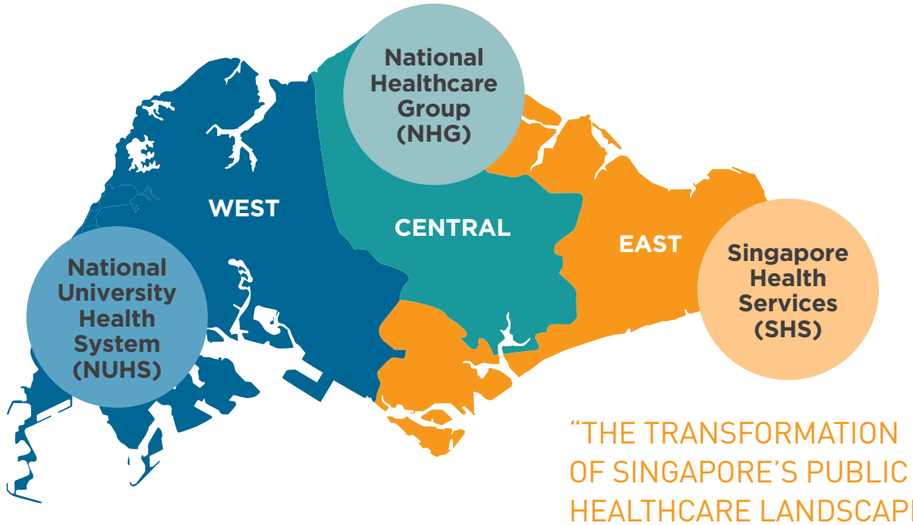
CHAPTER

03

THE THREE ZONES

In January 2017, the six clusters in the Singapore public healthcare system were reorganised into three clusters to cover the Central, Eastern, and Western geographical regions. For the National Healthcare Group (NHG), it led to the amalgamation with Alexandra Health System (AHS) in October 2017 to manage the care needs of the Central Region in Singapore.



In Singapore, *age adjusted per capita bed days* in acute hospitals have steadily risen since 2006, driven mainly by an increase in admissions. This upward trend can be attributed to our ageing population and the first wave of Frailty, which has been well documented as a leading cause of healthcare utilisation. To bend this demand curve and maintain our population well in the community, NHG collaborates with an alliance of providers in the Central Region. As an Accountable Care Organisation (ACO), we aim to meet the care needs of a population of two million in an effective and efficient way. This has involved regionalisation of the NHG Cluster into three 'operating' zones – Central Zone, Yishun Zone, and Woodlands Zone – led by the three **Integrated Care Organisations (ICOs)**:

- **Central Health**
- **Yishun Health**
- **Woodlands Health**

The three ICOs are helmed by their respective anchor hospitals – Tan Tock Seng Hospital (TTSH), Khoo Teck Puat Hospital (KTPH), and Woodlands Health Campus (WHC) – which collectively serve to provide care in collaboration with internal and external partners in their locality to meet their distinct sub-populations' health and social needs. This system of place-based care enhances accessibility and convenience for the population, and enables the formation of trust-based relationships that ultimately result in better health outcomes.

"THE TRANSFORMATION OF SINGAPORE'S PUBLIC HEALTHCARE LANDSCAPE IS NO SMALL FEAT, AND WE CANNOT DO IT ALONE. WE NEED TO BUILD BRIDGES TO STRENGTHEN TRUST AND RELATIONSHIPS WITH OUR PARTNERS IN THE COMMUNITY SO THAT WE CAN KEEP HEALTHCARE SUSTAINABLE AND IMPROVE THE HEALTH OF OUR POPULATION."

PROFESSOR PHILIP CHOO, GROUP CEO, NHG

CENTRAL HEALTH

BEYOND HOSPITAL TO COMMUNITY

To fulfil its mission as the anchor hospital of the Integrated Care Organisation (ICO) for Central Zone, which involves fostering care integration and encouraging value-based care, TTSH launched the Division for Central Health (DCH) in September 2017. DCH serves a population of about 1.4 million people, the largest population catchment in the country, as well as the oldest with 17 per cent of residents aged over 65 years, a higher proportion than the national number (13 per cent). A significant slice of our elderly population, about one in three, is Frail. This translates to a high demand for healthcare services, and requires DCH to go beyond providing illness care within our hospital and clinics to integrating health and social services in the community, thereby meeting the population's rising complex care needs.

Central Health's concept and delivery of care has progressively shifted from episodic, facility-centric, and volume-driven to relationship-based, person-centred, and value-driven. It is working in closer partnership with the community – which includes Primary Care providers, Community Care providers, and Voluntary Welfare Organisations (VWOs) – to form an Integrated Care Network that builds capabilities, co-develops integrated care programmes, improves the accessibility and convenience of care, and activates the whole zone for greater ownership of health.

THE CENTRAL HEALTH MODEL OF CARE

Central Health aims to strengthen the *physical, mental, and social wellness* of our patients and population. To enhance the value of care delivered and improve the health of the community, Central Health is shifting towards healthcare delivery that is:

- **Joined-up** through a network of care providers
- **Needs-based** through a thorough understanding of the local needs of our community
- **Neighbourhood-based** to make care easily accessible in the community
- **Relationship-based** by creating a Community of Carers supported by Community Health Teams

Figure 1: A Desirable Shift towards Value-Driven Care

The Central Health model of care encompasses the following six key strategies:

- **One Community of Carers** to activate individuals to take care of themselves, their family, and others in the community
- **One Network of Providers** to bring health and social care partners together, thereby strengthening the health of our community
- **One Community Health Team** to create dedicated inter-disciplinary health teams with our partners to provide better care in each neighbourhood
- **One Population, One Budget** to align funding, incentives, and subsidies to make care more accessible
- **One Menu of Programmes** to co-create programmes and facilitate integrated care planning and pathways for seamless care
- **One Set of Assessment Tools** to establish a common language across providers and understand the needs of our community

Our Strategies are focused on Activating

Our Community

Figure 2: The Central Health Model of Care – Four Principles and Six Strategies

The Central Health Model is being operationalised within seven sub-zones (namely, Ang Mo Kio, Bishan, Geylang, Hougang, Novena-Kallang-Rochor, Serangoon and Toa Payoh) through six care streams that address the needs of our patients across the River of Life:

- **Preventive Care**
- **Primary Care**
- **Hospital Care**
- **Intermediate Care**
- **Transitional and Community Care**
- **End-of-Life and Long-Term Care**

ONE COMMUNITY OF CARERS

Central Health is working to activate patients, caregivers, and volunteers by equipping them with the knowledge, skills, and confidence to assume their critical role in managing health and well-being in the community. This involves experiential learning and encouraging small behavioural changes as the primary modes of activation, and goes beyond illness management and treatment adherence to include wellness and prevention. Some key initiatives for building one Community of Carers include:

- **CareConnect**
- **Singapore Patient Conference (SPC)**
- **Centre for Health Activation**

CareConnect

CareConnect is TTSH's dedicated patient experience centre. It serves as a one-stop information hub for patients and caregivers, providing them with access to resources within and beyond the hospital. These resources include educational materials, talks, training programmes for patients and caregivers, and volunteer-led activities. CareConnect also gathers useful patient feedback that contributes to continuous improvement of care.

Singapore Patient Conference (SPC)

The Singapore Patient Conference (SPC) brings together patients, caregivers, volunteers, community partners, and healthcare professionals annually to share new ideas that promote the co-creation of a better healthcare ecosystem.

Centre for Health Activation (CHA)

The Centre for Health Activation (CHA) was launched in October 2017 to drive activation and build capabilities in patients, families, volunteers, and the community. The three pillars of CHA are:

1. **Activation**

   CHA provides patients, caregivers, and volunteers with resources to make effective decisions about their own health and well-being, as well as the opportunity to become healthcare volunteers. This enables them to serve as a bridge that provides continued support for patients who are discharged from the hospital into the community.

2. **Research**

   CHA collects feedback from patients, families, volunteers, and healthcare professionals to identify the needs within the community and develop better programmes and training. Going forward, CHA also aims to work with external academics and researchers on socio-behavioural research, and to leverage on established patient activation management tools with international benchmarks.

3. **Training**

   CHA upskills volunteers through personalised training programmes created by TTSH, and also leverages on training resources offered by our community partners, particularly for caregiver-training and befriending. There are three levels in the Training Roadmap.

Level 1

All volunteers undergo basic induction, training, and assessment in core skills before taking on specialised skills and programmes. There are three programmes, namely, **Increasing Physical Activity and Enhancing Mobility, Fostering Positive Medication Habits, and Promoting Good Practices in Chronic Disease Management**. These programmes are also extended to our community partners, and customised according to the particular needs in each community.

Level 2

After being assessed as competent in core skills, volunteers are matched to specialised skills training programmes according to their interests, competencies, and skills. Most of our existing TTSH volunteers are at this level of training, and signature programmes include the Temasek Foundation Cares-CHAMPS programme and the Inpatient Total Knee Replacement (TKR) Volunteer Programme.

Figure 3: CHA Training Roadmap

Level 3

Volunteers with a passion for community outreach are deployed to support the Community Health Teams based in each of the seven sub-zones, and are matched according to the needs of the community and geographical proximity.

ONE NETWORK OF PROVIDERS

Engagement of community partners for patient referrals and case management is not new but our relationship with health service providers in the community has largely been transactional in nature, with patients being referred to them post-discharge for follow-up care. To actualise the shift to the Central Health Model, there is a need for a local network of health and social care partners to come together to strengthen the health of our community in a holistic and concerted manner.

At the macro level, Central Health is working to achieve this by co-creating a common vision with shared goals that will guide collaborations among service providers. The key is to build a strong network of like-minded partners to deliver integrated and comprehensive care in the community to improve population health outcomes. To effect this change, a tiered approach is adopted:

- For providers that are (i) better aligned with the Central Health mission, (ii) already have an existing working relationship with TTSH, and (iii) have expressed readiness to collaborate on relevant projects, their inclusion into the Network of Providers as a 'Strategic Partner' is formalised through a Memorandum of Understanding (MOU). The MOU signifies the intent to collaborate with TTSH and other providers in the Central Zone in areas including (but not limited to) development and implementation of integrated care and training programmes, sharing of population data where appropriate, community engagement, as well as co-learning, and innovation.
- With other providers, i.e. our Community Partners, DCH continues to engage at the neighbourhood level, collaborating with them on relevant projects aimed at meeting the specific health and social needs of the local community.

The relationships with the Strategic and Community partners are fostered and maintained through efforts including regular leadership dialogues, "Neighborhood Conversations", and the annual Central Health Action and Learning Kampung (CHALK) event.

At the micro level, the creation of this *Network of Providers* aims to meet the needs and improve the quality of care for our population based on *eight domains of the community health ecosystem*: Case Management and Care Coordination, Personal Care, Mental Health Care, Medical Care, Nursing Care, Function, Preventive Care, and End-of-Life Care. This holistic approach to care is driven by a three-pronged engagement plan – Service Provision, Collaboration, and Activation.

Service Provision

DCH works with our internal and external partners in the community to serve and coordinate care for the population across the eight domains, thereby optimising manpower and reducing duplication of efforts. Some of the services include:

- Case Management and Care Coordination in the Community
- Home help services, medical escort and transport services
- Dementia care and mental health services
- Primary Care services, home medical care services
- Home nursing services, centre-based nursing services
- Community-based rehabilitation services, intermediate rehabilitation services
- Health screening, health coaching, counselling
- Hospice services, home palliative care

Collaboration

We engage our partners closely, and continually identify and work on opportunities for the improvement of care integration to ensure seamless and smooth transition of patients from hospital to home. This includes identifying and addressing service gaps in the community ecosystem, establishing co-management and case management workflows, and data-sharing for care continuity.

Activation

Central Health aims to empower the community so that residents have access to quality care closer to where they live. This involves co-learning and co-sharing of best practices, and the co-creation of programmes that promote integration of care. We actively engage *anchor partners* who are well established in the Central Zone as part of our community planning to oversee and chart plans for the co-development of initiatives aimed at achieving the overall well-being of our population. Thus far, Central Health has on-going internal partnerships with members of the NHG Family, such as National Healthcare Group Polyclinics (NHGP), Institute of Mental Health (IMH), and National Skin Centre (NSC), and external partnerships with Ren Ci Hospital, Kwong Wai Shiu Hospital, and Tsao Foundation, among others.

ONE COMMUNITY HEALTH TEAM

Central Health hopes to eventually establish One Community Health Team (CHT) composed of members from both TTSH and our community partners in each of the seven sub-zones. We have begun this process by forming multidisciplinary CHTs, which include TTSH doctors, nurses, Allied Health Professionals (AHPs), and pharmacists, to build long-term relationships with our population and our community partners across the healthcare and social care sectors. Collectively, the One Community Health Team within each sub-zone will meet the unique needs of the population based on each zone's profile, and enable health engagement, care coordination, and ageing-in-place. The CHTs are co-located within community facilities, and bridge care between public healthcare institutions and the community. They aim to provide seamless transition for patients and caregivers from hospital to home, enable quality care in the community, and reduce the risk of hospital re-admissions by:

- Empowering self-management of health issues through coaching and relationship-building, which correlates with an increase in accountability and better health outcomes
- Delaying Frailty progression with early detection and intervention
- Providing case management and care coordination services by acting as a single point of contact for patients and helping them organise and access the various care support and resources required

ONE POPULATION, ONE BUDGET

To better incentivise multiple care providers to collaborate as an alliance to holistically support patients along the entire care continuum, NHG aims to establish a Population-Based Capitation Model that enables effective coordination across the spectrum of care, optimises utilisation of resources, and minimises waste (*for more information, see p.97*). In preparation for this eventual shift, Central Health is working on several pilot schemes to test new funding models that enable value-based care and right-siting. One such model is *bundled payments of Diagnosis-Related Groups (DRGs)*. DRGs relate medical conditions to resource use. This approach has helped facilitate fairer allocation of resources as typical cases in a single DRG can be expected to have similar costs for treatment, thereby allowing funding subvention to be better correlated with resource needs[1]. Bundling payments for DRGs, either in the inpatient setting or across the spectrum of care, takes the optimisation of subvention funds one step farther.

Inpatient (AH-CH) bundles, which apply to all DRGs, serve to recognise the community hospital as an integral part of inpatient care by taking acute hospital (AH) and community hospital (CH) stay as one episode for the patient. This allows for the shifting of resources across the two settings. *Inpatient (Full) bundles* include post-discharge follow-ups with our community partners in the episode of care, and encourage holistic management of patients regardless of the care setting. Central Health will pilot a version of this in 2019 known as the *Extended DRG Plus Bundle*.

"THERE IS A RENAISSANCE IN HEALTHCARE TO A TIME BEFORE HOSPITALS – A TIME WHEN HEALTHCARE WAS DELIVERED IN THE COMMUNITY, DEPENDENT ON THE INTIMATE KNOWLEDGE OF LOCAL NEEDS, AND RELIANT ON THE STRENGTH OF OUR COMMUNITY PARTNERS."

PROFESSOR EUGENE FIDELIS SOH, CEO, TAN TOCK SENG HOSPITAL & CENTRAL HEALTH

[1]http://annals.edu.sg/pdf200411/V33N5p660.pdf

ONE MENU OF PROGRAMMES

Central Health leverages on the strengths and offerings of all providers in the Central Zone to support the needs of our population. The One Menu of Programmes is a directory of programmes run by various partners in the community that helps the placed-based CHTs identify suitable community and/or clinical programmes to refer patients to, based on needs and geographical proximity. The Menu also references the principles of the Five Bliss – Longevity and Healthy Living, Financial Management, Peace of Mind, Contribution, and End of Life.

Figure 4: Principles of Five Bliss

Longevity & Healthy Living 长寿
Function, Nutrition, Cognition, Management of Health Conditions

Financial Management 富贵
Financial Literacy

Peace of Mind 康宁
Positive Mindset, Social Cohesion and Good Relationships, Dealing with Crisis

Contribution 好德
Empowerment, Being a Person of Value, Peer Support

End of Life 善終
Dignity, Choices

ONE SET OF ASSESSMENTS

Given the different measures of a person's health status and needs across care settings, there are plans to establish common data gathering mechanisms, geriatric assessments, and Frailty indicators such as the Clinical Frailty Score (CFS) for a more robust identification of our population health needs. This in turn determines the design of our interventions and resource allocation.

The Population Health Index (PHI), developed by NHG's Health Services and Outcomes Research (HSOR) Department, is a unified metric that monitors the health of our population over time, based on the various domains that significantly contribute to health, namely, physical, mental and social functioning, health-related risk factors and historical healthcare utilisation rates. Baseline PHI measurements of the Central Zone were completed in 2017 and are being used to design and evaluate our healthcare interventions.

5 DOMAINS OF SIGNIFICANCE

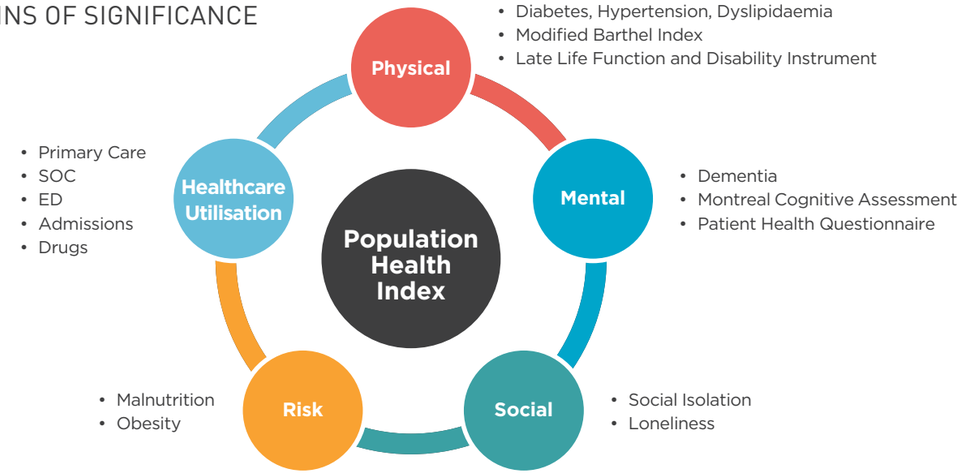


Figure 5: Population Health Index

THE SIX CARE STREAMS

Preventive Care

The Preventive Care workstream facilitates a community-driven approach to optimise the bio-psycho-social well-being of the population. It champions upstream ownership of care through **outreach and service** as well as through **activation**. Key initiatives include:

Outreach and Service:

- **Screening** activities in the community have been provided since 2014, starting with screening for cardiovascular risk factors and eventually expanding to include functional screening and falls screening. Follow-ups are provided through multi-party collaborations with General Practitioners (GPs), the Silver Generation Office (SGO), and other community partners.
- **Community Health Posts (CHPs)** have been set up in various locations across the Central Zone, and are managed by Health Coaches. Their objective is to nudge residents towards sustained health-promoting behaviours through coaching sessions on different topics, such as nutrition and healthy eating, physical exercise, blood pressure management, falls prevention, and mental wellness. Launched in 2016, CHPs have grown from three sites to 36 sites to-date.
- The **Community Influenza Vaccination Programme** was first launched as a three-year pilot in 2016 for vulnerable seniors, aged 65 and above, living in rental units with the objective of reducing the risk of influenza infections. Future plans after the completion of the pilot are to integrate influenza vaccination with functional screening events to enhance the accessibility of these health services to seniors.
- The **War on Diabetes Community Intervention Programme**, started in 2016, reaches out to residents for health coaching and/or structured workshops on *Preventing Diabetes*, *Weight Management*, and *Diabetes Self-Management*. These sessions supplement clinical follow-ups and motivate residents to take charge of their own health, thereby mitigating the burden of diabetes.

Activation of the Community:

- To encourage activation and ownership of health, the workstream engages community partners and their clients to co-develop and run programmes and activities, which meet the health and social needs of the community. This involves adopting **Esther Networks**[2] as a methodology to facilitate focus group sessions and the principles of the **Five Bliss** as a framework to get residents to reflect on what they value. This exercise empowers them to create programmes that enable them to live and age well in the community.

FACILITATE A COMMUNITY-DRIVEN APPROACH TO OPTIMISE BIO-PSYCHO-SOCIAL WELL-BEING

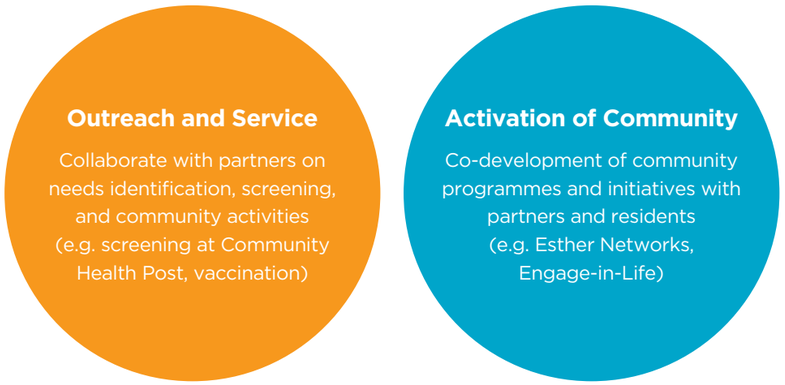


Figure 6: Preventive Care Objectives

[2] ESTHER Network Singapore aims to promote the philosophy of person-centred care and to train a pipeline of ESTHER Coaches to better serve our patients and their caregivers. 'Esther' is a symbolic person with complex care needs who requires the coordination and integration of hospital, Primary Care, Home Care, and Community Care services.

Primary Care

The Primary Care workstream aims to establish effective Primary Care partnerships with the objective of anchoring Primary Care as the first line of care in the community for appropriate right-siting of care. This, in turn, reduces the demand for specialist services. Key partners engaged through focus groups and collaborative working committees include the polyclinics, GPs, and Family Medicine Clinics (FMCs) in the Central Zone. The efforts of the workstream are focused on providing more support to Primary Care partners and removing obstacles to patients' discharge from the acute setting, facilitating smoother transitions between care settings for patients and the decantment of stable patients from the acute hospital, enhancing the capabilities of GPs through training, and fostering greater coordination between GP partners in the Chronic Right-Siting Programme (CRiSP) and the Central-North Primary Care Network (CN-PCN). Some key initiatives under the workstream include:

Outflow of Stable Patients from the Emergency Department (ED) to Primary Care:

- **GP Next** is an initiative that aims to reduce no-show rates at Specialist Outpatient Clinics (SOCs) and reduce demand for SOC visits by discharging patients to GPs for review after treatment at the ED.

Decantment of Stable Patients from SOCs to Primary Care:

- The **Community Right-Siting Programme (CRiSP)** was launched in 2014 to manage medically stable patients with certain chronic conditions, such as Asthma, Diabetes, Hypertension, Ischaemic Heart Disease, and Stroke in the community. 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 discharge to Primary Care. Besides allowing seamless, patient-centred care, CRiSP aims to increase SOC outflow and ease the discharge processes from SOC to Primary Care. These efforts have shown promising results. Since 2014, we have engaged over 120 GP partners, right-sited over 3,200 patients, with a reduction of over 9,600 repeat visits.

Fostering Greater Integration with Primary Care Partners:

- Started in August 2018, the **Coordinating & Advisory Care Team (CoACT)** serves as a platform for continuous interaction between the hospital and Primary Care providers with administrative and clinical support from a tertiary care advisory group comprising specialists, right-siting nurses, and right-siting coordinators from all clinical specialties. This aims to facilitate smooth transitions of patients into the community.
- **GP Buzz** is a quarterly corporate publication for GPs (as the primary audience) as well as polyclinics to keep them and their patients updated on the latest healthcare developments and services at TTSH, promote new and better care practices within the community, and foster stronger partnerships with GPs.

ESTABLISH PRIMARY CARE PARTNERSHIPS TO REDUCE SOC-INFLOW AND INCREASE SOC-OUTFLOW

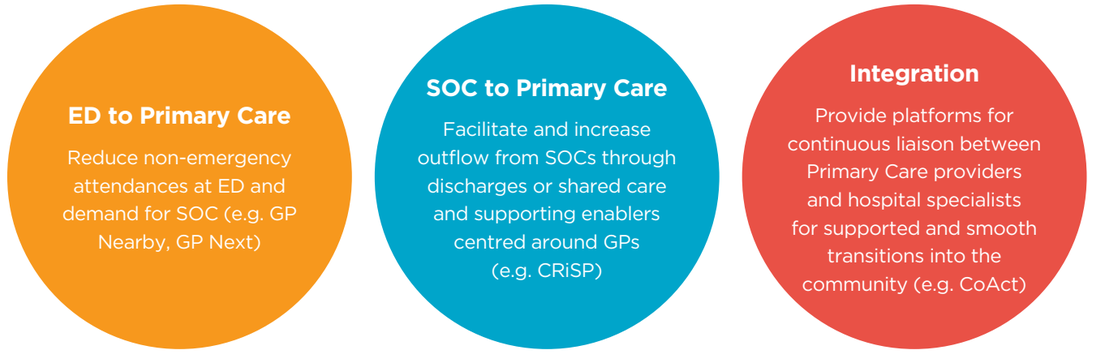


Figure 7: Primary Care Objectives

Hospital Care

We continue to provide evidence-based care pathways that ensure timely access to quality and cost-effective care, while working closely with community partners to ensure that patients return to optimal health and independent living. We are also building a more senior-friendly hospital to support our older and Frail population. Some of the key objectives in this workstream include:

- Provide safe and coordinated care
- Ensure care remains accessible for our patients and population
- Provide the best value to our patients and population

Initiatives by this workstream span across the emergency, inpatient, and outpatient settings. Some of these include:

- **Emergency Department Interventions for the Frail Elderly (EDIFY)** – To meet the needs of older and/or Frail patients attending ED, and to reduce the negative outcomes commonly experienced by older patients, EDIFY was developed to ensure that principles of geriatric care can be delivered right from the point of arrival at the ED. It provides early geriatric review in the ED with the primary aim of reducing potential avoidable admissions among older persons.
- **Geriatric Comprehensive Assessment and Rehabilitation for Elders (GeriCARE)** – GeriCARE is an important arm of the hospital's efforts to introduce geriatric principles in the inpatient setting across disciplines under the **Framework for Integrated Care for the Frail Elderly (FIFE)**. It seeks to implement an integrated process of systematic and comprehensive geriatric care services for Frail elderly inpatients regardless of the discipline they have been admitted to. The GeriCARE team, a mobile geriatric assessment team, comprises geriatricians, Advanced Practice Nurses (APN), and an administrative coordinator. The team works closely with the inpatient team to conduct Comprehensive Geriatric Assessments (CGAs), formulate personalised geriatric care plans and recommendations for early diagnosis of new geriatric syndromes, and provide support in geriatric care delivery.

Intermediate Care

Some of our patients require extra care after a surgery or hospitalisation. The Intermediate Care workstream aims to establish an effective downstream rehabilitation system for these patients that enables continued rehabilitation in the community and ensures access to the required follow-up clinical services after an acute episode. The efforts of the workstream centre on collaboration with community hospitals and day rehabilitation centres to improve processes to achieve quicker turnaround time for transitions, and integrate care pathways to maximise the effectiveness and efficiency of care in the sub-acute, intermediate-rehabilitation, and community-rehabilitation settings. Key initiatives by the workstream include:

Optimising Acute Hospital (AH) to Community Hospital (CH) Flows:

- The **CH Value Stream Mapping (VSM)** was conducted with the objectives of improving triage workflows and turnaround time for discharges to CH. Through this VSM, AH to CH fast track flows were established for discharges to Ang Mo Kio-Thye Hua Kwan and Ren Ci CHs.

Optimising Acute Hospital to Day Rehabilitation Centre (DRC) Flows:

- The **DRC VSM** was conducted to improve discharges from TTSH to DRCs, to reduce the turnaround time for referrals and to improve the rate of successful placement. Initiatives from the future state design include standardised checklists and information provision on the value of DRCs to ensure appropriateness of referrals, multidisciplinary templates for collective input on recommendations for DRC as a discharge support service, and automation for extraction of reports necessary for referrals.

Fostering Greater Integration with Rehabilitation Service Providers

- To facilitate transition of patients among rehabilitation facilities, workflows have been established for **subsidised outpatient speech therapy services** for patients discharged to CH, and discussions are on-going for **collaboration on nursing education and training** for capability-building and upskilling.

ESTABLISH DOWNSTREAM REHABILITATION SYSTEM TO FACILITATE CONTINUED REHABILITATION IN THE COMMUNITY

Figure 8: Intermediate Care Objectives

Transitional and Community Care

The Transitional and Community Care workstream collaborates closely with the inpatient team to facilitate discharge planning and the smooth transition of care to the community (either home or long-term care facilities), and with local partners to increase community days through coordination of services, co-development and/or augmentation of community programmes, and training. These efforts are anchored by the CHTs. Key initiatives of the workstream include:

- TTSH's Transitional Care service (now the CHTs) was established in July 2016 based on the key principle that every patient with complex care needs should have a single-point-of-contact (SPOC) to coordinate one care plan and support safe, coordinated, and timely transition from the hospital to the community and home. As the SPOC, CHTs work with various internal hospital stakeholders for the discharge planning and care coordination. Post-discharge, CHTs collaborate with community partners to help patients navigate the social support system and with Primary Care partners to establish the support essential for patients to stay well in the community.
- In line with our culture of continuous improvement, this workstream partners the inpatient discharge planning team to improve discharge processes. These process improvements include standardising protocols for screening of discharge needs between the inpatient and community teams, engaging the Agency for Integrated Care (AIC) and community partners to standardise and streamline the referral process, and establishing open channels of communications across providers to improve information sharing and continuity of patient care.
- Since October 2018, the workstream has started working with AIC, SGO, and our anchor partners on Neighbourhood Block Mapping to identify at-risk households within the neighbourhood and establish co-management, data-sharing, and interventional workflows to support the needs of these households.

COLLABORATE WITH LOCAL PARTNERS TO INCREASE COMMUNITY DAYS BY ESTABLISHING PLACE-BASED COMMUNITY HEALTH TEAMS

Figure 9: Transitional and Community Care Objectives

End-of-Life and Long-Term Care

The End-of-Life and Long-Term Care workstream aims to establish palliative care networks as Communities of Practice that support End-of-Life (EOL) care in the community. Through a multidisciplinary approach, the team works towards improving clinical care and building capabilities outside the hospital, lowering the burden of care through pain management, supporting psycho-social and financial needs, providing emotional support to patients and caregivers, and facilitating dignified deaths aligned with the values and wishes expressed by patients. Some key initiatives include:

Advance Care Planning (ACP):

- Since 2011, we have collaborated with AIC to scale up ACP provision within the hospital. We have gone upstream to initiate ACP discussions early, such as in polyclinics, FSCs, and other community settings, where patients feel less vulnerable and are more likely to be receptive to the ACP conversation. We are also working to include more illnesses (i.e. other than cancer) that require the initiation of ACP discussions, such as cardiovascular, renal, and respiratory conditions (*for more information, see p.92*).

Home Palliative Care:

- **Programme IMPACT (Integrated Management and Palliative Care for Terminally Ill patients)** is our palliative home care initiative for patients who have End-Stage Organ Failure (ESOF). Programme IMPACT leverages on close partnerships between hospital specialists and the home care teams in the community (*for more information, see p.93*).
- **Programme Dignity**, a collaboration between Central Health, Dover Park Hospice (DPH) and Temasek Foundation Cares, is a first-of-its-kind initiative to improve the quality of life for patients with advanced dementia and reduce their need for acute care. Under this programme, a multidisciplinary palliative care team of doctors, nurses, medical social workers (MSWs) and AHPs visits patients in their home to provide medical and social care, as well as to train caregivers (*for more information, see p.93*).

EOL Care in Nursing Homes (NHs):

- Established in September 2009, the **Project CARE (Care at the End-of-Life for Residents in homes for the Elderly)** team partners seven Nursing Homes to help residents pass on with dignity. The team does this by patient reviews, honouring residents' values and choices with regard to EOL care through the facilitation of ACP and Preferred Plan of Care (PPC) discussions, improving the satisfaction of their families with EOL care delivery, and building the capabilities of NH staff through training in EOL areas.
- Established in May 2017, the **Nursing Home Roadmap** involves working with NH partners to jointly develop and implement interventions and preventive measures to improve the NHs' capabilities through training and upskilling of staff.

ESTABLISH PALLIATIVE CARE NETWORKS AS COMMUNITIES OF PRACTICE SUPPORTING EOL CARE IN THE COMMUNITY

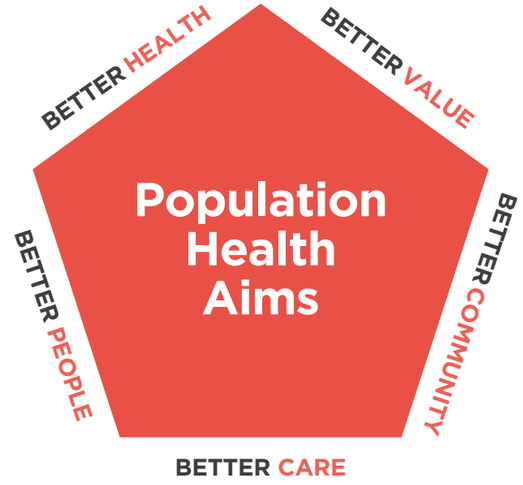
Figure 10: EOL and Long-Term Care Objectives

ACHIEVING A HEALTHY POPULATION

The Central Health Model of Care seeks to achieve the Five Population Health aims: **Better Health** and **Better Value** with **Better People** delivering **Better Care** to build a **Better Community**.

Within the Central Zone, we design and evaluate our interventions and programmes by consistently mapping to the Population Health Aims and the River of Life, as well as by monitoring and studying relevant indicators of measurement.

Our work in Central Health builds on TTSH's long and enriching journey in healthcare by bringing our efforts beyond the walls of our hospital. It challenges us to collectively lead, at every level of the organisation, build trusting and long-term relationships with our population and our partners, so that we can continue to fulfil our laudable purpose – to serve, care, and heal – long into the future.



"WHEN WE ENLIST PATIENTS AS OUR PARTNERS, THEY BECOME OUR EYES AND EARS, OUR SOUNDING BOARD, AND VOICE OF REASON. BRINGING PATIENT-CENTRED CARE TO FRUITION REQUIRES A SHIFT NOT JUST IN OPERATIONS BUT IN CULTURE. THIS JOURNEY HAS BEGUN AND WE LOOK FORWARD TO BUILDING AN ENVIRONMENT THAT TRANSFORMS THE HEALTHCARE EXPERIENCE FOR PATIENTS, AND PROVIDES THEM WITH CARE THAT THEY TRULY VALUE."

PROFESSOR EUGENE FIDELIS SOH,
CEO, TAN TOCK SENG HOSPITAL & CENTRAL HEALTH

YISHUN HEALTH

LIFELONG CARE IN SUPPORTED SELF-MANAGED COMMUNITIES

It takes a village to raise a child, and likewise, a community to support every resident. Yishun Health (YH) aims to transform and support our Yishun neighbourhoods as self-managed communities. Such communities are designed as ecosystems where services are developed in tandem with building the residents' capability and capacity for self-care. In these ecosystems, YH supports residents to manage their own health and to navigate the 'formal' healthcare system to access care at the right touchpoints, and at the lowest cost to self and system. To do this, its Population Health and Community Transformation (PHCT) team emphasises and engages Yishun residents' 'informal' layers of social support – networks of family, neighbours and friends – whom residents can count on for managing their health and addressing social challenges. The team makes itself more visible and accessible at nodes in the community, close to where residents live, and it has since become a familiar face, whom the residents trust. Team members are familiar with the residents' needs, as well as their assets, aspirations, and how health relates to those aspirations. In such ecosystems, our hospital and its services form the 'last' layer of support – a safety net for residents during medical crises to assist them to return to a supportive community which continues with their care.

In this journey from a hospital-centric to an ecosystem approach, the team has changed its mindset for the way it interacts with residents. Today, the team operationalises, implements, and coordinates programmes not as experts 'rescuing' patients from crisis, but as equal members of the Yishun community. These beliefs now form the foundation of our work in holistic community development.

A DIFFERENT MINDSET FOR COMMUNITY DEVELOPMENT

1. Facilitator, not provider

As healthcare professionals, we are quick to rush to residents' aid and prescribe solutions. We miss the hidden strengths, assets, and resources that exist within the community. We should explore and activate layers of support surrounding each individual before resorting to medical care.

2. Focus on actions that create behavioural change

Healthcare professionals find it easy to impart knowledge – but this is only the first step. Action is needed to improve health and function. We need to emphasise actions that can become habits and routines.

3. Individually good, even better as a team

We tend to support the highest trained team member to maximise his/her productivity. We can do more as a team. Every team member adds value to care directly, increasing care access to multiple touchpoints.

4. Delivery to the last mile

Closing the last mile in care delivery is potentially the most difficult part but will also likely make the most difference, particularly for those who have lower access to resources. We can achieve this better at the neighbourhood level. We often ask ourselves, "Did 'uncle' get it?"

Put into practice, these beliefs translate into the 4 "D"s of community development: **Decentralise**, **Democratise**, **Disintermediate**, and **Diminish**. With the 4 "D"s, YH recognises that people are the experts of their own lives. Therefore, it is not the role of a healthcare professional to dictate the everyday choices that people make. Instead, healthcare professionals are facilitators who uncover residents' strengths, assets, and resources. These are the raw materials which the facilitators leverage to build the capacity and capability of the community. For example, under-used spaces can be transformed into places where the community can gather and get out of social isolation. Kampung buddies are sociable residents who volunteer to deliver meals so that they can meet their neighbours and keep active. The engaged community grows to become an environment rich with everyday opportunities for residents to support each other in managing their health at a place that is close to them. This process is known as Asset-Based Community Development.

01	02	03	04
Decentralise	**Democratise**	**Disintermediate**	**Diminish**
• Restructure authority • Programmes and activities (other than health-related) are executed from the ground up	• Let go of control in order to engage • Group decision-making, shared responsibility • Shared common resources, such as space	• Peer as first responder for those in need • Disintermediated access to solutions, such as referrals by peers to experts	• Light touch • "Stealth health"

Figure 1: The 4 "D"s of Asset Based Community Development

THE RIVER OF LIFE IN YISHUN

To strengthen our interactions with the community, YH collects and analyses data to spot patterns and trends about Yishun's residents and the environment. On average, patients in the North are six years younger than patients in the Central Zone. They experience chronic disease and Frailty at a younger age. If residents spend more years with illness and Frailty, the North will face a potentially higher healthcare burden. However, the North Zone is also blessed with a younger population as new townships and more HDB flats are being built. This means YH has a longer runway to build supported communities, shape lifestyles, and delay or prevent the onset of chronic disease and Frailty in Yishun. YH is therefore investing in preventive health to help residents live well without disease, where possible.

Premature death among people with mental disorders occurs about 20 years earlier than the general population. The life expectancy of 891 Institute of Mental Health (IMH) patients who died between 2015 and 2016 was 64.3 years, compared with the national average life expectancy of 83.1 years. Half (50.6 per cent) of these individuals with mental illness also have chronic diseases. However, most of them are unwilling to seek treatment or default on medical appointments due to social stigma.

Everyone universally wants to live well, even if he/she is chronically ill, mentally ill, or Frail. These residents desire a better quality of life just as much as their healthier peers. With the support of their communities, they are able to live with more dignity and independence. Small crises become easier to manage adequately without formal help. If the PHCT team goes further to nurture the communities' capability and capacity, residents can go beyond a life of sufficiency to aspire for a better life. Residents can contribute to these aspirations and find new meaning in their lives. They transform from being passive receivers to active contributors who seek to live well, regardless of their state of health, to the End-of-Life.

80:20 Principle

80 per cent of residents in the community have simple issues, and they have existing capabilities and capacities which can be strengthened and supported for better self-management. The remaining 20 per cent have complex medical, psycho-social, and economic needs which require targeted interventions and regular monitoring.

For example, in the North Zone, rental flats are increasing steadily, with one/two-room flats being built at a faster rate than in the Central Zone. These flats tend to be occupied by residents who are socially at-risk, younger families (people in their 30s-40s, with young children) with complex psycho-social issues, and older persons who are socially isolated. Many of these issues are accompanied by ill health. YH therefore implements person-centred interventions that take into account residents' social determinants of health.

In summary, YH believes in helping residents maximise their wellness no matter where they are in the River of Life. Residents can aspire to Live Well, Live Well with Illness, Live Well with Frailty, and Leave Well, supported in self-managed communities.

COMMUNITY NURSING – BEDROCK OF THE RIVER OF LIFE

Community Nurses represent healthcare in the community. Embedded in regional teams, they are "health buddies", supporting our residents at every stage of the *River of Life* via a whole population approach. They are given the autonomy to practise at the top of their licence, and to create and implement care plans according to residents' needs and aspirations. They also manage YH's residents with diverse health and psycho-social needs in community-based spaces or in their homes.

Referral & Resource	Care Goals
Home Visits, Nursing Home e.g. AIP-Palliative Care Team, IMPACT, EOL Care Agencies	• Palliative Care • Equip Informal Networks • Caregiver Support • Home Modification, Assistive Aids • Advance Care Plan • Flu & Pneumococcal Vaccination
Home Visits e.g. AIP-CCT, VWO	• Geriatric Assessment • Reduce Social Isolation
Pro-active Home Visits	• Link to Primary Care • Health Coaching • Supported Self-Management
Centre-Based Spaces e.g. Wellness Kampung, CNPs, Share A Pot®, GPs, VWOs	• Vaccination • Functional Screening • Chronic Disease Screening
Community Spaces e.g. GROs, VWOs, Walk-In	

CFS	
9	Terminally Ill
8	Very Severely Frail
7	Severely Frail
6	Moderately Frail
5	Mildly Frail
4	Vulnerable
3	Managing Well
2	Well
1	Very Fit

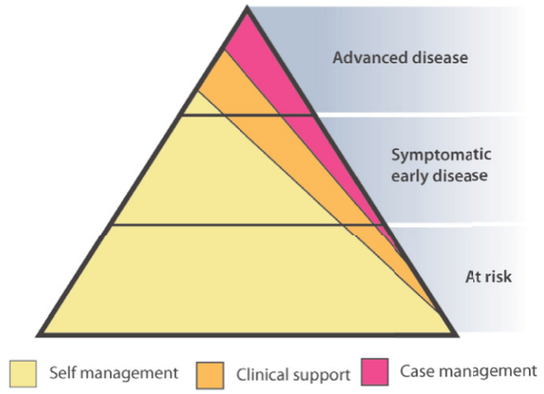


Figure 2: Yishun Community Nursing Framework

Community Nurses help residents navigate formal and informal resources available in the community. Formal services encompass Primary Care providers, Day Care Centres, Senior Activity Centres, and Family Service Centres, and address residents' medical, social, or financial needs. Informal resources such as support groups, neighbours, and local merchants complement formal resources at the local neighbourhood level, and allow residents to get support through trusting relationships.

Geographically-based Community Nursing has been YH's backbone of care since 2012. In the following sections, the roles of Community Nurses in the context of the River of Life's segments of care are explained in detail, alongside the other programmes managed by PHCT.

LIVING WELL (WITHOUT ILLNESS OR FRAILTY)

To help Yishun residents live well without illness or Frailty for as long as possible, YH focuses on preventive health strategies. These include regular chronic disease and functional screening, and healthy lifestyle change through promoting health literacy and "stealth health". The team leverages opportunities to introduce preventive health to residents where they spend most of their time: at school, at work, and in the community (for those not in school or working).

At School

Healthy habits inculcated from a young age last a life time. At a young age, students are easily influenced by teachers, who are their role models whom they spend much time with. YH has engaged the Ministry of Education (MOE) to identify opportunities to transform teachers into health ambassadors for their students. An example of this collaboration is the conduct of Group Health Report Reviews (GHRR) for MOE's teaching and non-teaching staff after their health screening exercise. The reviews help teachers understand their health reports, and recognise early warning signs of chronic disease. GHRR is further supplemented by two e-Tools: a Health Risk Assessment and a disease Trajectory simulation. With the e-Tools, MOE staff can visualise their health risks and chronic disease trajectories in comparison with their peers. The feedback and peer comparisons motivate at-risk MOE staff to take early action and prevent chronic disease. The e-Tools were co-developed with NHG's Health Services and Outcomes Research (HSOR) Department.

At Work

Since November 2010, Khoo Teck Puat Hospital (KTPH) as the anchor hospital in Yishun has been established as a 'Health Promoting Hospital'. Its care philosophy of "a sound mind in a sound body" is reflected in its work-life efforts and activities, embodied in the **Five Pillars of Health** values. These values guide the creation of an environment – from within and without – that supports the health of its *staff, patients,* as well as the *community* it serves. The Five Pillars of Health are (1) **Eat wisely**, (2) **Exercise regularly**, (3) **Be happy**, (4) **Stop smoking**, and (5) **Practise personal hygiene**. Current population health improvement efforts are mapped onto the Living Well **3E5P Framework** to build a Culture of Health – promotion of Education ('I know how to'), Empowerment ('I am able to') and Engagement ('I want to') at the individual level, and driving improvements in these 5 aspects – Place (environmental nudges), Process (choice architecture), People (role modelling), Policy (social norm), and Promotion (health awareness).

"AT YISHUN HEALTH, WE BELIEVE THAT OUR ROLE IS NOT JUST ABOUT BRINGING HEALTH TO PATIENTS WITHIN OUR HOSPITAL, BUT TO SERVE THE GREATER COMMUNITY. INSTEAD OF TREATING DISEASE IN AN EPISODIC WAY, WE ARE MOVING UPSTREAM TO HELP PREVENT DISEASES AND COMPLICATIONS, AND EMBRACING WELLNESS ALONGSIDE ILLNESS CARE."

MRS CHEW KWEE TIANG, CEO, KHOO TECK PUAT HOSPITAL & YISHUN HEALTH

THE FIVE PILLARS OF HEALTH

Eat Wisely

Healthy eating is crucial in managing weight, improving productivity at the workplace, and reducing the disease burden, especially diabetes and coronary heart conditions. YH seeks to be a role model in influencing the dietary choices of its staff, patients, visitors, and the community.

At KTPH's and Yishun Community Hospital's (YCH) food courts, an 80:20 rule applies – 80 per cent of food items and drinks served are a healthier choice, and 20 per cent are less healthy options, to subtly influence and encourage patrons to make more deliberate choices. Healthier Choice meals – which are less than 500 kcal per serving – are displayed prominently on menu boards, and brown rice is served as the default and cheaper carbohydrate source. Sugared drinks are also more expensive to prompt patrons to opt for cheaper, less sweet beverages. The intent is to give them healthier options and nudge them towards more nutritious food and beverage choices using differential pricing and strategic placement.

Exercise Regularly

Exercise has a positive influence on health. Sometimes it is difficult to find the motivation to exercise, so YH incorporates exercise into daily routine and practical activities through simple steps. For example, taking the stairs instead of the lift is encouraged with health messages and prominent location of stairs.

Daily exercise and mass workouts for staff and residents of all ages are also organised to reinforce the benefits of exercising to prevent or reduce the risk of chronic conditions. Participation by families and friends is encouraged and modified exercises for the elderly and wheelchair-bound are available too.

Be Happy

'Better People, Better Care' is one of NHG's River of Life Better Care principles, and emphasises the need to care for and grow our people. It aligns with YH's drive for a positive psychology in the workplace built on the notion that happier employees are more productive and more innovative, and hence the need to encourage joy in and at work. It also recognises that working in hospitals can be emotionally and physically challenging, and it can be difficult to maintain a cheerful disposition throughout the entire work day.

Senior Management gives staff emotional and psychological support, and various wellness programmes provide variety to the work day and helps them pursue their personal interests, hobbies, and aspirational skills, instilling confidence in their work. Light-hearted, fun and positive messages are placed around the YH campus to bring smiles to the faces of patients, visitors, and staff.

Stop Smoking

Negative effects of smoking are well-documented and quitting is the only effective way for a healthy lifestyle. KTPH and YCH are smoke-free premises, including the outdoor areas and the Yishun Pond. "No Smoking" signs are peppered throughout the hospitals, and smoking cessation programmes are organised to help smokers kick the habit. Staff are encouraged to lead by example – by being non-smokers themselves – and empowered to tell smokers to stub out, thus ensuring that patients and visitors have fresh air and a clean environment.

Practise Personal Hygiene

Good personal hygiene is a fundamental tenet of YH's culture, especially with the close proximity to the surrounding HDB neighbourhoods. This nexus between the residents and hospitals creates high potential for infection, with contagion potentially 'flowing' in either direction – from the hospitals to the community or vice versa. In addition to promoting hand washing compliance to staff, efforts to *Practise Personal Hygiene* include "self-cleaning" where people are encouraged to pick up any litter and be responsible for themselves at the food courts and other facilities. Staff also participate in grassroots litter-picking events.

IN THE COMMUNITY

Community Screening

An estimated 40 per cent of residents in the North have an underlying chronic condition they are unaware of. To identify and address chronic disease and Frailty early, the PHCT team organises chronic disease and functional screenings in the community for residents. Screening is done at 'third places' where people gather, such as marketplaces and Community Clubs.

At present, residents above 40 years old are screened for chronic disease via the national Screen for Life programme. The team hopes that residents at risk of chronic disease are spurred to action via their screening results. One strategy it uses is social pressure. It encourages residents to collect their chronic screening report at GHRR sessions. During these sessions, Community Nurses explain the screening results to groups of residents in a classroom setting. Residents who attend can compare their results with their screening cohort to gauge their level of risk in relation to the norm. Alternatively, at-risk residents are able to collect their health report from Primary Care partners in the community so that they can be counselled and guided on how to change their lifestyles to avoid chronic disease. In addition to 'third places', the PHCT team also operates a booth at the KTPH Lobby every weekday morning where there is steady stream of human traffic. Residents can come for chronic disease screening at their convenience. From 2013 to 2018, 26,000 residents were screened.

A decline in eye, ear, and oral health can adversely affect one's quality of life. Residents above 60 are therefore screened for age-related decline in these areas. If there is decline, they are referred for the second level screening, diagnosis, and treatment (such as the need for assisted devices). Since this programme launch in March 2018, more than 5,000 residents have been screened.

The information and profiles gained about our residents from community screenings facilitate planning, development, and evaluation of population health initiatives.

Mini Medical School

Mini Medical School (MMS) is a "school" for the people, by the people. It is a ground-up initiative dedicated to making medical science education accessible to the public, raising health literacy and self-efficacy, and activating the community to become life-long learners and active co-managers of health.

Six lectures are delivered over three consecutive Saturdays, with a graduation ceremony on the final day where certificates of attendance and graduation gifts are presented to the 'students' as a form of encouragement for completing the course. Speakers are professionals from the healthcare industry and other related fields. Their lectures are engaging and informative, and they seek to simplify and explain medical jargon to the layman without compromising the depth of the content. Topics cover 'changes in the brain and its function over time', Frailty, nutrition, preventive health, oral and bone health, geriatric syndromes, sleep, pain management, microbes and health, surgery, and metabolic syndrome.

Since 2013, 14 runs of MMS have been conducted and they drew over 4,000 attendances, with more than 1,990 unique 'students'. MMS continues to appeal to a wide range of students, aged between nine and 89, with the majority being 50 to 70 years old.

LIVING WELL WITH ILLNESS

When residents are able to manage chronic diseases well, they can maintain their quality of life in the community and avoid medical crises. YH aims to build residents' capability and capacity to self-manage and minimise formal intervention. Self-managing residents spend less time in healthcare institutions and more time on the activities important to them.

At a systems level, resources are allocated more efficiently, as less demand for formal intervention means less strain on the capacity in medical institutions. A more balanced ecosystem better meets residents' medical needs. YH is building models of "non-visit" care and support to balance formal intervention in the ecosystem. "Non-visit" care and support strategies include lifestyle modification, promoting sensible habits and routines, and chronic disease self-management.

Self-Managed Autonomous Regional Teams (SMART)

SMART is part of YH's geographically-based population health strategy. A SMART team comprises Community Nurses, anchor community partners (e.g. Senior Activity Centres, Senior Care Centres, and Family Service Centres), Allied Health Professionals, and trained administrative support. Organised as regional teams and as the key anchor for population health improvement, they provide autonomous and collaborative Community Care for individuals, families, groups, and populations. The teams work at the neighbourhood level to gain in-depth local knowledge of the residents' resources and needs and to deliver person-centred care.

SMART'S ROLE IN THE COMMUNITY ALIGNS WITH NHG'S '2S2C' FRAMEWORK:

1. Sense

- Identify needs and strengths of residents and community
- Analyse data, with further deep dive survey, if needed

2. Clinical/Care

- Co-develop health care plans with residents

3. Strengthen

- Co-develop interventions with partners
- Conduct joint home visits
- Build self-management capability of individuals and the collective community

4. Coordinate

- Connect residents to the neighbourhood providers of health and social care and support

Sense

Much of SMART's role is in sensing. SMART accepts 'community-up' referrals to address unmet needs even before they appear at the hospital's front door. It conducts proactive ground sensing in at-risk areas, and risk profiling based on healthcare and socio-economic data. In these areas, Community Nurses partner anchor community partners to jointly conduct door-to-door interviews. Together, they support residents with unmet health, social, and financial needs uncovered through these interviews. SMART also proactively visits 'high-utilisers' – individuals who use a disproportionate amount of formal healthcare services. These home visits enable the team to holistically understand such individuals' needs and aspirations, and to tailor self-management strategies to support them in the community. When they are well supported in the community, they gradually stop or reduce using formal healthcare services as their default option. This can potentially make a large impact on the healthcare system's resources in the North, where the top five per cent of patients living here account for as much as 57 per cent of the healthcare costs. Lastly, SMART receives referrals from community partners, such as Primary Care providers and Senior Activity Centres, as well as other PHCT programmes.

Clinical/Care

SMART offers a range of clinical support including screening and counselling, medication reconciliation, and regular monitoring. SMART nurses make comprehensive assessments of residents' individual, family, and environmental needs to intervene at the appropriate level. This also includes physical and mental health needs. At the same time, SMART improves residents' capability and capacity to self-manage their health by teaching them self-monitoring and lifestyle modification skills. Residents are enabled to manage minor crises on their own or with support from their social networks. SMART teaches residents to activate their own 'onion' layers of support before seeking formal services.

SMART Community Nurses are trained to identify residents' values and aspirations besides their clinical needs. They develop care plans with residents to ensure that the care provided is person-centred and supports their overall well-being.

This **onion model** works inside out;
It is empowering and adaptive,
network-creating, and supporting.

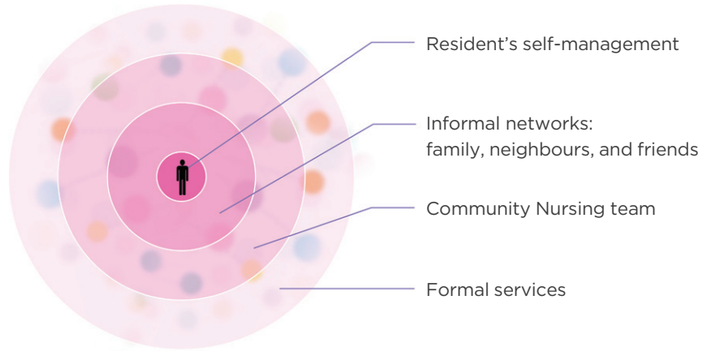


Figure 3: Onion Model of Support

Strengthen

SMART partners local community providers to develop interventions that match the need and asset profile of the neighbourhood. Community Nurse Posts (CNPs) are one example of such interventions.

Community Nurses are stationed at CNPs in the heartlands as a visible presence to residents in their neighbourhoods. By being in the 'heart' of HDBs, residents can conveniently obtain health information at no cost – simply by approaching the nurse downstairs. These CNPs offer preventive care and chronic disease management services including:

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

With the help of the community health screening team, Community Nurses also deliver post-screening intervention programmes such as Skills for Life: Diabetes Management and Coaching for Health Action and Management Programme (CHAMP). Since 2011, YH has established 20 CNPs in the North.

Coordinate

In line with YH's commitment to Asset-Based Community Development, SMART maps and guides residents to resources available in the community. Where necessary, SMART assists residents to access medical or psycho-social services. SMART also works with Primary Care providers and Specialist Outpatient Clinics (SOCs) to co-manage residents' chronic disease in line with residents' care plans.

Shared Care Partnerships

Community Nurses work closely with Polyclinics and General Practitioners (GPs) in patient care. YH organises Peer Review Learning (PRL) sessions with Primary Care partners to review the care of community patients with the nurses. Primary Care partners see the 'stitched-up' care including non-visit care and support provided by nurses and community partners in between their consultations.

Wellness Kampung

YH has long used place-making strategies to shape the collective vision and identity of its environment. The design choices in YH Institutions create a healing environment that supports everyday healthy choices. Wellness Kampung continues this work by physically transforming void deck spaces into community living rooms that are co-designed with residents to support each other in managing health as a community.

Wellness Kampung began as a network of three wellness and care centres for Yishun residents. A partnership between YH, St Luke's ElderCare, and Nee Soon Grassroots Organisations, these centres host a range of health and social programmes. Since starting in April 2016, they have served over 1,900 residents.

The close-knit 'kampung' setting is ideal for creating a supportive network of residents inspiring each other to adopt healthier lifestyles. The centres and activities designed bring out the kampung spirit. The setting is open and welcoming, retrofitted with multi-purpose spaces for socialising, activity rooms and reading corners, and open kitchens for communal nutritional activities. The house rules, unique to each community, instil a sense of ownership. For example, residents clean up and care for the space like it is their own home. Integrated physical and social 'stealth health' initiatives encourage positive behaviours and feedback. Each Wellness Kampung centre has consultation rooms for integration with the CNP initiative.

The centres also act as a health resource hub for the community, helping them to adopt healthier lifestyles together. Initiatives include active ageing activities such as healthy cooking demonstrations, daily morning exercises, health screenings, as well as DIY rehabilitation services to enable the frail elderly to age-in-place. In addition, the centres help build cohesion among the community, facilitate the formation of dementia-friendly communities, enable residents to improve their health outcomes, and importantly, bring out the best in the community. Many residents take on bigger roles on their own initiative to lead activities with the support of our staff. Kampung Buddies extend their services from meals-on-wheels delivery to befriend stay-alone, at-risk, or non-ambulatory residents. Residents have formed *Repair Kakis* – a skills-based workshop and interest group – to reach out to more men, and to get them to use their skills to repair mechanical and electrical items for fellow residents, while *Food Ambassadors* work closely with a YH dietitian to steer the community towards healthier eating and cooking habits.

The Wellness Kampung centres serve as a base for YH to pilot new community projects, such as a collaboration with DramaBox and ArtsWok on 'Both Sides, Now', an End-of-Life project about the community's interpretation on living well and leaving well. Targeted intervention programmes for early dementia patients and support group for stroke survivors have been introduced at Wellness Kampung centres too.

CRISIS AND COMPLEX CARE

Crisis and Complex Care refers to episodic encounters with the formal healthcare system when patients require the expertise or equipment in a hospital to treat their medical conditions. These are high-intensity episodes that disrupt residents' journey in the *River of Life*. Good quality and timely care in a safe system will ensure good outcomes, such that patients can return to the community. These care transitions must be well-managed.

Person-Centred Care

Today, medicine has advanced such that we have become very good at treating specific organs and conditions. However, patients with more than one condition may need to seek multiple specialists. In such cases, care can become complicated and fragmented. Yet, patients are people first, and their conditions must be addressed holistically.

Such a unified clinical care model at YH focuses on the person as a whole and it also translates to hassle-free care with ease of care transitions within and through YH. Care plans are developed around patients' emotional, psychological, social, and functional needs, beyond just the medical.

Transdisciplinary Care

The unified clinical care model is implemented by transdisciplinary care teams who form an ecosystem of care around a patient that spans the entire 'life cycle of care'. The approach moves away from episodic ad hoc care, enhances the communication and collaboration between every medical professional, and builds a greater sense of ownership of every patient.

Initiatives in YH help deliver rapid diagnoses, providing patients with faster admissions and access to condition management, better patient experience, and reduced rates of complications. Examples of these initiatives include the Acute Medical Unit (AMU), Emergency Surgery and Trauma (ESAT) unit, early mobilisation of Intensive Care Unit (ICU) patients, Hip Fracture Service (HFS) and Integrated Care of Obesity and Diabetes (ICOD), resulting in better recovery outcomes and shorter length of stay for patients.

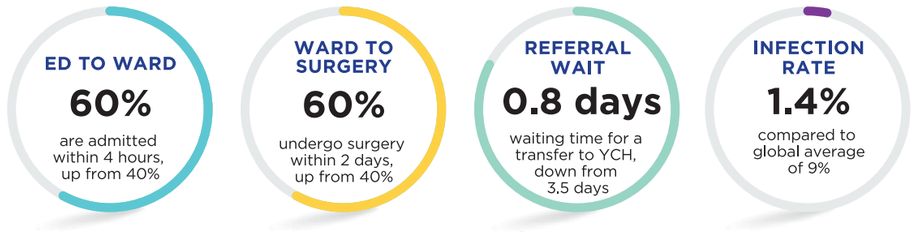


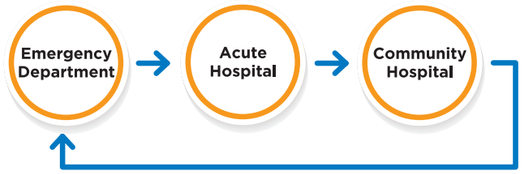
Figure 4: HFS Improvements

Bridging Care between KTPH and YCH

Traditionally, acute and community hospitals function as separate entities. However, under YH's unified care model, YCH is an extension of KTPH. This vision means that the roles of healthcare professionals in the community hospital, acute, and intermediate settings need to evolve.

According to A/Prof Phoa Lee Lan, Deputy Chairman, Medical Board (Care Integration and Clinical Standards), KTPH and YH, a clear and efficient workflow has been established. Stable cases in YCH that require acute care are transferred directly back to the acute hospital without needing to pass through the Emergency Department (ED). For unstable cases that cannot wait for a bed in the acute hospital, they will be sent to the ED for stabilising. For collapsed cases in YCH, code blue will be activated and they will be transferred directly to the ICU in KTPH.

In the traditional model, patients warded in a community hospital had to go through the Emergency Department (ED) in order to be admitted back to an acute ward if their medical condition deteriorates.



At Yishun Health, medical teams at KTPH cross over to patients at YCH instead.

If a transfer to KTPH is necessary, patients will be return to the acute hospital, bypassing the ED, and to be treated as inpatients in specially designated wards.

Figure 5: Direct Access to Care

At YH, doctors from KTPH and YCH hold joint consultations and ward rounds one to two times a week. This ensures that YCH patients and Family Physicians (FPs) are adequately supported with specialist help, if required. It is also an opportunity for the acute care team to gain a better appreciation of the complexities faced by the Community Hospital care team and the environment they operate in.

Patients and healthcare professionals have benefitted from the simplified and more streamlined referral process, earlier activation of financial counselling (once the patient is identified for referral to YCH) giving patients more time to deliberate on care options, and shared access of secure information electronically for expediency. These efforts have resulted in shorter turnaround time of patient transfers.

From Outpatient to Community Care (O2C)

Enhanced community health partnerships mean that people with chronic diseases can be right-sited to be managed by their Primary Care providers, and supported by nurses and allied health services. Stronger partnerships and resources are extended to support Primary Care providers. These seek to discharge and appropriately-site medically stable patients and ensure continued care under an FP or GP, in a GP clinic, Family Medicine Clinic (FMC), Primary Care Network (PCN), polyclinic and/or suitable Primary Care programme; reduce the number of repeat SOC visits; and in turn reduce the lead time for new appointments. The O2C programme includes patient education and financial counselling, shared care protocols for specified conditions, and monitoring of patients' progress for 12 months after discharge to Primary Care.

Infrastructure Design

KTPH, YCH, and Admiralty Medical Centre (AdMC) are designed to promote the Five Pillars of Health, and the principles are incorporated into all aspects of facility-planning. Lush and extensive use of greenery creates havens for healing. Our eco-friendly green initiatives focus on environmental health. Beyond architectural features that provide an ideal environment for patients to recover in, and open civic spaces conducive for community activities, the hospitals have an easy and hassle-free way-finding system. This is achieved through the thoughtful integration of facilities – by grouping similar and related services – and simple colour-coded signage.

LIVING WELL WITH FRAILTY

Frailty is a complex issue that has physical, mental, and social dimensions. These dimensions tend to reinforce each other in a vicious spiral. For instance, physical and mental decline can be an obstacle to social interaction. Social isolation can also cause seniors to lose motivation to live and eat well.

Physical and mental decline is not an inevitable part of ageing. It is detrimental to quality of life when seniors lose their independence and withdraw from the community. Hence, YH aims to delay or reverse the progression of Frailty among seniors.

Share a Pot®

Eating and exercising as a group are social norms ingrained through generations of Asian wisdom and culture. They work in tandem to deliver nourishment to seniors' 4 'B's: their bones, brawn (*muscle*), brain (*cognitive function*), and bonds (*interpersonal relationships*). With health brought down to this simple idea, it resonates with every senior who remembers the warmth of a nutritious home-cooked pot of soup.

Despite its de-medicalised approach, Share a Pot®'s design is based on multidisciplinary evidence and research. Protein from ingredients like meat enriches the bone broth, creating a nutritious muscle-strengthening supplement. For an added boost, the team teaches volunteer cooks to acidify the soup, which extracts the bone-building calcium as well. Seniors exercise before drinking the soup to stimulate a prolonged increase in muscle synthesis for as long as 24 hours. Seniors also do simple preliminary and regular physical, functional, and psycho-social assessments, conducted by trained centre staff and volunteers, so that any decline is picked up for early attention and intervention by community and/or health agencies where applicable.

Share a Pot® is also grounded in its design ethos which sees seniors not as 'recipients of charity' but as valued members of the community. It is a platform for them to come together and share their numerous stories, gifts and passion with the community. The result is sum that is greater than its parts.

YH in collaboration with community partners started Share a Pot® in September 2014. By September 2018, there are 26 active Share a Pot® sites across Singapore, with about 1,000 out of 1,800 registered participants as active attendees. To-date, the programme has recruited 200 registered volunteers with an average age of 58 years — peers of a similar age range as our participants. PHCT's counterparts in Woodlands Health and Central Health are now helping to start and run Share a Pot® in their zones. The financing, operations, and activities at all sites are mostly self-sustaining.

"THIS IS A COMPASSIONATE AND HARMONIOUS COMMUNITY WITH A SYMPATHETIC UNDERSTANDING OF ASIAN CULTURE. THIS SOUP IS GOOD FOR BODY AND SOUL AS IT COMBINES HEALTHY EATING WITH SHARING AND NURTURING A SENSE OF BELONGING FOR THE ELDERLY. A LOVING, CARING PROJECT THAT ALLOWS PEOPLE TO HAVE A POSITIVE IMPACT IN EACH OTHER'S LIFE IS NEVER SO HARD."

INTERNATIONAL FORUM (IF) WORLD DESIGN GUIDE JURY STATEMENT ON SHARE A POT®'S SOCIAL IMPACT PRIZE AWARD 2017

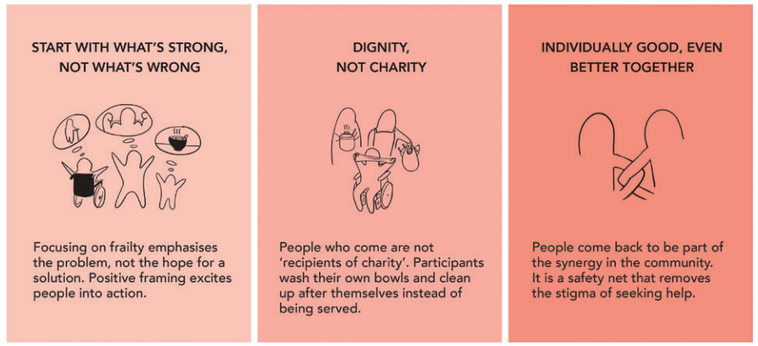


Figure 6: Share a Pot® Design Ethos

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

AIP-CCT complements SMART in YH's geographically-based population health strategy but, unlike SMART, AIP-CCT receives mostly hospital referrals. It is a nurse-led multidisciplinary team that delivers patient-centred care to complex patients with progressive or life-limiting conditions after discharge from hospital. The team manages patients' conditions in their homes and within community settings of the patients to help them transit smoothly from the hospital to their homes. The aim is to help patients age comfortably in place by avoiding re-admissions to hospital.

AIP-CCT is offered proactively to patients who have a history of three or more admissions over a one-year period, and patients who have high risks of re-admissions based on a predictive model. Clinicians and care coordinators in wards are also able to refer patients to AIP-CCT.

Guided by comprehensive assessments of medical, functional, nursing, and psycho-social needs and discussion with patients and caregivers, Community Nurses develop individualised care plans to help the patients address their specific needs in their homes. After resolving the medical reason for patients' hospitalisation, AIP-CCT provides holistic care for patients and their caregivers so that they can manage well at home and in the community by:

1. **Increasing capacity and capability** – educating patients and caregivers to ensure competency in managing chronic diseases and physical care so as to facilitate patient self-care.
2. **Strengthening partnerships** – working with other PHCT programmes and community partners, including Primary Care doctors and community service providers to address the long-term health and social care needs of patients. About 60 AIP-CCT patients have joined the Wellness Kampung.

AIP-CCT is supported by the AIP System, which is an effective mobile solution that equips the team with portable yet relevant information to support care teams in their care delivery in the community. With the system, Community Nurses access patient information from KTPH, YCH, and AdMC so that decisions are more efficient and effective at the point of care. Community Nurses also update patient information and care plans on the go, so that there is better care continuity. For example, Care Coordinators in the wards use patient information recorded in the AIP system to make informed decisions for discharge planning. With the AIP System, Community Nurses spend less time on paperwork, and the time goes to direct patient care.

Collaboration with Contact Centre

Not all patients require intensive face-to-face nursing support after discharge. Triage Specialists from the Customer Contact Centre support the AIP-CCT by managing Level 1 patients who are identified as high risk of hospital re-admission. Level 1 patients have multiple medical problems that are stable and do not require home visits as the first line of management, but can benefit from post-discharge continuity of care with basic chronic disease education, monitoring, and medication management, which can be managed by telephone follow-ups.

The Triage Specialists telephone patients and assess their condition following discharge from the hospital. Medication screening and disease-specific assessments are also done if required. They educate patient and caregivers on chronic medical conditions to prevent exacerbations and optimise control.

Volunteer Programmes

Some patients either stay alone or are mostly alone in the day, with limited or no social support. To address their social needs, AIP-CCT officially started its home visit volunteer programme in April 2017. Volunteers visit and befriend patients at their homes to improve their health and well-being. While the core duty of volunteers lies in befriending, they may also carry out simple exercises with the patients, remind them to take medication, and even help out in simple housekeeping or grocery shopping, depending on the needs of the patients. Volunteers are also trained to spot red flags and raise them to the nurse in-charge so that appropriate interventions are promptly taken. These regular visits help prevent patients from being re-admitted to hospital.

As the majority of AIP-CCT patients are elderly, the team recruits mostly senior volunteers. This allows for better patient-volunteer match, and also promotes senior volunteerism and active ageing in the community. More than 80 per cent of the AIP-CCT volunteers are above 50 years old. Since April 2017, close to 70 individuals have formally joined the home visit volunteer programme and almost 50 AIP-CCT patients have benefitted from their services.

On the other end of the spectrum, Tri-Generational Homecare@North West (TriGen) is a programme led by volunteer students studying Medical, Nursing, Pharmacy and Social Work at the National University of Singapore (NUS). Together with secondary school students, TriGen conducts home visits for at-risk senior patients with the aim of improving their well-being. During these visits, university students perform social and health assessments while secondary school students offer companionship through befriending activities. To prepare them for the visits, AIP-CCT equips the volunteers with basic medical knowledge and skills, as well as tips to communicate with seniors. TriGen is supported by North West Community Development Council (NWCDC).

The intergenerational interaction improves seniors' emotional well-being from satisfaction surveys, where 83 per cent of the elderly felt less lonely and 94 per cent felt happier. At the same time, students gain valuable first-hand experience interacting with seniors and understanding geriatric needs. AIP-CCT is able to benefit from the monitoring done on weekends, when it does not conduct home visits. Lastly, NWCDC is now able to serve more seniors and extend Community Care support to their residents through TriGen.

Since 2017, TriGen has expanded to include students from the Nanyang Technological University's (NTU) Lee Kong Chian School of Medicine (LKCMedicine) and Singapore Institute of Technology's (SIT) Occupational Therapy and Physiotherapy faculties. From 2018, TriGen has started collaborating with SMART to offer support in disease management and health coaching.

Collaborations with Integrated Long-Term Care (ILTC) Partners

AIP-CCT provides time-limited care. Hence, it collaborates with other ILTC partners who provide long-term care in physical, mental care, and social support to patients.

For example, AIP-CCT collaborates with the Home Nursing Foundation (HNF) to improve continuity of care. AIP-CCT patients are referred to HNF for home nursing, home medical and/or home therapy, for procedural care, health education, medication administration/packing, follow-up on chronic illness, caregiver training and/or personal care. Between July 2015 and August 2017, 112 AIP-CCT patients were referred to HNF for long-term care. After this intervention, there were reduced ED attendances (49 per cent), hospital admissions (53 per cent), and length of stay (59 per cent), which demonstrate improved health outcomes of the Frail elderly in the community.

As of September 2018, some 10,000 patients have benefitted from the support of AIP-CCT, and patients' length of hospitalisation has dropped to about four days on average.

LIVING WELL TO THE END

The meaning of a good death is very personal. It may be influenced by a variety of factors, ranging from upbringing, values, family, and financial situation. YH therefore aims to build preparedness in the community for dying-in-place, as well as support for early End-of-Life conversations so that friends, family, and healthcare professionals are made aware of care preferences. With good preparation, there can be dignity in dying. To complete the journey in the River of Life, YH also has teams to manage stress and symptoms at the end stages of life.

Advance Care Planning

People can better prepare to leave well when they understand what it means to live well. The Advance Care Planning (ACP) programme facilitates on-going conversations between individuals, their loved ones and healthcare professionals to understand residents' values, beliefs and care preferences. Through this discussion, residents gain a better understanding of their own medical or personal preferences and decisions. Doctors, nurses, Medical Social Workers, and other healthcare professionals are trained to start and document the discussions into an Advance Care Plan (ACP). ACP reduces crisis decision-making for family members and safeguard a patient's best interest by ensuring medical decisions are made in accordance to his/her wishes. It also gives individuals an opportunity to fulfil their last wishes. Over 2,400 ACPs have been documented for individuals at every stage of health and in various locations in YH — wards, outpatient clinics, homes, and even at our Wellness Kampungs.

Both Sides, Now

In addition to formal ACP discussions, the ACP team explores non-traditional ways of overcoming the stigma associated with death. Since 2013, YH has co-presented arts engagement festival *Both Sides, Now* with the Lien Foundation, Ang Chin Moh Foundation, Drama Box, ArtsWok Collaborative, and Montfort Care Goodlife!. Through workshops and other creative approaches, residents in Yishun are invited to have conversations with their loved ones on their last wishes and plans. They also participate in the production of the programme. In 2018, senior Wellness Kampung residents worked with artists to produce a public art installation trail for the Chong Pang community to examine and understand their ideas of death and dying.

Good Life, Good Will, Good End

The last two runs of Mini Medical School @ KTPH themed "Good Life, Good Will, Good End" held in January and July 2018 touched on End-of-Life issues and what it means to live a purpose-filled life and leave well. Students who attended were assigned to write a condolence letter, or a letter to their deceased loved one, or their own eulogy in the form of a letter or artwork. Fifty-two of these assignments are being collated and will be published in a book titled *Letters to the Stars*. It will facilitate reflections on the End-of-Life and offer comfort to those who have lost loved ones.

GeriCare@North

Like hospitals, Nursing Homes aim to be comfortable environments for their residents to age well to the End-of-Life. However, due to resource and skill limitations, Nursing Homes face challenges in meeting patients' medical needs. GeriCare@North was established in 2010 to support Nursing Homes in overcoming the challenges they face in providing End-of-Life care.

GeriCare@North addresses the gap between hospital care and Nursing Home care by providing access to specialist care to the residents of eight Nursing Homes in Singapore. Telemedicine is used to give clinical care support to the Nursing Homes' nurses and doctors, while training the Homes' nurses in geriatric and palliative nursing care. Residents can also be referred directly for admission to KTPH via tele-consults without having to go through ED. The tele-geriatrics system is also used to facilitate cross-institution sharing (TeleCNE), multidisciplinary meetings (TeleMDM), and mortality audits (TeleMA). GeriCare Education and Training (GREAT) and Communication Skills Workshops are held to further standardise the level of nursing care. Training in ACP and supporting End-of-Life care is also offered to improve residents' quality of life and maintain their dignity to the very end.

Palliative Care

The AIP Palliative Care Team is part of AIP-CCT, and specialises in managing medical needs of patients who are severely Frail and approaching their End-of-Life.

Complementing the AIP Palliative Care Team, YH adopts an Integrated Management and Palliative Care for Terminally Ill Patients (IMPACT) programme, which began in the Central Zone, to manage patients with non-cancer End-Stage Organ Failure with a prognosis of six months or less. Together, these teams partner ILTC providers, who are trained to gradually take care of less complex patients. When the ILTC providers take over the care of some of these less complex patients, the team continues to provide specialist home palliative care for highly complex patients.

"THE NEW IMPERATIVE FOR US AT YISHUN HEALTH IS TO CARE FOR THE WHOLE POPULATION IN THE NORTH, NOT JUST THOSE WHO ARE SICK. IF WE DO OUR WORK WELL, THEN OUR RESIDENTS WILL BE HEALTHY, AND HOPEFULLY, TAKE A LONGER TIME BEFORE THEY NEED US. BUT WHEN THEY DO, WE WILL NOT SIMPLY TREAT THEM, BUT GIVE THEM THE SKILLS TO CONTINUE THEIR TREATMENT AT HOME AND LIVE MORE INDEPENDENTLY."

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

WOODLANDS HEALTH

CARE OF THE FUTURE – HIGH TECH AND HIGH TOUCH

For over 50 years, the vast green field at Woodlands Drive 17, where Woodlands Health Campus (WHC) is fast taking shape, was surrounded by vegetable farms and rubber plantations. It was these plantations that gave rise to the name "Wood-lands". As more HDB estates took root in the 1970s, new towns emerged in Woodlands and Admiralty. Today, Woodlands comprising Sembawang, Admiralty, Woodlands, Woodgrove, and Marsiling zones has an estimated population of over 550,000. It is a growing district with a relatively younger profile. As of June 2017, over 50 per cent of the population is aged between 15 and 49[3]. In time to come, Woodlands is projected to be home to nearly 100,000 households.

WHC is a key component of the Ministry of Health's (MOH) Healthcare 2020 plan. When first announced by the former Minister for National Development Khaw Boon Wan in 2014, the WHC development team was directed to look "20 to 30 years ahead to plan for the future healthcare needs of Singapore". These needs were characterised by the Three Waves – Frailty arising from an ageing population, growing Chronic Disease burden, and Poor Lifestyle Habits – which Singapore is already facing. Added to this is the rising demand from 'patient-consumers', with implications on how the whole healthcare system delivers care.

As a greenfield development, WHC has the rare opportunity to reinvent care models. On 18 April 2017 at WHC's ground-breaking ceremony, Minister for Health Gan Kim Yong said, "WHC will be a pioneer among the next generation of healthcare facilities, achieving triple wins – a more effective and productive healthcare workforce, a better and more sustainable healthcare system, and ultimately, a healthier population."

WHC will anchor **Woodlands Health** and seek to bring health and wellness to the population it cares for.

[3]Department of Statistics, as of June 2017
[4]https://www.straitstimes.com/singapore/new-woodlands-hospital-to-open-in-phases-from-2022

THE WHC DIFFERENCE

Slated to open progressively from 2022, WHC will comprise a fully integrated acute and community hospital, Specialist Outpatient Clinics (SOCs), and a long-term care facility spread across 7.66 hectares (about 11 football fields). When fully completed, WHC will add some 1,800 beds over two phases. Green spaces will feature prominently in its physical design, creating an inviting environment for visitors. There will be therapeutic and healing gardens, well-suited for meditation, leisure walking, and other recreational activities to promote health and wellness.

The future Campus is envisioned as a **Care Hub** – integrating care within and beyond its hospital walls – encompassing self-supported ecosystems of care for residents living in the North to **Live, Grow and Age in place**[4]. It is reinventing the way care is delivered by breaking down organisational and process boundaries to provide a seamless journey for patients from hospital to home. It will apply SMART technology solutions in practical ways to deliver medicine that is sustainable and of value to patients, families, staff, and the community. Its future ecosystems will be built on long-lasting relationships with community stakeholders, based on mutual understanding of concerns and needs, and community empowerment for effective self-care.

WHC has identified three thrusts to achieve its care goals:

- **Care Transformation:** To balance seamless episodic care with preventive and preparatory care, and to collaborate with partners in the care continuum
- **Community Empowerment:** To improve community health by enabling and facilitating better social health integration
- **People Experience:** To enhance the people experience through the practice of realistic medicine

CARING FOR AND IMPROVING THE LIVES OF PATIENTS – 4/7/18

The Campus' clinical care goals are best summed up in 4/7/18. These figures represent the Average Length of Stay (ALOS) in days for inpatients in the acute, sub-acute, and rehabilitative care settings, respectively. Rather than hard targets, they symbolise WHC's intent to achieve significant improvements for patients across various care settings, by improving productivity and efficiency.

To deliver improved and standardised care, the Campus believes better patient outcomes can be achieved by leveraging a relatively untapped human resource – patients themselves. Inspiring patients entails respect for their strengths and preferences, trust, and effective communications to enable them to choose and act appropriately for better health. By empowering them with the right tools, patients can play an active role in their personal care, resulting in improved outcomes and more sustained results.

One example includes WHC's future *Care@Bedside* model comprising redesigned inpatient bed spaces across the acute wards. Components include a more person-centred intuitive bed-space, and a Patient Bedside Terminal which empowers patients with greater access to relevant and timely information. This will enable our future patients to enjoy a higher level of care coupled with the ability to make more informed choices. By taking a partnership role in their treatment, patients can look forward to faster recovery and rehabilitation.

CARE OF THE FUTURE – HIGH TECH AND HIGH TOUCH

With WHC being billed as 'Singapore's first SMART hospital', the expectations are high. In this 21st century of digitisation and technology advancements, the possibilities for healthcare are endless.

In 2016, the WHC Department for Knowledge and Innovation (DOKI) was set up to first map and identify gaps in the patient journey. The team, in collaboration with multidisciplinary departments, began sourcing potential solutions. This process helps ensure that future technologies integrate more seamlessly with the patient experience, a departure from the 'usual' process of retrofitting new tech onto existing frameworks. Feasibility studies are already being conducted for a host of potential technologies. Artificial Intelligence (AI), chatbots, Virtual Reality (VR) way-finding, Autonomous Mobile Robots (AMRs), Automated Guided Vehicles (AGVs), and mobile applications are some of the potential technologies being explored.

The hope for these solutions is to boost productivity by augmenting, and in some cases alleviating the need for, traditional manpower by up to 20 per cent in numbers. This will allow staff to focus on more direct patient care – in line with WHC's mission to have people at its core.

Yet as WHC plans for the future, it must also pace for the present – by keeping its ears to the ground and building relationships with the community and people.

"WHC WILL BE DESIGNED WITH A VISION OF 'ONE-NESS'. WE WILL BE BUILT AS A SINGLE, INTEGRATED CAMPUS SERVING PATIENTS WITH CARE NEEDS RANGING FROM URGENT TO RECOVERY TO END-OF-LIFE. THIS CONCEPT OF 'ONE-NESS' WILL EXTEND BEYOND THE HOSPITAL INTO THE COMMUNITY, AND EVEN INTO THE HOMES OF OUR PATIENTS."

DR JASON CHEAH, DEPUTY GROUP CEO (TRANSFORMATION), NHG & CEO, WOODLANDS HEALTH CAMPUS

EMPOWERING CARE FOR THE COMMUNITY

Our community engagement efforts are anchored by CHOPE – which aims to create a **C**ommunity of **Hope** in the North. Since 2015 the Campus has been actively working with schools, Voluntary Welfare Organisations (VWOs), as well as social and Primary Care providers on initiatives geared towards health promotion, education, engagement, and enabling the population to take charge of their health and to stay well.

Our collective efforts have helped catalyse several initiatives which bridge health and social care support for residents. For example in April 2018, it launched the first student-led Share a Pot® in Marsiling in collaboration with Woodlands Secondary School, and supported by the Northwest Community Development Council. From start to finish, the school's entire Secondary 2 cohort was involved in the Share a Pot® set up, from identifying a suitable location and residents to support, to stakeholder engagement and purchasing equipment and ingredients. They were guided by teachers and supervisors from WHC. Also in 2018, we successfully opened two WHC Community Nursing Posts (CNPs) with Sunlove and People's Association, respectively. Each CNP will provide services such as health counselling, vital stats monitoring, and referrals, and cater to an average of 12,000 residents.

"4/7/18 IS ABOUT BETTER PATIENT OUTCOMES. IT FOCUSES OUR ATTENTION ON THE MANY TRANSFORMATIONAL SHIFTS THAT WILL BE REQUIRED IN OUR PRACTICES. OUR HEALTHCARE FAMILY WILL NEED TO NURTURE EACH PATIENT TO BE ENGAGED AND ENABLED AS ACTIVE PARTICIPANTS IN THEIR OWN CARE. WE CAN AND WILL WORK SMARTER BY HARNESSING TECHNOLOGY, BOOSTING THE PATIENT EXPERIENCE AND MAXIMISING OUR RESOURCES TO ACHIEVE CARE TRANSFORMATION."

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

Other community programmes include:

Community Nursing Service

The Campus' Community Nurses, located across neighbourhoods in Yishun, Sembawang, and Woodlands, form the heart and hands of its Community Care model. Together with partners like General Practitioners (GPs), polyclinics, Senior Activity Centres, and home care providers, the nurses provide care services ranging from disease prevention to End-of-Life care.

Services provided under SMART (Self-Managed Autonomous Regional Teams) include:

- Proactive home visits to residents referred by community partners
- Chronic disease management and health coaching
- Helping residents connect and navigate Community Care services
- Teaching and empowering residents and families to manage their health more effectively through self-care

Community Nurse Posts

Established in the North by Yishun Health in collaboration with community partners, Community Nurse Posts (CNPs) are highly visible nodes. WHC will be setting up more CNPs in the Woodlands region to bring preventive care closer to home.

CNP services cover:

- Chronic disease monitoring (BMI, BP, blood sugar)
- Functional screening (Vision, hearing, oral health)
- Nurse counselling and health coaching
- Medication monitoring
- Memory test
- Falls risk assessment

In planning for the future state of healthcare for a younger population, the WHC development team has visited the United States, Japan, Sweden, and the Netherlands, and gleaned lessons from their renowned health systems. Common themes heard during these visits, and which echo WHC's intent as a future care system for the Woodlands Zone include Integration, Care Redesign, Use of Technology Enablers, and Community-based Care. Here are some of the insights gathered:

Person-Centred Healthcare Delivery System – Service Lines Development

Karolinska University Hospital (KUH), Sweden, is transiting to a whole new operational model which comprises themes and functions, based on the patient's journey through the healthcare system. Services are hence organised based on the needs and conditions of patients instead of specific specialty department that they have been admitted into. The building blocks of such thematic organisation are patient groups. Similar patient groups are organised into a single patient flow. An inter-professional and inter-disciplinary team then works with the patient in focus. This helps achieve a longer-term sustainable care system that optimises resources around the patient's care journey.

Innovation to Augment Clinical Decisions and Operations – Improve Productivity and Care Outcomes

Mayo has widely deployed the use of Artificial Intelligence (AI) in what they term as "Augmented Human Intelligence" (AHI) – which is the use of AI in healthcare to augment clinical decisions made by humans rather than taking on the entire decision-making process. AI supports productivity and quality improvement initiatives by streamlining both administrative and clinical care processes. Mayo has used much of the AI for operational optimisation and will in future move into diagnostics and clinical decision support.

Sustainable Community Care

The Toronto Emergency Medical Services (EMS) Community Paramedics (CPs) have a home visit programme which identifies residents in the community who are 995 "frequent callers". Through these home visits, the CPs assess clients based on their medical needs, and either refer or connect the clients to various community agencies. The paramedics also teach these residents to know when they truly need to call the ambulance, and what to tell the hotline so that the CPs send the right equipment and activate the appropriate resources to support residents in a timely manner. This is an example of how we can empower our community with the right knowledge and resources for more sustainable Community Care.