

The Human Touch



SingHealth Duke-NUS
Academic Medical Centre
ANNUAL REPORT 2017/2018

The *Human Touch*

“Empathy is about standing in someone else's shoes, feeling with his or her heart, seeing with his or her eyes. Not only is empathy hard to outsource and automate, but it makes the world a better place.”

Daniel H. Pink

SingHealth Duke-NUS Academic Medical Centre Annual Report 2017/2018

Singapore General Hospital (SGH)
Changi General Hospital (CGH)
Sengkang General Hospital (SKH)
KK Women's and Children's Hospital (KKH)
National Cancer Centre Singapore (NCCS)
National Dental Centre Singapore (NDCS)
National Heart Centre Singapore (NHCS)
National Neuroscience Institute (NNI)
Singapore National Eye Centre (SNEC)
SingHealth Community Hospitals (SCH)
SingHealth Polyclinics (SHP)
Duke-NUS Medical School (Duke-NUS)

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Chairman's Message

New beginnings, New opportunities



The reorganisation of the Singapore public healthcare system into three integrated clusters brought Changi General Hospital into the SingHealth Duke-NUS Academic Medical Centre family. The process of combining two strong healthcare clusters came with its challenges, but we persisted, keeping in mind that our patients have to experience a seamless ecosystem that they can navigate with ease as they move across the continuum of care.

With the integration completed on 1 January 2018, we now have a staff strength of 28,500, with a bigger geographical reach and expanded capabilities to cater to the 4.6 million annual patient attendances at our institutions.

This growth brings us new opportunities to respond to the healthcare needs of the nation, in accordance with the Ministry of Health's three key shifts to prepare for the future beyond 2020. Our teams have made strides in bringing appropriate care closer to home,

providing the best value while keeping the system sustainable, and helping people lead healthier lives.

Beyond Hospital to Community

In the east, strong partnerships built with healthcare providers and the community help residents stay healthy at home through services such as Care Line, a 24/7 hotline to support seniors, and the Neighbours for Active Living Programme, which recruits volunteers to care and provide social support for sick elderly in their own neighbourhoods.

SingHealth Regional Health System launched the first Community of Care programme in Chin Swee Road and Banda Street to improve care for elderly residents by working with GPs, Agency for Integrated Care and senior activity centres.

We are also strengthening our primary care network and enhancing the quality and accessibility of care in the community with SingHealth Community Nursing.

Beyond Quality to Value

The national integrated healthcare supply chain agency ALPS Pte Ltd was formed to leverage the depth and breadth of purchasing experience of the SingHealth Group Procurement Office and pool the supply chain functions of all three public healthcare clusters to achieve better economies of scale, develop new procurement capabilities and evolve new innovative supply chain solutions. To enable seamless operations, infrastructure and facilities development, call centre and retail pharmacy services cluster-wide are now managed centrally.

These developments will benefit our patients by improving accessibility, boosting efficiency, creating better value and containing healthcare costs.

Beyond Healthcare to Health

Several initiatives and programmes have been launched across the cluster to prevent diseases and promote health.

The SingHealth Duke-NUS Diabetes Centre in collaboration with Health Promotion Board and the Singapore Clinical Research Institute, launched Pre-Diabetes Interventions and Continued Tracking to Ease-out Diabetes (Pre-DICTED), a five-year programme to prevent individuals with pre-diabetes from developing full-blown diabetes by equipping them with the knowledge and skills to make lifestyle changes, and provide pharmacological intervention if needed.

To help pregnant women with gestational diabetes from developing type-2 diabetes later in life, KK Women's and Children's Hospital launched a pilot programme to detect the condition early, and provide timely intervention and close follow-up care.

Our institutions work with partners to reach out and provide accessible community health screening. In addition to screening for diabetes, hypertension and high cholesterol, frailty and functional screening has been introduced during community health checks to ensure timely follow up of those at risk.

Community Health Posts were also established in community centres and senior activity centres, to make health monitoring more accessible and promote preventive health.

Academic Medicine

Even as our institutions focus on delivering quality care today, our research teams continue to seek solutions that will improve care outcomes tomorrow.

I am proud of our clinician scientists who won grants, fellowships and

research scholarships at the National Medical Research Council Awards 2018. Three research projects led by National Cancer Centre, Singapore National Eye Centre and Singapore Eye Research Institute secured S\$60 million to investigate virus-induced cancer, lung cancer and age-related macular degeneration in the Asian population, a significant achievement for our Academic Medical Centre.

In December 2017 we forged a partnership with Agency for Science, Technology and Research (A*STAR) to employ data analytics, new technologies and immunotherapy to accelerate innovations that address diseases prevalent in the region.

To build a sustainable healthcare system, a strong pipeline of healthcare professionals is needed. SingHealth Academy introduced Interprofessional Education and Interprofessional Collaborative Practice programmes that train multidisciplinary teams to work together to solve emergent problems.

The Future

There are several milestones in 2018. KK Women's and Children's Hospital celebrates 160 year legacy of providing leading tertiary care for women and children locally and in the region. Sengkang General and Sengkang Community Hospital start operations to serve the population in the northeast of Singapore. We broke ground for Singapore General Hospital's new emergency medicine building, which is expected to be completed in 2023. Bedok Polyclinic was reopened with improved facilities and the new Punggol

Polyclinic was opened. These exciting developments underscore our commitment to improve care accessibility and meet the current and future needs of Singaporeans.

I would like to take this opportunity to thank our Board Members for their contributions. In particular we thank our outgoing members, Mr Willie Cheng, Prof Victor Dzau, Mr Philip Eng, Prof Raj Nambiar and Mr Yatiman Yusof, for their invaluable insights. We welcome on board Mr Loh Ngai Seng, Mr Lim Chin Hu, Dr Tan Yew Oo, Ms Khartini binte Abdul Khalid, Ms Joy Tan Whei Mien, Mr Fong Heng Boo, and Ms Woon Lai Har, and Dr Gerard Ee, who joined us this year.

To look after the wellbeing of Singaporeans, we will continue to build a robust healthcare system that serves our patients, every step of their healthcare journey, beyond hospital walls and, into the community.



MR PETER SEAH
Chairman, SingHealth

Chairman's Message

Educate. Innovate. Inspire.



The year 2017 heralded the start of the third phase of strategic partnership between Duke University and the National University of Singapore—the continuation of a journey that affirms our stakeholders’ confidence in collaborating to build an excellent medical school to transform medicine and improve lives.

Duke-NUS has evolved significantly since our founding: we have achieved international accolades for our world-class research that is already leading to several patents and start-ups. We continue to attract outstanding local and international graduate-entry students that embark on their medical education with a maturity that is enhanced by a breadth of academic disciplines. Such diversity promotes robust inquiry and encourages critical thinking among our students; all of which are skills expected of future clinicians to equip them to challenge existing paradigms, chart new territories and influence change.

We continue to forge a strong partnership with SingHealth to enhance Duke-NUS’ medical and research expertise with SingHealth’s clinical knowledge and experience. With our academic medicine partnership with SingHealth on a solid footing, Duke-NUS is indeed well poised to reap further sustainable achievements in three key areas: diversity in medical education, impactful research, and sustainable innovation.

Diversity in Medical Education

Attracting talented students who hail from a breadth of academic and national backgrounds is paramount to achieving our mission to nurture clinicians who not only practise medicine, but also improve the practice of medicine. To this end, we established special tracks with Yale-NUS and the Singapore University of Technology and Design (SUTD) to broaden our recruitment of students with foundations in engineering, architecture and the humanities to bolster this vision.

We also launched two new PhD Programmes in Integrated Biostatistics and Bioinformatics, and Clinical Sciences. These multidisciplinary programmes aim to continue to advance biomedical science by leveraging data analytics, advanced statistical innovation and machine learning. More importantly, they are intended to address the shortage of clinician scientists who are fluent in patient-oriented research, drive and translate research into clinical practice and cultivate strong industry collaborations, hence contributing towards Singapore's goal to become a biomedical hub.

Research That Impacts

Our research continues to be ground-breaking. Duke-NUS researchers were the first Asian cancer team to be conferred the American Association for Cancer Research "Team Science Award" in March 2018 for their long-term research on cancers that are prominent in Asia but less studied in the West. These cancers constitute a major global healthcare burden and an unmet medical need.

In the area of cardiovascular and molecular diseases, our breakthrough research together with the National Heart Centre in 2017, overturned an existing standard of treatment for fibrosis, elucidating the mechanism responsible for many conditions such as heart disease and renal failure. This has paved the way for first-in-class therapeutics to be developed for the treatment of multiple fibrotic human diseases including cardiac and pulmonary fibrosis.

Earlier this year, Duke-NUS researchers were called upon to provide infectious disease expertise during the coronavirus outbreak in China. Armed with databases of pre-collected samples, the international team took only two months to identify the virus, which is 10 times faster than the time scientists took to identify SARS a decade ago. With Singapore being a busy travel hub, our healthcare infrastructure must be prepared for such outbreaks, and I am proud that Duke-NUS is part of that vanguard to safeguard our population from emerging pandemics.

Sustainable Innovation

In our continuing efforts to improve medicine and enhance our research innovation and collaboration for long-term impact and sustainability, we saw the largest industry partnership in the School's history with the inking of a venture in December 2017 between Duke-NUS and Novo Nordisk A/S, a Danish multinational pharmaceutical company. Novo Nordisk will provide funding support for research at Duke-NUS to study and develop a novel stem cell-based therapy to treat two chronic conditions: heart failure and vision loss. This partnership is a solid affirmation of our innovative research, and puts Duke-NUS at the forefront of cutting-edge biomedical research for effective therapeutics.

Earlier this year, Duke-NUS has also elevated and renamed our commercialisation unit "The Office of Innovation and Entrepreneurship (OIE)" to ensure that the potential impact of our research innovations is maximised through eventual

commercialisation and incorporation into the healthcare system. It is indeed a remarkable achievement that we have submitted 146 invention disclosures, been granted 48 patents, registered four trademarks, and executed 18 licensing agreements. This is in addition to the formation of eight start-up companies with the Duke-NUS IP, and six with external IP founded by our Faculty. In 2018, we also saw two start-up companies Enleofen Bio develop first-in-class therapeutics for the treatment of multiple fibrotic human diseases, and Travecta Therapeutics develop new therapeutic agents for treating diseases of the brain, eye and central nervous system.

It has been another strong year of achievements. As we celebrate these successes, I take this opportunity to thank the members of the Governing Board for their unwavering commitment and Duke-NUS' senior leadership team for their dedication and professionalism. Together, I am confident that we will continue to navigate positively through this exciting and challenging era—to hold true to our mission to educate, inspire and innovate.



MR KAI NARGOLWALA
Chairman, Duke-NUS Medical School



Joint Leaders' Message

Beyond the system – The human touch

Looking back on the years since we embarked on the academic partnership between SingHealth and Duke-NUS, we are proud of the many initiatives the collaboration has fueled – from ground-breaking research studies and Academic Clinical Programmes, to innovative care models such as the SingHealth Duke-NUS Disease Centres (SDDCs) and SingHealth Regional Health System (RHS).

All of these new initiatives have been inspired by our patients, and we are heartened to witness how these efforts have borne fruit to improve the care they receive. In this Annual Report, we have two of our patients and their caregivers sharing their stories and giving us insights into their journeys to health. Their stories illustrate how our integrated care models work, and also highlight the unique, personalised touch that our care teams strive to provide.

Mr Ramasamy Sinnasamy was diagnosed with Chronic Obstructive Pulmonary Disease (COPD), a disease that almost cost him his life. Since seeking care at the SingHealth Duke-NUS Lung Centre's COPD clinic, his condition has stabilised thanks to regular follow-ups with the multi-disciplinary care team. As one of eight SDDCs, the Lung Centre brings together inter-professional teams from across disciplines and institutions, organising them around patients like Mr Ramasamy, so that multiple consultations with different specialties can take place in a single visit.

This affords patients and their caregivers greater convenience. The care team also developed a strong rapport with Mr Ramasamy, which was instrumental in his recovery. He has now returned to full-time work, and he is proud to help other patients as a patient ambassador at the Lung Centre.

“We are proud of the many initiatives the collaboration has fueled – from ground-breaking research studies and Academic Clinical Programmes, to innovative care models...”

Mdm Cheng Kam Tai, who lives alone in a one-room rental flat, presented a different set of challenges. The 89-year-old was recently hospitalised for multiple compression fractures in her back. With the RHS, Mdm Cheng was able to seamlessly transit from hospital to home when she was discharged. Our Community Nurse ensured that Mdm Cheng was connected with various community partners, who gave the necessary support to help her stay healthy in the community. This not only reduced the likelihood of readmission to hospital, but also helped Mdm Cheng retain her sense of independence while recuperating in the comforts of her own home.

With the reorganisation of Singapore’s public healthcare system, the SingHealth RHS has expanded its reach to the whole eastern region of Singapore. Our eight SDDCs provide integrated care to patients, while our 15 Academic Clinical Programmes provide structures that bring clinicians together to further drive progress in medical research, clinical education and patient care.

Beyond systems, processes and care models, Mdm Cheng’s and Mr Ramasamy’s success stories and determination to live their lives to the fullest motivate all of us to do better and continually challenge norms to deliver innovative care while retaining the personal touch that is the foundation of good healthcare.



PROF IVY NG

Group Chief Executive Officer,
SingHealth



PROF THOMAS COFFMAN

Dean, Duke-NUS Medical School



The Human Touch

■ **Independent but never alone**

SingHealth Regional Health System

■ **The turning point**

SingHealth Duke-NUS Disease Centres





Independent but never alone

Mdm Cheng Kam Tai, 89, suffered compression fractures in her spine and was hospitalised for six weeks. She is now recuperating at home with the help of her god-sister and support from the SingHealth Regional Health System.

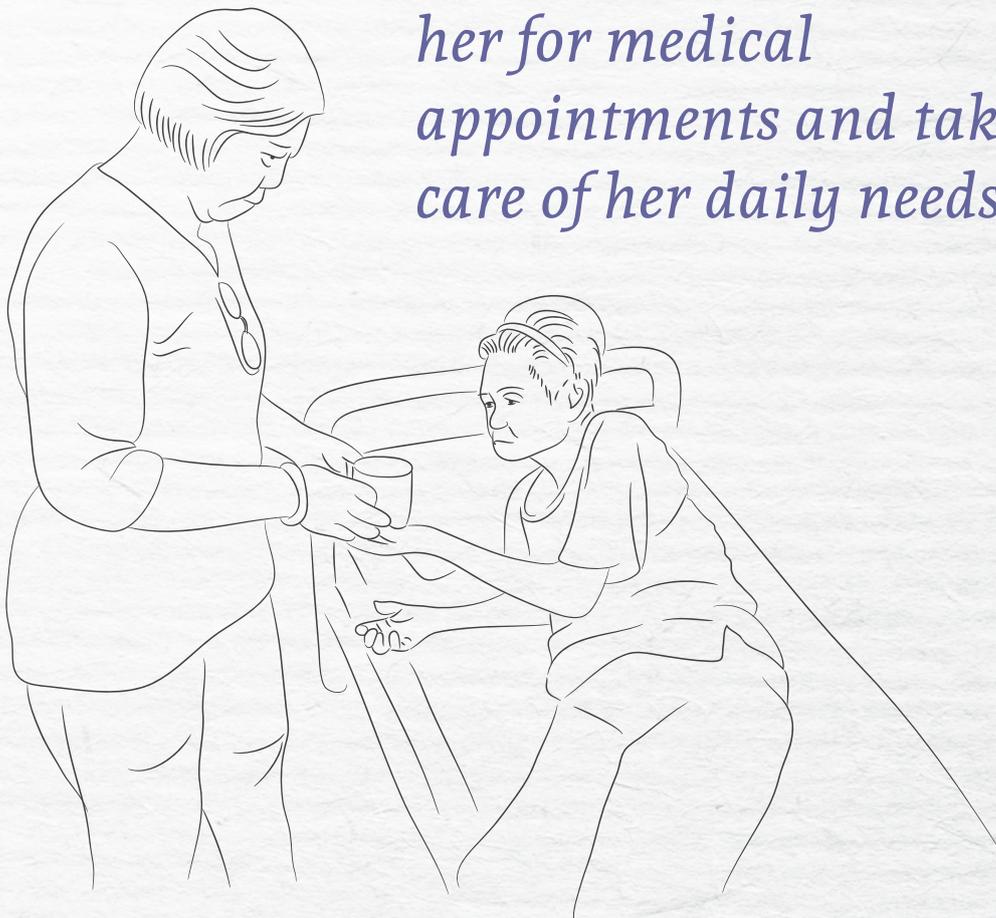
Mdm Cheng Kam Tai has been living alone in her one-room rental flat since 1987. She is known to be fiercely independent, but the 89 year-old's eyes brighten at the sight of visitors, especially when her god-sister, Mdm Sally Ng, visits.

Their close friendship was forged 45 years ago when they were both working at the Mandarin Hotel. As Mdm Cheng grew old and frail, Sally began caring for her — visiting regularly, accompanying her for medical appointments and taking

care of her daily needs. Even though Sally has to juggle work and family commitments, she assured Mdm Cheng that she can call for help, no matter the time of day.

On 22 January 2018 Mdm Cheng called Sally complaining of severe back pain. Sally immediately rushed her to Singapore General Hospital (SGH), where doctors discovered multiple compression fractures in her spine. She had to be hospitalised at SGH for two weeks, then moved to Bright Vision Hospital (BVH) for a month of rehabilitation.

As Mdm Cheng grew old and frail, Sally began caring for her – visiting regularly, accompanying her for medical appointments and taking care of her daily needs.



From hospital to home

When she was discharged, Assistant Nurse Clinician Leong Mei Yan was assigned to help Mdm Cheng settle back in to life at home. As a Community Nurse with the SingHealth Regional Health System's Hospital to Home programme, Mei Yan conducts home visits to monitor Mdm Cheng's condition closely and refer her to the care team if needed.

During one of the visits, Mei Yan noticed that Mdm Cheng's pain had worsened. "I could sense her frustration because she couldn't do basic household chores, cook her favourite dishes or even get proper rest because of the pain," shared Mei Yan.

"As we spoke, I discovered that she hadn't been taking her painkillers as prescribed because she was worried

about the side effects." Mei Yan patiently taught Mdm Cheng how to take the medications correctly to keep her pain under control and minimise risk of side effects.

As a Community Nurse, Mei Yan also acts as liaison with partners in the community to ensure that patients' social needs are well taken care of. She works closely with Celestine Tay, a Cluster Support Case Manager at Thyee Hua Kwan Moral Charities (THKMC) to address Mdm Cheng's financial, emotional and social needs. "Celestine and I realised that Sally's help alone was not sufficient to support Mdm Cheng after her discharge from hospital."

"I could sense her frustration because she couldn't do basic household chores, cook her favourite dishes or even get proper rest because of the pain."

Leong Mei Yan, Community Nurse, SingHealth RHS



Mdm Cheng receives support from her god-sister, SingHealth Community Nurse and THKMC.

Facing challenges together

They quickly built a rapport with Mdm Cheng, and Celestine arranged for THKMC Home Personal Care Services to assist Mdm Cheng with activities of daily living. She also arranged for a medical escort and transport service when Sally accompanies Mdm Cheng to her medical appointments. This lessens the burden of care on Sally and provides Mdm Cheng with a bit more comfort.

True to her self-reliant personality, Mdm Cheng refused financial assistance at first, even when it was clear that her savings would not be sufficient. She said, "It's better that it goes to someone more needy." With a little patience and some cajoling by Sally, Celestine and Mei Yan, she was persuaded to accept Medifund assistance and subsidies for her medical care.



Setting out for her medical appointment.

“Nothing is too difficult. I have a hopeful outlook on life. Even though I am a bit hard of hearing and now have to cope with backaches, I am happy.”

Mdm Cheng Kam Tai

“Nothing is too difficult!”

Despite her health conditions, Mdm Cheng continues to take things in her stride and lead life positively, confident in knowing that she has a network of support. “Nothing is too difficult. I have a hopeful outlook on life. Even though I am a bit hard of hearing and now have to cope with backaches, I am happy.”



SingHealth Regional Health System



The SingHealth Regional Health System (RHS) recognises that our population can be empowered to keep well, get well and age well in their communities and homes.

To achieve this, we collaborate with like-minded agencies across the health and social care sectors to identify population health needs, promote behaviour changes and develop sustainable programmes to improve quality of life.

As an academic RHS, we also leverage health services research to understand healthcare utilisation patterns and to facilitate appropriate interventions across the care continuum.

Following the reorganisation of healthcare clusters in January 2018, we have adopted a One SingHealth, multi-site approach that allows us to synergise and scale up our programmes, together with SingHealth Community Hospitals and SingHealth Polyclinics, who are now also part of the RHS.

Our commitment to promoting health in partnership with the community is reflected in our vision and mission statements:

Vision

Transforming Care. Improving Health

Mission

Partnering communities to keep well, get well and age well

Who we serve

SingHealth RHS serves 1.4 million Singaporeans residing in Eastern Singapore, 12 per cent of whom are aged 65 and above. We work closely with VWOs, social service providers, and grassroots and government agencies, to enable the population to keep well, get well and age well. The services are organised around the 12 Communities of Care (CoC) and residents in each CoC can benefit from services such as:

- Health Screening
- Post-Discharge and Psychosocial Support
- Chronic Disease Management
- Advance Care Planning
- Palliative Care

Highlights of SingHealth RHS

Health promotion and disease prevention

Partnering grassroots and religious organisations, we have conducted health screening for nearly 8,000 participants in FY2017. Of those, 2,244 who have abnormal screening results have received health coaching and follow-up care at our Community Health Posts and primary care partners.

In November 2017, the SingHealth Duke-NUS Diabetes Centre embarked on a three-year study to understand the effectiveness of a diabetes prevention programme on individuals with pre-diabetes. The programme consists of group exercises and health coaching classes conducted by Health Promotion Board.



Since 2014, Sengkang General Hospital (SKH) has been promoting healthy living to primary school students in the Northeast. In 2017, the Millennia Kids Programme has reached out to more than 11,000 students and their families through healthy living workshops and family carnivals.

Giving children a strong start in life

The Temasek Foundation Cares Kids Integrated Development Service (KIDS 0-3) programme was piloted in July 2014 to optimise the developmental potential of young children from vulnerable families.

Led by KK Women's and Children's Hospital (KKH) in partnership with AMKFSC Community Services Ltd, the programme includes home visitations and centre-based activities. It has to date supported 150 pairs of mother and child.

Community Nursing



As of August 2018, 36 nurses from Singapore General Hospital and Changi General Hospital (CGH) are working with community partners to help elderly residents to keep well, get well and age well near or in their homes. Stationed in 21 Community Nurse Posts at Senior Activity Centres across Southeast and Eastern Singapore, the nurses conduct health screening and coaching, falls and frailty assessment, post-discharge care and coordination, home visits and caregiver training.

Care Line

To provide health and social support to vulnerable seniors, CGH runs Care Line, a 24/7 personal care telephone service. Operators coordinate the care that the seniors need, or link them up with the relevant agencies or befrienders. More than 1,500 clients from the East have been enrolled since November 2016 and it will be scaled up nationwide.

Upskilling community partners

The EAGLEcare Programme by CGH empowers nursing homes in

the east to deliver quality geriatric and end-of-life care to their patients. A team of geriatricians, nurses and allied health professionals from CGH have trained more than 100 nurses from five nursing homes to facilitate Advance Care Planning discussions and support end-of-life care preferences for patients.

Health Services Research

The SingHealth RHS Population-based, Unified, Learning System for Enhanced and Sustainable Health (PULSES) Centre Grant was established in August 2017 to build population health research capabilities in SingHealth. In FY17, \$101,500 of seed funding was awarded to three projects looking into diabetes foot education, healthcare utilisation of metastatic cancer patients and healthy eating habits among schoolchildren. In April 2018, SingHealth co-organised the inaugural Singapore Population Health Conversation and Workshop with National Healthcare Group and National University Health System, which was attended by more than 650 participants.

SingHealth Partners Primary Care Network

The Ministry of Health introduced the Primary Care Network (PCN) scheme to encourage private General Practitioner (GP) clinics to organise themselves into networks that support holistic and team-based care in the community. As of January 2018, 10 PCNs have been formed, including the SingHealth Partners PCN, which has 143 GP clinics on board. Participating GPs are supported by a team of dedicated nursing, allied health and administrative staff and enabled by a chronic disease registry.



The turning point

Mr Ramasamy Sinnasamy, 61, was diagnosed with Chronic Obstructive Pulmonary Disease. Thanks to the multidisciplinary care at the SingHealth Duke-NUS Lung Centre, he is now back to work and enjoying family time.

Mr Ramasamy Sinnasamy, 61, teared up as he recalled his near-death experience when he was admitted to hospital in 2014. “When I left the hospital to return home, the doctors told me I had been given a second life.”

Mr Ramasamy had a persistent cough for four months when he decided to visit the polyclinic for a check-up. At the clinic, he started feeling breathless and was sent to the hospital immediately, where doctors diagnosed him with Chronic Obstructive Pulmonary Disease (COPD). His condition was so severe that he had to stay in the Critical Care Unit. “With all the

panic and uncertainty, we were so scared. We feared the worst,” shared his wife, Mdm Sarasvathy.

Upon discharge, the loving husband and doting father of three daughters, worked hard to get his life back on track. With his wife and daughters as his motivation, he promptly adopted healthier dietary habits and gave up smoking. “I remember when my father was admitted, his very first thoughts were on how his girls – my mother and my sisters, were faring,” recalled his eldest daughter, Shanthini, 26, “We were the reason he kept fighting.”

Despite his best efforts, Mr Ramasamy was admitted to hospital again in August 2017 for COPD exacerbation and anaemia.

The human touch

Thanks to the excellent care by the team at Singapore General Hospital (SGH), Mr Ramasamy’s condition has since stabilised and he is back to working full-time as a coach driver. He visits the SingHealth Duke-NUS Lung Centre, a SingHealth Duke-NUS Disease Centre (SDDC), every four to six months, where he is under the care of Dr Jessica Tan Han Ying, a Consultant at the Lung SDDC, and Ms Lee Siew Ling, a Nurse Clinician.

Siew Ling helps monitor Mr Ramasamy’s condition and teaches him how to keep his condition under control. She also followed-up with phone calls, to ensure that he was coping well. “He is a very good patient. COPD is a



“With all the panic and uncertainty, we were so scared. We feared the worst.”

Mdm Sarasvathy, wife of Mr Ramasamy

progressive disease, so making lifestyle changes and being able to independently manage his medication is important. Mr Ramasamy is very willing to follow our advice closely.”

Over the years, Mr Ramasamy and Dr Tan have developed a strong bond. “She has helped me a lot. She listens and addresses my concerns, and always patiently assures me. She is meticulous and really cares for her patients,” he smiled.

Dr Tan shared a memorable moment when she visited Mr Ramasamy in hospital last August. “His eldest daughter called and asked if I could visit him in the ward. He was in distress, but calmed down when I spoke to him and assured him that he was in good hands. It was very heart-warming because he was just happy to see me. This is the kind of trust-based relationship that we try to build with our patients.”



Siew Ling going through the different types of inhalers.

"[Dr Jessica Tan] has helped me a lot. She listens and addresses my concerns, and always patiently assures me."

Mr Ramasamy Sinnasamy



Mr Ramasamy goes for routine check-ups at Lung Centre's COPD Clinic, where he sees Dr Jessica Tan and other specialists in one visit.



SGH Senior Physiotherapist Ms Sophia Cheah teaching Mr Ramasamy strengthening exercises to help improve physical function.



*“We all work as a team.
At the Lung Centre, doctors,
nurses and allied health
professionals come together
to ensure that the patient
has seamless care”*

Ms Lee Siew Ling, Nurse Clinician, Lung SDDC

Integrated model of care

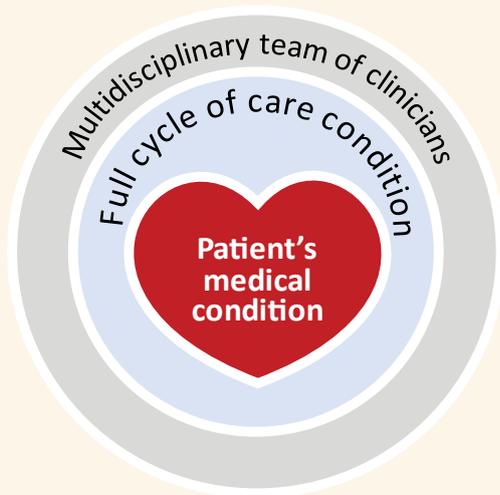
COPD affects more than just the lungs and can impact patients’ ability to work, sleep, go about their daily routine and their mental well-being. The COPD integrated clinic at the Lung Centre provides care in every aspect.

“We all work as a team. At the Lung Centre, doctors, nurses and allied health professionals come together to ensure that the patient has seamless care,” explained Siew Ling. This integrated model of care has benefitted Mr Ramasamy and other COPD patients – they get a one-stop access to lab tests, consultation with lung specialists and surgeons, physiotherapy, patient education by nurses and support of medical social workers.

A patient turn advocate

Four years from when he was first diagnosed with COPD, Mr Ramasamy lives life positively and has even taken the step to get actively involved in research trials. Spurred on by his family, he is an ambassador for smoking cessation, encouraging newly-diagnosed patients who are trying to quit. He tells them, “Don’t go to the doctor too late. See the doctor, get treated early and make sure you follow the advice.”

SingHealth Duke-NUS Disease Centres



What are SDDCs?

SingHealth Duke-NUS Disease Centres (SDDCs) were formed as a strategic model of care for patients with specific conditions that require multi-disciplinary teamwork. The structure enables professionals from different disciplines and institutions to work closely together to enhance care. SDDCs provide quality clinical care throughout the care continuum and improve outcomes.

In conventional care, a patient with a nodule (growth of abnormal tissue) in his neck may be referred to a thyroid specialist or surgeon, who would then refer him to a diagnostic radiologist for imaging tests. If the nodule is found to be a cyst, the patient would be given an appointment for a biopsy. By this time, the patient would have made multiple trips to the hospital to see different specialists.

With the SDDCs, the patient's journey is streamlined, cutting down the number of visits, saving time and money. It also translates to greater work efficiency for clinicians.

For tomorrow's medicine

SDDCs' approach to collaborative care places emphasis on developing a comprehensive database for care and research. In the long term, it will change the way we recommend treatments – as outcomes are collectively measured and studied to continuously improve protocols.

Our SDDCs

8 SDDCs have been established for conditions that especially benefit from multidisciplinary coordination.



Diabetes



Head and Neck



Sleep Disorder



Blood Cancer



Lung



Sport and Exercise Medicine



Breast



Liver Transplant

SDDC Highlights

Blood Cancer Centre

A multi-disciplinary team is working on a project to improve cost-effectiveness of care for Diffuse Large B-cell Lymphoma (DLBCL) – a disease that requires patients to undergo extensive staging investigations, treatment and long-term follow up. The pilot project will be implemented in FY2018 at National Cancer Centre Singapore's (NCCS) lymphoma clinics, with plans to expand it to Singapore General Hospital (SGH) by FY2019.

Lung Centre

Transbronchial Cryobiopsy is a new technique for obtaining sizeable lung biopsies. It has been shown to be safer and less invasive than conventional biopsy techniques. To date, the Lung Centre is the only healthcare facility in Singapore to offer this service, which has benefited up to 30 patients.

To minimise the number of referrals and visits for lung cancer patients, the Lung Centre has also started a remote tumour board. Specialists of different disciplines from NCCS, National Heart Centre Singapore (NHCS) and Changi General Hospital (CGH) meet regularly through videoconference to discuss the progress and treatment of patients. This ensures that lung cancer patients get the same quality of care no matter which SingHealth institution they are in.

Sleep Centre

Eligible patients on SGH's sleep lab waitlist can now be seen in CGH, where the waiting time is shorter, resulting in faster diagnosis and treatment. The Sleep Centre has also expanded its ambulatory sleep service, so that more patients can be diagnosed without having to undergo sleep studies in the laboratory, saving them time and money.

Breast Centre

An AMRI Khoo Scholar has been awarded \$225,000 to investigate the molecular profile of fibroepithelial lesions – a class of common breast tumours that can range from benign to cancerous. A deeper understanding of the genes involved can shed light on the tumours' formation, progression and treatment. She is the first dedicated surgeon scientist at the Centre, and aims to translate her findings to better care for her patients.

Information from FY2017

Liver Transplant Centre

Since the Liver Transplant SDDC was formed in FY2014, the number of liver transplants performed has tripled – from 7 in 2015, to 21 in 2017. The procedures performed have been successful, with no post-operation complication. By implementing an improved surgical technique, the donor graft required is now significantly smaller than before.

The Centre started the ABO incompatible (ABOi) liver transplant service as part of its effort to further clinical service, and the first ABOi liver transplant was performed by the team.

Diabetes Centre

The Centre launched a study to understand the effectiveness of Pre-DICTED (Pre-Diabetes Interventions & Continue Tracking to Ease out Diabetes), a programme to prevent the patients' progression from pre-diabetes to full-blown diabetes.

To improve care for mothers with diabetes that persists after delivery, a new guideline was established for screening and follow-up of gestational diabetes mellitus.

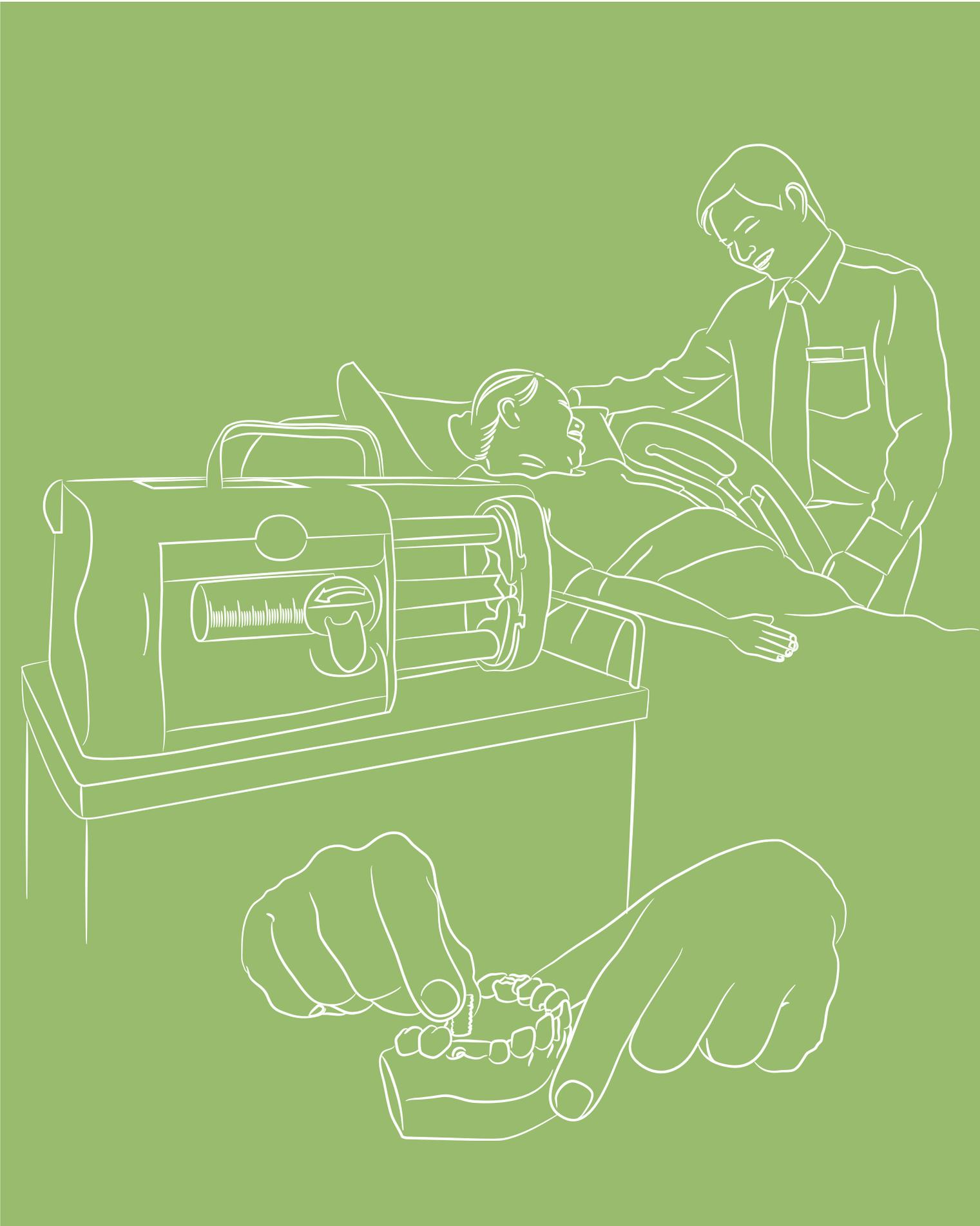
More stories about the war against diabetes on page 28

Head & Neck Centre

The Centre set up the Allied Health Professionals (AHP) clinic to provide a one-stop service for patients before, during and after head and neck cancer surgery. The multi-disciplinary AHP clinic team comprises expertise from dietetics, clinical psychology, speech therapy, physiotherapy and occupational therapy.

Sport and Exercise Medicine Centre

With CGH joining SingHealth early this year, the SingHealth Duke-NUS Sport and Exercise Medicine Centre was formed, benefitting from CGH's leadership in this area.





Highlights

- Improving healthcare
- Keeping our patients safe
- Research
- Education
- Giving

Improving healthcare

Our patients are at the heart of all we do. We continuously seek new ways to improve the quality of care we deliver to our patients and provide services that make a difference.

Supporting patients in the community

A Community of Care

Under SingHealth Regional Health System's Community of Care, multidisciplinary teams and community partners collaborate to support those with complex medical conditions and social issues. First launched in April 2017 for elderly residents in Chinatown, SingHealth now has 12 Communities of Care serving residents in Eastern Singapore.

More about our Regional Health System on page 16.

Chemo at home

Under a service at Singapore General Hospital (SGH), multiple myeloma patients who receive chemotherapy via injection can now opt to be treated at home. With the option of having an SGH nurse to visit them at home to administer treatment, blood cancer patients need not visit the hospital weekly. This reduces their chance of catching an infection from other patients. Caregivers no longer need to take time off and nurses can get a better understanding of the patient's overall health in their home environment.



SNEC launches mobile eye clinic

Launched by Singapore National Eye Centre (SNEC) and Singapore Eye Research Institute (SERI), the Mobile Eye Bus offers eye-screening services to those who are not able to go to clinics. The institutions will also study the impact of providing eye screening services to the elderly who are less mobile and the underprivileged, and use the results as reference for future service delivery models.

The Mobile Eye Bus is a project of VisionSave, a national philanthropic initiative by SNEC and SERI.

Prevention and empowerment

Cutting down hospital visits with video consultation

KK Women's and Children's Hospital (KKH) has introduced video consultation for patients to replace follow-up appointments with the doctor. This saves patients an extra visit if their condition is not serious, and do not require physical examinations.

Telehealth programme for heart failure patients

The Heart Failure Telehealth programme piloted by Changi General Hospital and Philips has been proven to improve patients' knowledge, confidence and ability to manage their condition, and reduced the average length of stay for heart failure-related readmissions by 67 percent, compared to if they receive support only via phone calls. The programme provides heart failure patients with devices that allow nurses to remotely monitor their vital readings and provide support when needed. Patients also receive educational videos, quizzes and follow-up calls from nurse telecarers.

App sets sights on addressing myopia in kids

SERI-SNEC's Ophthalmic Technologies Incubator Programme released Plano, an app to keep track of a child's smart device usage habits and address the sharp rise in myopia among the young.

Plano incorporates a myopia screening tool and allows parents to monitor and captures important eye-related information. Parents can monitor the frequency and length of time spent on devices, the apps their children are using, and the distance at which they hold the devices.

IPPT for Seniors ↓

SGH and Sengkang General Hospital (SKH) have developed a physical proficiency test to identify frail seniors before falls or other health crises land them in hospital. The 'IPPT for Seniors' is administered at community organisations and has nine stations to measure flexibility, strength and balance.



The IPPT for Seniors (IPPT-S) provides an objective measure of the physical fitness of the elderly.

Photo: Singapore Health

War against diabetes

Fending off diabetes for high-risk patients

SingHealth Duke-NUS Diabetes Centre has launched a new study to understand the effectiveness of Pre-DICTED (Pre-Diabetes Interventions & Continued Tracking to Ease out Diabetes), a programme to prevent diabetes from developing in participants with pre-diabetes.

The Pre-DICTED programme consists of group exercises, health coaching classes and cash incentives for those who lose weight. Participants are followed up for three years and prescribed metformin if they are deemed to have a very high risk of developing diabetes.

Nipping diabetes in the bud

SingHealth Polyclinics (SHP) launched two diabetes care management programmes in October 2017. The Pre-Diabetes Management Programme empowers individuals with pre-diabetes to make lifestyle and dietary changes to prevent the onset of diabetes, while the Diabetes Management Programme refers patients who are newly diagnosed with diabetes to a care manager to review their condition regularly.

Since the launch, SHP has seen more than 520 individuals with pre-diabetes and 1,300 newly diagnosed patients with diabetes.

Improving care for pregnant women with gestational diabetes mellitus

KKH and Temasek Foundation Cares have jointly introduced a pilot programme to improve the detection, care and support for pregnant women with gestational diabetes mellitus (GDM).

Under the programme, all expectant mothers in KKH are offered routine GDM screening. Those diagnosed with GDM are provided timely care and educational support, as well as follow-up care if the condition persists after delivery. The programme aims to benefit about 5,400 women with GDM over a three-year period.

New facilities & services

Construction starts for National Cancer Centre Singapore's new building

Set to open in 2022, the new building has four times more capacity than the current one. Each disease group will have its own dedicated space with clinical, research and education facilities in close proximity.

The 24-storey building will feature a Mental Wellness Clinic and a Patients' Resource Centre. It will also feature a new Proton Therapy Centre that offers advanced cancer treatment.

Integrated supply chain management for public healthcare

Formed earlier this year, ALPS Pte. Ltd. brings together healthcare supply chain professionals from all three public healthcare clusters to meet the procurement and supply chain needs of Singapore's healthcare system.

Singapore's first donor human milk bank

On 17 August 2017, KKH and Temasek Foundation Cares launched the nation's first Donor Human Milk Bank programme, a non-profit initiative to provide pasteurised human donor milk for premature and sick newborn babies whose mothers may not be able to produce enough milk.

The programme will help 900 vulnerable infants who are receiving neonatal care at KKH, National University Hospital and SGH over a three-year period.

SGH to expand emergency care facilities with new building ➡

Construction has started for SGH's new Emergency Medicine Building, which will replace the current A&E facilities. It will be connected to the main SGH buildings with close access to hospital facilities and specialists from multiple disciplines on Campus, for fast and effective care.

The facility will strengthen capabilities to respond to a national health crisis. It will also include a Hospital Decontamination Station to support mass casualty incidents. The 12-storey building is slated to open by 2023.



Better access to care with SHP ↓

SHP-Bedok has relocated to Heartbeat@Bedok, an integrated community building. The move comes with new support services, such as physiotherapy, podiatry and diagnostic radiology.

SHP-Punggol opened in Oasis Terraces, a new generation neighbourhood centre. To cater to the needs of the growing community in the Northeast, SHP-Punggol offers primary care services with a special focus on women's and children's health. Beyond patient care, SHP-Punggol houses the SHP Centre of Research Excellence, which focuses on chronic disease management and primary care delivery innovations.



Left to Right: Clinic area for women and children at SHP-Punggol and the relocated SHP-Bedok, in Heartbeat@Bedok.

Keeping our patients safe

Patient safety is our top priority. We undertake various efforts as part of the cluster-wide push towards zero preventable harm.

TARGET ZERO HARM

Delivering the best care possible means ensuring that our patients are kept safe at every touchpoint. As an Academic Medical Centre (AMC), we are best positioned to transform patient safety and quality through the pillars of clinical care, education and research.

To achieve this, the Target Zero Harm movement, a coordinated cluster-wide initiative to eliminate preventable harm to our patient, was launched in SingHealth in 2016. Current processes are repeatedly evaluated and enhanced, while new ones are developed to address areas of improvement. Above all, the movement serves to foster a safety culture underscored by open learning and sharing.



Institute for Patient Safety & Quality

The Institute for Patient Safety and Quality (IPSQ), launched on 31 May 2017, brings us a step closer to our goal of zero preventable harm. IPSQ coordinates and integrates all patient safety and quality initiatives throughout the cluster, ensuring the optimal usage of resources and sharing of best practices. The Institute provides the necessary framework for effective training in patient safety and quality, and also develops staff and even patients to be advocates for patient safety.

Since its launch, IPSQ has adopted a collaborative and inclusive model of engagement with institutions, with the goal of enabling an integrated and concerted effort towards Target Zero Harm.

Functions of IPSQ

Leadership & Coordination

Performance Control & Monitoring

Education & Professional Development

Communications & Engagement

Quality Improvement Management

Innovation Management

"I save lives"



"To ensure that volunteers know how to take care of our patients during activities, I will brief them thoroughly on the patients' profiles, importance of hand hygiene as well as train them on handling wheelchairs."

Mr Yang Zhong Qi, Ace (centre, in white), Executive, Community Engagement, Bright Vision Hospital



"Patients with diabetes face increased adverse complications from low blood sugar levels post-surgery. By actively educating patients and their families on the importance of having timely meals, we keep our patients safe."

Ms Dahliana Idris (centre), Advanced Practice Nurse, National Heart Centre Singapore

SingHealth Enterprise Risk Management (ERM) Programme

All clinical, education and research activities inherently bear certain levels of risk. The effective management of risk is therefore crucial to innovation and growth.

The SingHealth ERM Programme, launched in April 2011, lays the foundation to prevent, detect and respond to any unplanned disruptions that may hinder us from creating a safe environment for patients and staff. Through its three-pronged approach— data & analytics, education & training, sharing & learning—the programme establishes a formalised risk reporting, review and monitoring mechanism. This also supports the Board-level Risk Oversight Committee.

SingHealth Enterprise Risk Management Centres of Excellence

The Centres of Excellence (CoEs) were formed to mitigate five key risk areas across SingHealth through the use of ERM concepts and principles. As a framework, ERM lays the foundation to prevent, detect and respond to any unplanned disruptions.

The primary focus of the CoEs is to identify and share best practices across the cluster to enhance clinical outcomes while ensuring the safety of both patients and staff.

Centre of Excellence	Key achievements/ Ongoing efforts
SingHealth Medication Safety Workgroup	<ul style="list-style-type: none"> Implemented a standardised system for tracking and reporting across all SingHealth institutions, enabling the identification of areas for improvement Recommended streamlining alerts on individual patients' allergies, resulting in improved safety outcomes
SingHealth Infection Control and Prevention Workgroup	<ul style="list-style-type: none"> Oversees quarterly cross-institution infection control audits at all SingHealth institutions Promotes the sharing of infection prevention and control best practices across the cluster Launched the SingHealth signature alcohol-based hand rub
SingHealth Procedural Safety Workgroup	<ul style="list-style-type: none"> Worked with SingHealth institutions to improve procedural safety training for surgical residents and medical officers Publishes articles on common procedural concerns, good practices and success stories to encourage open sharing and learning
SingHealth Falls Prevention Workgroup	<ul style="list-style-type: none"> Developing an Integrated Care Process Model for fall prevention among high risk elderly patients Set-up guidelines for cluster-wide procurement of falls assistive devices and infrastructure enhancement Collaborating with BVH, CGH and SGH to explore the use of the Singapore Health Assistive and Robotics Programme (SHARP) Grant to implement novel virtual monitoring strategies of patient movements for timely intervention
SingHealth Operations & Environmental Safety Workgroup	<ul style="list-style-type: none"> Oversees the cross-institution review of sterile processing facilities and processes to assure that the prevailing safety standards are aligned with national, international and industry quality standards

Research

At the SingHealth Duke-NUS Academic Medical Centre (AMC), research is the key to achieving breakthroughs in medicine. We are committed to finding new cures and treatments for our patients.

Partnerships

Tackling prevalent diseases in Asia

SingHealth Duke-NUS AMC and the Agency for Science, Technology and Research (A*STAR) signed a memorandum of understanding to advance medical research in diabetes; immunotherapy and drug development; and precision medicine. The partnership aims to tackle diseases prevalent in Singapore and Asia, such as cancer and cardiovascular diseases.

Cardiometabolic Diseases

Low take-up of heart-regulating implant in Singapore

A multinational study on Asian Heart Failure patients led by the National Heart Centre Singapore (NHCS) showed that utilisation rates of Implantable Cardioverter Defibrillators (ICDs) were low in Asian patients despite data having shown that the ICD, a small device placed under the skin to monitor the heart rhythm, can reduce death risk.

Results of the study reveal opportunities for better patient education and public health interventions to improve the outcomes of heart failure patients.

Cancer

Antibodies to detect gene mutation

p53 is a gene that defends cells in the body from any form of stress and prevents them from becoming cancerous. However when p53 mutates, it promotes cancer cell survival and hinders cancer treatment instead.

Researchers from A*STAR and National Cancer Centre Singapore (NCCS) have discovered antibodies that can detect mutant p53. The team is currently investigating if these antibodies can be used as a drug that can potentially treat almost fifty per cent of all human cancers caused by p53 mutation.

Breakthrough to treat fibrotic diseases that cause organ impairment and failure

Researchers from Duke-NUS Medical School (Duke-NUS) and NHCS have discovered that a critical protein, known as interleukin 11 (IL11) is responsible for fibrosis and causes organ damage, a finding that runs contrary to a long-accepted misconception that IL11 is anti-fibrotic.

A new therapeutic target to inhibit IL11 for fibrotic diseases of the heart, kidney and lung is currently in its development stage. Scientists are hoping that it can be used as a treatment which will benefit patients with end-stage heart and kidney failure.

Gynaecology

Enhancing delivery of pain-relief for women in labour ↓

KK Women's and Children's Hospital (KKH) and local medical tech company Innovfusion developed a 'smart' epidural delivery system called the EPIVA pump that can automatically adjust the dosage of pain relief for women in labour.

The COLEUS study by the KKH team has shown that the system is more effective than traditional patient-controlled epidural in reducing breakthrough pain during labour. Since August 2017, the EPIVA pump has been made available at KKH at no extra cost, and used by more than 2,500 patients.



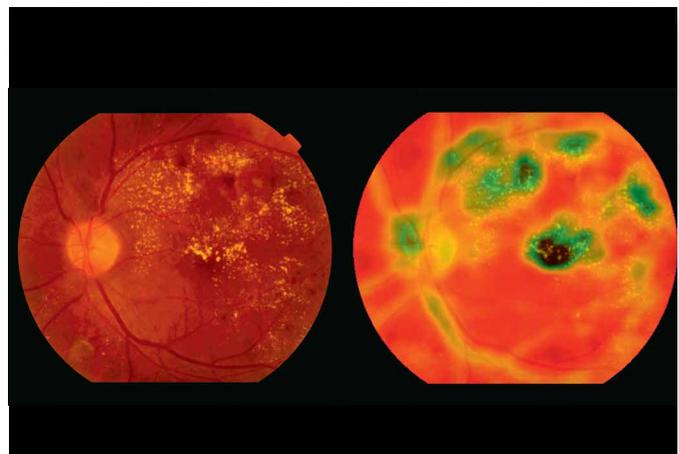
Assoc Prof Sng Ban Leong, the primary investigator for COLEUS, demonstrates the use of the EPIVA smart infusion pump on a patient.

Eye Diseases

Harnessing AI for faster tests →

Singapore National Eye Centre (SNEC), Singapore Eye Research Institute (SERI) and National University of Singapore developed the first artificial intelligence (AI) screening system to detect three major eye diseases namely diabetic retinopathy, glaucoma and age-related macular degeneration.

The AI uses a machine learning technology that automatically classifies images of the retina into those with and without these eye diseases, making eye screenings more efficient, accurate and cost effective. The scientists are working on 'teaching' the AI to identify more conditions and with greater sensitivity.



Health Services Research

Combating undernutrition in the elderly

Changi General Hospital (CGH) and Abbott are setting up a Nutritional Health for the Elderly Reference Centre in Singapore. They are also working with SingHealth Polyclinics (SHP) to conduct Asia's largest randomised controlled clinical study on elderly nutrition.

Under-nutrition can affect up to 35 per cent of community-dwelling elderly who are admitted to hospital. Such patients face an increased risk for complications such as infections, muscle loss and longer hospital stays, which increases the chance of them being readmitted.

Study: Diabetes increases risk of colour blindness

A study by SHP in collaboration with Singapore Polytechnic has found that individuals with Type-2 diabetes were at a higher risk of developing partial colour blindness. The study is the largest of its kind.

The researchers found that one in five study participants without diabetic retinopathy has impaired colour vision (ICV). Patients who are older, have lower education level and have had diabetes for more than six years were found to be more likely to have ICV. With the rise in diabetes prevalence in Singapore, more people are expected to be affected by ICV.

Neurosciences

New study sheds light on Alzheimer's

A study by Duke-NUS and the National University of Singapore Yong loo Lin School of Medicine has shown structural and functional differences in the brains of Alzheimer's patients with cerebrovascular disease such as stroke.

Alzheimer's disease is the most common form of dementia and one of the biggest public health and social care challenges today. This finding may greatly improve the ways in which doctors diagnose, treat, manage and anticipate the treatment outcomes in patients with neurodegenerative disorders.

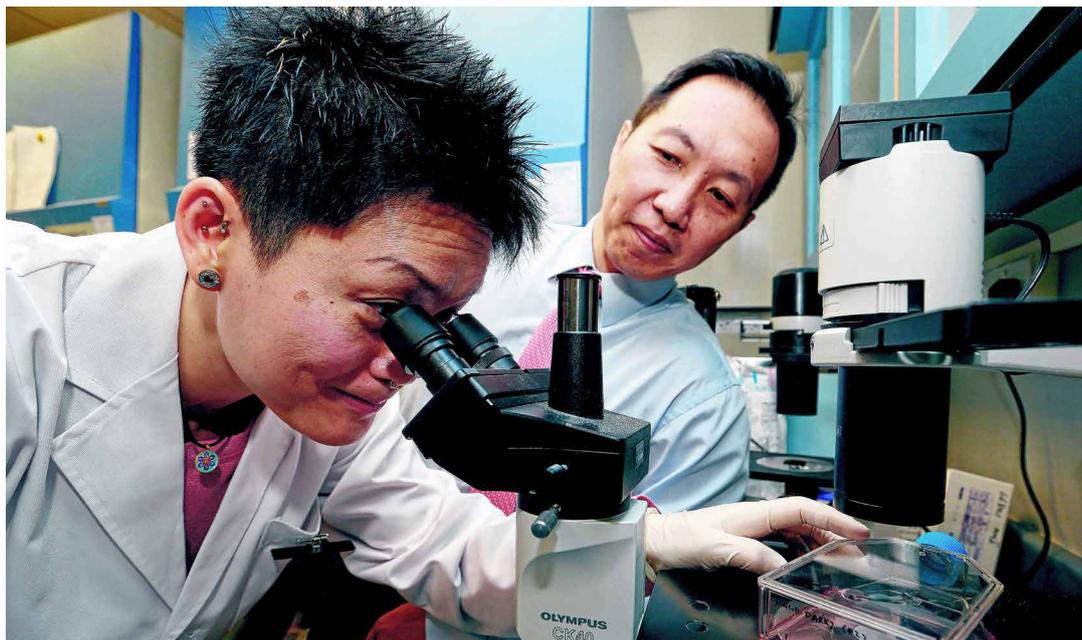
New way to diagnose deadly brain tumour

National Neuroscience Institute (NNI), Nanyang Technological University (NTU) and A*STAR researchers achieved a breakthrough in understanding how a key protein known as ST3Gal11 contributes to the spread of brain tumour cells.

The collaborative study showed that ST3Gal11 promotes tumour progression, and inhibiting this protein led to increased survival rates in animal models, indicating its potential application to cancer therapy. The team also developed ways to identify the individuals that are most likely to benefit from such therapy in the future.

Dr Carol Tang (left) and Assoc Prof Ang Beng Ti (right), led the team of researchers to a breakthrough in the understanding of ST3Gal1 - a protein key to brain tumour cell spread.

Source: The Straits Times (c) Singapore Press Holdings Limited. Permission required for reproduction.



Oral Health

Growing bone for implants ↓

National Dental Centre Singapore (NDCS) and NTU jointly developed a scaffold to grow bone in the area where a tooth is lost. The bone grows into the porous scaffold, so that a dental implant can be successfully inserted.

Currently, a trial with a new polymer that encourages even more bone growth is being tested. If successful, the scaffold could become an established procedure for preserving bone before dental implants. This will save patients from painful and costly bone grafts, and reduce treatment time.



Infectious Diseases, Inflammation & Immunology

Tackling infections with different antibiotic combinations

Recognising the threat of drug-resistant bacteria, a research team led by the Department of Pharmacy at Singapore General Hospital (SGH) has developed a novel test and treatment approach to kill bacteria that contribute to high death rates. They analysed data from 300 inpatients and found that those treated with antibiotic combinations identified by the test had higher survival rates. These findings contribute significantly towards the nation's ongoing efforts to tackle antimicrobial resistance.

Awards

\$60m awarded to 3 SingHealth-led research projects ↓

The Ministry of Health awarded \$60 million to three new research projects led by SingHealth clinicians, with the aim of translating the researchers' work into tangible products that can bring about both economic and healthcare benefits.

The projects are in the areas of lung cancer, virus-induced cancer and age-related macular degeneration, which are of particular importance to Singapore and Southeast Asia.



From left: Assoc Prof Toh Han Chong, Assoc Prof Daniel Tan and Assoc Prof Gemmy Cheung, whose research projects were each awarded grants of between \$10 million and \$25 million.

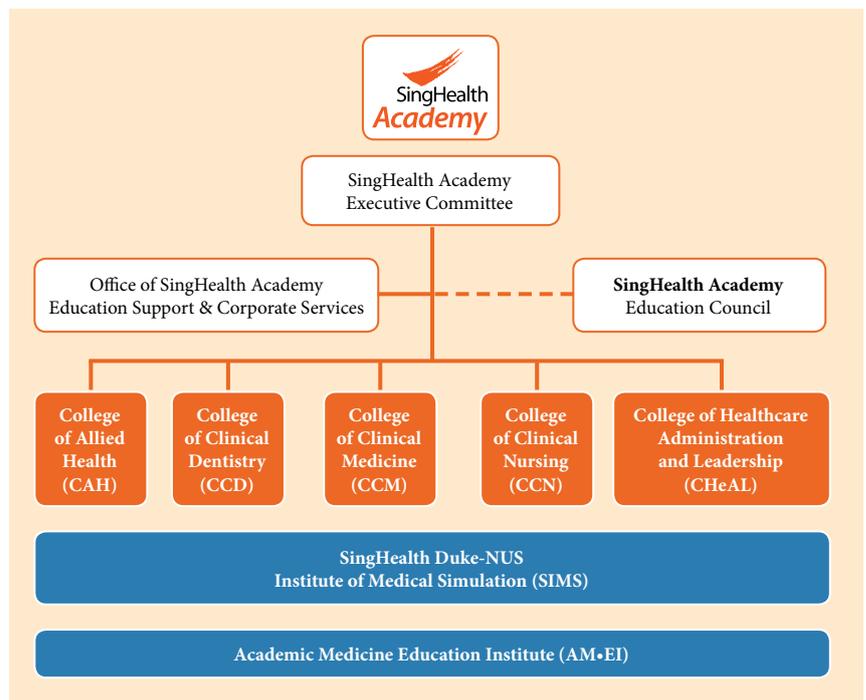
Source: The Straits Times (c) Singapore Press Holdings Limited. Permission required for reproduction.

Education

We nurture a multidisciplinary team of committed and competent healthcare professionals. With an illustrious legacy in clinical education, we constantly develop our clinical knowledge and skills to deliver the best care to our patients.

SingHealth Academy

At the heart of SingHealth's efforts to nurture future-ready healthcare professionals is SingHealth Academy, which provides high quality clinical training and education to nurture a multidisciplinary team of committed, competent and capable healthcare professionals and leaders. With a strong focus on Interprofessional Education (IPE), SingHealth Academy together with its Colleges and institute develop diverse capabilities across professions and domains to build a pipeline of collaborative, practice-ready healthcare teams.



Interprofessional Education

Nurturing young healthcare leaders

The SingHealth Academy College of Healthcare Administration and Leadership (CHeAL) piloted the Essential Management Skills Programme in March 2018. The programme empowers young healthcare professionals to be resilient and future-ready by focusing on Interprofessional Collaborative Practice at the early stages of their career.

Collaborative learning to improve asthma care

The SingHealth Academy College of Clinical Medicine (CCM) conducted the inaugural Interprofessional Education Workshop. More than 50 healthcare professionals and students tapped on the expertise of various healthcare professions to formulate a comprehensive care plan for acute childhood asthma management.

Interprofessional Education

3rd SingHealth Duke-NUS Education Conference ↴

A biennial landmark event in healthcare education, the conference showcases academic excellence. It brought together more than 1,000 thought leaders, interprofessional educators, aspiring professionals and trainees from healthcare and academic institutions in Singapore and around the region to learn and exchange best practices in collaborative learning.



Inaugural SingHealth Interprofessional Education Day

The event attracted 150 students and new graduates from the various schools of nursing, medicine and pharmacy in Singapore. The event focused on enhancing infection control practices through Interprofessional Education and communication.

Strengthening nurses' competencies

The theme of "The New Frontier in Nursing: Leading the Transformation" at the SingHealth Nursing Conference 2018 highlighted the role of nurses in ensuring a sustainable healthcare system beyond 2020. Beyond strengthening nurses' competencies in care, the Conference also aimed to improve collaboration with other healthcare professionals in managing complex conditions.

Better patient safety through simulation

Asia's first collaborative healthcare simulation conference →

SingHealth Duke-NUS Institute of Medical Simulation (SIMS) hosted the inaugural S3 Conference, in partnership with simulation organisations SESAM from Europe and SimGHOSTS from USA. The conference brought together close to 500 delegates, including leading experts in medical simulation.



Sharpening young clinicians' skillsets

As part of the inaugural Young Clinician Programme, the SingHealth Academy College of Clinical Dentistry (CCD) conducted a workshop with hands-on simulation of flap management and suturing for dental officers from SingHealth and other healthcare institutions. Participants also took part in a team-based multidisciplinary case discussion on treatment planning.

Developing capabilities

Residents as future leaders ↓

On 7 July 2017, 18 Chief Residents graduated from the inaugural SingHealth Residency Leadership Programme, which was initiated to develop a pool of leaders among residents in SingHealth.

Two SingHealth Clinician Scientist Residents, Dr Feng Jiajun and Dr Vincent Tay, were awarded the inaugural National Outstanding Clinician Scientist Resident Awards 2017.



Centre of Excellence for Spine surgery Training (CREST)

Changi General Hospital (CGH) and Medtronic International Ltd signed a MOU on 6 February 2018 to establish CREST@CGH. The centre trains spine surgeons in technology-aided minimally invasive surgery techniques. Minimally invasive surgery results in faster recovery with less blood loss, and lowers risk of complications for patients.

Asia's first postgrad diploma in sports medicine

Nanyang Technological University and CGH launched the Graduate Diploma in Sports Medicine to equip medical practitioners, including general practitioners, with the knowledge and skills on prevention and non-surgical treatment of sports injuries and musculoskeletal conditions in athletes and the general population, including the elderly. The programme is run by the Lee Kong Chian School of Medicine.

New pathway to pursue Medicine

Duke-NUS and Yale-NUS College launched the new liberal arts and medicine pathway, which aims to shape future clinicians who appreciate the interconnectedness of the sciences, social sciences and humanities in medical practice.

Singapore's first PhD programme in Clinical Sciences

Duke-NUS launched the PhD CS programme to train medical doctors and other health science clinicians to conduct biomedical research that bridges the bench-to-bedside divide. The programme aims to enable clinicians to lead multi-disciplinary research projects that are patient-oriented, in partnership with quantitative scientists and industry collaborators.

Training allied ophthalmic personnel

SNEC signed an MOU with International Joint Commission on Allied Health Personnel In Ophthalmology (IJCAHPO) in November 2017 to launch a training and certification centre. The centre trains and develops the capacity of Allied Ophthalmic personnel in the region through blended learning and a train-the-trainer model.

International collaborations

Leadership programme for healthcare executives in Asia

In FY17, SingHealth and National Healthcare Group co-organised two runs of the Temasek Foundation International Healthcare Executives in Asia Leadership (TFI HEAL) programme, attended by more than 120 healthcare leaders and public officials from 18 countries in the region, such as Bhutan, Mongolia, Nepal and Seychelles.

Helping Bangladeshi hospitals treat burn victims

As part of a three-year MOU between SingHealth and the Bangladesh Ministry of Health and Family Welfare, the SGH Burns Centre team visited Bangladesh to treat burn victims, conduct training for doctors, nurses and therapists, and help develop the country's new skin bank. Supported by Temasek Foundation International (TFI), more than 300 healthcare professionals in Bangladesh will be trained under the programme, which aims to improve survival outcomes of burns victims.

Strengthening healthcare leadership and clinical governance in Sri Lanka

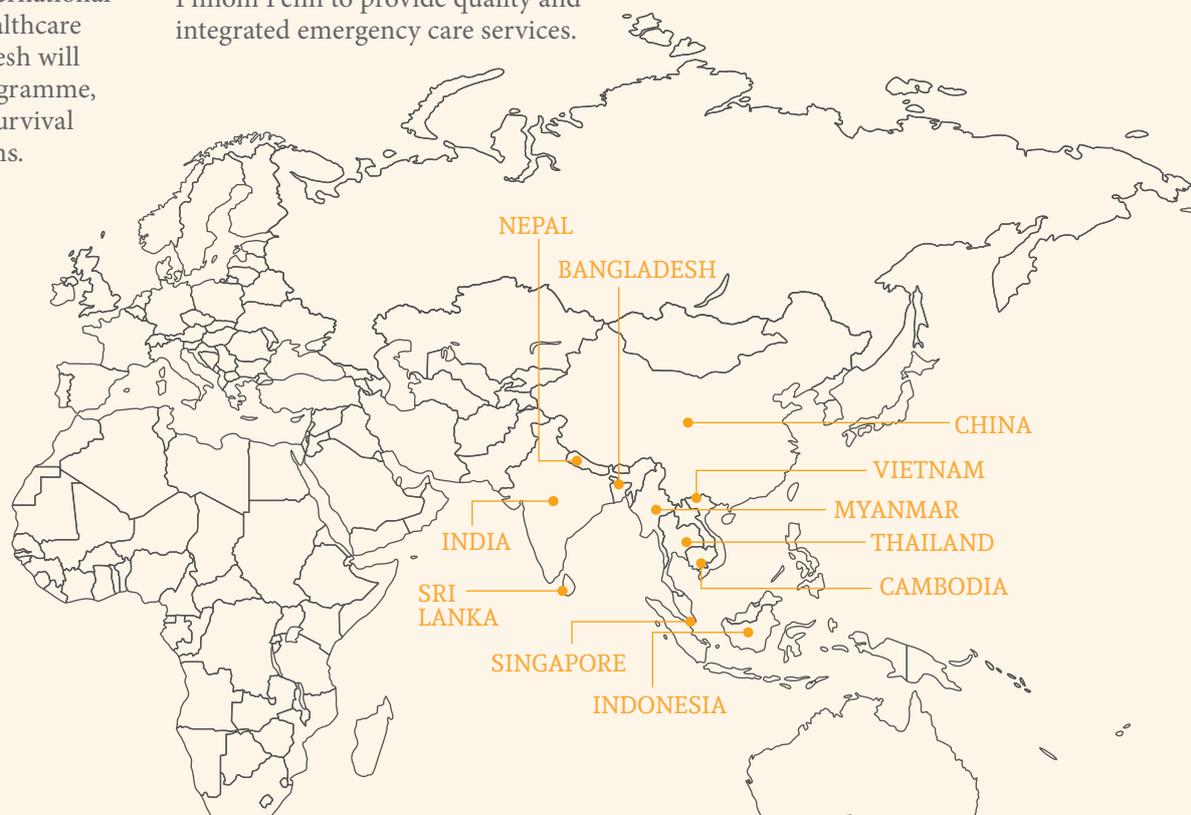
SingHealth and Sri Lanka's Health Ministry signed an MOU to launch the "Quality Assurance through Clinical Leadership" programme in Sri Lanka. The three-year partnership, supported by TFI, aims to build capabilities for 260 healthcare professionals in the areas of governance, service and clinical quality, process improvement and service integration.

Emergency care and management project in Cambodia

The Emergency Care and Management Project between Singapore International Foundation (SIF), SingHealth, and Calmette Hospital came to a successful conclusion after a two-year run. The programme enhanced the capacity of more than 900 healthcare professionals from Phnom Penh to provide quality and integrated emergency care services.

Enhancing maternal and child health services project in India

SIF and SingHealth successfully concluded the Enhancing Maternal and Child Health Services Programme in partnership with the Department of Health and Family Welfare, Government of Tamil Nadu, India. More than 1,000 healthcare professionals in Tamil Nadu benefited from the three-year programme to reduce the number of maternal and infant deaths at childbirth due to preventable causes.



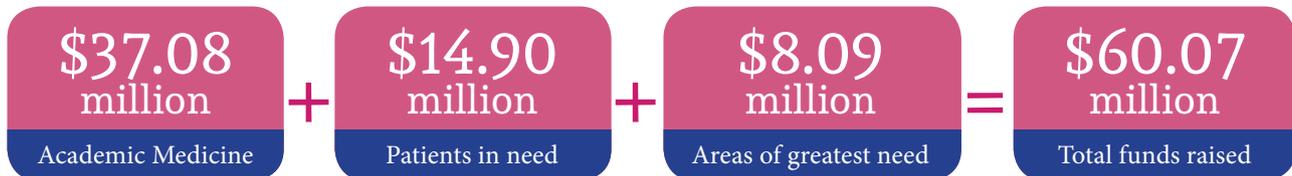
Giving

At SingHealth, we put patients at the heart of all we do. That includes wanting to ensure future generations enjoy better health.

Our donors make this possible. Their gifts change lives by helping us to provide better care for today's patients and define tomorrow's medicine in three ways:



Funds received in FY2017



Professorships & Named Funds

In FY 2017, eight new named funds, including two Professorships in Obstetrics and Gynaecology and Medicine were established:

Professorships*

- Benjamin Henry Sheares Professorship in Obstetrics and Gynaecology
- Seah Cheng Siang Professorship in Medicine

Named funds

- Mount Elizabeth-Gleneagles Graduate Scholarship Fund
- SingHealth Duke-NUS Transplant Centre – John 3:16 Multivisceral Transplant Fund
- New Toyo Cardiovascular Research and Education Fund
- Lee Seng Gee Appreciation Fund for Faculty Development (Medicine)
- J.M. Gomez Faculty Development Fund in Patient Safety and Clinical Quality
- Tan Kim Ping Academic Fund

*Professorships are established with endowed gifts of at least \$2.5 million dollars each. These distinguished appointments enable clinicians in their respective medical fields to accelerate discoveries and nurture future leaders through mentorship.

Every dollar makes a difference

Every month, the commitment and generosity of our regular donors (comprising members of the public, patients and staff), ensures a steady stream of support for medical research, education and hundreds of patients who need financial assistance. One such patient is Mr William Ngo.

Mr Ngo has muscular dystrophy. Five years ago, the 53 year-old learnt to paint using his mouth to hold the paintbrush. He earns a living selling his watercolour art works. In 2017, Mr Ngo's electric wheelchair needed to be replaced. He received help from the SG Enable Assistive Technology Fund and the NNI Fund.

“I want to thank everyone who gives to the NNI Fund. With this wheelchair, you have given me the power of freedom so I can work and continue to give back to society.”

William Ngo, Beneficiary, NNI Patient Fund

Fostering the spirit of giving

SingHealth is building a culture of giving amongst its staff. Our first Giving Day was held in November in conjunction with Singapore’s Giving Week 2017. The event included a giving fair and a talk by Prof Tan Chorh Chuan, then President, NUS, who gave insights on strengthening philanthropic partnerships.

In FY 2017, numerous initiatives by SingHealth institutions raised more than one million dollars to support needy patients, medical research and education, including:

\$138,000

SGH Christmas Bazaar

\$10,000

Sengkang Health - Farewell to AH Bazaar

\$32,450

NHCS - Heart To Heart Run 2017

\$354,940

NNI - Echo of Love Society Concert



The 'Star Wars Day: MAY THE 4th BE WITH YOU Festival raised \$24,152.61 for the KKH Health Fund. The event was held 4 to 6 May 2017 at Gardens by the Bay and marked the 40th anniversary since the release of Star Wars: A New Hope.

Photo courtesy of Eddie Sung.



Musicians and cancer survivors performed at Harmony of Hope, raising close to \$18,000 for cancer patients in need and research.



Mr Jason Chee (middle), received the inaugural VisionSave Inspirational Patient Award at The Eye Ball 2017. He lost one of his eyes to cancer in 2017 and his resilience inspired his doctors from SNEC. The event raised \$656,000 for eye patients in need and research.

Philanthropy advances research and medical education

Transformational gifts advance Medicine through ground-breaking research and medical education. They catalyse our efforts to discover better ways to prevent, diagnose and treat diseases that affect Singaporeans and to ensure our healthcare professionals are well equipped to take on future healthcare challenges.

New Professorship to pursue excellence in O&G care

Professor Benjamin Henry Sheares is considered the “Father of Obstetrics and Gynaecology” (O&G) in Singapore. His pioneering work in clinical care, research and medical education significantly reduced maternal and neonatal mortality and morbidity. In honour of his immense contributions to his field, the **Benjamin Henry Sheares Professorship in Obstetrics and Gynaecology** has been established. This distinguished award was made possible with a gift from the Sheares family. This Professorship will enable the recipient to address critical clinical, teaching and research challenges in obstetrics and gynaecology.



Prof Sheares continued to work at KK Hospital two mornings a week as an Honorary Consultant while serving as Singapore's second President.

Continuing the legacy of a great teacher

Professor Seah Cheng Siang was a master clinician who advanced the field of gastroenterology in Singapore as well as a dedicated clinician and great teacher who championed postgraduate medical education. Prof Seah's family and many of his former students contributed towards the establishment of the **Seah Cheng Siang Professorship in Medicine** to honour his achievements and build on his legacy of excellence. This Professorship will be awarded to an outstanding clinician, teacher and mentor who can advance clinical care in Medicine, drive research and nurture future medical leaders.



Prof Seah was known for his thoroughness when performing physical examinations and was an excellent mentor to his students.

\$2.5 million to establish new centre to tackle myopia

Singapore has one of the highest rates of myopia in the world. To fight this health challenge, the Lee Foundation has made a gift of \$2.5 million to establish **the Myopia Centre of Excellence (MyCE)**. The Centre will focus on three key areas: finding new ways to prevent and control myopia progression in children, understanding the complications myopia can pose over time in children and adults and raising the awareness of myopia as well as its management through proper public education.

Accelerating cures for infectious disease

It currently takes a decade or more to discover and deliver safe new vaccines or cures for infectious diseases. To accelerate this process, the Tanoto Foundation made a gift of \$2 million to kickstart phase 1 of the establishment of the **Viral Research and Experimental Medicine Centre@SingHealth Duke-NUS (ViREMiCS)**. Using high-throughput state-of-the-art genomic, proteomic and metabolomic tools, the Centre aims to significantly shorten the time needed for clinical trials, so that drugs and vaccines for infectious diseases can reach patients and communities more quickly.



ViREMiCS was officially opened in December 2017 by Mr Bey Soo Kiang, Chairman, Tanoto Foundation's Board of Governance (fourth from right), witnessed by Mr S Iswaran, then Minister for Trade and Industry (Industry) (fourth from left).

Advancing organ transplantation care

A generous lead gift of \$1.66 million has kick-started Asia's first Multi-Organ Transplant Programme at the SingHealth Duke-NUS Medical Centre. The **SingHealth Duke-NUS Transplant Centre – John 3:16 Multivisceral Transplant Fund** will advance research in the field of gut and liver transplants in areas such as preventing organ rejection, preserving donated organs and harnessing 3D bio-printing capabilities for potential use in transplantation. The aim is to improve health outcomes and long-term survivor rates of transplant patients.

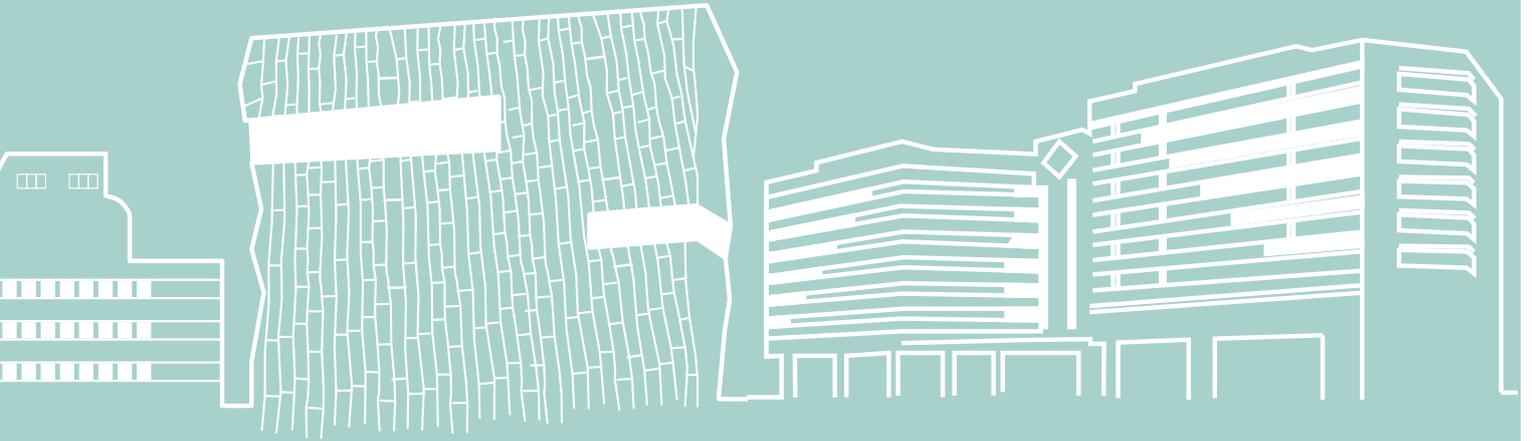
Nurturing healthcare leaders of the future

A \$2 million gift from Parkway Pantai has enabled more Duke-NUS Medical School students to receive financial support through the **Mount Elizabeth-Gleneagles Graduate Scholarship Fund**. The fund will also support outstanding students from Singapore's three medical schools with travel awards to enable them to present their project findings at international seminars and conferences.

Getting to the heart of CVD in Singapore

Genetics, race and the environment play important roles in predicting, diagnosing and treating cardiovascular disease (CVD). The **New Toyo Cardiovascular Research and Education Fund**, established with a \$1 million donation from packaging company New Toyo, will further the understanding of genetic causes of CVD in Asians. It will support the building of a biobank of tissue samples and data to develop a localised genomic reference, the development of a risk assessment tool for CVD for Asians and support cardiovascular medical education.

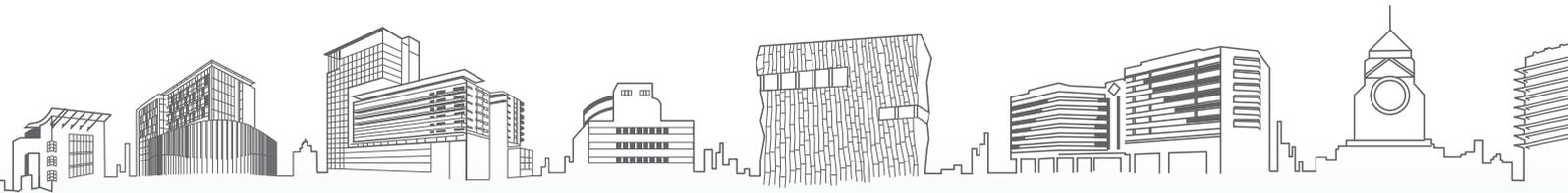




Facts & Figures



About Us



The SingHealth Duke-NUS Academic Medical Centre draws on the collective strengths of Singapore Health Services (SingHealth) and Duke-NUS Medical School to drive the transformation of healthcare and provide affordable, accessible and quality healthcare.

With over 40 clinical specialties, a network of acute hospitals, national specialty centres, polyclinics and community hospitals, we deliver comprehensive, multidisciplinary and integrated care.

Our Vision

Defining Tomorrow's Medicine

Our Mission

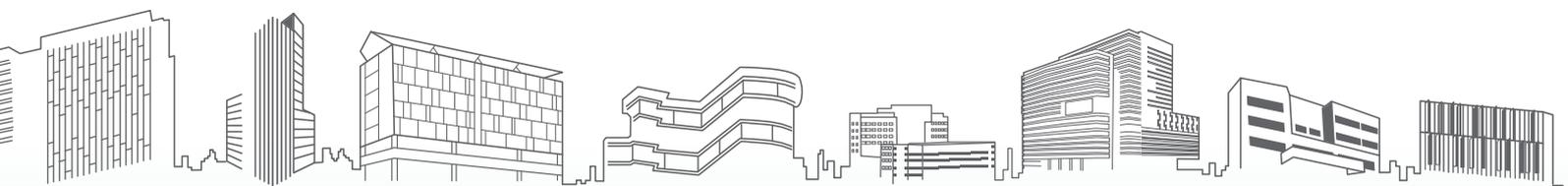
Care to Heal. Educate to Empower.
Innovate to Advance.

Our Common Purpose

PATIENTS. AT THE HEART OF ALL WE DO.®

Our Core Values

Compassion. Integrity. Collaboration.



Members of the SingHealth Group

Tertiary Specialty Care

Hospitals: Singapore General Hospital, Changi General Hospital, KK Women's and Children's Hospital, Sengkang General Hospital

National Specialty Centres: National Cancer Centre Singapore, National Dental Centre Singapore, National Heart Centre Singapore, National Neuroscience Institute, Singapore National Eye Centre

Primary Care

SingHealth Polyclinics: Bedok, Bukit Merah, Marine Parade, Outram, Pasir Ris, Punggol, Sengkang, Tampines

Intermediate and Long-term Care

SingHealth Community Hospitals: Bright Vision Hospital, Sengkang Community Hospital, Outram Community Hospital (expected completion: 2020)

Our Partner in Academic Medicine



Duke-NUS is a partnership between Duke University School of Medicine and the National University of Singapore (NUS).

In 2005, with support from the Singapore government, NUS and Duke University, two academic institutions with strong track records in research and education, committed to combine the unique medical education curriculum at Duke University School of Medicine with the academic rigour and rich resources offered by NUS, and to offer students an enriching and innovative medical educational experience.

Duke-NUS is located on the main campus of the largest healthcare group in the country, Singapore Health Services (SingHealth). This group collectively delivers multi-disciplinary care among more than 40 clinical specialties across a large network of hospitals, national specialty centres and polyclinics. Together, Duke-NUS and SingHealth constitute a leading, world class Academic Medical Centre embodying the goal of delivering the highest levels of patient care, education and research.

SingHealth Board of Directors

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Chairman and Director, DBS Group Holdings Ltd and DBS Bank Ltd

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Specialist in Medical Oncology, Icon SOC Farrer Park Medical Clinic

Ms Khartini Binte Abdul Khalid

Senior Lecturer, Ngee Ann Polytechnic

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Ms Woon Lai Har

Managing Director, LwH Consultancy Pte Ltd

Prof Victor J Dzau (till 30 Jun '18)

Mr Willie Cheng Jue Hiang (till 30 Jun '18)

Mr Yatiman Bin Yusof (till 30 Jun '18)

Mr Philip Eng Heng Nee (till 30 Jun '18)

Prof Raj Mohan Nambiar (till 30 Jun '18)

Ms Teoh Zsin Woon (till 31 Jul '18)

Duke-NUS Governing Board

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Mr Kai Nargolwala

Chairman and Independent Director, Clifford Capital Pte Ltd

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Prof Ho Teck Hua

Senior Deputy President and Provost, National University of Singapore

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Managing Partner, Allen & Gledhill LLP

Mr Lee Ming San

Managing Director, One North Capital Pte Ltd

Mr Alvin Lim Chng Thien

Director (International Directorate), Ministry of Finance

Prof Raj Mohan Nambiar

Visiting Consultant Surgeon (SGH, KTPH, TTSH), Emeritus Consultant, CGH and Senior Consultant, MOH

Prof Ivy Ng Swee Lian

Group Chief Executive Officer, Singapore Health Services

Assoc Prof Benjamin Ong Kian Chung

Director of Medical Services, Ministry of Health

Mrs Quek Bin Hwee

Ms Teo Swee Lian

Non-Executive and Independent Director, Singapore Telecommunications Ltd

Prof A. Eugene Washington

Chancellor for Health Affairs, Duke University and President and CEO, Duke University Health System

SingHealth Duke-NUS Senior Management

SingHealth

Prof Ivy Ng

Group Chief Executive Officer

Prof Wong Tien Yin

Deputy Group Chief Executive Officer
(Research and Education)

Prof Fong Kok Yong

Deputy Group Chief Executive Officer
(Medical & Clinical Services)

Prof Kenneth Kwek

Deputy Group Chief Executive Officer
(Organisational Transformation
& Informatics)

Adjunct Prof Lee Chien Earn

Deputy Group Chief Executive Officer
(Regional Health System)

Prof Terrance Chua

Group Chairman, Medical Board

Assoc Prof Peter Lim Ai Chi

Group Chief Risk Officer

Mr Sia Kheng Hong

Group Chief Financial Officer

Mr Tan Jack Thian

Group Chief Operating Officer

Ms Esther Tan

Group Chief Human Resource Officer

Assoc Prof Tan Say Beng

Group Director, Research

Assoc Prof Chan Choong Meng

Group Director, Education

Prof Tan Kok Hian

Group Director, Academic Medicine

Dr Tracy Carol Ayre

Group Chief Nurse

Prof Celia Tan

Group Director, Allied Health

Mrs Tan-Huang Shuo Mei

Group Director, Communications
& Service Quality

Mr Benedict Tan

Group Chief Information Officer

Assoc Prof Loo Chian Min

Chief Medical Informatics Officer

Assoc Prof Chua Yeow Leng

Group Director, International
Collaboration Office

Dr Edwin Low Cheng Tee

Group Director, Regional Health System

Duke-NUS

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Dean

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Senior Vice Dean, Research

Ms Karen Chang

Senior Vice Dean and Group Director,
Corporate Services

Prof Ian Curran

Vice Dean, Education

Prof Wong Tien Yin

Vice Dean, Academic & Clinical
Development

Assoc Prof David M Epstein

Vice Dean, Innovation
& Entrepreneurship

SingHealth Institutions Senior Management



Singapore
General Hospital

Prof Kenneth Kwek

Chief Executive Officer

Prof Fong Kok Yong

Chairman, Medical Board



Changi
General Hospital

Adjunct Prof Lee Chien Earn

Chief Executive Officer

Prof Teo Eng Kiong

Chairman, Medical Board



Sengkang
General Hospital

Prof Christopher Cheng

Chief Executive Officer

Assoc Prof Ong Biauwh Chi

Chairman, Medical Board



KK Women's and
Children's Hospital

Prof Alex Sia

Chief Executive Officer

Assoc Prof Ng Kee Chong

Chairman, Medical Board



National Cancer
Centre Singapore

Assoc Prof William Hwang Ying Khee

Medical Director



National Dental
Centre Singapore

Cl Assoc Prof Poon Choy Yoke

Director



National Heart
Centre Singapore

Prof Terrance Chua Siang Jin

Medical Director



National
Neuroscience Institute

Assoc Prof Ng Wai Hoe

Medical Director



Singapore National
Eye Centre

Prof Wong Tien Yin

Medical Director



SingHealth
Community Hospitals

Ms Margaret Lee

Chief Executive Officer



Polyclinics
SingHealth

Dr Adrian Ee

Chief Executive Officer

SingHealth Group

Overall key figures & statistics

Manpower

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
3,524	176	10,393	5,455	9,010	28,558	2018
2,783	171	8,186	4,361	7,197	22,698	2017

Note: Changi General Hospital staff integrated into SingHealth from 1 January 2018

Key Figures	Year ended 31 Mar		
	2018	2017	Change
Size			
Beds (As at end March)	4,038	3,165	27.6%
Workload per annum			
Bed Occupancy Rate	81.6%	79.5%	2.1% pts
Inpatients	185,096	167,599	10.4%
Total Patient Days	890,330	791,053	12.5%
Average Length of Stay (days)	4.8	4.7	0.1 day
Day Surgeries	136,392	122,541	11.3%
Inpatient Surgeries	82,180	73,698	11.5%
Specialist Outpatient Clinic Attendances	2,121,710	1,963,945	8.0%
Accident & Emergency Attendances	343,144	316,708	8.3%
Dental Attendances	247,690	251,306	-1.4%
Dental Procedures	319,766	344,309	-7.1%
Polyclinic Attendances	1,819,465	1,900,964	-4.3%

Note: 2018 figures include CGH's figures from date of integration (1 Jan 2018)

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.

Financial Information	Year ended 31 Mar	
	2018 (S\$ million)	2017 (S\$ million)
Assets by Major Categories		
Plant and Equipments	779	637
Trade and Other Receivables	1,272	989
Other Assets	1,414	1,107
Total	3,465	2,733
Liabilities by Major Categories		
Trade and Other Payables	1,711	1,328
Other Current Liabilities	174	125
Non Current Liabilities	597	521
Total	2,482	1,974
Total Equity	983	759
Revenue Breakdown by Major Categories		
Clinical Revenue	1,657	1,469
Subvention	1,850	1,696
Other Revenue	787	612
Total	4,294	3,777
Expenditure by Major Categories		
Manpower	2,395	2,121
Supplies and Consumables	593	514
Other Operating Expenses	1,109	960
Depreciation and Amortisation	189	180
Total	4,286	3,775

Note: Revenue and Expenditure figures for the period ended 31 Mar 2018 include EHA subsidiaries from date of integration 1 Jan 2018.



31 Third Hospital Avenue, #03-03 Bowyer Block C, Singapore 168753
Tel: 6225 0488 www.singhealth.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
0	0	13	124	888	1,025	2018
0	0	13	84	870	967	2017

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding.



8 College Road, Singapore 169857
Tel: 6516 7666 www.duke-nus.edu.sg

277

Doctor of Medicine (MD) Students

Including 18 students currently enrolled in Integrated Biology and Medicine (IBM) PhD programme, and 6 IBM PhD graduates

59

Integrated Biology and Medicine (IBM) PhD students

Including 18 MD Students

3

Integrated Biostatistics and Bioinformatics (IBB) PhD students

1,444

Faculty

Including faculty in Research, Education and the Office of Academic and Clinical Development

Figures as at 31 March 2018



Singapore
General Hospital

Outram Road, Singapore 169608
Tel: 6222 3332 www.sgh.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
1,187	0	3,914	1,777	2,444	9,322	2018
1,206	0	4,329	1,893	2,543	9,971	2017

Size	Year ended 31 Mar	
	2018	2017
Beds (As at end March)	1,748	1,785
Workload per annum		
Bed Occupancy Rate	86.1%	85.0%
Inpatients	81,495	80,817
Total Patient Days	495,809	488,451
Average Length of Stay (days)	6.1	6.0
Day Surgeries	50,715	45,206
Inpatient Surgeries	47,583	47,021
Specialist Outpatient Clinic Attendances	748,991	724,480
Accident & Emergency Attendances	128,047	128,660

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.



Changi
General Hospital

2 Simei Street 3, Singapore 529889
Tel: 6788 8833 www.cgh.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
739	0	2,311	993	1,645	5,688	2018
753	0	2,455	939	1,620	5,771	2017

	Year ended 31 Mar	
	2018	2017
Size		
Beds (As at end March)	1,066	1,066
Workload per annum		
Bed Occupancy Rate	85.7%	86.0%
Inpatients	51,110	49,389
Total Patient Days	319,907	319,481
Average Length of Stay (days)	6.3	6.5
Day Surgeries	32,740	32,960
Inpatient Surgeries	25,321	25,453
Specialist Outpatient Clinic Attendances	438,547	432,355
Accident & Emergency Attendances	143,787	146,459
Dental Attendances	3,880	4,357
Dental Procedures	4,687	5,408

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.



Sengkang
General Hospital

110 Sengkang East Way, Singapore 544886
Tel: 6930 6000 www.sengkanghealth.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
189	2	898	398	657	2,144	2018
156	1	575	240	504	1,476	2017

Size	Year ended 31 Mar	
	2018	2017
Beds (As at end March)	191	347
Workload per annum		
Bed Occupancy Rate	53.1%	46.9%
Inpatients	7,001	4,057
Total Patient Days	45,829	39,752
Average Length of Stay (days)	6.5	9.8
Day Surgeries	2,155	1,055
Inpatient Surgeries	2,247	977
Specialist Outpatient Clinic Attendances	22,264	10,978
Accident & Emergency Attendances	15,581	9,301
Dental Attendances	685	416
Dental Procedures	2,975	1,609

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.



KK Women's and
Children's Hospital

100 Bukit Timah Road, Singapore 229899
Tel: 6225 5554 www.kkh.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
706	13	1,942	903	1,351	4,914	2018
696	12	1,989	896	1,358	4,951	2017

	Year ended 31 Mar	
	2018	2017
Size		
Beds (As at end March)	848	848
Workload per annum		
Bed Occupancy Rate	80.4%	79.3%
Inpatients	73,469	73,190
Total Patient Days	217,172	213,379
Average Length of Stay (days)	3.0	2.9
Day Surgeries	11,932	12,712
Inpatient Surgeries	19,802	19,754
Specialist Outpatient Clinic Attendances	565,564	564,736
Accident & Emergency Attendances	163,107	178,747

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.

National Cancer
Centre Singapore11 Hospital Drive, Singapore 169610
Tel: 6436 8000 www.nccs.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
161	0	167	399	365	1,092	2018
191	0	168	392	357	1,108	2017

Year ended 31 Mar

2018

2017

Workload per annum

Day Surgeries	8,840	9,588
Specialist Outpatient Clinic Attendances	154,173	151,933

National Dental
Centre Singapore5 Second Hospital Avenue, Singapore 168938
Tel: 6324 8802 www.ndcs.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
0	141	18	67	287	513	2018
0	140	14	66	250	470	2017

Year ended 31 Mar

2018

2017

Workload per annum

Day Surgeries	9,107	9,813
Dental Attendances	202,395	198,839
Dental Procedures	200,373	202,067



National Heart
Centre Singapore

5 Hospital Drive, Singapore 169609
Tel: 6704 8000 www.nhcs.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
123	0	503	318	385	1,328	2018
106	0	501	339	394	1,340	2017

	Year ended 31 Mar	
	2018	2017
Size		
Beds (As at end March)	185	185
Workload per annum		
Bed Occupancy Rate	78.8%	73.8%
Inpatients	10,459	9,535
Total Patient Days	52,891	49,471
Average Length of Stay (days)	5.1	5.2
Day Surgeries	2,244	1,947
Inpatient Surgeries	6,379	5,946
Specialist Outpatient Clinic Attendances	128,417	121,821

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.

National
Neuroscience Institute11 Jalan Tan Tock Seng, Singapore 308433
Tel: 6357 7153 www.nni.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
105	0	38	141	130	414	2018
108	0	40	139	130	417	2017

Year ended 31 Mar

2018

2017

Workload per annum

Specialist Outpatient Clinic Attendances

48,373

48,182

Singapore National
Eye Centre11 Third Hospital Drive, Singapore 169751
Tel: 6227 7255 www.snec.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
124	0	289	146	350	910	2018
125	0	263	134	309	831	2017

Year ended 31 Mar

2018

2017

Workload per annum

Day Surgeries

43,397

42,220

Specialist Outpatient Clinic Attendances

343,696

341,815

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.



SingHealth
Community Hospitals

1 Anchorvale Street, Singapore 544835
Tel: 6930 6000 www.singhealthch.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
4	0	31	14	47	96	2018

Note: SCH was formed in the year ended 31 Mar 2018



Bright Vision
Hospital

5 Lorong Napiri, Singapore 547530
Tel: 6248 5755 www.bvh.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
12	0	203	48	199	462	2018
22	0	169	49	204	444	2017

	Year ended 31 Mar	
	2018	2017
Size		
Beds (As at end March)	241	317
Workload per annum		
Bed Occupancy Rate	87%	82%
Inpatients	1,722	1,614
Total Patient Days	76,549	78,010

Note: Bright Vision Hospital is part of SingHealth Community Hospitals, along with Sengkang Community Hospital (completed: 2018) and Outram Community Hospital (expected completion: 2020)

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.



167 Jalan Bukit Merah, Tower 5, #15-10, Singapore 150167
Tel: 6236 4800 polyclinic.singhealth.com.sg

Medical	Dental	Nursing	Allied Health	Others	TOTAL	Year ended 31 March
186	20	269	178	460	1,112	2018
195	17	295	180	483	1,170	2017

	Year ended 31 Mar	
	2018	2017
Workload per annum		
Polyclinic Attendances	1,819,465	1,900,964
Dental Attendances	43,783	52,051
Dental Procedures	115,468	140,633

Staffing figures refer to filled posts, in terms of full-time equivalent, and may not add up to total due to rounding. Figures include MOHH-Hired Doctors.

Research Statistics

Staffing

95

Clinician Scientists
(SingHealth & Duke-NUS)

> 190

Clinician Investigators
(SingHealth)

> 279

Principal Investigators
leading ongoing research
(SingHealth)

Nursing

	CY17	CY16	CY15
Number of presentations	146	126	82
Number of publications	30	35	27
Number of research projects (with nurses as principal investigators)	56	41	46
Quantum of grants awarded S\$	231,974 (Number of grants – 7)	133,852	109,163

Allied Health Professionals

> 200

Allied Health Professionals
involved in research

	CY17	CY16	CY15
Number of Papers Published	132	106	134
Grants Received S\$	1,760,918	783,710	633,550

Research Achievements

11,195

SingHealth
(FY07-CY17)

Publications in international
peer-reviewed journals

>4,300

Duke-NUS
(as of April 2018)

\$1,065M

Competitive Funding received by SingHealth
(FY07-CY17, excluding funding
by industry)

National Awards

(SingHealth & Duke-NUS)

Received at National Medical Research
Council Awards 2018

3 Open Fund – Large Collaborative Grants
Total Funding: **S\$60 million**

2 Singapore Translational Research
Investigator Awards

10 Clinician Scientist Awards

4 Transition Awards

Education Statistics

Average Number of Students Per Day

310 Medical **423** Nursing **110** Allied Health & Pharmacy

24 Dentistry students attached to SingHealth in FY17

As the largest Sponsoring Institution for Residency Programmes in Singapore, we have

996 Residents **1,647** Faculty

34 Programmes

23 ACGME-I accredited and

161 Residents graduated from SingHealth Residency

11 JCST accredited programmes

184 New Residents

>200 Medical Specialists

from 34 countries came to SingHealth for Fellowship and short-term clinical attachments

>6,000 Allied Health Professionals

trained in 165 Continuing Professional Education Training Programmes

291 hours of Oral Health Education programmes conducted for Oral Health Therapists, Dental Officers, Residents and Clinicians

1,382 participants attended the SingHealth Nursing Conference

717 nursing students engaged

15 secondary and junior college students attended the inaugural SingHealth Nursing Internship

The SingHealth Duke-NUS Institute of Medical Simulation conducted

717 simulation-based training workshops

for **>13,000** healthcare professionals

The College of Healthcare Administration and Leadership ran

110 programmes attended by

2,400 healthcare professionals and administrators

The Academic Medicine Education Institute (AM•EI) is a joint institute by Duke-NUS and SingHealth that enhances educators' capabilities to build the teaching pipeline and groom generations of healthcare professionals.

3,268 members

>1,600 participants at 82 Education Grand Rounds and Faculty Development Workshops

\$65,000 AM•EI Education Grants awarded

SingHealth and Duke-NUS recognises outstanding educators who develop and inspire the next generation.

16 outstanding educators conferred the AM•EI Golden Apple Awards 2017

280 Residency Faculty and top-performing residents awarded at Residency in SingHealth Excels! (RiSE) Awards

>160 interprofessional educators without formal teaching appointment/titles awarded



PATIENTS. AT THE HE^{RT} OF ALL WE DO.®



Singapore General Hospital



Changi General Hospital



Sengkang General Hospital



KK Women's and Children's Hospital



National Cancer Centre Singapore



National Dental Centre Singapore



National Heart Centre Singapore



National Neuroscience Institute



Singapore National Eye Centre



SingHealth Community Hospitals



Polyclinics SingHealth