasses the physical, psychological, social, and spiritual dimensions of a person's life. It focuses on quality of life rather than life prolongation in the face of a life-limiting condition. Setting of care goals is important during this stage as it ensures that patients receive the most appropriate treatment that is consistent with their preferences. However, we recognise that EOL care is often perceived as "giving up" on the terminally-ill person in the eyes of the general public. This misconception usually arises from a lack of understanding of what palliative care can offer.

At NHG, we envision our population living with dignity and with peace of mind, from cradle to grave. The "Leaving Well" care stream strives to ensure that our patients are well supported at the End-of-Life through holistic care. We endeavour to honour our patients' personal wishes and preferences, and help them achieve proper closure before death. It is equally important to educate the public on death and dying at various stages of their life journey, and not only when the end is near (*see Figure 2*). Therefore, we aim to de-stigmatise EOL care and make it accessible to those we serve.

A two-pronged strategy has been put in place to achieve these objectives:

- Raise the profile of, and access to Advance Care Planning (ACP) so that the values and preferences of more people are made known
- Improve access to EOL care across healthcare institutions and in the community

Figure 2: EOL Care Strategy



- Shifting from transactional to relationship-based care
- Shifting from crisis ACP to routine ACP
- Shifting from EOL days in hospital to home/step-down care facilities

RAISING AWARENESS OF/ACCESS TO ACP

ACP is a voluntary process of discussion on future care preferences between an individual, his/her family, and healthcare providers. It describes the type of care the person would prefer, if he/she is to become very sick and unable to make health care decisions in the future. The ACP process guides physicians, patients, and their loved ones in making decisions based on the patient's values, beliefs, wishes, and personal goals of care.

Under the national ACP 2.0 Strategy, initiatives are focused on promoting ACP awareness in the community, shifting ACP conversations to earlier in the patient's disease trajectory, establishing it as a standard of care for Primary Care professionals, as well as putting in place systems to honour care and place of death preferences. In that vein, NHG is pushing towards more outreach programmes to increase ACP done in the Outpatient, Primary Care, and community settings.

At Yishun Health, on-going efforts include:

- Running ACP clinics in the Specialist Outpatient Clinics (SOCs)
- Health education talks at Wellness Kampung sites and national libraries
- Community Care Teams (CCTs) conducting ACP discussions in patients' homes, and reaching out to General Practitioners (GPs) and Family Physicians (FPs) at the polyclinics to provide training in ACP facilitation
- Holistic Patient-Evaluation through communal activities and rehabilitative engagement (HOPE & CARE), which involves Yishun Community Hospital's (YCH) multidisciplinary care team engaging patients over meals and activities. Patient assessments go beyond the bedside, with EOL conversations in less clinical surroundings

As of December 2018, Yishun Health has completed 521 General ACPs, 18 Disease-specific ACPs (DSACPs), and 1,946 Preferred Plans of Care (PPC).

Central Health is similarly moving ACP upstream into SOCs, namely for Geriatric Medicine and General Medicine. To reach out to the public, talks are being organised at national libraries, Care Connect, and Care Corner Senior Activity Centres. We also work with community partners, such as TOUCH Community Services and Home Nursing Foundation, to educate and empower the public. For healthcare professionals, we are working to integrate ACP into their training. For example, we are working on incorporating ACP training as a mandatory component of the Internal Medicine Residency. In addition, we are building partnerships with Singapore Hospice Council, GPs, and educational institutions such as Nanyang Polytechnic. As of February 2019, TTSH has completed 201 General ACPs, 77 DSACPs, and 2,087 PPC.

The National Healthcare Group Polyclinics (NHGP) piloted ACP at its polyclinics in 2017 with the aim of deepening the understanding of ACP in the community and enabling conversations upstream, where patients are still relatively well. Strategies are developed to raise awareness of ACP among Primary Care professionals, patients, and their caregivers. The ACP Clinic was launched in Toa Payoh Polyclinic in October 2017 and in Ang Mo Kio Polyclinic in June 2018. Between October 2017 and December 2018, NHGP has introduced ACP to 620 patients, facilitated 119 ACP discussions, and published 77 ACPs in the National ACP IT System. By the end of FY2019, ACP facilitation will be made available to patients in all six NHG Polyclinics.

BRINGING EOL CARE FOR NON-CANCER PATIENTS INTO THE COMMUNITY

At present, the EOL care pathway for cancer patients is fairly well-established with hospices as the main providers. On the other hand, palliative support for non-cancer patients in the community is inadequate. At NHG, expansion of palliative care is in progress to include key chronic disease groups, such as cardiovascular, renal, and respiratory conditions. We aim to identify non-cancer patients with palliative care needs, develop home palliative care support based on needs, and work with Nursing Homes, Community Hospitals, and home medical/nursing services to improve EOL care across the Central Region.

Programme IMPACT

The impetus behind Programme IMPACT was the need for a stronger palliative support system for non-cancer patients. With an increasing number of the population having kidney failure, heart failure, or respiratory problems, palliative support for non-cancer patients has grown in importance. Launched by Central Health in October 2017, the programme has since expanded to include patients with severe Frailty and a prognosis of less than one year. As of January 2019, 175 patients have enrolled in the programme; 94 patients have since passed away, with 89 per cent of them doing so in their preferred place of death.

Programme Dignity

Ageing-in-place and having EOL care at home remains the preference of many seniors in Singapore[16]. Programme Dignity addresses this need by providing home palliative care services for patients with advanced dementia. Run by Dover Park Hospice (DPH), it is funded by the Ministry of Health (MOH), and recently completed its five-year pilot.

GeriCare@North

This is a collaboration between Khoo Teck Puat Hospital (KTPH) and eight Nursing Homes in the North to bring specialist care, including EOL care, to the residents of such facilities. GeriCare@North uses telemedicine to provide clinical care support to the Nursing Home nurses and doctors, and trains the nurses in geriatric and palliative nursing care. As of January 2019, 375 Nursing Home staff have been trained, 2,873 residents have had tele-consultations, and 309 residents completed ACP before they passed away.

Project Care

Since 2009, Project Care has been an on-going collaboration between Tan Tock Seng Hospital (TTSH) and affiliated Nursing Homes in Central Singapore. It aims to reduce unnecessary hospital admissions through the identification of residents with poor prognosis, facilitating ACP with these patients and their family members, care coordination for residents, and the upskilling of Nursing Home staff in managing common EOL symptoms. This involves:

- Developing a system to identify residents at the End-of-Life
- Early ACP
- Prompt symptom recognition and management in Nursing Homes
- Good communication about goals of care and management between patient/family, hospital, and Nursing Home

Currently, more than 1,500 Nursing Home residents have completed ACP discussions. For residents with advanced dementia or other terminal conditions who choose to spend their last days in the Nursing Home, care is then delivered through the collaborative efforts of both the TTSH and Nursing Home teams. This has helped residents recover from acute reversible conditions, or pass away in comfort in a familiar and conducive environment under the care of nurses who understand them well, resulting in better family closure. As of January 2019, 478 residents have enrolled in Project CARE, of which 345 have passed away; 91.6 per cent of these 345 residents had their ACP wishes fulfilled regarding their preferred place of death.

The Palliative Care Centre for Excellence in Research and Education (PalC)

Research is pivotal to drive our EOL care agenda and thus, PalC was set up in October 2017. A tripartite collaboration between NHG, DPH, and Nanyang Technological University (NTU)/Lee Kong Chian School of Medicine (LKCMedicine), it leverages on the strengths and resources of member institutions to drive EOL research forward. Building on existing partnerships, and combining clinical expertise with academic and research excellence, we seek to create and deploy practical applications within the community.

A key focus of the joint centre is the development of more effective prognostic tools for non-cancer patients at the end of life, such as those suffering from end-stage organ failure (ESOF). With Singapore's growing chronic disease burden, the prevalence of ESOF is expected to rise. In 2015 alone, ESOF accounted for about 33 per cent of 5,368 deaths within the NHG patient pool. That same year, ESOF accounted for 43 per cent of deaths in patients above 60 at TTSH. In addition to boosting palliative care research, PalC will also develop training and education programmes to better equip current and future generations of doctors, nurses, social workers, Allied Health Professionals, and volunteers with the skills to help patients live their final days with dignity.

THE NEXT STEP

To ensure our various programmes are sustained long-term, we are working hard to achieve the desired outcomes. We will progressively move ACP discussions upstream in the disease trajectory, and systematically inculcate ACP discussions as part of routine care in acute settings through accurate identification of appropriate patients. Engaging our patients and population to raise awareness of EOL care is equally critical to ensure the right message is propagated, with available resources made known and accessible.

The ultimate goal is to make sure that patients receive appropriate palliative care throughout the Central Region as they move between different care settings. To do this, we will forge stronger ties and build greater trust with our community partners, and work hand-in-hand with them to support our patients in the community, from living to leaving well.

"LEAVING WELL, OR TO LIVE WELL UNTIL THE END-OF-LIFE MEANS HELPING A PATIENT DIAGNOSED WITH A LIFE-LIMITING CONDITION BETTER UNDERSTAND HIS OR HER CONDITION, THE DISEASE TRAJECTORY, AND WHAT TO EXPECT IN THE COMING MONTHS OR THE NEXT FEW YEARS. AT THIS STAGE, IT IS IMPORTANT TO HELP PATIENTS SORT OUT THE ISSUES IN THEIR LIVES, BE THEY PSYCHOLOGICAL, SOCIAL, OR SPIRITUAL, SO THAT THEY CAN HAVE PROPER CLOSURE BEFORE THEIR END-OF-LIFE."

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[16]Lim, Wee Shiong, Wong Sweet Fun, Ian Leong, Philip Choo, and Pang Weng Pang. "Forging a Frailty-Ready Healthcare System to Meet Population Ageing." *International Journal of Environmental Research and Public Health* 14, no. 12 (2017): 1448. doi:10.3390/ijerph14121448.