

THE ALEXANDRA HEALTH WAY



Alexandra Health System
Annual Report 2013/14

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OUR VISION

Help our people live a long, healthy life and support them with thoughtful, dignified care to the end.

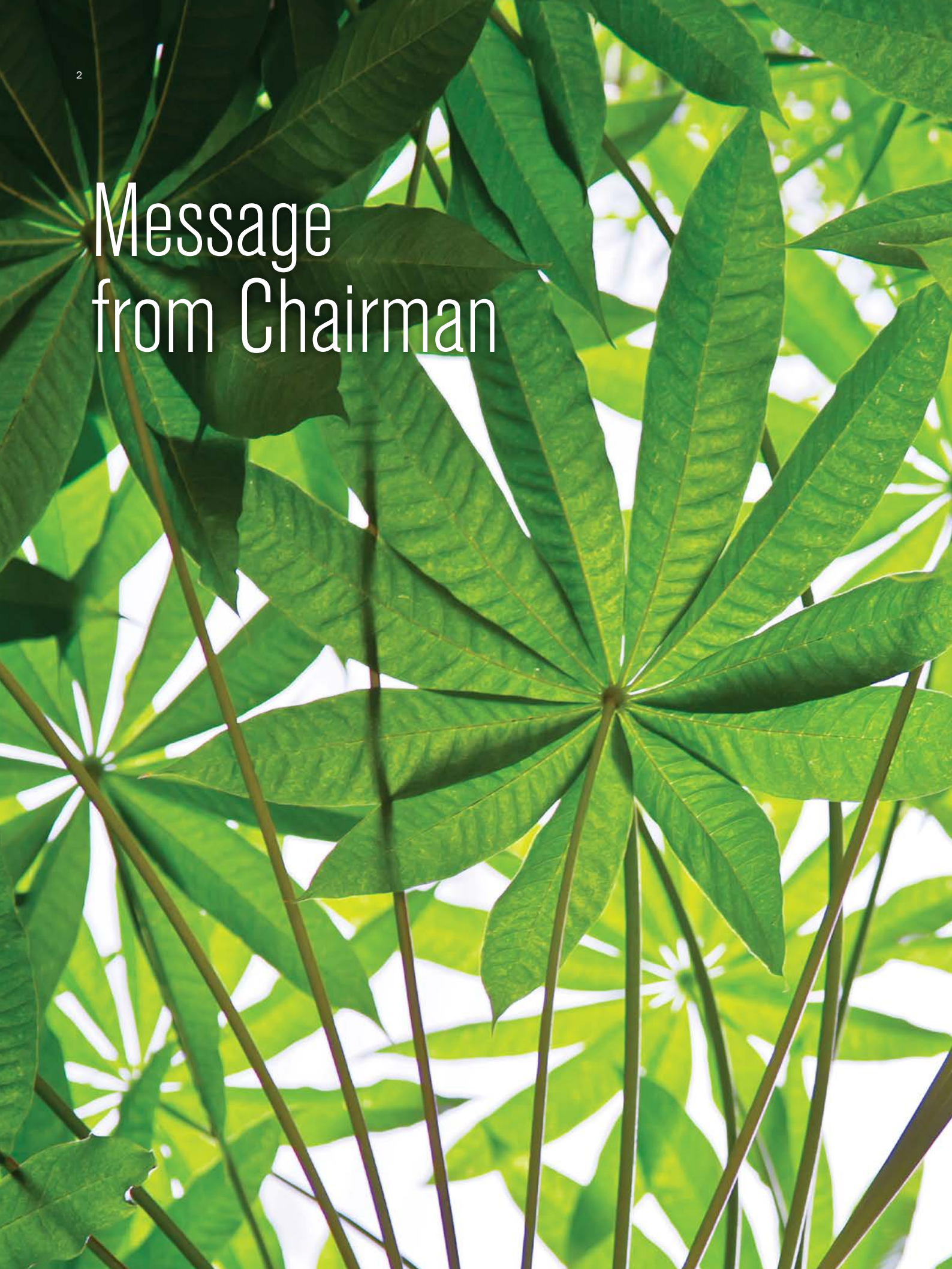
OUR MISSION

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

OUR CARE PHILOSOPHY

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

Message from Chairman



When Alexandra Health System (AHS) first opened Khoo Teck Puat Hospital (KTPH) in 2010, our immediate priority was to provide accessible acute medical care to the 700,000 residents living in the northern region of Singapore. As demand for KTPH's services grew, we had to review our current model of care delivery which is focused on disease management within the hospital.

At the top of our list is to deliver healthcare more efficiently and meaningfully. One way is to harness tools such as info-communication technology and analytics to understand the profiles of the people we are looking after. In getting to know the community, we are inspired by residents like Ms Nellie Long and Mr Gopal Krishnan, whose stories we share in this annual report. They shoulder personal responsibility for their own health and inspire others to lead a healthier lifestyle. For residents who are not as healthy - such as Mdm Pushpa Devi who has long-time diabetes, and Mr Sulaiman Bin Mohd Salleh who has multiple conditions and a foot amputation - we have helped them to better manage their conditions. For some like Mr Lim who was of advanced age and had multiple conditions, we were there for his final life's journey to help lessen his pain so he could spend quality last moments with his family.

These five patient stories in the annual report provide the backdrop to the care model that AHS is pioneering in the north of Singapore. The challenges of an ageing population and increasing chronic disease burden and disease complexity compel us to relook the way we deliver healthcare. The cluster cannot keep doing the same things with the acute care KTPH - focusing on illness, treating the patient and having the patient return to the hospital repeatedly. The AHS Way is to look at healthcare in totality - from when one is well to when one reaches the end of life. AHS strives to do this through the concept of "healthcare without walls".

With this vision in mind and Ministry of Health's support, we piloted the

Population Health programme in September 2013 to screen 16,000 residents over four years in Choa Chu Kang and Sembawang constituencies. Under this programme, we go a step further by stratifying the residents according to their health status - the *healthy, ill* and *frail* - and providing personalised and appropriate interventions to help them manage their health.

For the healthy group of residents we have screened, we create the environment and act as role models to nudge them to stay healthy. For those with medical conditions, we endeavour to provide hassle-free treatment and care in KTPH, and engage their loved ones in the caregiving process. The various teams will continue to develop a good network of social support agencies to facilitate post-hospital care and raise awareness of end-of-life planning. This will be our way of engaging the community in the north on their own health and well-being.

A key part of our "healthcare without walls" concept is the Ageing-In-Place Programme. This initiative is a radical way of reaching out to our patients. Besides medical needs, a patient's socio-economic and environmental factors are also reviewed in totality. This new way of assessing our patients in the community has helped to keep discharged patients from unnecessary readmissions. I am proud to mention that the efforts by the team have not gone unnoticed. The programme won gold for Most Innovative Project/Policy at the Public Service 21 ExCEL Awards in 2013. This community-centric programme will continue to grow from strength to strength as we welcome new partners onboard and embark on more innovation projects.

To better manage the increased patient workload in KTPH as well as to deliver on our promise of better, faster, safer and cost-effective care, several of KTPH's departments have come together to explore new initiatives. The Acute Stroke Unit initiative is a collaboration between several clinical

departments, nursing and rehabilitation services to streamline the care pathway for stroke patients. This has enabled stroke patients to receive access to diagnostic services within 72 hours of referral leading to improved health outcomes. We have also expanded the Spine Service run by the Orthopaedic Surgery and Neurosurgery teams to meet increasing demand and reduce wait time for patients with back conditions.

To strengthen our care model for the north, the cluster is building Yishun Community Hospital (YCH) and Admiralty Medical Centre (AMC). In August 2013, we broke ground for YCH in preparation for its opening in end 2015. AHS will also plan and build the proposed Woodlands Integrated Healthcare Campus (WIHC) that will open progressively from 2022. Chief Executive Officer of Agency for Integrated Care, Dr Jason Cheah, will lead the WIHC pro-tem planning committee and work closely with Mr Liak Teng Lit, Group Chief Executive Officer of AHS, to design this one-stop healthcare campus comprising a general hospital, a community hospital and a nursing home.

The AHS network of medical facilities will help to relieve some of the acute patient load in the 590-bed KTPH. The next few years will continue to be challenging, but I wish to thank and look forward to the continued support from the Ministry of Health, our community partners, government agencies and friends who have worked with us in the past year, sharing our vision of building a robust northern health ecosystem that engages the community and residents to take care of their health responsibly.

Jennie Chua
Chairman
Alexandra Health System

Board of Directors



Ms Jennie Chua
Chairman, Alexandra Health System

Mr Robert Chew



Mr Douglas Foo



Mr Ramlee Bin Buang



Mr Ong Ye Kung

Ms Teoh Zsin Woon



Mr Anthony Seah



Ms Mavis Khoo



Mr Tan Boon Khai



Mr Seah Moon Ming



Mr Liak Teng Lit



Mr Roger Leong
Company Secretary



Dr Quek Peng Kiang

Senior Management



- | | | |
|-----|--------------------------|---|
| 1. | Mr Liak Teng Lit | Group Chief Executive Officer, Alexandra Health System |
| 2. | Mrs Chew Kwee Tiang | Chief Executive Officer, Khoo Teck Puat Hospital |
| 3. | A/Prof Pang Weng Sun | Chairman Medical Board, Yishun Community Hospital |
| 4. | A/Prof Kenneth Mak | Chairman Medical Board, Khoo Teck Puat Hospital |
| 5. | Ms Yen Tan | Chief Operating Officer, Khoo Teck Puat Hospital |
| 6. | Mr Roger Leong | Chief Financial Officer, Alexandra Health System |
| 7. | Ms Lynn Gan | Chief Human Resource Officer, Alexandra Health System |
| 8. | Mr Alvin Ong | Chief Information Officer, IT & Systems, Alexandra Health System |
| 9. | Mr Lau Wing Chew | Chief Transformation Officer, Alexandra Health System |
| 10. | Dr Wong Moh Sim | Dy CMB, Head & Senior Consultant, Laboratory Medicine, Khoo Teck Puat Hospital |
| 11. | Dr Michael Wong | Dy CMB, Head & Senior Consultant, Health For Life Centre, Khoo Teck Puat Hospital |
| 12. | Dr Christopher Cheok | Dy CMB, Head & Senior Consultant, Psychological Medicine, Khoo Teck Puat Hospital |
| 13. | Dr Paul Mok | Dy CMB, Senior Consultant, Otolaryngology, Khoo Teck Puat Hospital |
| 14. | Ms Low Beng Hoi | Director, Nursing, Khoo Teck Puat Hospital |
| 15. | Mdm Chua Gek Choo | Director, Nursing, Yishun Community Hospital |
| 16. | Mr Bastari Irwan | Director, Population Health, Alexandra Health System |
| 17. | Ms Cheong Choy Fong | Director, Quality Management Office, Khoo Teck Puat Hospital |
| 18. | Mr Donald Wai | Director, Hospital Planning, Alexandra Health System |
| 19. | Ms Fatimah Moideen Kutty | Director, Operations, Khoo Teck Puat Hospital |
| 20. | Ms Candy Ng | Head, Corporate Communications, Khoo Teck Puat Hospital |



Dr Pek Wee Yang
Head & Senior Consultant
General Medicine



Dr Francis Lee
Head & Senior Consultant
Acute & Emergency Care Centre



Dr Tan Kok Yang
Head & Senior Consultant
General Surgery



Dr Edwin Seet
Head & Consultant
Anaesthesia



Dr Andy Wee
Head & Senior Consultant
Orthopaedic Surgery



Dr David Loke
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Otolaryngology



Dr Ong Hean Yee
Head & Senior Consultant
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A/Prof Sum Chee Fang
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Prof Wilfred Peh
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Dr Terence Tang
Head & Senior Consultant
Geriatric Medicine



Dr Colin Teo
Head & Consultant
Urology



Dr Yip Chee Chew
Head & Senior Consultant
Ophthalmology & Visual
Sciences



Dr Wu Loo Cheng
Head & Senior Consultant
Dental Surgery

Clinical Heads of Departments

WHAT IS THE ALEXANDRA HEALTH WAY?



Well and Healthy



Well and Unhealthy

With 700,000 residents in the north to care for, Alexandra Health System has segmented the northern population into five profile groups, in order to get to know our patients in the community better. By knowing our community, we can then care for them as an individual, like our own loved ones.

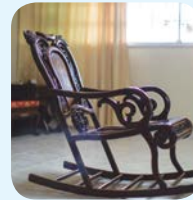
As we reached out, we caught glimpses of our residents' profiles and their health stories, and how we can touch their lives.

For the **well and healthy**, we aim to encourage these residents to continue to keep up their healthy habits and perhaps, become a sphere of influence to motivate their peers to stay healthy.

For the **well and unhealthy**, who are unaware that their unhealthy lifestyles may put them at risk of developing chronic illnesses, we want to sound the alarm bell and nudge them to take proactive and pre-emptive actions before they fall prey to a chronic disease.



Unwell and Unhealthy

Unwell and Unhealthy
(Late stage)

Frail

The **unwell and unhealthy** group includes those with existing chronic illnesses and patients with medical exigencies. The latter types are mainly acute or trauma cases which make up the bulk of KTPH's patients. For those with chronic illness, we work with the patient to manage his chronic illness to take greater ownership of his health, with the end goal of discharging the patient to the follow-up care of his primary doctor.

For the **unwell and unhealthy (late stage)** group, we help them to live meaningfully in the community after discharge. Some patients may have multiple medical conditions and are frequently admitted. We design intervention programmes to keep this group healthy at home and facilitate ageing in place, to reduce unnecessary readmissions.

And finally for the **frail** patients, we hope to bring them and their families some relief, comfort and closure as the patients reach the end of their journey.

The following stories form the backdrop of what Alexandra Health System is trying to achieve to take care of the communities the Alexandra Health Way.

“The daily group exercise sessions have helped me to make many new friends, and inspired them to lead a healthier lifestyle.”

Mrs Nellie Long, a mother of two



Well & Healthy

An individual who takes ownership of his health by exercising regularly and eating healthily. About 30% of the northern population belong to this group.

Mrs Nellie Long, a mother of two, is a perfect picture of health. Since 2010, the Yishun Ring Road resident has been exercising in Yishun Park and has attracted more and more residents to join her in the morning exercises from Mondays to Fridays.

Mrs Long's exercises are a mix of aerobics, dance and tai-chi, which she learnt online and fused together. On an average weekday morning, about 50 to 80 people of different races and ages will join her for the daily exercise sessions, with Chinese, English and even Cantonese music playing from a portable radio.

From unfit to healthy, from strangers to friends; Mrs Long's daily exercise sessions have achieved the objective of building a healthier and more cohesive neighbourhood!



'Graduates' from the second run of Mini-Medical School@KTPH in August 2013, with KTPH's healthcare professionals (foreground).

As a health-promoting hospital, Khoo Teck Puat Hospital (KTPH) aims to be a positive role model in encouraging and motivating healthy habits.

Lifelong learning with our community

The participation for Mini-Medical School@KTPH programme has been steadily on the rise since Dr Ong Chin Fung (Consultant, Family and Community Medicine) and her team started it in 2013. The programme aims to share health-related topics with the community and influence them to change their health behaviour as well as become advocates for change.

The topics are presented in a light-hearted and non-threatening environment by KTPH's clinicians and allied health professionals for maximum interaction between the 'lecturers' and 'students'. The topics are chosen because of their relevance to audiences. These include preventive pre-illness care,

management of chronic illnesses, and education on usage of hospital resources and medication. To date, the three runs of the programme have been very well-received, reaching out to more than 1,000 participants.

"Mini-Medical School @ KTPH aims to provide our public with useful health information so that they can become more informed partners in the management of their own health and that of their loved ones."

Dr Ong Chin Fung, Consultant, KTPH's Family and Community Medicine, who founded the Mini-Medical School @KTPH programme



"I participated in all 3 sessions of Mini-Medical School@KTPH in January 2013. Not only did I benefit greatly from the teachings, I also enjoyed thoroughly the sessions as the medical practitioners presented their materials with wit and candour. They are certainly capable of making some dry and boring topics interesting, capturing the audience's attention!"

Mrs Yang, who participated in the first run of Mini-Medical School@KTPH in January 2013

Positioning the hospital as a “living lab”

KTPH prides itself as a “living lab” for positive health practices and behaviour. A lot of thought had gone into designing the physical and work environment so that it is conducive for good health habits.

For example, the promenade along the transformed Yishun Pond next to KTPH was custom-designed with a running track and exercise corner for the public and staff. KTPH’s open concept enables health promoting activities to be organised in public view. These include line dancing and tai chi sessions by our staff at the main lobby and open areas of the hospital, as well as mass exercise sessions at the promenade.

We have also built about 130 bicycle racks in the premises of the hospital to encourage staff to cycle to work, and put up health promoting messages in the hospital to nudge staff and public to take the stairs and adopt a healthy lifestyle. We also worked with the operator of the food court to encourage diners to



KTPH’s open environment is beneficial for staff and community residents to gather to exercise at the promenade near Yishun pond and the hospital’s main lobby.

purchase healthier food options such as brown rice and non-sugary drinks through a reverse pricing system where healthier food choices are priced cheaper.



Alexandra Health wins inaugural Global Healthy Workplace Award

In 2013, Alexandra Health System beat international giants Johnson & Johnson and P&G China among others to win the inaugural Global Healthy Workplace Award 2013 in the category for “Large Enterprises”.

This award recognises organisations which have invested in structured workplace promotion programmes to build a healthy and happy workforce.

Dr Michael Wong, Deputy Chairman Medical Board and Director of Health For Life Centre, receiving the Global Healthy Workplace Award in London, U.K. in April 2013.



Getting our community involved

In line with Alexandra Health's health promoting philosophy, KTPH also worked with like-minded partners to make our premises accessible for health activities.

Nee Soon East Wellness Programme collaborated with KTPH for the first time to organise the "Exercise for Everyone, Anywhere, Anytime" activity for about 600 residents at the hospital on 14 April 2013. The participants went for a brisk walk around the hospital premises carrying two filled water bottles each as weights. After the walk, they were taught by a KTPH staff simple exercises that can be done using water bottles and towels as weights and resistance bands respectively. The event aimed to encourage older residents to embrace active ageing as a way of life by making simple-to-do exercises part of their daily lifestyle. A similar event was held on 23 February 2014.

Participants of the Health Promotion Board's (HPB) Lose to Win programme in the 2013 season also came to KTPH to exercise under the guidance of HPB's trainers.

Mr Patrick Tay (far left), Member of Parliament for Nee Soon GRC, exercising with residents using towels as resistance bands, at the second "Exercise for Everyone, Anywhere, Anytime" event on 23 February 2014.



Kit Ling (front) taking part in the Alexandra Health's Home Run 2013 with colleagues.

Being a role model for the community

Ip Kit Ling, a senior manager at KTPH and a grassroots leader with Nee Soon East grassroots organisations, walks the talk, in setting a good example. Kit Ling improvised a set of simple exercises for elderly residents using body towels and filled mineral water bottles to replace exercise bands and weights.

The residents were delighted with her creative ideas. Kit Ling trained a group of seniors to become trainers to sustain this unique exercise regime.

She shared this exercise at the 22nd People's Association's Wellness Programme sharing session in September 2013, and the 'towel and bottles' exercise was soon spread to the other brisk walking clubs in Nee Soon GRC. The creative residents have even used Indian music and Chinese goldies in place of energetic pop music in their workouts!

"I wanted to introduce strengthening and flexibility exercise to the brisk walkers. Towels and water bottles are items which are found in every home. I hope to gradually inculcate in them a regular habit of exercising, and for them to share these exercises with their friends and family," said Kit Ling, an avid runner.

“I didn’t know my obesity put me at risk of developing chronic diseases. Thankfully, I changed my lifestyle and did not have to go for my slipped disc operation in the end.”

Mr Gopal Krishnan, 63



Well & Unhealthy

It is estimated that 40% of the population in the north may be at risk or have an underlying chronic condition they are not aware of.



Nee Soon resident, Mr Gopal Krishnan, 63, used to be an active sportsman, playing hockey and social soccer, before he stopped exercising due to work and family commitments. He put on weight with an excessive intake of unhealthy food. He thought that other than being overweight, he was otherwise in good health. He had no chronic diseases and enjoyed his favourite fast food, fried chicken and briyani weekly.

At his heaviest in November 2012, Mr Gopal tipped the scales at 95kg. Unknown to Mr Gopal, his obesity put him at a high risk of developing chronic diseases in the future.

Influencing Mr Gopal towards a healthier lifestyle



Mr Gopal could have been indifferent and continued with his lifestyle if he was not referred by the polyclinic to KTPH's Orthopaedic Surgery specialist outpatient clinic in end 2012 for his long-time slipped disc problem, a result of his days as a hockey player.

The doctor advised that it would be safer for him to lose weight first before having the operation. To get ready for the operation, Mr Gopal was motivated for the first time to shed his excess weight.

"I was further inspired to lose weight when I saw an old man jogging at Yishun Pond one day. I started to wonder if a younger person like me could do better. I attended a couple of mass brisk walking events organised by North West Community Development Council. It was the start of my rethinking towards a healthy lifestyle. From 15-minute walks, I progressed to jogging longer distances of 2 to 5km at Yishun Pond."

Mr Gopal also enrolled in the KTPH's **Weight Management Programme** run by the Health For Life Centre. Fortunately for Mr Gopal, his health screening results were normal. He finished the programme and learnt to read food labels and healthy ways to prepare food from his sessions with the dietitian. He started eating more vegetables and fish, cutting down on carbohydrates, and also started to steam his food. By January 2014, his weight had gone down to 75kg, close to his ideal 73kg.

Mr Gopal's slipped disc condition also improved and eventually, he did not require the operation. To keep fit, he now jogs an average of 6km three times weekly and watches his diet rigidly. He had also become a health advocate, inspiring his friends to lose weight through exercise and healthy eating.

Multi-disciplinary approach to helping patients lose weight safely

Obesity is the primary cause of many chronic illnesses such as diabetes, hypertension, heart disease and osteoarthritis. Maintaining a healthy weight and body-mass index (BMI) helps to lower the risk of developing chronic illnesses.

The **Weight Management Programme** by the Health For Life Centre is provided by a multi-disciplinary team of doctor, psychologist, dietitian, occupational therapist and physiotherapist. It aims to help overweight patients lose weight safely through a multi-pronged approach.

The programme runs over 16 weeks and comprises three modules: doctor's consultation, allied health's assessment and a core weight management module. The programme focuses on gradual and progressive weight loss through a combination of regular exercises, inculcation of healthy dietary habits and behavioural therapy. A case manager will track the patient's progress through the programme, culminating in the final doctor's review and blood tests to evaluate the weight loss journey.



THE BIG CHALLENGE TO MODIFY BEHAVIOUR

Alexandra Health estimates that 40 per cent of the northern population think that they are well, but may possibly be unhealthy. They may have unknowingly developed or are predisposed to developing chronic diseases because of their negative lifestyle habits. Uncovering their real health statuses through health screening alone is insufficient. They may not take appropriate actions actively to manage their chronic condition and/or make lifestyle changes to reduce their risk of developing chronic diseases. Our population health initiative is our way to screen people's health and influence lifestyle habits.

Population Health initiative

Our desire to co-create healthier communities also resonated with the Grassroots Advisers for Sembawang and Choa Chu Kang constituencies. Hence, in September 2013, Alexandra Health partnered the Health Promotion Board and People's Association to launch the Population Health initiative in those two constituencies.

Funded by the Ministry of Health, the Population Health programme aims to screen 16,000 Sembawang and Choa Chu Kang residents aged over 40 years old for chronic diseases, from September 2013 to March 2016.

The Population Health initiative goes a step further than a general health screening by focusing on instilling personal health ownership and effecting behavioural change in the individual through a structured framework. This includes stratifying residents according to their health habits, targeting the appropriate interventions for them and ensuring they sustain their positive habits.



The Population Health team carrying out a health screening in Sembawang GRC.

Using data and behavioural science to profile residents & modify behaviour

As at end March 2014, the Population Health team had organised 10 health screenings for over 1,500 residents in Sembawang and seven health screenings for 445 residents in Choa Chu Kang respectively.

The findings on the first 1,500 patients screened by the Population Health team indicated that there is much work to be done in the area of pre-illness care. Helping residents become more aware of their health status is only the first step. The next step of persuading them to take action like seeking medical help or renew their follow-ups to better manage their chronic conditions and adopting positive lifestyle habits is proving to be more challenging than originally anticipated. The team is studying how we can use behavioural science to help modify residents' behaviour, as well as making the screenings and intervention programmes more effective.

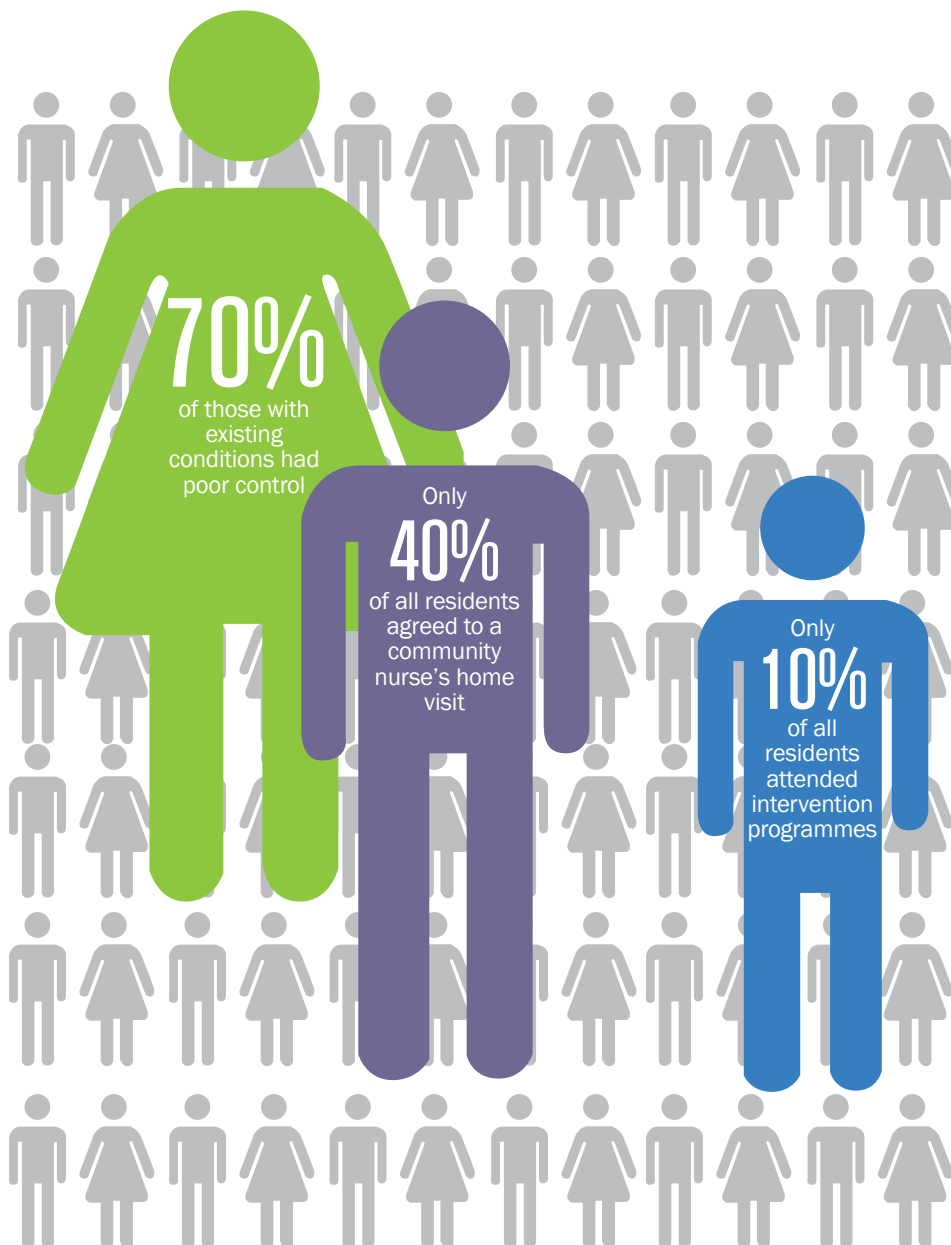


Inspired by small successes

Despite the challenges ahead, we are motivated by successes like 46-year-old Mr M Tan, an engineer. Mr Tan's health screening results showed a rather abnormally high blood sugar reading. He was advised to seek medical attention, and was diagnosed with diabetes. In fact, this was already flagged out in a health screening done at his workplace last year, but he did not take action then.

Initially, he and his wife were devastated by this new discovery. But the Population Health team was there to support him. We arranged for him to undergo health counselling and sharing sessions with other long-time diabetes patients who shared about their experiences in controlling the disease. Over time, Mr Tan was motivated to make key lifestyle changes to keep his diabetes under control.

He now watches his diet well and exercises frequently. His condition has improved to the extent that his family doctor has reduced Mr Tan's medication dosage.



Unwell & Unhealthy

An estimated 25% of patients are unwell and unhealthy. They are those with chronic conditions that need to be managed in a hospital setting, as well as acute patients admitted for life-saving medical emergencies.

“With professional advice, I am now controlling my diabetes better.”

Mdm Pushpa Devi, 55



Managing diabetes together with Mdm Pushpa

KTPH's multi-disciplinary Diabetes Centre team adopted a holistic approach to educate and help Mdm Pushpa manage her condition. Working in tandem, a nurse educator and dietitian reviewed Mdm Pushpa's diet. As she was consuming too much carbohydrates and not enough fibre, the dietitian helped her with meal planning. Mdm Pushpa was also taught by the nurse educator on the appropriate times to check her blood glucose, which she was doing wrongly previously.

Mdm Pushpa also attended a series of intervention programmes by the Diabetes Centre. These include **Skills For Life**, **Diabetes Empowerment Programme** and the **Continuous Glucose Monitoring System** service. Her participation in these programmes provided her with more knowledge on managing diabetes.

Six months after being referred to KTPH, Mdm Pushpa successfully cut down her blood sugar and weight to significantly lower the risk of her diabetes escalating. She is now seeing her general practitioner to manage her condition.



Nurse Clinician Sharon Fun teaching Mdm Pushpa how to use a blood glucometer to monitor her blood sugar.



The multi-disciplinary Diabetes Centre team

Multi-disciplinary approach to managing diabetes

KTPH's **Diabetes Empowerment Programme** is delivered by a multi-disciplinary team of doctor, nurse and allied health professionals to equip patients and their caregivers the relevant knowledge and skills to better manage diabetes and prevent complications.

The KTPH team will review and assess the patient to design a personalised nutrition, exercise and medication plan. The programme also includes small and relaxing class sessions where patients can get together to learn about diabetes management – from full-body care to stress management to managing blood sugar levels.

Upon completion of the programme, there will be an updated diabetes care plan for the patient to continue care management in the community.

Equipping patients and caregivers with skills to manage diabetes

The **Skills For Life** programme, conducted in English, Mandarin and Malay, is open to patients and the public, who want to know more about diabetes and self-management.

Participants will also gain tips and insights for making helpful lifestyle adjustments, and learn from other diabetes patients who will share their experience in controlling the disease.

The programme also includes hands-on activities to help patients understand the effect of exercise on blood sugar, managing sick days and protecting themselves from common problems arising from their condition.

Continuous monitoring for better glucose control

The **Continuous Glucose Monitoring System (CGMS)** leverages on technology for the Diabetes team to co-manage the patient's blood glucose levels through continuous off-site monitoring, and make the appropriate recommendations to help him achieve better blood glucose control.

Patients have to visit the Diabetes Centre twice - once to insert the sensor, and then to remove and upload the sensor. Patient will calibrate the sensor with fingerprick blood glucose readings at least two to four times daily, and complete a diary of their blood glucose readings, food intake, activity level, diabetes medication, etc, during the days that they are wearing the sensor.

The blood glucose sensor monitors the patient's fluid glucose every five minutes for 72 hours or longer, and captures the reading into a computer system. The CGMS team will then discuss the findings with patients and advise them on the measures to adopt for better glycaemic control.



Participants of the Diabetes Empowerment Programme doing group exercises together.

Besides chronic diseases, an acute care hospital like KTPH sees many cases of medical emergencies such as casualties of road traffic accidents (RTA), and heart attacks. RTA and heart-related cases accounted for one-fifth of the 8,300 major emergency cases seen in the KTPH A&E in FY 2013-14.

The following two patients' stories illustrate the urgency and importance of the A&E team in racing against the clock to save patients' lives and limbs.

Teamwork in a high pressure environment to save lives

Mdm Jun, 38, who was unconscious and unresponsive after a road traffic accident along Woodlands Avenue 2, arrived at KTPH's A&E on 26 March 2014. The A&E trauma team assessed Mdm Jun according to the KTPH's Major Trauma Protocol which is in line with the international Advanced Trauma Life Support protocol. She was immediately

intubated for airway protection, infused with warmed intravenous fluids and had her blood sample taken for analysis.

Working quickly to assess the extent of her injuries, the trauma team conducted chest and pelvic x-rays, and a FAST (Focused Assessment with Sonography for Trauma) scan to detect life-threatening injuries in the abdomen and chest. She was later wheeled into the CT scan room to have further CT scans of her head, cervical spine, chest, abdomen and pelvis. Mdm Jun was administered antibiotics and a drug to reduce the pressure in her brain following trauma.

She subsequently had an operation to remove part of her skull to relieve swelling in the brain, and a procedure to draw blood away from her brain. Post-surgery, Mdm Jun was transferred to the surgical intensive care unit (SICU) for monitoring and support.

Two weeks after her operation, Mdm Jun's condition stabilised and she started her rehabilitation in a general ward under a team of physiotherapists and speech therapist. Mdm Jun was eventually discharged to continue further rehabilitation in another restructured hospital and given outpatient follow-ups at KTPH.

Mdm Jun is one of many acute trauma cases seen in the KTPH A&E. Every second counts from the moment of the ambulance's arrival to when the patient is operated on. The trauma team has to respond fast and work as a cohesive team to beat the clock and save lives in the A&E.



The A&E trauma team



Good teamwork is essential as every second makes the difference between life and death in an A&E emergency.

Timely intervention saves heart attack victim

Mr Ramesh, 53, suffered two episodes of chest pain on 12 March 2014 – once in the afternoon while at work, and the other at night. His family immediately called for an ambulance to send him to KTPH.

He was attended by a doctor within five minutes of his arrival in the A&E. Over the span of 30 minutes, three electrocardiogram (ECG) tests were done on him, but they did not show any signs of a heart attack. The cardiac team was activated and shortly after midnight, a fourth ECG showed signs of a heart attack. Mr Ramesh was diagnosed with anterior ST elevation myocardial infarction, and given oral medication to control his chest pain. At the same time, preparations were also made for him to undergo an emergency angioplasty in the interventional cardiovascular suite located at the Cardiovascular Centre.

Within 23 minutes of Mr Ramesh being transferred to the Cardiovascular Centre, emergency ballooning and stenting was completed. This intervention, also known as primary percutaneous coronary intervention (PPCI), has to be completed within 90 minutes of diagnosis or earlier, as any delay increases the risk of death.



Timely emergency ballooning and stenting done in KTPH's Cardiovascular Centre can significantly improve the survival rate of a heart attack victim.

Mr Ramesh spent one day under cardiac monitoring in the intensive care unit, before being discharged to a general ward the following day. He was discharged three days after admission to KTPH, and continued his cardiac rehabilitation programme at the cardiology clinic.

Timely emergency ballooning and stenting done can significantly improve the survival rate of a heart attack victim.

■ Unwell and Unhealthy (Late Stage)

“My life is my own.
I will do what I like.”

Mr Tan, 65

Unwell & Unhealthy (Late Stage)

An elderly patient with multiple medical conditions that are poorly managed. Intervention for these patients may go beyond medical care to address non-medical factors such as their lifestyle habits and physical environment. About 5% of the population in the north are elderly with multiple poorly-managed conditions.

Mr Tan (not his real name), 65, is a widower, living in Woodlands with his sister-in-law and her family. He has multiple conditions which include asthma, alcohol liver disease, inflamed colon, diabetes and stroke. Mr Tan was admitted seven times to KTPH in 2013.

He could not be touched by our efforts to help him manage his conditions. He continued to smoke and drink, even when he recovered from a stroke.

Many of the patients we see are like Mr Tan: they do not realise that health is their own responsibility.

Encouraging Mr Tan to take responsibility for his health

Mr Tan was placed in Alexandra Health's **Ageing-In-Place (AIP) Programme** in January 2013. He had poor balance and frequently fell because of his heavy drinking.

The AIP team tried to reduce his falls risk by donating a commode chair and applying to Housing and Development Board's EASE programme for grab bars to be installed in his home.

A pharmacist also visited him at home to review his medication, but he continued to be non-compliant. The AIP team also applied for the meals-on-wheels service to deliver meals to his home, but it did not work out as he was unhappy with the food.

In February 2014, a month after he was readmitted to KTPH, Mr Tan was discharged to a step-down ward in the Singapore Christian Home (SCH) when his condition had stabilised. He continued his recovery in SCH and upon discharge, the community nurse provided caregiver's training to his helper to ensure she could care for him at home.

Given Mr Tan's failing health, if he doesn't stop smoking and drinking, he will eventually succumb to his medical conditions despite the support from the AIP team.

We can try to reach out to patients like Mr Tan, but it is an uphill battle to change their mindsets and modify their unhealthy lifestyle and behaviour.

Managing frequent readmissions with the Ageing-In-Place (AIP) Programme

The high demand for subsidised beds in KTPH required the team to prototype innovative solutions in caring for patients outside the hospital. The **Ageing-In-Place (AIP) Programme**, piloted in September 2011, focuses on post-discharge care to ensure patients receive help and support in recovering well and rehabilitating at home. This minimises their need for unnecessary readmissions and allows limited hospital beds to be optimised for more critically-ill patients.

As part of the 'de-medicalised' model of care, community nurses visit patients – most of whom have a history of three or more admissions over a six-month period - to assess them and develop individualised care plans addressing the patients' clinical, social and environmental needs. As part of a holistic framework, the AIP team works closely with more than 15 community partners such as voluntary welfare organisations, government bodies and grassroots organisations to address the patients' various needs, beyond just medical issues alone.

Eleven Community Nurse Posts were also established in the grassroots divisions in Nee Soon and Sembawang Group Representation Constituencies to provide basic nursing support and geriatric assessment for walk-in elderly residents. This aligns with the government's initiative to promote population health and make healthcare more accessible and visible to the community.

An analysis of 400 patients under the AIP Programme showed that the average readmission rate was cut from 3.5 times to 1.3 times, following intervention, which represented a 61 per cent improvement. About 47 per cent of the AIP patients were not readmitted. This reduction in admission has helped KTPH optimise beds for more critically ill patients.



Helping Mr Sulaiman on the road to independence

At the other end of the spectrum, we are encouraged by AIP patients like Mr Sulaiman Bin Mohd Salleh, 83, a widower, who is highly motivated.

Mr Sulaiman suffers from asthma, diabetes, hypertension, ischaemic heart disease and had his right foot below the knee amputated in 2011 due to complications from diabetes. He was frequently readmitted to KTPH.

His eight children are all married and do not stay with him. He is resolutely independent and prefers living alone in his own home, despite his medical conditions and high risk of falls. He moves around in his home on a wheelchair, and cleans and cooks for himself. As it was difficult for him to get out of his home on wheelchair, he relied on his family members to bring him groceries and go for his outpatient appointments.

Support from AIP team

The AIP team visited him in January 2013 and uncovered several non-medical issues which were causing his readmissions. These include the lack of social support as a result of his preference to live independently, poor control of his diet and non-compliance to the many types of medication he had to take. His medication was also stored haphazardly and he could easily take the wrong drugs by accident.

The team observed that Mr Sulaiman's mobility at home was impeded by his furniture. They also assessed his toilet and kitchen to be unsafe which further increased his risk of falls. These factors were obstacles to him being fully self-reliant.

Acting as a single point of contact, a community nurse from the AIP team

- educated him on a healthy diet
- reviewed his medication
- applied for financial assistance on his behalf
- activated various community partners working with the AIP Programme to provide specific interventions for his various needs:
 - Agency for Integrated Care: provided Mr Sulaiman with a motorised scooter and installed a ramp outside his home.
 - Sunlove Seniors Activity Centre: delivered food rations to Mr Sulaiman.
 - NTUC Eldercare: provided

home help and escort services for housekeeping and to ferry him to his medical appointments respectively.

- Thye Hua Kwan Moral Society: repacked his medication into blister packs for easier and safer consumption.
- Housing and Development Board: installed grab bar in his toilet and a ramp at the entrance of his home.

With support from the AIP team and community partners, Mr Sulaiman is able to better manage his medical conditions and continue living independently.



Mr Sulaiman moving around in his neighbourhood on the mobility scooter that the Agency for Integrated Care provided for him with intervention from the AIP team.

AIP Programme – a journey of constant innovation

The AIP Programme was awarded Gold at the Public Service (PS) 21 ExCEL Awards in the category for Most Innovative Project/Policy in November 2013. The Awards, organised annually by the Public Service Division, recognise innovative ideas and projects by public service agencies and officers.

Alexandra Health signed a memorandum of understanding with Duke-NUS Graduate Medical School Singapore in August 2013 to conduct an evaluation study of the AIP Programme with a view to sharing our experience with other healthcare institutions beyond the northern region.



Prof David B Matchar (Programme Director, Health Services and Systems Research Programme) and Prof Ranga Krishnan (Dean) from Duke-NUS Graduate Medical School Singapore at the MOU signing with A/Prof Pang Weng Sun and Dr Wong Chek Hooi (Alexandra Health).



Mr Ron Pereira, a volunteer from RSVP Singapore, interacting with a patient under a new befriending initiative by the AIP Programme.

The AIP team continued on its journey of innovation in transforming healthcare from beyond the hospital to home. The AIP team started work to build a mobile solution system that will allow community nurses to access patients' medical and visit records with an iPad. The tablet would also be equipped with a global positioning system and mapping function for the nurses to find the locations of the nearest available community services and resources for their patients. The system is targeted for roll-out in Q3 2014.

The team worked with Singapore Polytechnic to design a prototype of a congestive cardiac failure monitoring toolkit that uses visuals to educate and alert patients to their health risks and interventions to take. Ten toolkits were produced and distributed to AIP patients with congestive cardiac failure.

The AIP Programme also tied up with two new partners, voluntary welfare organisations RSVP Singapore and Brahm Centre, on a befriending initiative. Volunteers from both partners were trained by community nurses to provide psycho-social support to AIP patients.

Streamlining care with Singapore Christian Home's support

To cope with the high bed demand, KTPH worked with the Agency for Integrated Care (AIC) and Singapore Christian Home (SCH) on an experimental model of care to better manage patients.

In December 2013, a ward with 50 beds was set up in SCH to take in KTPH patients who were assessed medically fit for discharge from an acute setting. These patients were typically those who were awaiting placement to nursing homes or destitute/sheltered homes, or those who could not be discharged home due to some reasons, e.g. the need to recruit and train caregivers. The ward was staffed by a team of medical, nursing and ancillary support staff from KTPH.

Collaborating with SCH, KTPH was able to save more than 5,000 bed days, freeing up beds to admit another 900 more acutely ill patients during the same period.

■ Frail

“When we enter the world, we are surrounded by love, comfort and care. Thus, patients deserve the same when they finish their life’s journey.”

Nurse Clinician Sim Lai Kiow,
KTPH’s Palliative Care Service



Frail

About 1-2% of the population in the north are elderly with multiple medical conditions who are usually bed-ridden, frail and living out the last 1,000 days of their lives. Medical care is focused on symptom management to bring about comfort and relief for such patients.

Mr Lim, 86, suffered from multiple conditions such as diabetes, stroke, a weak heart and chronic kidney disease for years. He was referred to KTPH's Palliative Care Service for symptom control of pain and shortness of breath.

Mr Lim's right foot had become gangrenous due to diabetes. As the pain was unbearable, he eventually agreed to undergo an operation to amputate his foot.

Providing relief and comfort to Mr Lim during his last journey

Mr Lim was discharged home after surgery and placed under the care of KTPH's **Transitional Care Service**. A multi-disciplinary team of doctor, Transitional Care (TC) nurse and a Palliative Care nurse visited him at his home. The Transitional Care nurse provided caregiver training to Mr Lim's family members such as changing his wound dressing daily.

The Palliative Care nurse discussed Advance Care Planning (ACP) with Mr Lim and his family during the visit. From the conversation with him, she found out what his preferences for end of life care were, his personal values and his wish for passing away at home. The ACP discussion was documented in Mr Lim's care plan for clinicians to note and adhere to his wishes for symptom management and non-invasive treatment.

When his condition deteriorated, he was referred to a home hospice care provider for support. Mr Lim passed away peacefully at home in the presence of his family three months after his operation, in accordance to his wishes.



The multi-disciplinary Palliative Care Service works with patients and their families to plan for end of life and bring closure.

Providing comfort and closure to patients before their last journey

The **Palliative Care Service** under the Department of Geriatric Medicine provides end of life care for frail patients and those facing advanced progressive illnesses. The service is staffed by a multi-disciplinary team of doctors, nurses and allied health professionals, and works closely with the Pain team in controlling symptoms.

The Palliative Care Service adopts an integrated model of care and provides both inpatient and outpatient services. The model of care is needs-based and aims to help patients by providing pain relief and strengthening the patient's relationships with their loved ones before his final journey.

The Service also collaborates with other programmes, such as the Ageing-In-Place Programme and Transitional Care Service, to provide staff training and post discharge care management for patients with advanced medical conditions. Outside the hospital, the team works with home hospice care organisations such as HCA Hospice Care, Singapore Cancer Society's home hospice section, AIC HOME (HOListic care for MEDical advanced patients) and Agape Methodist Hospice (Homecare) to develop a comprehensive structure to provide end of life care for patients at home.



Transitional Care nurse Chen Lu visiting a patient to administer an injection.

Multi-disciplinary team helps patients to transition to home

The **Transitional Care (TC) Service** provides short-term, follow-up care for patients with complex but stable conditions who can be discharged home without the need for prolonged hospitalisation. This allows beds to be freed up for more critically ill patients and ensures care continuity for the newly-discharged patients in the comfort of their own homes.

A multi-disciplinary team of professionals will visit the patients in their homes to continue care management and provide caregiver training to family members. The service is available for up to three months (depending on patient's condition), following which the patient's care will be handed over to a community care provider such as a home medical or home nursing team, or community nurses under Alexandra Health's Ageing-In-Place (AIP Programme), for a longer term follow-up.

Transitional Care patients are typically the elderly with an average age of 83. They range from post-operative surgical patients to those with congestive cardiac failure, diabetes and stroke. The service had served about 920 patients as at end March 2014.



The Transitional Care Service team

Planning for end of life with Advance Care Planning

Advance Care Planning (ACP) is a discussion or conversation between the patient, his family members and healthcare professionals about the patient's future healthcare plans.

ACP reduces crisis decision-making for family members, and safeguards the patient's best interest by ensuring medical decisions are made in accordance to his wishes. This conversation is initiated by a trained facilitator who will seek to understand and document the patient's personal values and beliefs, his care preferences, what it means to him to be living well, and even the nomination of a substitute decision maker.

To help patients and their family members plan for medical contingencies, KTPH set up an ACP Clinic in September 2013 as part of the services provided by the Department of Geriatric Medicine.

The clinic also provides training for hospital staff and community partners to equip them with the required knowledge to become ACP advocates, facilitators or Preferred Plan of Care facilitators for end of life patients.

'Both Sides, Now', living and dying well

Living well often entails dying well. Commissioned by the Lien Foundation and ACM Foundation, KTPH as a partner, presented 'Both Sides, Now', a multi-disciplinary exhibition to raise awareness of end of life issues. Running from 16 November 2013 to 10 January 2014, the event reached out to thousands which included KTPH staff, patients, visitors and the public.

Through a visual exhibition of objects belonging to patients and healthcare workers, public dialogues and sharing, short films and artistic performances, 'Both Sides, Now' aimed to use art as a 'safe medium' to stimulate and encourage reflections on living well and dying well. KTPH's staff, patients and caregivers were among those who were interviewed by the producers to garner content and share their stories at the exhibition.

KTPH co-presented 'Both Sides, Now' as death happens daily in hospitals, and healthcare workers and families often have to grapple with end of life issues. The open concept of KTPH also made the various activities under 'Both Sides, Now' more visible and accessible to the public. The exhibition provided an avenue for the hospital to create awareness and share Advance Care Planning, an important consideration in end of life conversations, with the public.



Public watching a short film titled "Ah Ma" by award-winning director Anthony Chen, at Both Sides, Now.

Both Sides, Now: Using art to spark a conversation on end of life issues



“We’re always talking about managing the dying process, making decisions on whether we need to continue resuscitation. But that is not the lasting memory that we want the family to have of the death. We want a goodbye that is meaningful so that they can carry on living after their partner has died. We want to shift the focus away from the dying process...to relationships, a gift to the ones left behind to carry on.”

*Dr Wong Sweet Fun, Senior Consultant, KTPH
Department of Geriatric Medicine*

“Our society needs to have an open discussion on death-related topics. We want to spur people to re-examine, and hopefully, redefine their lives before death. I see art as being able to provide us subtle languages to dialogue (about) these challenging topics...often difficult to put into speech.”

Mr Lee Poh Wah, CEO, Lien Foundation



“We have a vision to transform care for our people living in the north, and we are working towards it.”



A VISION TO TRANSFORM CARE IN THE NORTH



The changing health landscape in Singapore – ageing population, increasing chronic disease burden and finite healthcare resources – necessitates a paradigm shift from illness care to keeping people healthy and out of the hospital. This also requires healthcare providers to do our best to keep patients from being readmitted.

The role of hospitals has to evolve from just traditionally treating diseases and medical emergencies (illness care) to one where the focus is on holistic “person care”, from even before the person falls ill. With technology, big data and a wealth of knowledge readily at our disposal, the potential to transform care is immense.

Building capability and streamlining care delivery

Alexandra Health System will focus on building capability and streamlining healthcare delivery for the 700,000 residents living in the north over the next decade. Beginning with KTPH which opened in 2010, Alexandra Health System will be opening the Yishun Community Hospital by end 2015 and the Admiralty Medical Centre in 2017. The cluster will also run the new Woodlands Integrated Healthcare Campus - first announced in February 2014 – that will open in phases from 2022.

With these pieces progressively in place, Alexandra Health will strengthen the northern healthcare eco-system to ensure care integration from primary care to acute care to step-down long term intermediate care.



Artist's impression of Yishun Community Hospital

Groundbreaking of Yishun Community Hospital

Over 200 guests including Grassroots Advisers, community partners and staff witnessed the groundbreaking by Health Minister Mr Gan Kim Yong on 23 August 2013. When ready in 2015, YCH will offer 428 beds for rehabilitation, sub-acute, dementia and palliative care, and enable the right-siting of patients. The main construction contract for YCH was awarded to Kimly-Shimizu Joint Venture.

A handover ceremony was held on 28 January 2014 to mark the phased completion of piling works and commencement of superstructure works.



Health Minister Mr Gan Kim Yong broke the ground for YCH on 23 August 2013.



Mr Liak Teng Lit, Group CEO, Alexandra Health System (right) showing (from left) Ms Jennie Chua, Chairman of Alexandra Health System Board, Foreign Affairs and Law Minister Mr K. Shanmugam and Health Minister Mr Gan Kim Yong a model of YCH which is located beside KTPH.

“YCH will become a focal point for supporting the care of patients who need rehabilitation or a longer period of hospitalisation to recover. The community hospital will also collaborate with nursing homes, day rehabilitation centres and home care providers, as well as family physicians and voluntary welfare organisations to ensure care continuity when patients are stepped down from YCH to the community or their own homes.”

Chairman Medical Board (YCH)
A/Prof Pang Weng Sun



The YCH planning team is adopting KTPH's best practices in patient care. This includes planning services and facilities around patients' needs, and integrating IT systems to ensure the seamless flow of patients and information to and from YCH and KTPH.

A focus group discussion was organised in August 2013 with patients and their families to obtain feedback and suggestions which helped to refine the service planning for YCH.

As part of Alexandra Health's practice of learning from the best organisations, the YCH Hospital Planning team also embarked on learning journeys and site visits to the new National Heart Centre, Cisco office at Changi Business Park, Changi General Hospital and SingHealth's Academia building.

A way-finding workshop was also held in January 2014 to brainstorm the design and location of services to facilitate intuitive way-finding for visitors. Physical infrastructure includes skybridges to connect YCH to KTPH to facilitate easy transfer of patients. The community hospital will also literally take a leaf from KTPH's example with extensive greenery landscaping to promote a healing environment for our patients.

Admiralty Medical Centre

Alexandra Health System, Housing and Development Board, National Environment Agency, Ministry of Health and Ministry of Social and Family Development are prototyping Singapore's first 'vertical urban kampung' concept at the Admiralty Integrated Development, with grouped services to foster intergenerational living and bonding.

Alexandra Health will manage Admiralty Medical Centre (AMC) which will open in the integrated development in early 2017. The piling tender for Admiralty Integrated Development was awarded on 31 March 2014 to P-One (S) Pte Ltd.

AMC will offer investigative, diagnostic and podiatry services to residents who will not have to travel to KTPH for such services, hence freeing up outpatient appointments at KTPH for more complex cases.

The AMC planning team participated in a series of design workshops with the architect for Admiralty Integrated Development, WOHA Architects Pte Ltd, to refine the layout of the medical centre which will occupy the first, third and fourth storeys of the Development.



Aerial view of Admiralty Integrated Development



Artist's impression of the waiting area inside Admiralty Medical Centre

Woodlands Integrated Healthcare Campus

Minister for National Development (MND) and Member of Parliament for Sembawang Group Representation Constituency Mr Khaw Boon Wan announced in February 2014 the proposed Woodlands Integrated Healthcare Campus (WIHC) which will be part of Alexandra Health System.

The Campus, which will open in phases from 2022, will be sited on a 7.7 ha site along Woodlands Avenue 12 and Woodlands Drive 17, and will comprise an acute care hospital, a community hospital and a nursing home with a total of 1,800 beds. Leading the planning for this new integrated healthcare development is Dr Jason Cheah, Chairman of the Pro-tem Planning Committee and CEO of the Agency for Integrated Care (AIC).

The planning team aspires to build a Campus that is person-centric which starts from the premise that people and communities are naturally

whole, resourceful and creative. It aims to build healing relationships and enduring partnerships amongst the people, providers and community in Woodlands.

WIHC will focus on patient and caregiver activation and empowerment, allowing clinicians to realise their roles as advocate, coach, and educator. Through integration of primary, acute, rehabilitative and long-term care, the Campus will augment the resources available to the people and communities in the northern region of Singapore to improve their health and healthcare.

To enable this vision, the planning team has been actively reviewing best practices from around the world – such as models of care, healthcare infrastructure, medical and information technologies. It is also working with residents, thought leaders from various industries, as well as government agencies to generate ideas and articulate a joint vision for WIHC.



Dr Jason Cheah

“I do not think that we should build just another general hospital, community hospital and nursing home. Instead, I am challenging the planning team to look 20 to 30 years ahead, anticipate and plan for the future healthcare needs of the society. Learn from the best around the world, especially from countries like Japan and Scandinavian countries that have more experience caring for a high proportion of older people. I expect the facilities to deliver good quality healthcare efficiently but I would also like the campus to be very open and welcoming, full of life, health promoting and fully connected to surrounding residents.”

*National Development Minister and MP
for Sembawang GRC Mr Khaw Boon Wan*



“We are focused on providing better, faster, cheaper and safer patient care and services.”

LOVE. SCIENCE. WISDOM: Providing Better, Faster, Cheaper and Safer Care

As Alexandra Health System grows, the values and philosophy which make up our DNA will continue to anchor us as we train new staff and build the new institutions to transform healthcare in the north.

Central to our organisational culture is our unerring commitment to the principles of **Toyota Production System (TPS)**. Using KTPH as an example, the TPS principles of eliminating waste and driving innovation will direct us on our journey to achieve the hospital's goal

of providing hassle-free services and **better, faster, cheaper and safer** care to patients. Towards these ends, we encourage our staff to cultivate a spirit of purposeful inquiry and seek continuous innovation in their work.

Providing the compassionate core to the science of TPS is the Alexandra Health System's care philosophy of **"Care that is good enough for our own mothers"**. This care philosophy is anchored by **L.O.V.E** (Listen, Offer help, give Value and Engage), guiding our staff to provide patient-centred

care and service, and is a constant reminder to continuously love our patients and make them feel valued.

L.O.V.E, science and wisdom will guide Alexandra Health System and our satellite institutions to transform care for our northern residents.



The diagram articulates, using KTPH as an example, Alexandra Health System's goal of providing hassle-free health services, and better, faster, cheaper and safer care through a combination of scientific principles (TPS) and human factors (love and wisdom).

BETTER CARE

Improving care outcomes for stroke patients

KTPH sees an average of 100 stroke patients monthly, and this number is expected to rise with the increasing ageing population in the north. Studies have shown about 40 to 60 per cent of stroke patients recover fully or partially with early intervention and treatment.

A trans-disciplinary team set up an Acute Stroke Unit (ASU) in December 2013 to review the treatment process for stroke patients admitted to KTPH. The ASU team worked with the A&E, Diagnostic Radiology, General Surgery, Geriatric Medicine, Nursing and Rehabilitation Services to establish a seamless and continual care protocol for stroke patients admitted to KTPH.

The ASU team improved access to diagnostic services such as magnetic resonance imaging, as well as facilitated a quicker referral to the Neurology outpatient clinic within 72 hours, for patients with transient ischaemic attack (TIA) or mini-strokes. This ensures patients with TIA are managed as early as possible in order to better improve their health outcomes.

Expansion of Spine Service clinic to meet patients' needs

To meet rising demand for spine surgery, the department of Orthopaedic Surgery expanded its Spine Service clinic.

The Spine Service works with the Neurosurgery sub-specialty from the department of General Surgery to see patients with conditions such as traumatic spinal injuries of the cervical and lumbar spine, degenerative spinal conditions, scoliosis, kyphosis and spondylolisthesis.

The Spine Service clinic now operates an average of nine outpatient sessions per week (excluding visiting consultant), which has created more clinic slots for patients and reduced lead time to see a doctor.

Study suggests diabetic kidney disease can be predicted, leading to earlier intervention

A team from the Clinical Research Unit and Renal Centre studied 16 male patients with Type 2 diabetes and found that it may be possible to predict the risk of such patients developing diabetic kidney disease (DKD). DKD is a form of progressive kidney injury when the blood glucose is not maintained in the healthy range.

Splitting the subjects into two groups – one with stable kidney function and the other with progressively deteriorating function - the team analysed the subjects' urine samples to search for urinary markers. They discovered that one out of 11 potential biomarkers - Retinol Binding Protein 4 (RBP4) – was significantly higher in the study group of patients with worsening kidney function. Urinary RBP4 was also observed to increase, along with increased protein leakage by the kidney, and decrease in kidney filtration function in this group. These findings were duplicated and validated in separate groups of male and female patients.

The study's outcome can potentially benefit people with diabetes who can be identified earlier for intensive monitoring and aggressive interventions. This study was awarded the best scientific poster award at the 2nd National Kidney Foundation of Singapore (NKFS) Scientific Meeting in March 2014.



Dr Yeoh Lee Ying (Senior Consultant, General Medicine), A/Prof Lim Su Chi (Senior Consultant, General Medicine & Director, Clinical Research Unit) and Melvin Wong (Research Officer, Clinical Research Unit) conducted the study on patients with Type 2 diabetes.

Automated lab vehicle improves workflow

The affectionately-named Amabelle is an unmanned guided vehicle that collects and delivers test and investigation samples to the various stations in the laboratory for timely analysis and investigation. This ensures the results are sent back to the wards as soon as possible.

Amabelle has improved the laboratory's workflow for more timely treatment and better patient care.

This innovation was showcased at the Healthcare Innovators Forum 2013 organised by Alexandra Health on 11 October 2013.



Nudging public behaviour

The A&E operations team and the Corporate Communications Department came up with a series of nudge messages to manage the high patient volume and long waiting time at the A&E.

The A&E team studied the patient data and found that a large number of patients had minor conditions such as coughs, colds and sprains, etc, which could be addressed by a family doctor or general practitioner (GP) instead.

A variety of posters meant at nudging patients to see their GPs for minor ailments were put up in the A&E. The team has seen some degree of success in better managing the patient load.

This initiative ensures resources in the A&E could then be better optimised for patients with more acute conditions or medical emergencies.



FASTER CARE

Hassle-free services at one-stop OSA clinic

The Department of Otorlaryngology (Ear, Nose, Throat) started a dedicated clinic for subsidised patients with obstructive sleep apnoea (OSA) in April 2013. At this one-stop clinic, patients can see a consultant, sleep physician and be taught to use the Continuous Positive Airway Pressure (CPAP), during the same appointment.

Previously, patients with OSA were seen in the general ENT clinic with other patients with other ENT problems. They did not have access to a sleep physician and CPAP vendors in the clinic. This new initiative has helped patients with a more hassle-free treatment journey.

Foot measurement at the bedside

For patients with foot wounds, the podiatrist will usually prescribe appropriate footwear for them before the patients are discharged. Previously, patients had to try on different shoe sizes in the specialist outpatient clinic. It was inconvenient for some patients with mobility issues as they may have to wait up to an hour to have their feet measured.

Work flow was also disrupted as a portering attendant had to accompany the patient to the clinic and wait for the measurement to be completed. In addition, the shoes may be dirtied and pose an infection risk to subsequent patients.

The Podiatry Department came up with a simple kaizen (improvement initiative) to simplify and make the process hassle-free. The podiatrist can now measure the patient's feet at his bedside using a 'template' – a laminated piece of paper with various foot sizes drawn on it. After getting the measurement, the podiatrist will wipe the laminate with alcoholic wipes for infection control and to re-use it.

Besides the convenience to patients, the podiatrist is also more productive as he can carry out foot measurements in a faster time on more patients by moving around the wards.



COST-EFFECTIVE CARE

Study helps heart attack patients save on medication cost

A team of KTPH's cardiologists and pharmacists studied 95 acute heart attack patients who had undergone coronary stent implantation to compare the efficacy and cost-effectiveness of two types of anti-platelet drugs, Clopidogrel and Prasugrel.

The team demonstrated a correlation in the genetic variations of the study subjects with their responses to Clopidogrel. Poor responders to Clopidogrel were then switched to the more potent and expensive Prasugrel. The effect of both drugs was measured using a platelet function test.

The team discovered that the female gender and mutation of a particular gene were the only two significant factors that caused participants' platelets to be more resistant to Clopidogrel. Therefore, by electing to prescribe Prasugrel to only the poor responders, the 83 subjects who remained on Clopidogrel could potentially save over \$151,000 annually on anti-platelet medication and benefit from a more effective medication.

This study was awarded the first prize in the best oral poster category at the Pharmacy Congress 2013.

SAFER CARE

Study highlights risk of VTE for post-surgery Asian patients

The Departments of Cardiology and Pharmacy studied the data of more than 1,000 KTPH patients who had major abdominal and leg surgery over two years and found that 2 per cent of patients developed venous thromboembolism (VTE).

This figure was comparable to figures of similar studies done in Europe and the United States, and suggested that the risk of Asians developing VTE – blood clots that form in the veins – was as high as Caucasians. Previous studies done in the 1980s and 1990s had suggested that the risk of Asians developing VTE was lower than Caucasians, and based

on these, doctors were less willing to prescribe anti-coagulants because of the risk of bleeding.

The KTPH study suggests that clinicians may need to be more proactive in prescribing anti-coagulants to reduce the VTE risk of post-surgery patients. The study also found that women over 75 years old with a history of ischaemic heart disease or VTE were most at risk of developing blood clots.

Following the study's findings, KTPH doctors are now prescribing pre-emptive treatment for VTE more often.



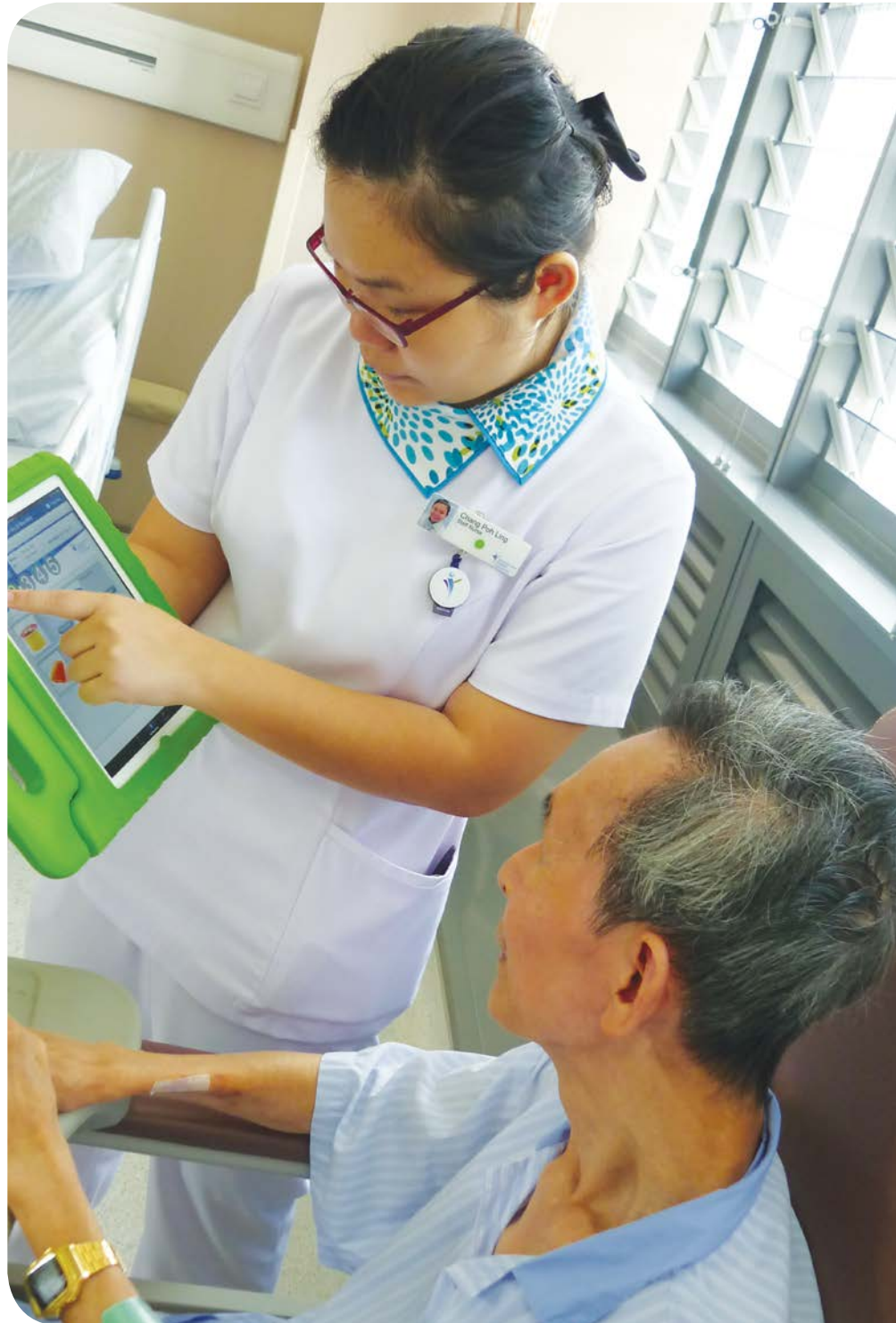
Dr Ong Hean Yee (right) led the study that emphasised more rigorous pre-emptive treatment to minimise risk of venous thromboembolism for post-surgery patients. Also involved in the study were Ms Koh Yue Ting, Senior Pharmacist, and Dr Doreen Tan, Chief Pharmacist.

Electronic meal ordering minimises wrong orders & improves productivity

An Electronic Meal Ordering System (EMOS) was rolled out in May 2013 for patients in the A&E, wards and operating theatres can order their meals through iPads. The system uses pictures to filter out the right type of food that is available for patients' selection. This is particularly important for patients who are on special or restricted diets. EMOS helps to prevent wrong orders of diet and ensures the patient's meal/diet 'follows' him around irrespective of the ward he is in.

Previously, nurses had to manually go to each patient daily to collate their meal orders on paper slips for the kitchen staff to categorise. With EMOS, productivity is raised as meal orders are made 'paperless' and time spent clarifying orders between nurses and kitchen was cut by about 60 per cent, leading to savings of about seven man hours daily. The time savings enabled nurses to focus more on patient care.

EMOS is the initiative of a multi-disciplinary team of nurses, dietitians, kitchen operations staff with support from Integrated Health Information System (iHIS).



A nurse showing a patient how to order his meals using EMOS.

“This is a place where
we want to work, learn
and play.”



DEVELOPING, ENGAGING AND CARING FOR OUR PEOPLE AND COMMUNITY

GROWING AND BUILDING OUR TALENT POOL

As we build up Alexandra Health System and our satellite institutions over the next few years, we are also focused on recruiting talented staff with the right attitude to join us in our journey of care transformation.

The cluster had been active in recruiting manpower for medical, nursing, allied health and administrative and ancillary roles in the last financial year.

Besides, online job portals and recruitment agencies which were the main avenues of recruitment, Alexandra Health also participated in several career and scholarship fairs to outreach to potential employees. The cluster will continue to actively bring in the right people with the passion and the heart to serve over the next few years.

“As we work to transform healthcare in the north, Alexandra Health System will continue to actively attract, motivate and develop talented and passionate people with empathy and the right attitude to touch the patients we serve.”

Ms Lynn Gan, Chief Human Resource Officer



BRINGING OUT THE BEST IN OUR PEOPLE

Alexandra Health continued to build for the future by focusing on our employees' professional and personal development.

In FY 2013-14, we invested an average of 110 training hours per staff. We sponsored 91 staff for formal education and 43 nurses for specialty skills development under the Advanced Diploma in Nursing programme. Another 21 staff attended overseas attachments & fellowships under the MOH's Health Manpower Development Programme.

As Alexandra Health System grows, two new leadership courses – the Alexandra Health Leadership Forum and Clinician Management Programme – taught by senior leaders were introduced to groom our future leaders.

The Alexandra Health Leadership Forum is designed to give our future leaders an understanding of their leadership responsibility within the cluster, and in our larger healthcare environment. It also serves as a platform for senior management to exchange leadership insights with the participants. The programme was facilitated by senior management, led by Group CEO Mr Liak Teng Lit.



Mr Liak Teng Lit, Group CEO of Alexandra Health System, addressing high-potential staff in the inaugural Alexandra Health Leadership Forum.

Targeted at clinicians who are new to management roles, the Clinician Management Programme was designed to provide Doctors with the confidence to lead and manage in a rapidly changing environment. The programme is facilitated by KTPH's Chairman Medical Board, A/Prof Kenneth Mak, CEO Mrs Chew Kwee Tiang, Director of Curriculum Development (Medical Board) A/Prof Koh Kwong Fah, and external healthcare specialists.

As part of Alexandra Health's culture of continuous learning, we also sent our staff on overseas study trips to learn from the best healthcare institutions.

Learning from world-renowned Mayo Clinic's Center for Innovation

Tan Liren (Industrial Designer), Ray Choo (Senior Retail Executive, ABLE Studio) and Shirley Tan (Senior Systems Specialist) visited the Mayo Clinic's Center for Innovation in September 2013.

From the study trip, the team learnt the importance of empathy in the design process to understand the user's needs, and using visuals and layering information for more impactful and effective communication.

Returning to Singapore, the team sought to apply their learning to improve the customer's experience in Alexandra Health's ABLE Studio which retails customised home- and health care solutions and products.

Collaterals for patient education in ABLE Studio were simplified to facilitate easier understanding, and visuals are used to highlight the important features of the products to help customers make informed choices.



Tan Liren (second from left) and her colleagues Shirley Tan and Ray Choo with Mayo Clinic's Center for Innovation staff, Matthew Moore and Julia Rose Anderson who heads Design Research at the Centre.

Learning from Clinical Visiting Experts

Alexandra Health continued to develop the expertise of our clinicians through the Visiting Experts Programme. In the last Financial Year, some of the renowned healthcare professionals to visit KTPH to impart their learning include Prof Fumio Konishi (Japan), Prof Paul Antoine Lehur (France) and Prof Elizabeth Anne Pomfret (US). The sharing by these visiting experts was invaluable in building up the knowledge and expertise of our clinicians, as well as aiding in the development of clinical services in KTPH.



Mr S Dhanabalan with A/Prof Kenneth Mak, who facilitated the Simply Said session

Leadership lessons from Simply Said lecture series & Quality Conventions

A key element of the organisation's learning ethos is the Simply Said lecture series and Quality Conventions. Through these platforms, we hope to inspire our staff to develop themselves personally and professionally to achieve in life and work.

We hosted former Cabinet Minister Mr S Dhanabalan as our distinguished guest at the fourth edition of the Simply Said series in October 2013. Mr Dhanabalan willingly shared with us the qualities that were instrumental to his success in life – self-confidence, celebrating contrarian views and the guts to fail.

We also welcomed Dr Mark O'Brien, medical director of Australia's Cognitive Institute, and Mrs Chua Yen Ching, Executive Director of the

Academy of Teachers, Ministry of Education, as guest speakers for our Quality Conventions.

Dr O'Brien touched on the importance of communication in healthcare and encouraged our staff to not just understand the patient's physical ailment, but also the patient's desired outcomes. He also conducted a series of five communication workshops for senior management, clinician heads, nurses and allied health professionals.

Mrs Chua shared her experience in transforming the lives of her students in North Light School. She shared that healthcare professionals also have the similar capacity to transform our patients' lives in this amazing and noble vocation, and urged us to take pride in our work.



Mrs Chua Yen Ching inspired us that healthcare, like education, has the potential to transform lives.



Dr Mark O'Brien sharing with staff on the importance of communication in healthcare.

Honourable visit by Thailand's Royal Highness

In August 2013, we were honoured to host our most prestigious overseas visitor – Princess Maha Chakri Sirindhorn of Thailand and her delegation. Alexandra Health Group CEO Mr Liak Teng Lit hosted our distinguished guest together with Health Minister Mr Gan Kim Yong.

Her Royal Highness visited KTPH's rooftop farm, intensive care unit, a geriatric ward, the Orthopaedic Surgery Clinic and the Learning Centre. Mr Liak shared with our Thai visitors strategies on building a strong organisational culture and integrating a green, healing environment within the hospital's infrastructure to promote recovery.



Alexandra Health Group CEO Mr Liak Teng Lit and Health Minister Mr Gan Kim Yong hosting Her Royal Highness, Princess Maha Chakri Sirindhorn of Thailand, on a tour of KTPH.

ENGAGING OUR PEOPLE THROUGH WORK-LIFE ACTIVITIES

Alexandra Health believes in the philosophy of “a sound mind in a sound body”. Our work-life initiatives and activities are aligned with our Five Pillars of Health – Eat Wisely, Exercise Regularly, Be Happy, Stop Smoking and Practise Personal Hygiene. A wide range of work-life initiatives are in place to help staff strike a healthy balance between work and play.

A series of activities such as cultural and festival celebrations, and sports and activity interest groups are organised to strengthen bonds and promote interaction between colleagues.

We also organised the annual Fitness Challenge and Active Day for staff to exercise together and have fun in keeping fit. We also continued to sponsor staff for local sporting events such as the JP Morgan run and Standard Chartered Marathon.

We also seek to engage our staff by participating in litter-picking initiatives in the Yishun community. This is in line with the hospital’s thrust in caring for the environment.



Staff modelling the Five Pillars of Health t-shirts. The t-shirt is given to staff who exemplifies or practises any of the Five Pillars of Health in his or her daily life.



Staff of different nationalities and races celebrating ethnic diversity at our annual Deeparaya celebration in 2013.



The annual Fitness Challenge gauges the fitness of employees and provides an opportunity for colleagues to exercise and train together.

KTPH nurses doing their part in caring for the environment by picking up litter in Yishun to commemorate World Water Day in March 2014.

CARING FOR OUR PEOPLE

The Health For Life (HFL) Centre, together with Human Resources, organised the annual Health Screening for employees to take stock of their own health. As part of the Health Screening package, there is also a complimentary consultation session with the HFL doctors who will explain the health screening report. For less healthy staff, they may be offered the option of enrolling in intervention programmes run by the HFL Centre to improve their health.

In July 2013, we engaged an external trainer to teach our frontline nursing and service staff simple self-defence techniques in a new workshop called "Conflict Resolution in a Healthcare Setting". The theory and practical lessons were particularly relevant and useful for frontliners to protect themselves against abusive patients or their loved ones.



The instructor demonstrating restraint techniques in the conflict resolution workshop targeted at frontline staff.



Our Food & Services colleagues prepared herbal tea to keep our frontline staff in the pink of health when the haze struck Singapore in June 2013.

Keeping staff safe during haze

During the June 2013 haze, frontline staff working in open areas were provided face masks to safeguard their health. Older staff and those who were pregnant or had respiratory conditions were reassigned to locations where they would not be exposed to the haze. Going the extra mile, our Food & Services Department also boiled herbal tea for staff and visitors.

Standing behind our staff

Sixteen Filipino staff lost their families and homes when Typhoon Haiyan struck the Philippines in November 2013. We showed our solidarity as staff came forward generously to donate money, items and even their leave for our stricken colleagues. The Alexandra Health family donated more than \$15,000 and over 60 days of leave to the affected colleagues, and 15 trolley loads of used clothing and items, as well as 100,000 surgical masks for the Haiyan relief effort. Three KTPH doctors – Dr Anton Cheng (Senior Consultant, General Surgery), Dr Vivien Lim (Consultant, General Medicine) and Dr Claris Shi (Medical Officer, General Surgery) – volunteered in the first medical mission to the Philippines from 20 to 29 November 2013.



Colleagues from the Major Operating Theatre contributing generously to the Typhoon Haiyan relief efforts.

CARING FOR OUR COMMUNITY

In FY 2013-14, we continued to give back to the community. The Home Run is a key platform for the cluster's fund-raising activities. In 2013, the Home Run's target was raised to 200,000km, which was met by our staff over six months. The money pledged by staff for Home Run helped to fund corporate social responsibility (CSR) activities for Alexandra Health's four adopted charities: Sree Narayana Mission Home for the Aged, Villa Francis Home for the Aged, Singapore Christian Home (SCH) and HCA Hospice Care.

Over 80 staff helped in the relocation of SCH to its new home in Sembawang by wheeling residents to their new beds and preparing a healthy lunch to welcome the residents. We were grateful to our vendor Keppel FMO which co-organised CSR activities for SCH, which included donating plants to spruce up SCH for its official opening in January 2014.



Dr Wong Sweet Fun (Senior Consultant, Geriatric Medicine) led several colleagues to prepare lunch for residents of the Singapore Christian Home when the Home relocated to Sembawang in May 2013.

Group CEO Mr Liak Teng Lit linked up Sree Narayana Mission Home with Akira, a local manufacturer of electrical goods. The latter donated wall-mounted television sets, radios, DVD players and fans to the Home. Our staff also pledged more than \$1,300 to fulfil the Christmas wish lists of HCA Hospice Care's residents. They personally delivered the gifts which included diapers, stoma bags and dining vouchers to the appreciative beneficiaries.



Senior Staff Nurse Chen Yidan (B65) and Staff Nurse Lim Xin Rui (B96) delivering a standing fan to fulfil the wish list of a HCA Hospice Care patient (centre).

Volunteerism makes him a “better person”

Patient Greeter Mohamed Maideen Badarudeen is an Alexandra Health staff who believes in our philosophy of caring for the community. He has been a volunteer with Chong Pang Zone 7 Residents' Committee, Sembawang Community Club's Indian Activity Executive Committee and Sri Narayana Mission Home for the Aged since 2000.

He feeds the elderly residents at Sri Narayana Mission during their lunch hour on the last Saturday of every month. He also helps his Member of Parliament at his weekly Meet-the-People session, organises block parties to promote bonding between residents and is a member of a neighbourhood watch group which patrols the neighbourhood with the Singapore Police Force once monthly.

“For me, volunteerism is about giving my personal time to benefit the community without expectation of any returns. I believe volunteers make a difference to the lives of others, and I have become a better person from volunteering in grassroots and community activities.”



Organisational and Individual Awards

Alexandra Health System

Global Healthy Workplace Award (Large Enterprises) 2013

Most Innovative Project/Policy, PS21 ExCEL Awards 2013
Ageing-In-Place Programme

Khoo Teck Puat Hospital

2013 Minister's Award (Team) by Ministry of National Development

Roll-out of EASE Programme

Landscape Excellence Assessment Framework (LEAF), NParks

National Day Awards 2013

Public Service Star

Douglas Foo (*Alexandra Health Board Member*)

Public Service Medal

Robert Chew (*Alexandra Health Board Member*)

Liak Teng Lit (*Alexandra Health Group CEO*)

The Commendation Medal

Winnie Chui (*Senior Nurse Clinician, Diabetes Clinic*)

Lee Ngok Lin (*Manager, Case Management*)

The Efficiency Medal

Wong Li Ching (*Executive Personal Assistant, Hospital Administration*)

Angeline Low Jeok Hoon (*Executive, Education Development Office*)

Alice How Sau Har (*Secretary, Department of Ophthalmology & Visual Sciences*)

Ng Hoon Hoon Wendy (*Senior Patient Service Associate, Dental Clinic*)

The Long Service Medal

Cheong Choy Fong (*Director, Quality & Risk Management*)

Dr Naville Chia Chi Hock (*Senior Consultant, Department of Anaesthesia*)

Yiap Pok Ling (*Assistant Director, Nursing Administration*)

Winnie Chui (*Senior Nurse Clinician, Diabetes Clinic*)

Toh Hai Moy (*Senior Nurse Clinician, Nursing Administration*)

Jesbindar Kaur (*Senior Nurse Manager, Ageing-In-Place Programme*)

Lee Kee Ching (*Nurse Manager, ICU*)

Chia Tat Thim (*Senior Staff Nurse, Ward A52*)

Doss Emerentia (*Senior Staff Nurse, Ageing-In-Place Programme*)

Lee Soo Cheow (*Senior Staff Nurse, Eye Clinic*)

Saemah Bte Sinwan (*Senior Staff Nurse, Case Management*)

Seni Bte Chari (*Senior Staff Nurse, Ageing-In-Place Programme*)

Ms Kanusamy Thavaki (*Portering Attendant*)

MOH's Healthcare Humanity Awards 2013

Dr Wong Sweet Fun (*Senior Consultant, Department of Geriatric Medicine*)

Hasmah Bte Tomin (*Senior Staff Nurse, Ward B66*)

MOH's Nurses' Merit Awards 2013

Tim Hwee Mein (*Nurse Manager, Ward B56*)

Mary Getrude Hubback (*Nurse Manager, Ward B75*)

Jenny Ng (*Nurse Manager, Ward B105*)

Ang Poh Lian (*Senior Staff Nurse, Nursing Administration*)

Nurwahidah Bte Noraini (*Senior Assistant Nurse, Ward B66*)

Promising Social Worker Award 2013

Lynnette Ng (*Medical Social Worker*)



Medical Social Worker Rachel Yee is part of the multi-disciplinary team comprising doctors, nurses and allied health professionals caring for patients in the geriatric ward.

OPERATIONAL HIGHLIGHTS

For the year ended 31 March 2014

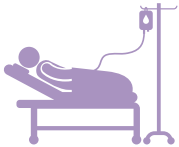
Bed Complement



591

▲ 4% **571**

Bed Occupancy



93%

▲ 2% **91%**

Outpatient Attendances



347,504

▲ 6% **326,635**

Total Inpatient Days



197,393

▲ 15% **172,245**

Accident & Emergency Attendances



144,590

▼ 1% **145,632**

Average Length of Stay



5.6

unchanged **5.6**

Inpatient Admissions



32,408

▲ 15% **28,065**

94% of total admissions were from A&E

Surgeries



43,657

▲ 13% **38,579**



Alexandra Health System

Alexandra Health System (Alexandra Health) is a regional healthcare system established on 1 April 2008 to take care of the 700,000 residents living in the northern part of Singapore.

Alexandra Health currently manages the 590-bed Khoo Teck Puat Hospital (KTPH) in Yishun, which opened in June 2010.

To better integrate care and serve the community in the north, Alexandra Health is building the new Yishun Community Hospital, which will be operational in end 2015. The new community hospital will add over 425 beds for sub-acute, rehabilitation, dementia and palliative care.

Alexandra Health will also manage Admiralty Medical Centre in the Admiralty Integrated Development in 2017. The new medical centre will further strengthen the primary care network in the north and allow patients with chronic conditions to be managed outside an acute hospital setting.

The cluster is also planning and developing the 1,800-bed Woodlands Integrated Healthcare Campus which will progressively open from 2022.

Alexandra Health's goal is to make a difference to the population in the north, by working together with our partners and empowering the community and residents, to manage their health for life.

KTPH offers the following services:

- Acute & Emergency Care
- Anaesthesia
- Cardiology
- Dental Surgery
- Diabetes Centre
- Diagnostic Radiology
- Endocrinology
- Gastroenterology
- General Medicine
- Geriatric Medicine
- Health For Life Centre
- Internal Medicine
- Laboratory Medicine
- Obstetrics and Gynaecology
- Ophthalmology and Visual Sciences (Eye)
- Orthopaedic Surgery
- Otolaryngology (Ear, Nose, Throat)
- Psychological Medicine
- Renal Medicine
- Respiratory Medicine
- Sports Medicine
- Surgery
- Urology





Alexandra Health

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Singapore 768828
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Khoo Teck Puat Hospital • Yishun Community Hospital • Admiralty Medical Centre • Woodlands Integrated Healthcare Campus

Touching Lives, Pioneering Care, Making a Difference