SingHealth Annual Report 2012
Contents

02 Chairman’s Message
04 Group CEO’s Message
08 Academic Medicine
16 Infrastructure Development
24 Patient Care

36 Education
50 Research
58 Our People
68 Community Engagement

184 Board of Directors
186 Chief Executive Officers, Directors of National Specialty Centres, and Chairmen of Medical Boards
187 Corporate Office Directors
188 Key Figures
189 Financial Info
190 ACP and Faculty Appointments of Featured Clinicians, Nurses and Allied Health Professionals
196 Directory

SingHealth Institutions

72 Singapore General Hospital
88 KK Women’s and Children’s Hospital
104 National Cancer Centre Singapore
116 National Dental Centre Singapore
128 National Heart Centre Singapore
138 National Neuroscience Institute
150 Singapore National Eye Centre
160 SingHealth Polyclinics
172 Bright Vision Hospital
Chairman’s Message

Working Together for Better Patient Care

As Singapore’s largest Academic Healthcare Cluster, we have a talented pool of doctors, nurses, allied health professionals and administrators who provide high-quality care for our patients. Our specialists in over 40 disciplines are constantly at the forefront of cutting-edge medicine, harnessing the synergies of clinical research and medical education. In FY 2012, we saw more than 4 million patient visits.

Our commitment to our patients is underscored by the pursuit of Academic Medicine. We build on the collective strengths of SingHealth and Duke-NUS Graduate Medical School Singapore (Duke-NUS) to better integrate clinical care, education and research so as to bring continuous improvement in clinical outcomes and care to our patients.

ADVANCING PATIENT OUTCOMES

Indeed, as with any successful endeavour, vibrant collaborations and effective partnerships are key to success in the pursuit of Academic Medicine.

In FY 2012, we forged strategic partnerships with local and international organisations and further strengthened existing partnerships. To enhance research in the fight against the growing cancer burden in the Asia Pacific region, German pharmaceutical company Bayer Healthcare embarked on collaborations with six research institutions, including Singapore General Hospital (SGH) and National Cancer Centre Singapore (NCCS) to set up the Integrated Translational Oncology Network.
Another example of collaboration is new research programme POLARIS, supported under the A*STAR Biomedical Research Council’s Strategic Positioning Fund. Bridging A*STAR institutes with public healthcare institutions, including SGH, NCCS and Singapore National Eye Centre (SNEC), this is a first step towards Singapore’s larger aim to roll out a national stratified medicine framework that will modify existing clinical care methods and refine stratified healthcare delivery approaches.

A new heart cell bank – a collaboration between National Heart Centre Singapore (NHCS) and Duke-NUS – will also be set up to study genetic material and tissues from thousands of local heart patients to better understand heart disease in Asian patients.

**ENHANCING PATIENT CARE**

To create an optimal environment for collaborations, much effort and resources have been put into infrastructure development. The highly anticipated Academia building, which opened in July 2013, is a significant milestone as it opens the doors to endless possibilities for new treatment discoveries, diagnostic capabilities and training of healthcare professionals.

The new NHCS building will be ready in 2014. With a two-fold increase in clinic capacity, it is well-positioned to meet the increasing demand for heart-related services. We are also on track in the infrastructure development of Sengkang General and Community Hospitals, which are targeted for completion in 2018.

The SingHealth Age-Friendly Guidelines were published in FY 2012, setting the stage for a sustainable age-friendly healthcare environment. Various infrastructure plans are underway at our institutions to increase building capacity for new and improved age-friendly facilities. For instance, the newly renovated SingHealth Polyclinics (SHP)-Geylang is equipped with age-friendly features and is also the first polyclinic to pilot the New Geriatric Centre, which offers geriatric screening for patients with dementia and fall risks.

**EMPOWERING HEALTHCARE PROFESSIONALS**

We will groom and develop our people by empowering them with thought leadership and advanced skills so that, collectively we will set new standards for patient care. As part of our efforts to groom a strong pipeline of nurses, the SingHealth Nursing Research Resource Guide and the SingHealth Nursing Research Training Programme were launched in July 2012 to better enable our nurses to advance the profession. Another new training opportunity for doctors is a dedicated Academic Family Medicine Training Centre at SHP-Geylang, the first SHP polyclinic to house such a facility.

Our efforts in delivering affordable, accessible and quality healthcare have borne fruit as our institutions continue to receive good ratings in the Ministry of Health patient satisfaction survey. SGH and NCCS made marked improvement in the overall satisfaction of public healthcare institutions. SGH and KK Women’s and Children’s Hospital were among the few hospitals that patients are most willing to recommend. This improvement affirms that we are moving in the right direction and we will persevere to continue to do better.
Group CEO’s Message

Strength through Collaboration

A unified purpose to put patients at the heart of all we do and a common vision to define tomorrow’s medicine – these have steered us through a fruitful FY 2012.

OUR ACADEMIC MEDICINE PURSUIT

Collaboration is a key driving force in our big SingHealth family, bringing forth many exciting possibilities for us to do more and better in order to bring seamless and quality care to our patients. As Singapore’s largest Academic Healthcare Cluster, we are endowed with the unique position and privilege to spearhead many initiatives that bring out the excellence in our best practices and care innovations across the Cluster.

Dedicated for healthcare administrative leaders, the Singapore Healthcare Management Congress, hosted by SingHealth in August 2012, provided a learning platform for global healthcare leaders and experts in healthcare operations. As a tribute to healthcare professionals who have demonstrated service excellence, SingHealth organised the annual Singapore Health Quality Service Awards for the second year. In FY 2012, more than 2,500 healthcare professionals from 19 participating organisations were recognised.

The bold step we took eight years ago to pursue Academic Medicine through a close partnership with Duke-NUS Graduate Medical School Singapore (Duke-NUS), has led to successful research and education collaborations, including the birth of two joint institutes – the Academic Institute of Research (AMRI) and
the Academic Medicine Institute of Education (AM•EI).

The establishment of AMRI and AM•EI is integral to our Academic Medicine journey, and positions us to harness our resources and capabilities to accelerate research breakthroughs and advance diagnosis, treatment and care for our patients.

AMRI at both KK Women’s and Children’s Hospital and Singapore General Hospital Campuses is an academic nexus that will catalyse our growth of clinician scientists from the current 50 to 80 by 2015. Over 135 AMRI memberships have been issued since AMRI’s inception.

On the education front, AM•EI brings together a community of dedicated educators from Duke-NUS and SingHealth who will groom the next generation of healthcare professionals. Since its inception in September 2012, AM•EI has rolled out several initiatives to facilitate the development of educators, such as the AM•EI Pioneer Fellows Program, a 12-month structured training programme for clinician educators.

For the second time, SingHealth and Duke-NUS joined forces to showcase the best and latest in medicine through the SingHealth Duke-NUS Scientific Congress. Themed ‘Defining Tomorrow’s Medicine’, the Congress had a strong focus on improving care through Academic Medicine.

We have also marked further milestones in our transformation journey with the establishment of new Academic Clinical Programs (ACP). Three new ACPs were rolled out in FY 2012, namely Cardiology, Oncology and Pathology – bringing the total number of ACPs to nine. The next phase of ACP development will be in Radiological Sciences, Oral Health, Family Medicine and Anaesthesiology. The ACPs provide a cross-Cluster, multi-institution structure for a specialty to enhance patient care, teaching and research, and develop patient-centric multidisciplinary teams that strive to improve patient outcomes and experience.

OUR PEOPLE, OUR PRIDE

We place great importance on developing our staff and recognising their efforts and contributions. In the SingHealth Employee Survey 2012, we saw the highest participation rate ever of 93 per cent, up from 83 per cent in 2010. We fared very well when benchmarked against the National and Global Healthcare Norms.

The signing of the 7th SingHealth Staff Agreement 2013 between SingHealth and Healthcare Services Employees’ Union is part of our efforts to improve the wellbeing of our staff. Staff engagement efforts continue to be a priority.

Every success and milestone that we achieved during the year is made possible only by our staff’s perseverance and passion. We celebrate the hundreds who have given dedicated service over the decades and were recognised with long service awards especially those who have served the organisation for 40, 50 and even 60 years!

Our relentless pursuit of Academic Medicine is driven by that same burning passion that characterises the generations of staff who have served in our institutions. We want to improve the lives of our patients and to provide a seamless experience that minimises anxieties for them through patient-centric models of care, integrated infrastructure planning and design and improved operating systems. Putting patients at the heart of all we do remains our focal point as we journey together to define tomorrow’s medicine.
Corporate Highlights

Every member of the SingHealth family strives to deliver the best care for our patients. Through collaborations, we continually raise the bar for integrated healthcare that places patients at the heart of all we do. This common vision unites us, harnessing our unique strengths to define tomorrow’s healthcare together.
A Vibrant Academic Culture for Better Healthcare

As Singapore’s largest Academic Healthcare Cluster, our mission is to improve the lives of patients through care, teaching and research. Our strategic partnership with Duke-NUS Graduate Medical School Singapore (Duke-NUS) enables us to leverage on key synergies to transform healthcare. The establishment of Academic Clinical Programs (ACPs) and joint institutes allow us to combine the collective strengths of SingHealth’s large clinical volume and expertise with Duke-NUS’ biomedical research and medical education capabilities to improve clinical outcomes and bring it to who it matters most – our patients.

With these ACPs in place, we will create the framework for specialists to work cross-cluster and leverage on the unique strengths of each institution for the delivery of service to our patients.

**BRIDGING DIVERSE DISCIPLINES FOR GREATER SYNERGIES**

In January 2013, the third wave of ACPs for Oncology, Cardiovascular and Pathology was successfully rolled out. That brings the total number of ACPs established to nine. They include ACPs for Medicine, Obstetrics & Gynecology, Paediatrics, Surgery, Ophthalmology and Neuroscience. The remaining ACPs in Family Medicine, Radiological Sciences, Anaesthesiology and Oral Health will be launched once requirements for academic priorities are met. With these ACPs in place, we will create the framework for specialists to work cross-cluster and leverage on the unique strengths of each institution for the delivery of service to our patients.

An Academic Medicine Governance, Management and Engagement Framework was formalised to strengthen and support the partnership between SingHealth and Duke-NUS as well as to ensure greater synergy across engagement platforms such as key meetings and forums.

Running across four key levels – Governance, Strategic Leadership, Strategy Execution, Operational Execution – the framework ensures collective oversight, decision-making and execution of Academic Medicine activities across SingHealth and Duke-NUS.
To catalyse the cross-pollination of ideas and resources, education and research joint institutes with Duke-NUS – the Academic Medicine Education Institute (AM•EI) and the Academic Medicine Research Institute (AMRI) – were established to work with all ACPs.

A key milestone in our education endeavour this year was the launch of AM•EI in September 2012 in conjunction with Teachers’ Day. AM•EI brings together our community of passionate educators and provides support in building a culture of excellence through teaching and mentorship.

On the research front, with the launch of AMRI@SGH campus in November 2012, there are now two branches of AMRI supporting clinician researchers at Singapore General Hospital (SGH) and KK Women’s and Children’s Hospital. AMRI will foster collaborations among scientific, clinical and quantitative experts in the ACPs and help both budding and established researchers transform their ideas into research proposals, secure grants, execute projects and publish their findings.
A PRIMARY FACILITATOR AT THE FOREFRONT OF DEVELOPMENT

Prof Soo Khee Chee was promoted to Senior Vice Dean, Office of Clinical and Academic Faculty Affairs, Duke-NUS, in January 2013, adding to his current appointments as Deputy Group Chief Executive Officer, Research & Education, SingHealth; Director, National Cancer Centre Singapore (NCCS), and Academic Chair of the Oncology ACP.

He will continue to lead both the Office of Clinical and Academic Faculty Affairs at Duke-NUS and the SingHealth Duke-NUS Joint Office of Academic Medicine.

As an integral driver in many groundbreaking initiatives, Prof Soo’s impact on the building of Duke-NUS’ reputation as a world-class medical school is significant. He is a primary facilitator of the thriving relationship between Duke-NUS and SingHealth clinicians, instrumental in the formation of Academic Medicine as well as the development of new ACPs.

Study trips offer the opportunity to observe and study the university’s organisational culture, research and education programmes, leadership roles, operations, finance and administration processes.

IMPROVING THROUGH KNOWLEDGE SHARING

To better understand the desired culture of established Academic Healthcare Clusters, a total of 23 delegates from the Obstetrics & Gynecology and Pediatrics ACPs, and SingHealth administrators visited Duke Medicine, USA, for a study trip in August 2012. The delegates had the opportunity to observe and study the university’s organisational culture, research and education programmes, leadership roles, operations, finance and administration processes.

Top: OBGYN ACP study trip.
Bottom: Pediatrics ACP study trip.
The annual Academic Medicine Leaders’ Forum is a vital platform for the Academic Medicine Executive Committee (AM EXCO), led by SingHealth Group CEO, Prof Ivy Ng, and Duke-NUS Dean, Prof Ranga Krishnan, to engage ACP key appointment holders and administrators in discussions about strategic issues concerning the implementation and advancement of Academic Medicine.

During the Academic Medicine Leaders’ Forum held in February 2013, Prof London Lucien Ooi, Academic Chair, Surgery ACP, shared his team’s observations and learning points from their study trip to Duke Medicine, USA, in November 2012. The team had the opportunity to understand the functions and operations of Duke Surgery and the challenges they faced in advancing Academic Medicine.

The 2nd SingHealth Duke-NUS Scientific Congress was attended by more than 2,500 multidisciplinary medical, nursing, allied health and research professionals as well as academic scholars and overseas healthcare leaders.

DEFINING TOMORROW’S MEDICINE
SingHealth and Duke-NUS’ strong partnership in research and education achieved another success with the 2nd SingHealth Duke-NUS Scientific Congress. The event was attended by more than 2,500 multidisciplinary medical, nursing, allied health and research professionals as well as academic scholars and overseas healthcare leaders.

The Congress covered key subjects such as basic insights and clinical impact of cancer genomes, technological advances in healthcare, neuropsychiatric and
geriatric syndromes in the elderly as well as multidisciplinary care for chronic disease management. The strong focus on Academic Medicine saw a diverse group of healthcare professionals sharing clinical and research findings, skills and experiences.

Another key highlight of the Congress was the inaugural SingHealth Academy Duke-NUS Golden Apple Awards, where 12 outstanding SingHealth and Duke-NUS healthcare professionals were recognised for their contributions to medical education. The innovative efforts by our educators to enhance the quality of teaching and learning experience is essential to ensure that we have a sustainable pool of well-trained clinicians and healthcare professionals to care for patients in the future.

“The SingHealth Duke-NUS Scientific Congress is an important platform for sharing ideas, innovations and discoveries as we come together to shape the future of medicine,” said Prof Ivy Ng, GCEO, SingHealth. “As with any significant endeavour, vibrant collaborations and effective partnerships are key to success. The pursuit of Academic Medicine calls for the same. By working with like-minded partners, we leverage complementary strengths to achieve more so that we are better positioned to break new ground and create an even more dynamic culture.”

RESEARCH BREAKTHROUGHS

FY 2012 was an eventful year as we witnessed several impactful research breakthroughs and collaborations between SingHealth institutions and various local and international institutions coming to fruition.

Targeting Genetic Traits

A multi-centre study co-led by a group of Singapore researchers became the first in the world to succeed in identifying the genes behind a condition that can cause blindness. This finding could pave the way for more targeted treatment for patients with central corneal thickness – a genetic trait associated with the condition keratoconus, where the cornea progressively thins and takes on a more conical shape.

Scientists from the Singapore Eye Research Institute (SERI), led by Prof Wong Tien Yin, Group Director, Research, SingHealth; Deputy Medical Director (Research) and Senior Consultant, Vitreo Retinal Service, Singapore National Eye Centre (SNEC), and Executive Director, SERI, and the Genome Institute of Singapore at A*STAR identified 26 genes associated with corneal thickness. Six genes in particular were found to be significant in keratoconus.
“As with any significant endeavour, vibrant collaborations and effective partnerships are key to success. The pursuit of Academic Medicine calls for the same.”

Prof Ivy Ng

Assoc Prof Eranga Vithana, Associate Director, Experimental and Basic Sciences, SERI, and co-author of the paper described it as the ‘first study that identifies the many genes for keratoconus’. “We hope that by finding these genes, we can understand the disease better and that one day, by finding more genes, we will be able to stratify patients and identify those more at risk of keratoconus,” she said. Prof Aung Tin, Head and Senior Consultant, Glaucoma Service, SNEC, and Deputy Executive Director, SERI, added that targeted therapy could also be developed in the future.

The study was published in the January 2013 edition of the prestigious science journal *Nature Genetics.*

A Repository for Heart Disease Information

Researchers at the National Heart Centre Singapore (NHCS) and Duke-NUS will be setting up a bank of genetic material and tissue from thousands of local heart patients. They aim to sift through the 130 genes known to be associated with heart disease and uncover new and better ways of preventing, diagnosing and treating it. The team also hopes to collect tissue samples from patients undergoing bypass operations to study the cell molecules.

The project will mirror an existing heart cell bank in Britain. Prof Stuart Cook, Distinguished Clinician Scientist and Senior Consultant, Clinical and Molecular Cardiology; Senior Research Advisor, NHCS, and Professor, Cardiovascular and Metabolic Disorders Signature Research Program, Duke-NUS, who pioneered the British project, is part of the core team running the Program at Duke-NUS that trains graduate students in this important discipline.

Prof Terrance Chua, Deputy Medical Director, NHCS, shared that the Centre is planning to install a cardiac magnetic resonance imaging machine to support this research. “With the expertise of Prof Cook and our team of cardiologists and radiologists, this state-of-the-art heart scanner will provide many insights into heart disease through a better understanding of complex disease processes,” he said.

Getting to the Root of Cancer

More than 50 researchers, including those from Duke-NUS, Genome Institute of Singapore, SGH and NCCS, undertook a massive study to uncover why a group of drugs that works well on certain lung and blood cancers do poorly on some patients here.

The study revealed a gene variation that shows up in about 15 per cent of East Asians but does not surface at all in Caucasians and Africans. Adding another drug to the mix, a method that has worked in the test tube, can potentially treat the disease. It is good news for some 14,000 people with the mutated gene who are diagnosed with such cancers each year.

“We were able to figure out how the gene variant caused resistance to the cancer drug, and then found another drug to restore the ability to kill cancer cells,” said Assoc Prof Ong Sin Tiong, Cancer and Stem Cell Biology Signature Research Program, Duke-NUS, a lead investigator of the study.

In April 2013, Assoc Prof Ong spoke about this research at the Joint Conference of the Human Genome Meeting and the 21st International Congress of Genetics, attended by more than 2,000 scientists and researchers.

Asst Prof Charles Chuah, Senior Consultant, Department of Haematology, SGH, a fellow researcher of the study, shared that patients in Singapore will be the first to benefit as the clinical trial will likely be conducted here. They hope to begin the trial within two years.
Our winners of the National Medical Excellence Awards may span diverse backgrounds and specialties, but they stand unified by one common belief – that the pursuit of Academic Medicine will bring continuous improvement in clinical outcomes and better care to patients.

“Developing Academic Medicine is developing a culture of inquiry, a data-driven approach to solving research questions, and a desire to push the envelope for better ways of teaching and training. This will advance healthcare, benefit patients and improve our healthcare delivery,” said Prof Fong Kok Yong, Group Director, Medical, SingHealth, and Chairman, Medical Board, SGH.

Indeed, with Academic Medicine steeped in our work culture, many passionate staff who see public healthcare as a noble calling have made exceptional contributions in the development of Academic Medicine.

Playing a key role in driving the academic environment in SGH, Prof Fong has, for one, been actively supporting teaching and research efforts, particularly in the field of rheumatology. In May 2013, the SGH Autoimmunity and Rheumatology Centre was established, bringing together quality patient care, education and research.

To ensure a good pipeline of trainees in rheumatology, he championed the musculoskeletal rotation in Duke-NUS to expose medical students to rheumatology at an early stage in their career.

As the pioneer Chair of the Medicine ACP, Prof Fong initiated a ‘nurturing clinician scientist’ scheme that supports young researchers in achieving the competitiveness needed for obtaining national level grants. Only in its second year, two young researchers have been awarded the Transition Awards by the National Medical Research Council, an intermediate step towards securing the prestigious Clinician Scientist Award.

Beyond advancing the standards of care delivery through education and research, Prof Fong believes care integration is the key to improving a patient’s healthcare journey. Care integration, which is aligned with the One Campus vision, ensures patients get the best care in the most efficient way possible. At institution and cluster levels, Prof Fong launched the ‘Integrated Care’ initiative, bringing all healthcare stakeholders together to ensure the patient journey through the care continuum is seamless, of high quality and safe. The tagline ‘Every Patient, a Care Partner’ encapsulates the culture of integrated quality care delivery across the SingHealth care continuum.

Prof Fong’s extraordinary contributions to the development of rheumatology in Singapore as well as patient safety and quality care won him the National Outstanding Clinician Award 2013.

An equally deserving winner in the same category, Prof Terrance Chua, Deputy Medical Director, NHCS, is a trailblazer in nuclear cardiology. Prof Chua established Singapore’s first cardiac-dedicated nuclear imaging laboratory in 1994, in collaboration with SGH’s Department of Nuclear Medicine. Under his stewardship, nuclear cardiology at NHCS has grown to be among the highest cardiac nuclear imaging volume centres in the world, with over 9,000 tests performed annually.

Prof Chua modestly pointed that the fostering of cross-disciplinary collaboration to help patients could be a contributing factor to his win. Like Prof Fong, he fully recognises the value of collaboration. One of the projects NHCS is working on, for instance, taps on the experience of its nuclear laboratory, the huge volumes of SGH’s Department of Anaesthesiology and the myocardial infarct and mortality databases of the National Registry of
Assoc Prof Koo Wen Hsin, Deputy Director, NCCS, winner of the National Outstanding Clinician Educator Award 2013 echoed this sentiment: “With Duke-NUS as our academic partner, it helps to break the silos and consolidate efforts as we leverage each of our key strengths. The launch of two joint institutes – Academic Medicine Education Institute (AM•EI) and Academic Medicine Research Institute (AMRI) and the success we have seen thus far is testament to how far we can go in transforming healthcare in Singapore.” Indeed, in a community where there is vibrant interest in education and research, such collaboration will lead to better patient care and outcomes.

Contributing significantly to the growth of medical oncology at NCCS and in Singapore, Assoc Prof Koo has been responsible for setting up many educational and training programmes for doctors as well as oncology nurses.

Doubling as Group Director, Education, SingHealth and Co-Director, AM•EI, Assoc Prof Koo’s vision of Academic Medicine is one where ideas can be transformed into real help for patients through a sequence that will involve the generation of innovative ideas, support for the ideas to be tested and the circulation of the new knowledge to everyone.
A Strong Base for Quality Healthcare

SingHealth has a solid track record not just in clinical excellence, but in healthcare management as well. Along with robust infrastructure, it allows us to deliver the best possible care for patients. New heart and cancer centres on SGH Campus and new general and community hospitals in the Northeast are part of SingHealth’s infrastructure development plans to meet the growing healthcare needs of our population.

National Heart Centre Singapore’s New Building

POISED FOR MAJOR GROWTH

With an ageing population, the demand for cardiovascular services in Singapore will increase as the number of elderly aged 65 years and above is expected to triple to 900,000 by 2030. To meet the demands of rising patient load, the National Heart Centre Singapore’s (NHCS) new 12-storey building with a floor area of 48,000 square metres will see an expansion of clinical services and facilities housed under one roof, providing patients greater convenience.

The building will be equipped with self-registration kiosks and a single queue and payment system designed to shorten and simplify the outpatient experience. The redesigned system will reduce unnecessary movement for patients, especially the elderly. The digital heart centre will also leverage technology to integrate clinical systems to ensure seamless care.

Scheduled to be ready in 2014, the new building will expand NHCS’ current facility at Mistri Wing to 38 specialist outpatient clinic rooms, six cardiac catheterisation laboratories and three major operating theatres. A new short-stay unit for patients scheduled for day procedures, such as coronary angiography, will help to free up additional beds for patients with more severe heart conditions.

Key clinical services commonly needed by patients will be conveniently located adjacent to each other to provide patients with greater ease and convenience. To foster a more robust clinical research
In an effort to develop and grow the research talent pool at NHCS, the Centre will allocate dedicated space for research. This will bring about greater advancement in cardiovascular research and lead to better clinical outcomes.

The NHCS new building was awarded the Building and Construction Authority Green Mark Platinum Award in FY 2012. Its integration of various energy efficient features, such as the installation of an efficient air-conditioning plant and use of regenerative lifts, will result in a substantial 30 per cent reduction in energy consumption. This translates to annual energy savings of an estimated S$1.3 million, and a drop in carbon emissions by 3,000 tonnes a year.

Patient care facilities at the new building will be expanded to meet the growing demand for cardiovascular services. Patients will also be able to heal in a soothing and therapeutic environment with the introduction of pockets of greenery placed strategically throughout the building.

The new NHCS building topping out ceremony was held on 21 March 2013, with Minister for Health Gan Kim Yong as the Guest-of-Honour.
Located at SGH Campus, Academia offers a vibrant environment for networking and professional collaborations to advance the diagnosis, treatment and innovative care for patients.

**Academia**

**FOSTERING A COLLABORATIVE ENVIRONMENT**

Academia, which houses the Singapore General Hospital’s (SGH) Department of Pathology and SingHealth’s research, education and training facilities, marks a significant milestone in our pursuit of Academic Medicine as we continue to push boundaries of medicine to improve patient outcomes and cures.

Located on SGH Campus, Academia offers a vibrant environment for networking and professional collaborations to advance the diagnosis, treatment and innovative care for patients. This strategic location is emblematic of the high value SingHealth puts on Academic Medicine as we seek to foster research and collaboration to improve patients’ lives.
PUSHING FRONTIERS IN RESEARCH AND EDUCATION

The increased research capacity at Academia’s Discovery Tower enables the sharing of space and equipment that further fuels the exchange of knowledge and ideas. This will advance our research collaborations with universities, government agencies and related industries, integrating activities from basic to translational and clinical research.

One core research platform at Academia is the AMPL@SingHealth, a collaboration between SingHealth and A*STAR’s Institute of Molecular and Cell Biology, which provides histopathology consultation and biomarker validation in clinical samples.

On the education front, healthcare staff will have access to more team-based training in simulated environments to hone their clinical, surgical, nursing care and life support skills. Education labs at the Academia will be test beds for the development of new curricula and teaching methodology using the latest technology.

NEW FACILITIES FOR SKILL-BUILDING

Academia’s Discovery Tower is also home to advanced clinical skills and simulation facilities as well as hi-tech conference and training facilities to help medical educators, researchers and clinician scientists deliver better healthcare.

The Mini Hospital has been designed to enable hands-on, team-based training for medical staff in simulated environments like a ward, operating theatre, intensive care unit and specialist outpatient clinics.

Wet Skills Laboratory at the Discovery Tower allows medical students and doctors to train in a simulated ‘live’ hospital setting.
For surgeons, the Computer Simulation Skills Training Laboratory, which is equipped with high-fidelity procedural simulators for key surgical techniques in minimally invasive surgery, endoscopy and endovascular procedures, will enable them to learn and enhance their surgical motor skills to minimise medical errors. The 24-hour facility offers access to all staff so that ad-hoc training can take place anytime and at the staff’s own pace. For allied health professionals, the therapy skills training and teaching laboratories will provide dedicated equipment and resources for advanced clinical skills training for 19 different allied health professions.

Collectively, these environments will allow medical staff to train and practise new technologies and procedures in a safe, real-world setting without utilising actual hospital resources. It will also be a base for education and training institutions like the SingHealth Alice Lee Institute of Advanced Nursing, Institute for Medical Simulation and Education and the Division of Surgery at SGH. Expanded facilities in the Discovery Tower are expected to provide 35,500 annual training places for SingHealth staff and healthcare professionals from external organisations.

There is 75 per cent more space in the Academia’s Diagnostics Tower than at the SGH Department of Pathology, which will increase the capacity for pathology services by over 50 per cent. The Department’s annual workload grew by an average of 6.4 per cent since 2008 and handled close to 12 million investigations last year.

Home to 10 clinical laboratories and a host of other pathology services and facilities, the Academia will enable SGH Pathology to integrate the latest technology into laboratory processes to further enhance test accuracy, reliability and turnaround times. One such technology being incorporated is digital pathology, which allows digitisation of tumours biopsied during surgery. The virtual scans can be remotely analysed in real time by pathologists at the SGH Campus and other locations.

Automated Systems at the new SGH Department of Pathology leads to greater cost-efficiency with optimisation of manpower and other resources.
Sengkang Health

BRINGING QUALITY HEALTHCARE TO THE NORTHEAST

The development of Sengkang Health is part of Singapore’s master plan to provide quality and accessible healthcare to all Singaporeans. Nestled in the Northeast heartlands, Sengkang Health will offer cutting-edge general hospital competencies with community-based care.

With access to SingHealth’s wide network of tertiary hospitals and national specialty centres, Sengkang General and Community Hospitals (SKH) will partner primary care physicians, polyclinics and intermediate and long-term care providers to offer seamless healthcare for the residents of Northeast Singapore. Targeted for completion in 2018, the 1,400-bedded hospital facility will offer more holistic, integrated and patient-centric care covering all major healthcare disciplines.

Since its incorporation in August 2012, Sengkang Health has made much headway in the infrastructure and hospital planning for SKH, including design and manpower development.

Since its incorporation in August 2012, Sengkang Health has made much headway in the infrastructure and hospital planning for SKH, including design and manpower development.

A further extension of SKH’s development is the setting up of the Punggol Medical Centre (PMC), an ambulatory specialist centre that aims to bring affordable quality healthcare to the community in the Northeast. Towards the later half of FY 2012, Sengkang Health’s team started gearing up for the planning of PMC.

Together with SKH, PMC will support primary care services in the district, which includes Sengkang Polyclinic, the planned Punggol Polyclinic and other family physician clinics. It will cater to outpatients who require episodic care from specialists in a less acute environment.
A collaborative culture of give and take, a pioneering spirit of improvement and strong resilience to succeed against all odds – these key attributes are important in building the Sengkang Health team and the Sengkang General and Community Hospitals.

As part of the largest Academic Healthcare Cluster in Singapore, Sengkang Health has access to SingHealth’s network of tertiary specialist hospitals and national specialty centres, giving it an edge to providing a seamless continuum of care to residents in the Northeast. With Sengkang and Punggol slated to be the fastest growing regions in Singapore, adequate and easily accessible medical facilities are required to meet the growing healthcare needs of residents.

“In building an ecosystem for healthy living for the benefit of residents in the Northeast, Sengkang Health will be pioneering a new community compact,” said Prof Christopher Cheng, Pro-Tem CEO, Sengkang Health. This is done in collaboration with community partners, including general physicians, polyclinics and intermediate and long-term care providers who will work together to provide quality, multidisciplinary, patient-centric care and medical expertise for the benefit of residents. Along with primary care providers, healthcare organisations and neighbouring schools, Sengkang Health will also develop a series of wellness and sports advocacy programmes to empower residents with knowledge and engage them through various healthcare channels.

The spirit of community engagement is also evident in the regular focus-group discussions and dialogues held with various stakeholders, including residents and community groups in the Northeast during the early stages of the hospital planning. “It is important that we understand the residents’ healthcare needs and expectations of the new hospital. This will guide the setting up of initiatives and systems, like the training of care co-coordinators to help improve what is already in place,” said Assoc Prof Ong Biauw Chi, Pro-Tem Chairman, Medical Board, Sengkang Health.

So far, feedback has been encouraging, and Sengkang Health will be going so far as to incorporate suggestions into the hospital design as well as address feedback related to traffic, car parking facilities and potential noise and pollution during construction.

Besides ensuring design and infrastructure milestones are kept on track, the planning of medical manpower is another key priority. Assoc Prof Ong believes that those with a passion for working with people and who identify with SingHealth’s vision of working with the community to improve care and health are best suited for the job.

“Indeed, the right motivation is a good starting point. The public service ethos will underpin the drive to serve a larger purpose. Teamwork and collaboration follow as part of the lifelong journey to personal mastery. Skills can be acquired with the right attitude and perseverance,” said Prof Cheng.

To build an Academic Medicine culture in line with SingHealth’s vision, Sengkang Health will work on building the foundation, basic skills and community integration for healthcare delivery. This will ultimately bring about the best possible care for our patients.
Facilities Development

SPACE OPTIMISATION FOR MORE ATTENTIVE CARE

In March 2013, KK Women’s and Children’s Hospital (KKH) refurbished the Neonatal Intensive Care Unit (NICU) to improve operational flow for patients’ safety. Bed capacity was also increased from 24 to 40 to meet patients’ needs.

Supporting facilities, such as Extracorporeal Membrane Oxygenation (ECMO) for newborns with severe lung diseases and whole body cooling for Hypoxic-Ischemic Encephalopathy as well as a mini surgical Operating Theatre within NICU were created to offer more avenues for care.

In April 2012, KKH increased bed-of-choice availability and occupancy with the addition of ten A1 beds at Ward 86. This expansion gave a boost to operational efficiency and provided patients and their caregivers with a more comfortable and healing environment.

With the new and upgraded facilities, KKH will not only be able to meet the needs of paediatric patients, but will also offer holistic care and a comprehensive range of paediatric services.

SGH UNDERGOES MAKEOVER

In a step towards enhancing patient care, outpatient facilities at SGH underwent a major facelift. The Centre for Digestive and Liver Diseases was opened mid-2013 to provide targeted treatments for patients with complex digestive and liver disorders. Patients are able to seek consultation and undergo relevant tests as well as dietetic and drug management services under one roof, as the Centre pulls together a multitude of healthcare professionals providing various expertise. To meet the growing demand for diabetes care, the Diabetes Centre was relocated to a much larger premise at the basement of Block 1. The Centre offers one-stop diabetes service for diabetes and diabetes-related problems.

The Hospital’s larger pharmacies also underwent expansion and service improvement. The pharmacy serving the Specialist Outpatient Clinics now has a medication management service room for pharmacists to advise patients about their prescribed medicines, while the pharmacy at Block 4 is much bigger and strategically fitted out to better serve the patients. The pharmacy at Block 1 has also been equipped with state-of-the-art pharmacy automation system to reduce medication error and improve workflow efficiency.
The Best for Our Patients

SingHealth’s dedication to excellence stems from our belief that the services we provide must continuously make a difference to our patients. We want to bring higher levels of quality care to our patients, who are at the heart of all we do.

Clinical Governance & Quality Management

Capacity for Quality Improvement (QI) continues to expand at SingHealth through the use of proven quality improvement techniques and methodologies. With inspiring leadership, good clinical governance and support for continual improvement efforts, we are able to make a bigger difference to the lives of our patients.

INSPIRING LEADERSHIP

In September 2012, more than 200 delegates participated in the SingHealth-BMJ International Quality Improvement Symposium, held in conjunction with the EPIC Graduation Ceremony. Themed “Leadership for Transformational Change in Quality & Safety in Healthcare”, the symposium brought together distinguished speakers from the 2012 International Forum on Quality and Safety as well as local experts who shared their perspectives on healthcare quality and safety trends.

Panel discussion at the SingHealth-BMJ International Quality Improvement Symposium by SingHealth Senior Management (seated from the left): Assoc Prof Lim Swee Hia, Director of Special Projects, SGH; Prof London Lucien Ooi, Director, SingHealth Transplant; Prof Ivy Ng, GCEO, SingHealth; Prof Tan Kok Hian, Chairman, Division of O&G, KKH and Dr Camilla Wong, Deputy Director, Allied Health Division, SGH.
ALIGNING CLINICAL GOVERNANCE
Each year, SingHealth institutions prioritise areas for improvement and indicators are tracked as part of clinical governance. In 2012, 88 per cent of selected improvement areas exceeded the target levels, while 50 per cent reached the stretch levels. In addition, 126 QI projects with structured methodology were successfully completed at SingHealth – a testament to the positive impact that SingHealth institutions have on the lives of patients.

88% of selected improvement areas exceeded their target levels
50% reached their stretch levels

THIS IS EPIC!
In 2012, 24 EPIC workshops were conducted to increase knowledge and skills in QI at SingHealth. In all, over 900 staff benefited from these learning opportunities.

A quarterly e-publication on quality improvement news was launched on the SingHealth Intranet on April 2012. Called EPIC Heroes, each issue features a video and two QI related articles.

One featured project was the “Taking Risk Reduction to Heart” conducted by SingHealth Polyclinics (SHP)-Queenstown. Cardiovascular/Cerebrovascular disease is a major health concern in Singapore. SHP-Queenstown alone sees 12,000 patients with cardiovascular disease in a year. “In providing primary care, one of our major roles is to help our patients control their chronic illnesses so that complications such as cardiovascular disease would not occur,” said Dr Jonathan Yeo, Family Physician, SHP-Queenstown. One way of doing this is to reduce the patient’s high Low-density Lipoprotein (LDL) levels. Following the establishment of a detailed workflow to standardise the procedure for treating patients with high LDL and regular reminders to doctors on the importance of lowering LDL, the team successfully increased the number of patients treated for high LDL in a bid to control cardiovascular disease.

Another featured project was the “Patient Flow Improvement for an Ophthalmic Specialist Outpatient Clinic”, a collaboration between CGQM and the Singapore National Eye Centre. This project aims to reduce patient waiting time and is the first to apply the Discrete Event Simulation and Design of Experiment models to evaluate the effect of improvement strategies on performance. A poster on this project was presented at the 18th Annual Scientific Symposium of the Academy for Healthcare Improvement in the US. A technical paper on the use of simulation in this project was also accepted for presentation at the 7th IMA Conference on Quantitative Modeling in the Management of Health and Social Care in London.
Enterprise Risk Management

Enterprise Risk Management (ERM) is essential to sustained organisation growth. Today, SingHealth has in place an ERM framework to guide us in managing current and emerging risks more effectively as well as to optimise allocation of finite resources to improve the quality of healthcare services.

THE START OF OUR ERM JOURNEY

SingHealth has laid the foundation for a structured and consistent ERM framework by bringing together all staff from institutions and the Corporate Office to pro-actively identify and manage key clinical, financial, operational, education, research and reputational risks that may arise in the course of business.

The appointment of Bickmore Risk Services (BRS) as our ERM consultant in February 2011 with Ms Grace Crickette, Chief Risk Officer of the University of California as project consultant, marked the commencement of our ERM journey. Through their expert guidance, our dedicated ERM staff as well as key risk domain owners were trained in the use of the Risk Assessment and Key Risk Mitigation Tools to identify andanalyse risk from a broader, organisation-wide perspective so as to create a robust strategy for addressing risks in a timely manner.

The inaugural SingHealth Enterprise Risk Management Summit held in August 2012 marked the completion of the first phase of SingHealth’s ERM journey. The Summit provided a platform for SingHealth and local as well as overseas ERM thought leaders and practitioners from various industries to share their experiences and views on trends and implementation processes.

Top: Panel discussion with invited speakers at SingHealth ERM Summit 2012. Middle: GOH, Mr Ernest Wong, SingHealth Board Member (middle) presented tokens of appreciation to representatives from SingHealth Institutions and Corporate Office to acknowledge their ERM efforts. Bottom: The Summit was well-attended by local and overseas healthcare leaders and administrators.
**Service Quality**

As the trusted leader in healthcare, SingHealth is dedicated to ensuring the best quality care for our patients. The commitment to service excellence is evident in the various service initiatives made over the year in review.

**REINFORCING SERVICE EXCELLENCE**

For the third year running, Singapore Health Quality Service Award was organised to honour healthcare professionals who have demonstrated commitment to delivering quality care and excellent service. This year, 2,534 deserving healthcare professionals from 19 organisations were affirmed. This year’s event also saw an increase in the number of participating institutions including NTUC Eldercare, Man Fut Tong Nursing Home and the Singapore Cord Blood Bank. Mount Alvernia Hospital and Thomson Medical Centre from the private healthcare sector also came on board for the first time as participating institutions.

Sharing his thoughts on quality patient care, Assoc Prof Tan Ban Hock, Head and Senior Consultant, Department of Infectious Diseases, SGH, winner of the Superstar Award in the Clinician category said: “Often, it’s the very simple things, like listening to them and being polite.” He humbly added: “Unlike a sports medal, this award was not something I worked for intentionally; it is just what I do every day. The only motivation I have is doing my best for the patient. If you are guided by that, everything falls into place.”

Mr Chia Li Sen, a patient care assistant from National Heart Centre Singapore was another Superstar winner in the Ancillary category. He has been teaching his colleagues simple Hokkien phrases to assist them in communicating with patients, and sometimes acts as a translator when the need arises. “It helps to always put yourself in the patients’ shoes to understand how they feel,” he said.
BEING AGE-FRIENDLY
As part of SingHealth’s initiatives to build a sustainable age-friendly healthcare environment, the SingHealth Age-Friendly Guidelines was developed with the Tsao Foundation which serves as useful reference and benchmark for safe and seamless care delivery for our elderly patients.

The guidelines were produced based on feedback given by about 380 elderly patients, their families, and healthcare staff over a four-month period in 2011.

Singapore Health Age-Friendly Day is a related initiative that raises healthcare staff’s awareness of the unique needs of elderly patients.

SingHealth institutions and community partners including Ang Mo Kio-Thye Hua Kwan Hospital and Ren Ci Hospital joined in the celebrations held in November 2012 where outpatients were given a free tote bag.

More than 550 staff also attended roving talks which enlightened them on how to see things ‘through patients’ eyes’. These informative sessions give them a better understanding of the special needs of elderly patients.

Singapore Health Age-Friendly Day is a related initiative that raises healthcare staff’s awareness of the unique needs of elderly patients.
Established in 2005, the Cleft and Craniofacial Centre (CCRC) at KK Women’s and Children’s Hospital (KKH) is the first and only specialist centre in Southeast Asia that provides one-stop comprehensive treatment and management for children with head, face and neck anomalies.

Children with craniofacial abnormalities require unique and customised support to meet the most basic of functions such as breathing, swallowing, chewing and speaking. Dedicated to providing holistic care for patients, the multidisciplinary team at CCRC works closely to ensure seamless management and the best clinical outcomes for each patient.

To provide optimal support for patients and their families, CCRC educates caregivers on the healthcare and social needs of children with craniofacial anomalies and empowers them to provide appropriate care and support. The Centre also advocates a culture of inclusiveness and acceptance for patients with craniofacial conditions.

In pursuit of continual advancements in care for patients, the CCRC is involved in a wide range of research activities, including genetic studies, surgical outcome analysis, orthodontic protocols and speech and language development.

In 2006, the Centre participated in an international investigation of the genetic epidemiology of oral clefts. This eventually led to the identification of two novel genes that influence the risk of cleft lips and palates. In 2009, the Centre collaborated with the Chang Gung Memorial Hospital in Taiwan on a National Medical Research Council-supported multi-centre trial to evaluate the technique and timing of cleft palate surgery.

An internationally-recognised member of the American Cleft Palate-Craniofacial Association, CCRC has seen almost 14,000 patient visits since its launch. In 2009, the Centre collaborated with the Chang Gung Memorial Hospital in Taiwan on a National Medical Research Council-supported multi-centre trial to evaluate the technique and timing of cleft palate surgery.

As a leading centre for cleft and craniofacial management, our mission to push the boundaries of treatment and rehabilitation available for children with craniofacial conditions remains unchanged. We continue to strive to bequeath a legacy of clinical excellence that succeeding generations can build upon, for the betterment of outcomes for our patients,” said Assoc Prof Yeow.
AN INSPIRATION TO OTHERS

Mdm Chua Seng Lan is an example of an inspiring caregiver. Despite being diagnosed with cancer, she set her needs aside, and took care of her wheelchair-bound husband, who had suffered from stroke twice and has Parkinson disease. When she was diagnosed with Stage 3 colorectal cancer, Madam Chua said: “I refused to treat myself as a patient. I wanted to be strong because I have others to take care of too.”

Another inspiring patient, Mr Basheer Ahmad, who suffers from spastic paraparesis, a degenerative muscular disorder, recently started work at Ang Mo Kio-Thye Hua Kwan Hospital and is running a rehabilitation programme for the disabled.

They were among 43 patients and caregivers who were presented with the Singapore Health Inspirational Patient & Caregiver Awards for their altruism and exemplary display of courage, strength and resilience.

For the first time, three new institutions, namely Ang Mo Kio-Thye Hua Kwan Hospital, Ren Ci Hospital, and Tan Tock Seng Hospital joined in the celebrations.

YOU SHINE, WE SHINE

Staff who displayed outstanding service standards were recognised with the You Shine Award given out at Synergy Town Hall sessions. A total of 113 SingHealth staff were presented with the award in FY 2012.
Transplant Services

SingHealth Transplant comprises nine different transplant programmes, covering the body’s major organs, tissues, and blood stem cells. Since 1962, some 5,000 organ transplants have been carried out at SGH Campus, which has become a transplant hub for Singapore and the region.

The Symbolic Green Ribbon

Each year, about 100 patients receive a kidney, liver, heart, lung or cornea transplant from either a living or deceased donor. However, an average of 15 people die each year while waiting for their transplant. The waiting time for a kidney transplant, for instance, is about nine years, with approximately 454 patients on the list.

To raise greater awareness of organ donation and transplantation, more than 250 transplant patients, volunteers, and healthcare professionals came together to commemorate the annual SingHealth Transplant Awareness Week. One of the key highlights of the event was the first-ever Transplant Awareness Walk held on 1 September 2012.

Minister for Health Gan Kim Yong graced the event and joined participants in forming the symbolic transplant awareness ribbon.

These activities were the culmination of a week-long campaign which included an awareness roadshow held at SGH and KKH campuses.

4,000

The approximate number of people the SingHealth Transplant Awareness Week was able to reach out to this year.

To raise greater awareness of organ donation and transplantation, more than 250 transplant patients, volunteers, and healthcare professionals came together to commemorate the annual SingHealth Transplant Awareness Week.

Learning About Transplants

To boost greater understanding of organ transplant, SingHealth Transplant organised the Basic Transplant Course in December 2012. A total of 96 participants, including SingHealth staff, doctors from neighbouring countries, and pharmaceutical representatives attended the course.
Strategic Sourcing

The demand for healthcare services in Singapore has been increasing over the past decade, and will continue to increase given the combined impact of a growing and ageing population. The healthcare industry needs advanced logistics support to remain effective. As the largest healthcare cluster in Singapore, SingHealth has successfully embarked on various initiatives to bring operational excellence to greater heights.

SAVINGS GO A LONG WAY
Over the years, Group Procurement Office (GPO) has built a successful track record of securing substantial discounts through bulk purchasing of medical products and effectively introducing measures to better utilise resources. In FY 2012, GPO achieved an estimated gross savings of about $35 million, which is made largely possible through the strategic sourcing of pharmaceuticals and medical equipment. In addition, GPO also established various value-add initiatives such as enhanced equipment warranty management.

EXTENDING OUR OUTREACH
In light of rising costs and increasing healthcare demand, nursing homes which are run by nonprofit organisations face a daunting task in sustaining operations with their limited resources.

As the largest healthcare cluster, SingHealth is able to extend procurement expertise to these nonprofit organisations and Voluntary Welfare Organisations (VWOs). One area of assistance was the sourcing of beds. GPO successfully negotiated a two-year contract that would allow the VWOs to leverage on these contracts for all of their bed replacement purchase. GPO also secured discounts for selected medical items. These savings and lower operating costs ultimately translate to better value and cost containment for our patients.

SUPPLY CHAIN WITHIN HEALTHCARE
GPO conducted its 3rd Annual Supply Chain Congress in August 2012 which attracted 150 local and overseas participants. An inaugural poster competition was introduced as a platform for public healthcare institutions and industry experts to share best practices in supply chain management. SingHealth received seven out of 10 awards, including the best overall award.

MAINTAINING INTEGRITY AND UPHOLDING ETHICAL STANDARDS
Conflicts of interest and fraudulent practices may arise in the course of operations. To keep these in check, GPO has stepped up efforts to build awareness on the importance of upholding ethical standards in a bid to improve adherence to probity, ethics, and business controls.
Information Technology

In an age of technology advancement, we capitalise on Information Technology to improve healthcare standards. By working closely with stakeholders, we are able to constantly seek ways to optimise processes and increase staff productivity.

NEW INCLUSIONS IN CAMDEN MEDICAL CENTRE

In November 2012, SGH set up the Health Assessment Centre (HAC) and Department of Diagnostic Radiology (DDR) at Camden Medical Centre. The HAC is a one-stop service point for those who require customised health screening. It also provides general medical care and follow-up consultations for patients.

The SGH Orthopaedic Sports & Joint Centre (OSJC), which opened in March, is a condition-focused integrated care facility where sub-services Radiology, Physiotherapy, Orthopaedic Diagnostic Centre and Pharmacy co-locate within the same centre. To reduce patients’ waiting time, the One Queue One Bill concept was implemented at the Centre. The Outpatient Flow Management System is an innovative queue management system, which effectively manages the entire patient journey with a single queue number. Waiting times are reduced as unnecessary registration processes at various service points are eliminated and patients are required to register only once during each visit.

The Health Assessment Centre’s new service paradigm offers a one-stop solution for health-screening programmes, general medical care, and follow-up consultations.

TRACING WITH TIMS

Two years ago, the SGH Theatre Sterile Supply Unit (TSSU) Instrument Management System (TIMS) went live in Phase 1, for full traceability of surgical instruments in TSSU as they pass through the various cycles in sterile reprocessing.

In FY 2012, Phase 2 of TIMS in 25 major operating theatres (OT) and Central Sterile Supply Department (CSSD) was rolled out. This allows real-time tracking and accountability of instrument sets in major OTs and CSSD. With TIMS, workflow has improved significantly and sterile sets are now easily traceable. Instrument sets are also scanned for quality before they are used on patients in operations.

Deployment of TIMS into the perioperative environment.
GOING LIVE
The Singapore Integrated Diabetic Retinopathy Programme (SiDRP) (Interim) which taps on General Practitioners (GP) and optometrists to screen for diabetic retinopathy, went live at SHP-Bukit Merah in July 2012. SiDRP was established in 2010 to centralise the diagnosis of DR by accredited technicians from the Singapore Advanced Imaging Laboratory for Ocular Research (SAILOR). Since then, it has screened more than 15,000 patients. Another 90 optometrists and GPs, as well as all polyclinics and hospitals, are expected to join the programme by 2015.

AUTO ALLOCATION OF DOCTORS
In December 2012, the Auto Allocation of Doctor On-Call Roster for Department of Internal Medicine, was implemented in SGH's SAP system. This feature automatically allocates the 14 teams of doctors in the Department of Internal Medicine in a round robin manner for A&E-turned-inpatient cases. This saves manual effort and shortens the time taken to update a doctor’s name in the SAP system, ultimately improving patient safety and care delivery. The innovative feature has earned the Quality Circle team various local and regional awards.

BECOMING APPLICATION SAVVY
During the year, SingHealth rolled out several mobile apps. In July, we launched the SingHealth Staff Engagement Mobile Platform to extend various channels of staff engagement such as news, polls and staff directory through smartphones. Another app, AsthmaCare Buddy, was launched on 12 December 2012. The first mobile app developed by SingHealth Polyclinics, the app allows asthmatic patients to update their medications and action plan so that they can better manage their ailment. Some of the key features of the app include tools for monitoring asthma conditions, tips on maintaining good asthma control, vaccination reminders and a listing of GP clinics.

NCCS IN THE EAST
NCCS Oncology Clinic @ CGH was officially launched by Minister for Health Gan Kim Yong on 26 April 2013. With this new satellite clinic, patients residing in the East need not travel to NCCS headquarters as the clinic offers the same suite of services as NCCS. Tapping on the same electronic medical records, patients’ data are readily available to ensure that clinicians and nurses are able to provide seamless care to patients.
Capitalising on Technology for Care

MyEyeDrops, the world’s first free glaucoma eyecare app, helps glaucoma patients and caregivers “put the right eye drops in the right eye, at the right time”.

The leading cause of blindness in Singapore, glaucoma affects about three per cent of the population. Failing to apply eye drops regularly puts patients at risk of aggravating the condition.

About 70 per cent of glaucoma patients surveyed in a 2011 Singapore National Eye Centre (SNEC) study often fail to apply their medication regularly. To help patients better manage their condition, SNEC and Integrated Health Information Systems (IHiS) developed a free mobile app MyEyeDrops to serve as a handy medical diary for glaucoma patients and caregivers.

The app, which comes in English and Chinese versions, allows users to receive customised alerts for eye drops, and reminders on medical appointments and when the eye drops will be running out. The app also includes educational videos about eye care and common eye conditions, as well as a medical diary for them to input any medical history such as drug allergy.

Since its launch in February 2013, the app has seen more than 3,300 downloads to date. Apart from patient-centric apps like MyEyeDrops, SingHealth has plans to further improve health literacy through other programmes and digital platforms.

One of which is a portal that will host condition-specific health information and test results on web diaries for a comprehensive overview of a patient’s health. Another programme in the works is Telehealth, which will allow patients to communicate with care providers over web conference.

“Regardless of which technology we explore, it is vital that we work with the relevant healthcare professionals and patients throughout the care process to ensure that these solutions remain relevant to patients,” said Mr Ang Cheng Hian, Manager, IHiS.

The risk of surgical swabs or instruments being left in a patient is drastically reduced with the RFID-based system that tracks their movement within an operating theatre.

GREAT SCOTT!

Piloted by KKH, SCOTT (Surgical Counting & Operating Theatre Tracking) system was designed to help medical staff locate surgical gauzes and instruments in OTs. This tracking device is extremely useful in ensuring surgical instruments are not left in the patient’s body after surgery. SCOTT significantly enhances patient safety and improves the productivity of OT staff who may spend up to 1.5 hours after a surgery trying to locate missing items. The service enhancement system won the prestigious National Infocomm Award in October 2012.

EPAYMENT

The iGOV2012 ePayment for Inpatient, Outpatient and Pharmacy bills (ePay) went live on 9 July 2012. SingHealth is the first public healthcare group in Singapore to offer the option of ePayment for all patients across its institutions. With ePay, our patients can now manage their payments almost anywhere.

The risk of surgical swabs or instruments being left in a patient is drastically reduced with the RFID-based system that tracks their movement within an operating theatre.

PC LEASING AND LIFE CYCLE MANAGEMENT PROGRAMME

Tapping on the success of the PC Leasing and Life Cycle Management Programme which was first launched by SGH, KKH and SingHealth Corporate Office have since joined in the programme in May and June 2012 respectively. This programme aims to meet the growing business needs and evolving healthcare demands with faster turnaround time and more frequent technology refresh through a structured IT equipment replacement and retirement process. It also streamlines IT equipment procurement, deployment, management and retirement/transition processes, which reduces the turnaround time for acquisition and disposal of IT equipment, including cost and risk associated with disposal of end-of-life IT equipment.
Nurturing the Future of Medicine

The future of Medicine lies in training and nurturing the next generation of healthcare professionals. Constantly at the forefront of medical education, SingHealth has a rich teaching history that builds a medical talent pool for improved patient care.

SingHealth Group Education

To further our education effort, the SingHealth Group Education Office developed strategic educational goals to guide us towards achieving our vision to be the education provider of choice for healthcare professionals, Residents and medical students. These include:

• Utilising SingHealth’s unique strength in breadth and depth of specialties and subspecialties to attract and retain talent
• Nurturing and grooming passionate educators
• Establishing effective and efficient training systems and structures
• Nurturing and building a pipeline of competent and engaged Residents and medical students

Based on these strategic goals, SingHealth Group Education will advance medical education by developing a vibrant community of educators and learners.

In particular, the Education Council was formed in FY 2012 to oversee and drive education initiatives as well as synergise our education efforts across SingHealth.

Initiated by the Ministry of Health (MOH), the Clinical Training Oversight Committee (CTOC) was formed to optimise training capacity and enhance the quality of clinical training for undergraduates in Singapore. At SingHealth, this initiative is driven by the Singapore General Hospital (SGH) and KK Women’s and Children’s Hospital (KKH) Campus Education Office (EDO), where each Campus EDO is led by a campus education director. A cluster-level education office, represented by the Group Education Office, has also been set up as a key point of contact with MOH, the Campus EDOs and tertiary institutions.

The EDOs enable us to offer more structured and progressive training environment for under and postgraduate students, spanning across medical, nursing and allied health.
Another key area that the Group Education Office has oversight is the execution of initiatives to recognise our educators’ teaching contributions by tracking their education commitment and achievements. For instance, a new Medical Staff Performance Appraisal system which allows educators to be appraised on the same criteria across the SingHealth cluster will be piloted in KKH in 2014. Led by Prof Chay Oh Moh, Campus Director, KKH EDO, who chairs the workgroup, the appraisal system will better recognise educators’ efforts and contributions. “The new appraisal system aims to accurately capture the contributions of educators and their scholarly activities, and thus facilitate the building of their education portfolio,” said Prof Chay.

The Core Competency Framework was also introduced to guide educators on the competencies recommended to progress on the Clinician Educator track. This framework will see all aspiring educators go through structured and progressive competency development.

Bringing together the educational expertise from Duke-NUS Graduate Medical School Singapore (Duke-NUS) and SingHealth, the launch of the Academic Medicine Education Institute (AM•EI) in September 2012 will further boost our education endeavours as it brings together a community of passionate educators and leaders in education who are committed to excellence in teaching and learning.

SingHealth Residency

As the largest sponsoring institution for residency programmes in Singapore, SingHealth has more than 600 Residents enrolled in 34 programs to date. SingHealth Residency is committed to nurturing each Resident into a well-rounded clinician and more importantly, enabling them to have a fulfilling career in Medicine.

SPECIALISING FOR BETTER PATIENT CARE
In FY 2012, SingHealth Residency introduced 15 new SingHealth Medical Senior Residency Programs, offering Residents advanced specialist training in a myriad of Internal Medicine (IM) subspecialties.

As a testament to the demand for these new programmes and the passion for Academic Medicine among our Residents, 19 of the pioneer intake of 55 Senior Residents are IM Residents continuing on their journey with SingHealth Residency to advance their specialist training upon completion of their earlier training in IM.

SingHealth Residency also successfully achieved continued accreditation for six existing programmes: Emergency Medicine, General Surgery, IM, Pathology, Pediatrics and Transitional Year. SingHealth, as a sponsoring institution, was also successfully accredited in FY 2012.

TEACHING EXCELLENCE IN SINGHEALTH RESIDENCY
SingHealth Residency is poised for further transformation in graduate medical education as our dedicated faculty continues to ensure growth and seamless training in the Residency Programs. With the growth of the programmes over FY 2012, the SingHealth Residency faculty has seen a significant increase in its numbers, currently standing at over 1,000.

As more faculty come on board to build the medical pipeline, it is essential to raise the standards of medical education for sustained healthcare excellence. The AM•EI will help to enhance teaching competencies with structured faculty development programmes.

The Residency in SingHealth Excels (RISE) Awards recognise outstanding faculty and Residents for their contributions and achievements in medical education. A total of 32 awards were presented to outstanding educators in the Passionate Educator Award and Innovative Educator Award categories. Forty-three awards were also presented to Residents who accomplished excellent clinical and academic performance.
training, but also by the positive relationships I developed with my peers and seniors,” said Dr Lee.

As co-chairs of the Residents’ Committee (2012–2013), Dr Lee and Dr Loo represent the Residents in sharing their feedback at group and ministry levels to fine-tune programmes. In FY 2012, the committee initiated off-site access to electronic medical journals, as well as childcare facilities and scholarships. These initiatives will better Resident’s welfare and educational needs. There are also plenty of opportunities for them to hone their leadership skills, such as representing Residents at the Graduate Medical Education Committee (GMEC); through involvement in various research and education events, such as a Resident-led workshop at the SingHealth Duke-NUS Education Conference 2013; and facilitating the upcoming SingHealth Duke-NUS Scientific Congress in 2014.

To improve the learning environment for Residents, the Committee also places great emphasis on ensuring an all-rounded development for Residents with many projects planned for the year ahead in the areas of volunteerism, social and team building.

Being firm believers of the Academic Medicine ethos, both Dr Lee and Dr Loo also instill and encourage fellow Residents to incorporate Academic Medicine in their daily clinical practice.

"Modelling themselves on Academic Medicine-practising faculty members allows trainees to learn the ropes and know who to turn to when they encounter difficulties. SingHealth’s growth as an Academic Healthcare Cluster will also attract more talented doctors to participate and contribute in this field. When Residents have a greater sense of satisfaction practicing Academic Medicine, it will serve as a positive reinforcement, spurring them on in the long run,” said Dr Loo.

To improve the learning environment for Residents, the Committee also places great emphasis on ensuring an all-rounded development for Residents with many projects planned for the year ahead in the areas of volunteerism, social and team building.

Being firm believers of the Academic Medicine ethos, both Dr Lee and Dr Loo also instill and encourage fellow Residents to incorporate Academic Medicine in their daily clinical practice.

"Modelling themselves on Academic Medicine-practising faculty members allows trainees to learn the ropes and know who to turn to when they encounter difficulties. SingHealth’s growth as an Academic Healthcare Cluster will also attract more talented doctors to participate and contribute in this field. When Residents have a greater sense of satisfaction practicing Academic Medicine, it will serve as a positive reinforcement, spurring them on in the long run,” said Dr Loo.

The largest sponsoring institution for residency programmes in Singapore, SingHealth Residency strives to develop our Residents into innovative, highly skilled medical leaders and self-directed learners with a strong sense of ethics and compassion who are able to provide better care for patients.

With two hospitals, five national specialty centres, nine polyclinics and a community hospital, along with training from major participating site, Changi General Hospital, SingHealth has high clinical volume and rich variety of specialties and subspecialties, thereby providing Residents with comprehensive clinical training and opportunities for growth.

Together with a strategic Academic Medicine partnership with Duke-NUS, interdepartmental rotation, and exposure to developing research and teaching programmes, it is apparent that SingHealth Residency offers Residents the best capacity to grow.

Dr Benny Loo, a Pediatric Resident, took all this into account when he joined SingHealth Pediatric Residency Program. He cites dedicated clinician mentors like Prof Tan Cheng Lim, Emeritus Consultant, Department of Paediatric Subspecialties, Haematology Oncology Service, KKH, as one of the many role models at SingHealth whom he looks up to. Having been with SingHealth from the start of his career, Dr Loo shared that “the strong value of appreciating all doctors is a major factor in my decision to stay with SingHealth.”

For Dr Jill Lee, an Obstetrics & Gynecology Resident, she chose the program for its rich opportunities. “I felt welcome and enriched, not just by the good clinical training, but also by the positive relationships I developed with my peers and seniors,” said Dr Lee.

As co-chairs of the Residents’ Committee (2012–2013), Dr Lee and Dr Loo represent the Residents in sharing their feedback at group and ministry levels to fine-tune programmes. In FY 2012, the committee initiated off-site access to electronic medical journals, as well as childcare facilities and scholarships. These initiatives will better Resident’s welfare and educational needs. There are also plenty of opportunities for them to hone their leadership skills, such as representing Residents at the Graduate Medical Education Committee (GMEC); through involvement in various research and education events, such as a Resident-led workshop at the SingHealth Duke-NUS Education Conference 2013; and facilitating the upcoming SingHealth Duke-NUS Scientific Congress in 2014.

To improve the learning environment for Residents, the Committee also places great emphasis on ensuring an all-rounded development for Residents with many projects planned for the year ahead in the areas of volunteerism, social and team building.

Being firm believers of the Academic Medicine ethos, both Dr Lee and Dr Loo also instill and encourage fellow Residents to incorporate Academic Medicine in their daily clinical practice.

“Modelling themselves on Academic Medicine-practising faculty members allows trainees to learn the ropes and know who to turn to when they encounter difficulties. SingHealth’s growth as an Academic Healthcare Cluster will also attract more talented doctors to participate and contribute in this field. When Residents have a greater sense of satisfaction practicing Academic Medicine, it will serve as a positive reinforcement, spurring them on in the long run,” said Dr Loo.
RESIDENTS AS EDUCATORS

Building on SingHealth’s strong teaching tradition, SingHealth Residency places much emphasis on inspiring a passion for teaching in our Residents. Within SingHealth Residency, new teaching initiatives for Residents have been established to hone their teaching skills and give them structured opportunities to teach.

To develop the teaching competencies of our Residents, the Centre for Resident and Faculty Development (CRAFD) launched its first Residents as Future Teachers (RAFT) development workshop in November 2012, in collaboration with AMEI. This series of workshops aim to equip and enhance the teaching skills of Residents, thus enabling them to impart medical knowledge more effectively.

Residents in some programmes are also given formal teaching roles, such as teaching stints at Duke-NUS, teaching sessions with medical students in clinics and the training of medical students in various aspects of clinical work. Through these structured teaching and learning opportunities, medical knowledge is reinforced and clinical acumen honed continuously, leading to better patient-centred care.

PAYING IT FORWARD

Inspired by the rich teaching culture in SingHealth, two IM Residents, Dr Jonathan Yap and Dr Mark Cheah, launched CADENCE, a peer-teaching initiative that hinges on the concept of paying it forward.

Launched in June 2012, CADENCE allows Residents who have passed the Member of the Royal College of Physicians Part 2 Clinical Examination (MRCP PACES) to mentor assigned groups of Residents over a three-month period.

More than 90 IM Residents gave CADENCE a resounding thumbs-up, as it has boosted the total passing rate of the MRCP PACES by more than 20 per cent to above 80 per cent.

More than 90 IM Residents gave CADENCE a resounding thumbs-up

CADENCE has remarkably boosted the total passing rate of the MRCP PACES to above 80 per cent.
Working in close collaboration with various hospitals and healthcare institutions, SingHealth Academy develops learning initiatives and provides educational resources for educators and learners across SingHealth. The Academy equips healthcare professionals with a holistic set of skills essential for career growth and professional development, in an effort to provide quality patient care.

TECHNOLOGY ENHANCES LEARNING
SingHealth Academy harnesses technology to make learning for our healthcare professionals accessible anytime, anywhere. In May 2012, SingHealth Academy became the first in Asia to win the Sonic Foundry’s 8th Annual Rich Media Impact Awards in the healthcare category. This award reflects SingHealth’s outstanding achievements in improving information accessibility, efficiency, productivity and cost savings through the e-Lecture system (Mediasite).

Almost 800 live digital recordings were uploaded to the Mediasite portal for e-learning in FY 2012, with an average of over 250 views per month.

Besides the Mediasite portal for e-learning, SingHealth Academy also utilises the state-of-the-art learning facilities at the Academia to enhance the learning experience both inside and outside of the classroom. The use of simulation-based learning facilities such as Academia’s Mini Hospital, as well as live streaming and recording facilities will enhance interaction, learner engagement and the quality of assessments.

3 times
The total number of Blackboard e-learning users in FY 2012 has almost tripled as compared to FY 2011.
PARTNERSHIPS IN EDUCATION
SingHealth Academy played an integral role in facilitating the bi-annual SingHealth Duke-NUS Scientific Congress 2012, and continued to work with various partners, such as the SingHealth Group Procurement Office and National Neuroscience Institute (NNI), to support several healthcare conferences such as the Singapore Healthcare Management Congress 2012 and the 15th ICP Conference for NNI.

With the graduation of the third cohort in July 2012, the SMU-SingHealth Graduate Diploma in Healthcare Management and Leadership Programme – a partnership between SingHealth and Singapore Management University – has groomed 74 graduates as of 2012, two thirds of whom are SingHealth staff. The demand for this programme augurs well for our leadership pipeline at SingHealth. Each year, SingHealth Academy matriculates the course and sees these future healthcare leaders to graduation.

A GLOBAL KNOWLEDGE NETWORK
A collaboration between SingHealth Academy and the Civil Service College (International) saw 10 radiologists from Kuwait undergo training in the area of diagnostic imaging, particularly in Magnetic Resource Imaging, Computerised Tomography Scan and Mammography at SGH in February 2013. SingHealth Academy also collaborated with SGH Postgraduate Allied Health Institute (SGH-PGAHI) to organise a healthcare management training programme on managing rehabilitation services and facilities for 20 clinicians from China and Taiwan from 28 to 30 November 2012.

Collaborations between SingHealth Academy and education partners create a wide network for knowledge exchange.
It is often said that a good healthcare system is closely linked to teaching, and that the future of Medicine certainly lies in training and nurturing the next generation of healthcare professionals. Here, we meet three educators who share their passion for teaching and the positive impact it has had on the medical profession.

A winner of multiple educator awards, Asst Prof Phua Ghee Chee, Senior Consultant, Department of Respiratory & Critical Care Medicine, SGH, believes that the commitment to teaching the next generation is one of the proudest traditions of the healthcare profession.

Asst Prof Phua, also Program Director of the SingHealth Internal Medicine (IM) Residency Program said: “It enables the knowledge, skills and values acquired over time to be passed from one generation to the next, and to be improved upon. We do this not only because we care for our juniors, but also because this will ultimately lead to better patient care.”

The vibrant teaching culture in IM is driven largely by exemplary figures like Asst Prof Phua who spare no effort in guiding and teaching juniors. Under his guidance, CADENCE, a Resident-led peer teaching initiative was developed. Following the introduction of CADENCE, the passing rate of the Member of the Royal College of Physicians Part 2 Clinical Examination (MRCP PACES) exams increased significantly by more than 20 per cent. This has helped boost the total passing rate to above 80 per cent. Beyond tangible progress, CADENCE has helped to bring the IM community closer, as Residents thrive on the concept of paying it forward and take a genuine interest in helping their peers to excel.

On the nursing front, Ms Lissa V. Joseph, Senior Staff Nurse, Ward 76-Orthopaedic Surgery, SGH, and a pioneer member of the Resident Nurse Training Programme, relishes the opportunity to broaden her medical knowledge and expand her job scope with this new programme. Specifically, Resident Nurses are now equipped to take on tasks that could once only be done by doctors, such as post-operative reviews, performing clinical rounds with the medical team and selected medical procedures.

Her training as a Resident Nurse has widened her scope of work at the Orthopaedic Surgery Department, where she is responsible for planning, coordinating and facilitating care delivery. She is also responsible in communicating the plan of care effectively with patients and their families, and initiating and coordinating discharge plan and wound management.

Resident Nurses perform the critical function of bridging the gap between the nursing and the medical team and are key resource persons. Always on hand to provide clinical guidance and directions to nurses, Ms Lissa believes the role of an educator is more than just imparting knowledge. It is also to ignite the spirit of learning and inculcate good values in the next generation.

“The teaching enables the knowledge, skills and values acquired over time to be passed from one generation to the next, and to be improved upon. We do this not only because we care for our juniors, but also because this will ultimately lead to better patient care.”

Asst Prof Phua Ghee Chee
An equally passionate educator, Dr Catherine Anne Cox, Acting Head and Senior Psychologist, Psychology Service, KKH, actively mentors her colleagues and teaches students and interns from the National University of Singapore and James Cook University, Singapore.

“When I was a junior neuropsychologist, I benefited from the invaluable mentorship of many dedicated supervisors who shared their time and knowledge with me,” shared Dr Cox. “Now, it is my turn to provide this positive experience to others, and uphold the best practices for my profession,” she added.

A clinical neuropsychologist who works with children who have epilepsy, brain infections and head injuries, Dr Cox also coordinates clinical placements at KKH’s Psychology Service for clinical psychology masters students and interns. In addition, she assists postgraduate psychology students with their research projects by collaborating with them on areas of joint interest.

Dr Cox also facilitates education at a community level. In early 2013, she collaborated with the KKH Rehabilitation Department to provide training sessions for Infant Educators from the PAP Community Foundation. The training aimed to teach Infant Educators about infant brain development, the best ways to foster children’s physical, emotional and linguistic development and how to identify children who may need extra help.

“When I was a junior neuropsychologist, I benefited from the invaluable mentorship of many dedicated supervisors who shared their time and knowledge with me. Now, it is my turn to provide this positive experience to others, and uphold the best practices for my profession.”

Dr Catherine Anne Cox

United by a common purpose – to groom and develop a new generation of competent and caring healthcare professionals for the benefit of patients, these three educators continue to be role models in their respective fields, inspiring colleagues and mentees alike.

Summing up what it means to be an outstanding and effective teacher, Asst Prof Phua said: “Teachers need to be open to learning how to be better teachers. We should also encourage our young doctors to teach, as it is one of the best ways to learn. I believe the future is bright.”

SingHealth Annual Report 2012 43
SGH Postgraduate Medical Institute

SGH Postgraduate Medical Institute (SGH-PGMI) offers a wide variety of postgraduate medical education and clinical training programmes to ensure healthcare professionals are continually kept abreast of the latest developments in Medicine and ready to meet the changing needs of medical care and patients.

MEDICAL FELLOWSHIPS BEYOND BORDERS

A total of 80 overseas fellows and observers underwent clinical training in FY 2012. The training programmes allowed candidates to gain exposure in the Singapore healthcare industry and learn specific clinical skills. SingHealth signed a Memorandum of Understanding (MOU) with the Government of Fiji to facilitate the training of Fijian fellows in SGH’s Departments of Diagnostic Radiology and Pathology for a three-year period, while several Middle Eastern candidates were offered training opportunities in various SGH departments for an average of two years. These training stints serve to advance candidates’ medical skills, thereby improving the standard of care in their home country upon their return.

Several observers from the Governments of Bhutan and Vietnam also underwent training with SGH’s Department of Haematology to learn Flow Cytometry and High Performance Liquid Chromatography (HPLC), with the aim of launching a similar research platform in their home countries.

INSPIRING OUR PEOPLE TO REACH GREATER HEIGHTS

In FY 2012, SGH-PGMI organised a wide range of training programmes attended by more than 3,300 medical professionals. One notable event was the 19th SGH Lecture and Formal Dinner held on 14 April 2012, where keynote speaker Ms Olivia Lum, Executive Chairman and Group Chief Executive Officer of Hyflux Limited, delivered a lecture on ‘Innovation and the Business of Water’. The event also paid a special tribute to the late Dr Alexandre Chao and recognised the contribution of the Alex Chao Memorial Fund, which funded the purchase of two endovascular simulators for use in the endovascular surgery training programme at SGH.

More than 3,300 medical professionals attended a wide range of training programmes organised by SGH-PGMI.
In October 2012, a pre-conference workshop on Spondyloarthritis (SpA) was held in conjunction with Ten Topic Rheumatology Asia, a regional Conference that serves as a sharing platform for rheumatologists from around Asia. Experts from the Department of Rheumatology and Immunology at SGH shared their experiences on utilising MRI in the diagnosis and evaluation of early axial SpA in patients.

To support the learning and teaching needs of staff, the Education Resource Centre subscribes to some 40 medical journals, as well as UpToDate, a popular online medical reference guide. For greater convenience, staff can now access UpToDate anytime, anywhere, making the drive to improve patient care easier and more immediate.
The SGH Institute of Medical Simulation and Education (SGH-IMSE) was established in 1999 to provide formal basic and advanced cardiac lift support courses. With the motto “Shaping the Right Mind”, SGH-IMSE strives to provide high quality medical education with an emphasis on simulation training to enhance the quality of patient care.

In FY 2012, SGH-IMSE extended their reach and collaborated with several SingHealth institutions and departments to provide trainings for a wider group of medical professionals. As a result, SGH-IMSE saw almost 6,000 participants taking part in their various trainings, the highest level of participation the Institute has had to date.

One example is where SGH-IMSE adopted the inter-professional/multi-professional approach to learning, which increased collaboration opportunities between the Institute and SingHealth Residency.

SGH-IMSE also developed a strong collaborative partnership with SGH-PGAHI, where a regular course on medical terminology and symptomatology for medical social workers (MSW) was launched. Through the course, MSWs are able to familiarise themselves with medical terms and jargon which helps them better understand patient records and interact with doctors. A regular programme on Physiotherapy Simulation was also implemented to help new physiotherapists better understand the Intensive Care Unit environment and manage patients who are critically ill.

Additionally, the Institute successfully extended the In-Situ Simulation Programme by collaborating with radiographers, nurses and radiologists of the Interventional Radiology Centre of Department of Diagnostic Radiology; as well as nursing staff and anaesthetists from the Operating Theatre. For the trainings, various scenarios of unexpected patient deterioration were used as crisis situations. The positive feedback from participants has led to future collaborative plans with both groups. The nursing fraternity expressed strong interest to work with the Institute to establish in-situ simulation in the Operating Theatre as part of regular training.
SingHealth Alice Lee Institute of Advanced Nursing

SingHealth Alice Lee Institute of Advanced Nursing (IAN), the leading provider of postgraduate nursing education for local nurses and beyond, is dedicated to enhancing nursing skills and promoting lifelong learning excellence among nursing professionals.

A NURSING EDUCATION PROVIDER OF DISTINCTION

In February 2013, the American Nurses Credentialing Center’s (ANCC) Commission on Accreditation renewed SingHealth Alice Lee IAN’s accreditation as a Provider of Continuing Nursing Education for another four years, from 25 March 2013 to 31 March 2017.

SingHealth Alice Lee IAN also achieved the Accreditation with Distinction, the highest recognition awarded by the ANCC. This is a further affirmation of the Institute’s distinguished reputation as a leading provider of excellent continuing nursing education.

As of FY 2012, over 10,000 participants have been trained under the Institute’s 35 training programmes since its inception in 1997. With the opening of the Academia in July 2013, the many new and high-tech facilities, such as the simulated wards will enable even more effective and in-depth training for nurses.

CELEBRATING A WEALTH OF WISDOM (WOW)

WOW Day, held in January 2013, was organised in recognition of the trainers’ participation and contribution to the various training courses conducted by SingHealth Alice Lee IAN. Signifying a ‘Wealth of Wisdom’, WOW Day was a hive of activity. Thank-you cards and letters were prominently displayed on the beautifully handcrafted Tree of Knowledge and in the Candy and Achievement Corners. SingHealth Alice Lee IAN partners with various local and international organisations and schools, such as Duke-NUS, Singapore Workforce Development Agency, Ministry of Health, Singapore Nursing Board, Curtin University, Singapore Institute of Technology and overseas hospitals to organise training programmes.

BRIDGING ROLES IN THE MEDICAL PROFESSION

To promote the advancement of nursing and professional development, the Resident Nurse Training Programme was launched in September 2012 with an intake of 26 Registered Nurses from SGH and the National Heart Centre Singapore. Conducted by SingHealth Alice Lee Institute of Advanced Nursing.

Nursing leaders and staff gathered on WOW Day’s celebration, where Prof Ang Chong Lye, CEO, SGH, was the Guest-of-Honour.
Lee IAN, the programme equips nurses with theoretical and practical knowledge in various specialties such as Respiratory, Cardiovascular, Endocrine, Renal, Neurology, Orthopaedics, Colorectal, Urology and General Surgery. Curriculum for the one-year programme includes lectures, tutorials, clinical attachment and assessment. With this new programme, the role of Resident Nurses will be expanded to include duties such as collaborating with doctors on patient care, history taking and clerking as well as performing selected medical procedures and conducting daily ward rounds and post-operation reviews.

Sharing her thoughts on the programme, Ms Karine Sim, Senior Staff Nurse, Department of Urology, SGH, and a pioneer member of the Resident Nurse Training Programme said: “The programme helps to broaden our medical knowledge and trains us as a ‘bridge’ between the nursing and medical profession. It also hones our critical thinking skills and sharpens our clinical decision-making skills to create better patient outcomes.”

**SHARING BEST PRACTICES**

In April 2013, SGH signed an MOU with Shanghai’s Ruijin Hospital Group that will see SGH train some 560 healthcare professionals from the six hospitals under the Ruijin Hospital Group over two years. Supported by Temasek Foundation, this is the first of such collaborations to support skills training in best nursing practices for nursing professionals in China. It is expected to benefit up to 1,000 healthcare professionals. The first batch of training is being conducted by SingHealth Alice Lee IAN and is expected to be completed in 2014. In June 2013, SGH also signed an MOU with Curtin University of Technology to facilitate collaboration in the field of education and research.

**SGH Postgraduate Allied Health Institute**

The SGH Postgraduate Allied Health Institute (SGH-PGAHI) collaborates with allied health departments and reputable local and overseas educational institutions to offer a comprehensive range of programmes catering to the needs of our various Allied Health Professionals (AHPs).

**BUILDING TEACHING CAPABILITIES**

The faculty development programme by SGH-PGAHI and the NUS Medical Education Unit aims to develop a team of allied health educators in medical pedagogy. This is aligned with SGH-PGAHI’s long-term goal of building a core team of educators who can run independent pedagogy courses.

The achievement of which was evident with 40 per cent of the Basic Course being led by our AHPs.

Similarly, our commitment to education was evident in the third run of the Fundamentals of Clinical Research, where 25 per cent of the course was led by AHPs. Targeted at budding clinicians on the clinician-reSEARCHER track, this course aims to build their capabilities in basic and advanced clinical research.

Two educators from the Department of Medical Social Services, SGH, Ms Esther Lim, Head, and Mr Ow-Yong Lai Meng, Principal Medical Social Worker, won the Outstanding Creative Educator and Outstanding Young Educator Awards respectively at the SingHealth Duke-NUS Golden Apple Awards 2012. For enhancing the quality of teaching and...
Our collaborative partners from LSBU, Dr Michelle Spruce (left) and Prof Mary Lovegrove (right), together with Mr Michael Wilding, Head, Department of Podiatry, SGH.

learning through innovative means, educators from the Department of Physiotherapy, in collaboration with SingHealth Academy, won the Programme Innovation Award in the Allied Health category.

LEARNING WITHOUT BOUNDARIES
SGH-PGAHI continued to build strategic partnerships with reputable institutions to offer AHPs greater opportunities to advance their knowledge and skills.

In March 2012, SGH-PGAHI signed an MOU with the University of Illinois, Chicago, which led to a Medication Therapy Management Workshop and a Faculty Development Workshop.

Another MOU with London South Bank University (LSBU) led to the establishment of the Bachelor of Science (Honours) in Radiographic Studies, with its first student intake in September 2012. In January 2013, Dr Michelle Spruce, Head, Department of Allied Health Sciences, LSBU, conducted a Podiatry workshop on ‘Stopping a Limb Being Lost Every 20 Seconds to Diabetes: The Podiatry Challenge’, which highlighted the key challenges faced in Singapore in reducing amputation rates and facilitating effective care pathways.

PARTNERS IN EDUCATION
In addition to ongoing strategic partnerships with international and regional healthcare providers, SGH-PGAHI also organised various joint programmes with KKH and SGH to enhance the learning experience for AHPs. For instance, a Physical Therapy (PT) workshop – Cardiopulmonary Paediatrics / Neonatal Workshop – was organised with KKH. Three new courses were also developed with the SGH-IMSE.

A collaboration with AM•EI to map pedagogy curricula for educators and course planning for FY 2013 was also developed. SGH-PGAHI and SingHealth Academy will also partner to expand administrative capacity, with the latter providing logistics support for all SGH-PGAHI’s Talent Development Fund courses, Continuing Professional Education, Continuing Professional Development and PT workshops.

COMMUNITY OUTREACH IN INTERMEDIATE AND LONG TERM CARE
SGH-PGAHI continued to engage the community by providing training programmes to elevate the standard of physiotherapy knowledge and the practical skills of AHPs from various institutions and organisations, including Agency for Integrated Care, and foreign-trained AHPs.

For instance, the Advanced Certificate in Physiotherapy, a three-month part-time programme, prepares foreign-trained physiotherapists for Qualifying Examinations conducted by MOH. The programme, conducted by SGH-PGAHI and the Department of Physiotherapy, is in its eighth run and has attracted over 50 participants.

Workshops on Applied Suicide Intervention Skills Training (ASIST) and Essential Counselling Skills conducted by our medical social workers also attracted enthusiastic participation from local community hospitals and nursing homes. Both programmes attracted 108 participants.
Growing the Research Enterprise

At SingHealth, research collaboration is the key to achieving breakthroughs in Medicine. This year, we forged strategic partnerships with local and international organisations and further strengthened existing ones. These partnerships provided the opportunity for the best minds to come together to share their expertise and resources, and work towards a common goal – to find new cures and treatments for patients.

Prof Wong Tien Yin, Deputy Medical Director (Research) and Senior Consultant, Vitreo Retinal Service, Singapore National Eye Centre (SNEC), and Executive Director, Singapore Eye Research Institute (SERI), took on the new role of Group Director (Research) in July 2012. With his strategic vision, the SingHealth and Duke-NUS Joint Research Masterplan for 2012–2016 was rolled out. This masterplan is a significant milestone as it outlines the strategic direction for our partnership to work towards becoming a renowned Academic Healthcare Cluster.

Source: The Sunday Times © Singapore Press Holdings Limited. Reproduced with permission

Prof Wong Tien Yin took on the role of SingHealth Group Research Director in July 2012.
The Masterplan is founded on four key thrusts:
- Develop research focus areas into world-leading programmes
- Identify, develop and retain clinician scientists
- Strengthen collaborations with national and international partners
- Streamline and integrate research support and enabling services

The six research focus areas identified are cancer; neurosciences; cardio-metabolic diseases; eye diseases; infectious diseases, inflammation and immunology; and health services research. With a common goal in mind, our clinician scientists, scientists and research teams will continue to work with our partners to translate discoveries into treatments for patients.

“These are areas of strength where we can compete internationally, but it’s the first time we’re putting everyone together to do so,” remarked Prof Wong.

The SingHealth and Duke-NUS Masterplan is a significant milestone as it outlines the strategic direction for our partnership to work towards becoming a renowned Academic Healthcare Cluster.

**OUR MOVERS AND SHAKERS IN RESEARCH**

This year, our researchers continued to receive many national and international accolades for their significant contributions to research.

Prof Pierce Chow, Senior Consultant, Department of General Surgery, Singapore General Hospital (SGH) won the National Outstanding Clinician Scientist Award at the National Medical Excellence Awards 2012 for his outstanding contributions to clinical and translational research in liver cancer and improving the care and management of patients in Singapore and the Asia Pacific region.

At the National Medical Research Council (NMRC) Awards in 2012, Prof Stuart Cook, Distinguished Clinician Scientist and Senior Consultant, Department of Cardiology, National Heart Centre Singapore (NHCS), was awarded the prestigious Singapore Translational Research (STaR) Investigator Award to help him further his research on genetics of cardiovascular disease.

Dr Ling Khoon Lin, Head and Senior Consultant, Department of Gastroenterology and Hepatology, SGH; Asst Prof Mohammad Kamran Ikram, Clinician Scientist, SERI; Assoc Prof Darren Lim, Senior Consultant, Department of Medical Oncology, National Cancer Centre Singapore (NCCS) and Asst Prof Narayanan Gopalakrishna Iyer, Senior Consultant, Department of Surgical Oncology, NCCS, were each conferred the Clinician Scientist Award (CSA). This award supports them in carrying out internationally competitive and impactful translational and clinical research in their respective fields of expertise.

Budding clinician scientists Asst Prof Chong Tsung Wen, Senior Consultant, Department of Urology, SGH; Asst Prof Leung Ying Ying, Consultant, Department of Rheumatology & Immunology, SGH; Asst Prof Charumathi Sabanayagam, Clinician Scientist, SERI; Asst Prof Nobuyo Yawata, Clinician Scientist, SERI and Dr Andrea Low, Senior Consultant, Department of Rheumatology & Immunology, SGH, clinched the Transition Awards (TA) at the NMRC Awards.

Bringing another proud moment for us, Dr Gemmy Cheung, Consultant, Vitreo-Retinal, SNEC, became the first Asian to receive the Bayer HealthCare Global Ophthalmology Award for her research on age-related macular degeneration.

To assist CSA and TA applicants to improve the quality of their research proposals, SingHealth Office of Research (OoR) implemented a grant ‘Pre-Review’ process in late FY 2012. This initiative has yielded improvements in the success rate of application and has been made compulsory for all researchers who apply for CSA and TA grants.

Asst Prof Chong Tsung Wen, Senior Consultant, Department of Urology, SGH; Asst Prof Leung Ying Ying, Consultant, Department of Rheumatology & Immunology, SGH; Asst Prof Charumathi Sabanayagam, Clinician Scientist, SERI; Asst Prof Nobuyo Yawata, Clinician Scientist, SERI and Dr Andrea Low, Senior Consultant, Department of Rheumatology & Immunology, SGH, clinched the Transition Awards (TA) at the NMRC Awards.

Bringing another proud moment for us, Dr Gemmy Cheung, Consultant, Vitreo-Retinal, SNEC, became the first Asian to receive the Bayer HealthCare Global Ophthalmology Award for her research on age-related macular degeneration.

To assist CSA and TA applicants to improve the quality of their research proposals, SingHealth Office of Research (OoR) implemented a grant ‘Pre-Review’ process in late FY 2012. This initiative has yielded improvements in the success rate of application and has been made compulsory for all researchers who apply for CSA and TA grants.
The annual SingHealth Publish! Award recognises the achievements of our researchers who have published quality research articles in internationally acclaimed and peer-reviewed scientific or medical journals.

**RECOGNISING ACHIEVEMENTS OF OUR RESEARCHERS**

The annual SingHealth Publish! Award recognises the achievements of our researchers who have published quality research articles in internationally acclaimed and peer-reviewed scientific or medical journals. Awards are given out in two categories – Outstanding and Medical Research. A total of nine awards were given out to researchers from the various institutions.

Developed jointly by SingHealth OoR and SingHealth Corporate HR, three new categories of SingHealth Excellence Awards and GCEO Excellence Awards were also created to recognise outstanding researchers.

**SingHealth Excellence Awards:**

- **Distinguished Researcher**
  Assoc Prof Jerry Chan, Director, KK Research Centre; Consultant, Department of Reproductive Medicine, KK Women’s and Children’s Hospital (KKH)

- **Distinguished Young Researcher**
  Dr Iain Tan, Associate Consultant, Department of Medical Oncology, NCCS

**GCEO Excellence Awards:**

- **Outstanding Clinician Researcher**
  Asst Prof Charles Chuah, Senior Consultant, Department of Haematology, SGH

- **Outstanding Clinician Researcher (Special Mention)**
  - Assoc Prof Darren Lim
  - Dr Gemmy Cheung
  - Assoc Prof Christopher Ang, Senior Consultant, Department of Neurosurgery, NNI

Publish! Award 2012 recipients with Prof Soo Khee Chee (centre).
These new hires will further our research endeavours which means better outcomes for patients who will receive quality care that is evidence-based and outcome-driven.

**TOP TALENTS IN OUR MIDST**
As we continue to build our reputation in research regionally and internationally, we have been attracting top talents to our shores. Internationally renowned researchers who joined the SingHealth family include Prof Stuart Cook, Prof Ecosse Lamoureux, Head, Health Service Research Group, Data Management and Population Health Platforms, SERI and Deputy Executive Director, AMRI, as well as Prof Salvatore Albani, Director, SingHealth Translational Immunology & Inflammation Centre. These new hires will further our research endeavours which means better outcomes for patients who will receive quality care that is evidence-based and outcome-driven.

**MULTI-MILLION DOLLAR BOOST FOR RESEARCH**
Our institutions’ research efforts have been successful in securing a number of highly competitive national grants from NMRC. In FY 2012, SingHealth secured a total of S$80 million in grants. Further to that, NCCS received S$9 million funding for its research on non-small cell lung cancer under a new category of Translational and Clinical Research (TCR) flagship programme. SERI’s research on eye surgery and improved drug delivery methods also deserves special mention as the team received a second consecutive S$25 million TCR flagship programme grant. OoR also secured S$16 million from MOH to finance the fitting out of levels 11 to 13 of the Discovery Tower at Academia.
A SingHealth-Duke-NUS Collaborative Fund was set up to nurture a culture of collaboration between researchers at SingHealth and Duke-NUS.

**Growing Support for Collaboration**
A Biomedical Research Council Translational Clinical Research Partnership (BMRC TCRP) grant was launched in June 2012 to encourage more research collaborations between SingHealth and Duke-NUS Graduate Medical School Singapore (Duke-NUS). In addition, a SingHealth-Duke-NUS Collaborative Fund was also set up, with grant application to open in FY 2013. It aims to nurture a culture of collaboration between researchers at SingHealth and Duke-NUS, to further deepen our collaborative spirit.

**Strength Through Collaboration**
Research collaborations between SingHealth and Duke-NUS clinician scientists and researchers saw encouraging outcomes in FY 2012, making headlines for several groundbreaking discoveries. Our efforts in setting up partnerships with key national and international industry players are also bearing fruit.

**Collaboration with Pharmaceutical and Industry Players**
Set up in FY 2011, the Translational Medicine Hub, a collaboration between SingHealth and Roche, has since completed several projects on Avastin and next-generation antibodies, with eight other on-going collaborations involving various SingHealth institutions including NCCS, SGH and SERI.

SingHealth researchers at NCCS and SGH are also working with Sirtex Medical Ltd, an Australian pharmaceutical company, to explore the potential of Carbon Cage Nanoparticles, which can specifically attack cancer cells. The research will focus on the technology’s use in the treatment of abdominal cancers, starting with advanced ovarian cancer.

Several SingHealth institutions were also successful in securing commercial funding through research collaborations. Assoc Prof Huynh The Hung, Head, Laboratory of Molecular Endocrinology, NCCS; Dr Thng Choon Hua, Deputy Head and Senior Consultant, Department of Oncologic Imaging, NCCS, and Dr Sidney Yu, Senior Principal Research Scientist, Department of Nuclear Medicine & PET, SGH, collectively secured a total of S$3.7 million, while Prof Kenneth Kwek, CEO; Senior Consultant, Peripartum Unit, Department of Maternal Fetal Medicine, KKH, and Dr Suzanna Binte Sulaiman, Consultant, Department of Obstetrics & Gynaecology, KKH, secured a total of S$4.1 million for their research. Dr Tan Ju Le, Senior Consultant, Department of Cardiology, NHCS, also received S$1.1 million in commercial research funding.
A Tight Collaboration To Fight Lymphoma

frequently collaborates with the Advanced Molecular Pathology Laboratory (AMPL@SingHealth).

At AMPL@SingHealth, the Singapore Lymphoma Study Group constructed tissue microarrays and discovered the biomarker MATK (megakaryocyte associated tyrosine kinase) to be highly expressed in Type II EATL.

Earlier data on Type II EATL was fragmentary and incomplete, but with this biomarker, researchers can now identify more examples of this cancer. “This is still a rare cancer, though it is more common in Asia. How could we hope to do a large study to understand the disease given that Singapore only has a population of 5.5 million? The solution is international collaboration,” said Assoc Prof Tan.

In a multi-national study with the largest series of Type II EATLs to date, the group identified more cases through a network of pathologists in the region, collecting 60 cases from 10 centres across Asia and Australia. The discovery was promptly published in the prestigious journal *Leukemia*.

This discovery will pave the way for a potential cure for this deadly cancer of the immune cells. Assoc Prof Lim Soon Thye, Head and Senior Consultant, Department of Medical Oncology, NCCS, said: “With proper identification of the disease, doctors can get an accurate diagnosis fast, decide on a uniform treatment and identify new drugs.”

The Singapore Lymphoma Study Group also includes members from Duke-NUS, National University Health System, and the Genome Institute of Singapore. Its key founding members include Prof Teh Bin Tean, Professor, NCCS and Duke-NUS, Assoc Prof Goh Yeow Tee, Senior Consultant, Department of Haematology, SGH, Assoc Prof Lim and Assoc Prof Tan.

Over the past three years, the Singapore Lymphoma Study Group has been studying a neoplasm of natural killer cells known as NK/T cell lymphoma. Following a breakthrough in the identification of a novel gene mutation, JAK3, in 2011, the team made yet another remarkable discovery of a novel biomarker for a rare type of lymphoma in FY 2012.

Epitheliotropic Intestinal T-cell Lymphoma (Type II EATL) is a relatively new type of intestinal lymphoma that, until now, has been poorly described, though it carries a dismal prognosis for which effective treatment is still unknown.

Assoc Prof Tan Soo Yong, Senior Consultant, Department of Pathology, SGH, and Director, SingHealth Tissue Repository, said: “Given its rarity and the fact that it did not make its appearance in the WHO Classification of hematolymphoid neoplasms until 2008, cases were usually misclassified as other types of lymphoma.” Assoc Prof Tan is also a Senior Principal Investigator with the Institute of Molecular and Cell Biology (IMCB) at the Agency for Science, Technology and Research (A*STAR), which

Over the past three years, the Singapore Lymphoma Study Group has been studying a neoplasm of natural killer cells known as NK/T cell lymphoma. Following a breakthrough in the identification of a novel gene mutation, JAK3, in 2011, the team made yet another remarkable discovery of a novel biomarker for a rare type of lymphoma in FY 2012.

Epitheliotropic Intestinal T-cell Lymphoma (Type II EATL) is a relatively new type of intestinal lymphoma that, until now, has been poorly described, though it carries a dismal prognosis for which effective treatment is still unknown.

Assoc Prof Tan Soo Yong, Senior Consultant, Department of Pathology, SGH, and Director, SingHealth Tissue Repository, said: “Given its rarity and the fact that it did not make its appearance in the WHO Classification of hematolymphoid neoplasms until 2008, cases were usually misclassified as other types of lymphoma.” Assoc Prof Tan is also a Senior Principal Investigator with the Institute of Molecular and Cell Biology (IMCB) at the Agency for Science, Technology and Research (A*STAR), which...
Bringing Hope for the Treatment of Dengue Fever

Globally, millions of people are at risk of dengue, which causes significant morbidity and can even result in death, particularly in the very young and very old. Due to the complex nature of this acute illness, we still do not have a safe vaccine to prevent infection by the dengue virus. In a step toward developing antiviral drugs to cure dengue infection, a team of researchers came together to determine the viability of an antiviral medicine that can potentially reduce the severity of disease and the transmission of the virus.

In July 2012, researchers from SGH and the Emerging Infectious Diseases Program at Duke-NUS started the first dengue antiviral drug trial using Celgosivir, a new medicine derived from the seeds of the Moreton Bay Chestnut tree. They assessed its potential to reduce fever duration, the amount of virus in the body and pain suffered for patients who receive the treatment early.

“Despite the active control measures taken in Singapore, we are still vulnerable to dengue due to many factors, ranging from the behavioural characteristics of the mosquito vector, the genetic variations in the virus to the immune status of the human host. Even the most advanced vaccine has experienced setbacks because of an inability to protect against all four serotypes of dengue virus,” said Prof Subhash Vasudevan, Emerging Infectious Diseases Program, Duke-NUS.

Prof Vasudevan, the study director of the CELADEN (CELgosivir as a treatment Against DENgue) trial, led the team to carry out the clinical trial based on data obtained from laboratory studies using infected cells and a mouse model for dengue infection.

“Clinical trials are absolutely crucial to the research of dengue since we do not anticipate an effective vaccine to be available any time soon. Without an effective vaccine, the next best step will be to look for potential antiviral drugs that may help to cure dengue infection or reduce the complications that arise from it,” said Dr Jenny Low, Senior Consultant, Department of Infectious Diseases, SGH, who is also principal investigator of the trial.

This first infectious disease clinical trial conducted at the SingHealth Investigational Medicine Unit (IMU) saw the team rise to great challenges. “The clinical research coordinators and nurses at SingHealth IMU were extremely committed, and we worked fantastically well as a team to ensure the trial was carried out smoothly,” said Dr Low.

Sharing on other challenges they faced during the trial, Dr Low added: “The recruitment of patients was a challenge as we had a very short window of opportunity to screen and enroll patients due to the stringent inclusion criteria. Patients had to be enrolled within 48 hours of fever. The General Practitioners’ network and partnership were critical for the success of the trial.”

Notably, SingHealth and Duke-NUS’ partnership was key to the success of the clinical trial. The partnership offered the proximity and ability to deal with problems as they arose, as all parties involved shared a common goal to translate research from bench to bedside.

The clinical trial concluded in mid-2013 and the data and laboratory findings are being processed and published in a peer-reviewed journal. A pharmaceutical company in the US has already shown interest in the results and commissioned an external audit of the CELADEN trial that has been concluded successfully.

“With this kind of interest in dengue antiviral drugs, it is conceivable that new dengue medicines may be available for patients in the next five years,” said Prof Vasudevan. The CELADEN team is exploring plans to further examine the role of the drug against dengue in a targeted trial with more patients.
POLARIS aims to build a national framework for next-generation disease management through personalised ‘omic’ profiling, which has the potential to change how certain diseases are diagnosed, managed and treated in the future.

A Strong Research Base
The SingHealth Experimental Medicine Centre and the National University Health System were jointly awarded a S$10 million NMRC infrastructure grant for the development of the National Large Animal Research Facility (NLARF).

The NLARF will be located at the Sembawang Animal Facility, and will work under a joint governance board. It has attracted a great deal of interest from academic institutions looking to be involved in its development.

Leap Forward in Personalised Medicine
To realise the potential of personalised medicine, SGH, NCCS and SNEC partnered A*STAR’s Genome Institute of Singapore (GIS) and Bioprocessing Technology Institute to work on a nationwide initiative – the Personalised ‘OMIC’ Lattice for Advanced Research and Improving Stratification (POLARIS). It aims to build a national framework for next-generation disease management through personalised ‘omic’ profiling, which has the potential to change how certain diseases are diagnosed, managed and treated in the future.

Led by Prof Patrick Tan, GIS, the programme will identify new biomarkers and technologies that can predict patient response and disease progress. Assoc Prof Tony Lim, Senior Consultant, Department of Pathology, SGH, is the programme lead for POLARIS at SingHealth. The POLARIS team will work with leading clinicians in public healthcare institutes, including SGH, NCCS and SNEC, to modify existing clinical care methods and refine stratified healthcare delivery approaches for oncology, eye disease, and other chronic diseases.

“With this new knowledge, we can drive the development of drugs that have greater benefits for our patients,” said Prof Soo Khee Chee, DGCEO, Education & Research, SingHealth, and Director, NCCS.

Integrating Seamless Tissue Services
The Advanced Molecular Pathology Laboratory (AMPL) is a collaboration between the Institute of Molecular and Cell Biology (IMCB) and SingHealth to establish a platform for tissue-based research services. AMPL comprises two integrated arms – AMPL@SingHealth provides research support for human tissue-based services, and AMPL@Biopolis specialises in animal research services.

Both AMPL units are managed independently, but are scientifically integrated under the leadership of Assoc Prof Tan Soo Yong. This enables greater strategic collaboration between A*STAR and SingHealth, offering a complete pipeline of research support from biomarker discovery to drug testing for researchers and industry partners.
People: Our Most Valuable Asset

The robust healthcare system we have established today is a result of a collective effort by our people. The commitment to make a difference to the lives of patients is what sets us apart from other healthcare institutions. For this reason, we nurture generations of healthcare professionals and groom forerunners through talent development programmes and initiatives, with the sole objective of improving patient care.

Passion to Develop Our People

An organisation is only as good as its people, and at SingHealth, we spare no effort to bring out the best in our staff; grooming talents, developing leaders, and inspiring visionaries to lead us to greater heights in the realm of healthcare.

Mr Moses Wong Seow Hiong, Chief Financial Officer, Singapore National Eye Centre, was a participant in the first Organisational Leadership Programme introduced in 2012.
Our People

SOME LEADERS ARE BORN, SOME ARE MADE

Leadership development lies very much in providing staff with the proper platforms and tools to realise their true potential. Since FY 2011, we have put in place a succession planning process to ensure a sustainable pipeline of competent and committed leaders who are ready to fulfill their leadership roles and responsibilities. This system continues to proactively and systematically identify, develop, and engage SingHealth talents for key leadership positions.

THE ART OF GROOMING TALENT

Comprising three core leadership programmes, the SingHealth Leadership Competency Model (LCM) was developed to meet different levels of leadership requirements – namely, Self Leadership, Team Leadership and Organisational Leadership. To date, some 400 staff have participated in the programmes.

As part of SingHealth’s annual succession planning and talent development exercise, 31 SingHealth leaders from across the healthcare professions including clinicians, nurses, allied health professionals (AHPs), and administrators were appointed to participate in various executive education programmes. One of which is the acclaimed Singapore Management University Executive MBA, a nine-week programme specially designed for global senior leaders who have keen interest in business innovation and growth.

Active communication and engagement between senior management and staff have been a cornerstone of our efforts to nurture our talents. Four SingHealth Board Director Dialogue Sessions held in FY 2012 enabled meaningful interaction, building rapport with staff from across SingHealth institutions, and creating a platform for inter-institutional collaborations.

Comprising three core leadership programmes, the SingHealth Leadership Competency Model (LCM) was developed to meet different levels of leadership requirements – namely, Self Leadership, Team Leadership and Organisational Leadership.
SINGHEALTH’S RISING STARS

The annual SingHealth Health Manpower Development Plan (HMDP) and Talent Development Fund (TDF) Awards Ceremony is a dedicated platform to honour healthcare professionals who have made outstanding contributions and achievements in their respective fields. A total of 120 HMDP awards, including 17 team-based awards, were presented at the award ceremony held in March 2013. Ninety-three professionals were also presented with scholarship awards under the TDF Programme. The HMDP and TDF awards enable staff to advance their professional knowledge and enhance their skills through training at both local and internationally renowned medical institutions.

HMDP, in particular, aims to develop our national and cluster’s health manpower capabilities and seeks to improve the quality and range of available health services. The TDF Programme, underscoring SingHealth’s strategic focus on Leadership and Organisation Development, Education, Research, and Service, is developed to build the capabilities of SingHealth staff to support our pursuit of Academic Medicine.

EXAMINE, EVALUATE, REVIEW

As part of the Ministry of Health’s Healthcare 2020 Masterplan to grow and retain public healthcare professionals, extensive salary reviews for medical and dental specialists, nurses, AHPs, pharmacists, as well as administrative and ancillary staff across all public healthcare clusters, were conducted in 2012. Nurses, AHPs, and pharmacists were granted a one-time salary adjustment in April 2012, while administrative and ancillary staff received theirs in September 2012. The revised compensation framework for doctors and dentists will be rolled out in phases by April 2014. These concerted salary review efforts have led in part to a higher staff retention rate, with staff resignation rates seeing a decline in FY 2012 over the previous two years.

Individual and team award recipients with SingHealth leaders at the HMDP and TDF Awards Ceremony 2013.
People Excellence

Recognising our best and brightest is part of the SingHealth culture. Their commitment to excellence brings about positive transformation in healthcare – they play a catalytic role in building a vibrant work culture and kindle our desire to constantly better ourselves. There is truly a goldmine of talent within our community to tap on.

A GLITTERING GRADUATION
Held in May 2012, the SingHealth Graduation Awards recognised outstanding students from the Duke-NUS graduating cohort. The awards were presented in recognition of their academic excellence and high standards of clerkship during their postings at SingHealth. This year’s awards saw Mr Ignasius Aditya Jappar being conferred the SingHealth Top Student Gold Medal; Ms Ong Shin Yeu, the SingHealth Seah Cheng Siang Gold Medal in Medicine; and Ms Tan Pei Ling, the SingHealth David Sabiston Gold Medal in Surgery.

CELEBRATING OUR PEOPLE
At the SingHealth Excellence Awards 2013, more than 250 staff and guests came together to celebrate the outstanding achievements of our staff. This year’s Visionary Leader Award was presented to Prof Ang Chong Lye, Deputy Group Chief Executive Officer, Clinical Services & Informatics, SingHealth, and Chief Executive Officer, Singapore General Hospital (SGH), while the People Leader Award went to Dr Tracy Carol Ayre, Group Director, Nursing, SingHealth, and Director, Nursing, SGH. Mr Tan Jack Thian, Group Chief Operating and Procurement Officer, SingHealth, and Chief Operating Officer, KK Women’s and Children’s Hospital (KKH), received the Champion of Change Leader Award. The Golden Achievement Award was presented to Prof Tan Cheng Lim, Emeritus Consultant, Haematology/Oncology Service, Department of Paediatric Subspecialties, KKH. The GCEO Excellence Awards, which acknowledge staff’s exemplary contributions and performance, were presented to 40 deserving staff from across all SingHealth institutions.
The roots of nursing mentorship can be traced to Florence Nightingale, the founder of modern nursing who established the first training school for nurses, the Nightingale Training School at St Thomas’ Hospital, in the 19th century. Nightingale’s commitment to improving public health and passion for teaching has inspired many generations of nurses. This same spirit of sharing and dedication to building a medical talent pool for improved patient care can be seen in our very own nursing leaders, as exemplified by the remarkable work done by Assoc Prof Lim Swee Hia and Dr Tracy Carol Ayre.

Over the last three decades of her nursing career, Assoc Prof Lim Swee Hia, Director, Special Projects, SGH, has made a profound impact in many areas, most notably with her role in establishing the SingHealth Alice Lee Institute of Advanced Nursing. The first institute of Advanced Nursing to be established in a hospital in Singapore, it has gone on to become the first in Asia to be accredited by the American Nurses Credentialing Centre. Assoc Prof Lim was also instrumental in pushing for SGH to become the first hospital in Asia to gain the Magnet® status in 2010, the highest institutional honour for nursing and leadership excellence.

But of all the exceptional strides Assoc Prof Lim has made in her career, the most rewarding has been the opportunity she has had to mentor the next generation of nurses. A champion of nursing education, Assoc Prof Lim has groomed legions of nurses. One of them is Dr Ayre, whose relationship with Assoc Prof Lim has been of great influence on Dr Ayre, especially when the latter took the helm as SingHealth Group Director of Nursing in March 2013.

Leading a team of nurses with Academic Medicine at its core, Dr Ayre, who is also Director of Nursing at SGH, firmly believes that high standards of mentorship will raise the competencies of our nurses and, in turn, the level of care for patients. “Mentoring is a means of growing our people so that they can do even better than us. It allows our nurses to grow not only in their clinical skills and acumen, but also to grow emotionally to cope with the demands faced on a day-to-day basis,” she said.

Assoc Prof Lim added: “Mentoring provides both parties with opportunities for professional growth and
career satisfaction. With the predicted shortage and anticipated need for nurses in the future, it is more important than ever for nurses to explore career satisfaction and empowerment, not just job satisfaction alone.”

Indeed, the nursing profession has evolved significantly over the years, from caring for patients to transforming and advancing healthcare delivery through teaching and research. The field is growing, and so are opportunities for nurses to broaden and deepen their expertise in their respective areas of work, leading to future health improvements for patients. It is therefore imperative for nurses to both keep abreast of the latest developments as well as learn from others’ experiences to grow professionally and further standards of nursing practice.

Having benefited from SingHealth’s strong mentoring culture, Assoc Prof Lim cites Ms Rosalind Liew, a retired lecturer from the former School of Nursing, and Mr Bernard Su, the former Director of Nursing of SGH as mentors who have shaped her own keenness for mentorship – a reciprocal, long-term relationship that opens up sharing, role development, and support.

Assoc Prof Lim’s approachable disposition and eye for detail are the traits that Dr Ayre admired in her mentor during the course of their work together. Carrying with her Assoc Prof Lim’s advice to be humble, Dr Ayre looks forward to grooming the next generation of nurses, believing that “a well-mentored nurse will be able to pay it forward by in turn mentoring new nurses well”.

In the journey towards Academic Medicine, SingHealth nurses have demonstrated great commitment to care improvement, seeking opportunities for more effective collaborations to improve care delivery. Dr Ayre looks to keep the strong tradition of mentorship going as she is confident that it is will be vital in retaining as well as growing new nursing talents in future.

In the photo: Dr Tracy Carol Ayre (left) and Assoc Prof Lim Swee Hia (right)
MAKING A DIFFERENCE

The National Medical Excellence Awards (NMEA) is a national award conferred by the Ministry of Health in recognition of the exemplary contributions of clinicians, clinician scientists and other healthcare professionals in their clinical, education and research work.

Prof Pierce Chow, Senior Consultant, Department of General Surgery, SGH, received the National Outstanding Clinician Scientist Award for his exceptional contributions in clinical and translational research in hepatocellular carcinoma. In particular, the Asia-Pacific Hepatocellular Carcinoma (AHCC) trials group, which he co-founded in 1997, propelled Singapore and Prof Chow as one of the key opinion leaders in HCC internationally. With more than 160 peer-reviewed publications to his name, Prof Chow’s research has been significant in improving the lives of patients battling this particular form of liver cancer.

For his outstanding contributions as a clinician, mentor and researcher in developing the field of Maternal Fetal Medicine in Singapore, Prof George Yeo, Head and Senior Consultant, Department of Maternal Fetal Medicine, KKH, was conferred the National Outstanding Clinician Mentor Award. For Prof Yeo, the outcomes he sees in the younger generation of doctors are well worth his mentorship and teaching efforts. “The standard of clinical practice is what makes a good clinician, and education is the only assurance of sustainable standards of clinical practice. The future leadership and cultural ethos of our healthcare providers also depend on education,” said Prof Yeo.

“The standard of clinical practice is what makes a good clinician, and education is the only assurance of sustainable standards of clinical practice. The future leadership and cultural ethos of our healthcare providers also depend on education.”

Prof George Yeo
Best Junior Doctors Award recipients and SingHealth leaders coming together for a fun group shot at the award ceremony.

Winner of the Singapore Health Quality Service Awards 2013 Superstar Award (Administration Category), Ms Samantha Ong is an inspiring service champion who goes to extraordinary lengths to provide excellent, compassionate care for patients.

As Assistant Manager of the Department of Service Quality at KKH, Ms Ong is often called upon during challenging situations. Helpful and knowledgeable, she is always cheerful and ever ready to lend a hand or listening ear to colleagues and patients in need.

Ms Ong’s motto is ‘always give people more than what they expect to get’. Leading by example, she has a keen eye for service improvement opportunities and takes difficulties in her stride. Her commitment to putting patients and their families at the heart of all she does won her a KKH Service From The Heart Award in 2011.

Even when off-duty, Ms Ong goes out of her way to help patients, displaying a kindness that is second nature to her. On one occasion, she had stayed late at the hospital and was just leaving when she encountered a pregnant lady bleeding profusely and in distress. Ms Ong immediately found her a wheelchair and rushed her to receive emergency treatment. She did not leave the patient’s side until the patient’s husband arrived later that evening. Ms Ong even returned the following day to pay a visit.

“As hospital staff, the people we see are either unwell, or those whose loved ones are sick. They need our help and support during this difficult period,” Ms Ong said.

“Patients and their caregivers appreciate our efforts, and that makes the job worthwhile. Always put yourself in your patients’ shoes and you will be able to serve them from your heart,” she added.

RECOGNISING OUR JUNIOR DOCTORS
Held in October 2012, the 6th Best SingHealth Junior Doctors Award Ceremony honored 48 junior doctors for their achievements and contributions to the healthcare industry. Four scholarships were also awarded to the third batch of medical students from Duke-NUS Graduate Medical School Singapore (Duke-NUS) and NUS Yong Loo Lin School of Medicine.
HALL OF FAME

From across the continuum of healthcare services that we provide, our healthcare professionals exemplify the medical profession’s highest values: commitment to service, dedication to patient care, outstanding leadership and active community involvement. We honour these values and those who demonstrate them.
NATIONAL MEDICAL EXCELLENCE AWARDS

National Outstanding Clinician Scientist Award
Prof Pierce Chow
Senior Consultant
Department of General Surgery, SGH

National Outstanding Clinician Mentor Award
Prof George Yeo
Head and Senior Consultant
Department of Maternal Fetal Medicine, KKH

NATIONAL MEDICAL RESEARCH COUNCIL AWARDS

STaR Investigator Award
Prof Stuart Alexander Cook
Distinguished Clinician Scientist and Senior Consultant
Department of Cardiology, NHCS

Clinician Scientist Award
Assoc Prof Darren Lim
Senior Consultant
Department of Medical Oncology, NCCS
Asst Prof Narayanan Gopalakrishna Iyer
Senior Consultant
Department of Surgical Oncology, NCCS
Dr Ling Khoon Lin
Senior Consultant
Department of Gastroenterology & Hepatology, SGH
Asst Prof Mohammad Kamran Ikram
Clinician Scientist, SERI

Transition Award
Dr Andrea Low
Senior Consultant
Department of Rheumatology & Immunology, SGH
Asst Prof Nobuyo Yawata
Clinician Scientist, SERI
Asst Prof Charumathi Sabanayagam
Clinician Scientist, SERI
Asst Prof Chong Tsung Wen
Senior Consultant
Department of Urology, SGH
Asst Prof Leung Ying Ying
Consultant
Department of Rheumatology & Immunology, SGH

PRESIDENT’S AWARD FOR NURSES

Ms Lian Siew Bee
Assistant Director
Nursing (Advanced Practice Nurse) SGH
Ms Teresa Ng Ruey Pyng
Senior Nurse Clinician
Breast Department, KKH

OUTSTANDING SOCIAL WORKER AWARD

Ms Esther Lim
Head
Medical Social Services, SGH

PROFESSIONAL LEADERSHIP APPOINTMENT

Prof Donald Tan
Medical Director and Senior Consultant
Cornea Service & External Eye Disease, SNEC
– the first non-American to be appointed Head of Cornea Society
As Singapore’s largest Academic Healthcare Cluster, we continue to push boundaries and seek new discoveries and care innovations to improve patient outcomes and cures. Beyond clinical services, SingHealth actively reaches out to the community through various initiatives and programmes in a bid to promote health excellence and empower individuals to take greater ownership of their health.

SingHealth Humanitarian Relief Programme

Drawing on the strengths of staff from across our hospitals, national specialty centres and polyclinics, the SingHealth Humanitarian Relief Programme (SHRP) maintains a ready pool of healthcare volunteers that relief organisations can tap on during humanitarian crises.

As of FY 2012, SHRP has more than 100 volunteers ready for deployment to provide vital medical aid and recovery support in the event of crisis. Initiated by the Ministry of Health and the Ministry of Foreign Affairs, a Hajj Medical Standby Team was formed to provide welfare and healthcare services to Singaporean pilgrims during the Haj period from 5 to 31 October 2012. Ms Rohani Abdul Ghani, Deputy Director, Nursing Administration, SingHealth Polyclinics, and Ms Jamilah Binti Mingan, Senior Staff Nurse, Operating Theatres, Singapore General Hospital, were two SingHealth staff who volunteered their services for this special mission.

The SingHealth Humanitarian Relief Programme maintains a ready pool of healthcare volunteers that relief organisations can tap on during humanitarian crises.
President’s Challenge

Since 2004, SingHealth has been a firm supporter of President’s Challenge (PC), initiating various fundraising and community outreach programmes to reach out to the less fortunate in our society.

On 14 October 2012, more than 1,000 SingHealth staff, healthcare partners, children from Life Community Services Society, and residents of Punggol and Sengkang gathered at Punggol Waterway to celebrate the finale of the SingHealth PC 2012 fundraising campaign. The event was the culmination of many months of intense but highly rewarding fundraising and community outreach. A record sum of S$388,000 was raised for SingHealth PC 2012, the highest amount in nine years since we first participated in PC.

Above: Led by Prof Christopher Cheng, Pro-Tem CEO, Sengkang Health, SingHealth leaders as well as staff cheered in unison as they embarked on the cycling challenge.
Below: SingHealth leaders proudly presenting the cheque to President Tony Tan.
SingHealth GCEO, Prof Ivy Ng presented the cheque to President Tony Tan at the finale event titled ‘Symphony for Health’.

To reach out to the community where the new Sengkang General and Community Hospitals will be built, the event was held against the backdrop of Punggol Waterway. Amongst the participants were residents from the Sengkang neighbourhood and members from the three beneficiaries in the Northeast – Life Community Services Society, Bright Vision Hospital and St John’s Home for Elderly Persons.

S$388,000

The record sum that was raised for SingHealth President’s Challenge 2012.
Promoting Health Education and Literacy

**SingHealth has various platforms in place to raise health literacy and help patients make better decisions about their health and medical care.**

**MAKING THE WAIT MORE PLEASANT**
A community project launched in 2010, SingHealth Wellness TV provides patients with healthcare-related content on over 200 TV screens across main patient waiting areas, while they wait for appointments and treatment. The programmes include a wide variety of health education videos featuring our doctors, nurses and allied health professionals. The content is specifically customised to the needs of Singaporeans and the Asian community. For a richer viewing experience, SingHealth Wellness TV also carries hourly news, general lifestyle, as well as entertainment programmes.

To effectively reach out to the wider community, these videos are also accessible on YouTube, where they have gathered about 350,000 views to date. In FY 2012, the network was also extended to 12 General Practitioner (GP) clinics.

**THE SINGHEALTH HANDY HEALTH GUIDE**
The SingHealth Healthy Living Booklet Series was introduced to raise awareness of common health concerns. With contributions by SingHealth doctors and healthcare professionals, each booklet carries information on causes, symptoms, preventive tips and treatment options on specific health topics. To date, the series consist of seven booklets relating to the Eye, Heart, Bones and Joints, Urology, Ear, Nose and Throat (ENT), Cancer, and Sleep Disorders. By providing readers with useful information and advice on healthy living and medical care options, the guides serves to increase health literacy and encourage greater ownership of personal health care.

**ENGAGING GENERAL PHYSICIANS**
Medical News is a newsletter for GPs, carrying relevant information on our specialty services so GPs can better facilitate appropriate referrals to SingHealth institutions.

The publication showcases the expertise of our clinicians through updates on the newest medical treatments and procedures available at our institutions. With its format and content shaped based on feedback from GPs, the publication also keeps GPs updated on the latest happenings at SingHealth, including clinician promotions, appointments, and Continuing Medical Education (CME) programmes.

**AWARD-WINNING HEALTH PUBLICATION**
SingHealth, a bi-monthly publication by SingHealth and SGH was once again recognised for its robust quality content with the second consecutive win of the Magnum Opus Award (Silver) for Best Overall Editorial in FY 2012.

Launched in 2009, SingHealth, with a print run of 50,000 and an estimated readership of 200,000, is the nation’s only bilingual (English and Mandarin) public healthcare newspaper which serves to advance health literacy among Singaporeans.

**Over 200**
The number of TV screens across our main patient waiting areas for patients to view SingHealth Wellness TV programmes.
Here is a wonderful role model that every aspiring medical student or self-respecting doctor should learn from ... Dr Mitra, you are truly a great doctor, not just in name, but in deed. Thank you very much for healing my arm and beyond that, returning my life, career, and the opportunity to pursue a brighter future.”

Ms Sherry Ng, patient of Dr Mitra, who helped her recover from her broken arm.

With Dr A K Mitra, Senior Consultant, Department of Orthopaedic Surgery
Patients remain the focus of all our efforts. We optimised the strength of our specialties by setting up one-stop condition-based centres to provide multidisciplinary care. These include the Orthopaedic Sports and Joint Centre, Autoimmunity and Rheumatology Centre, and Centre for Digestive and Liver Diseases.

To elevate the skills of our nurses, we introduced the Resident Nurse Programme together with the SingHealth Alice Lee Institute of Advanced Nursing. These nurses are equipped to do clerking and perform certain procedures traditionally done by doctors.

As part of continual efforts to enhance patient safety, we introduced a new intelligent automated RFID system at our renovated Outpatient Pharmacy. This system for dispensing drugs enhances medication safety and improves operational efficiency.

We rolled out various initiatives to improve services in order to give patients a better experience. These included training staff to be more sensitive to the needs of the elderly, who form the majority of our patients. We also upgraded our facilities to implement more elder-friendly features. Our efforts paid off when the Ministry of Health Patient Satisfaction Survey for 2012 showed Singapore General Hospital (SGH) as most improved among the public acute hospitals.

In July 2013, we started work on three new wards, which will be the prototypes for us to refresh the existing wards. Our Pathology laboratories have also commenced operations from new premises in Academia. These new facilities offer opportunities to improve our processes.

As we progress in our Academic Medicine journey, we see the spirit of innovation and collaboration continues to bear fruit. Clinician scientists from Duke-NUS Graduate Medical School Singapore and SGH are conducting clinical trials on a new drug, Celgosivir, to determine its efficacy as a treatment for dengue fever. Another team from SGH and the National Cancer Centre Singapore has discovered a new type of deadly intestinal lymphoma that is very common in Asia. An SGH-led international study into more targeted treatment for liver cancer, the AHCCO6, has entered a new phase. Conducted in 11 countries, it is the largest collaborative liver cancer trial in the region.

To further enhance the quality of care we provide for our patients, it is necessary to evolve our model of healthcare delivery, to make our care seamless and integrated. We will do this by bringing together the comprehensive range of capabilities within SingHealth, to develop truly patient-centric services.

Prof Ang Chong Lye
CEO, Singapore General Hospital
Deputy Group CEO, Clinical Services & Informatics, SingHealth
Largest Academic Hospital Re-defines Care

Reputed for its medical excellence, Singapore General Hospital (SGH) caters to over one million patient visits every year. Backed by state-of-the-art facilities, it offers team-based quality patient care with more than 29 specialty services. As an academic hospital, advancement in research and medical education is integral to SGH’s commitment to deliver the best care and outcome for our patients.

Patient Care

SEAMLESS CARE DELIVERY FOR OUR PATIENTS

In a step towards improving care delivery, two multidisciplinary centres were opened in March 2013.

The Orthopaedic Sports and Joint Centre is an integrated one-stop, condition-based clinic that provides treatment and therapy for patients with sports injuries and joint conditions. The new centre located at Camden Medical Centre is an extension of our specialist outpatient service which takes a holistic approach in treating patients. Managed by a multidisciplinary team of professionals such as diagnostics radiologists, pharmacists and physiotherapists, the Centre provides seamless care to our patients.

In the same month, SGH’s Department of Rheumatology and Immunology started operation at the Autoimmunity and Rheumatology Centre (ARC), which provides evidence based medical care through a comprehensive range of multidisciplinary clinical services such as physiotherapy and occupational therapy.

Besides delivering quality patient care, ARC is also committed to supporting a robust clinical research environment to bring forth new possibilities for treatment discoveries. Dr Andrea Low, Consultant, Department of Rheumatology and Immunology, said: “The sooner an autoimmune disease is detected and brought to the attention of doctors, the earlier it can be treated and the better we can prevent or reverse some of the organ damage.”

Top: Dr Warren Fong, Registrar, Department of Rheumatology and Immunology, explaining spondyloarthritis to a patient. Bottom: Ms Lin Ying Ying, Occupational Therapist, demonstrating assistive devices for joint protection in daily activities.
A NEW LEASE OF LIFE FOLLOWING DOUBLE TRANSPLANT

The first simultaneous pancreas and kidney transplant in Singapore was successfully carried out in September 2012 by a team of surgeons from SGH and National University Hospital (NUH). Mr Shawn Huang, 29, who suffered from Type-1 diabetes and renal failure, underwent the five-and-a-half hour surgery, which potentially cured his Type-1 diabetes.

“More than 90 per cent of patients who have a pancreas-kidney transplant live for another five years at least, compared to the 38 per cent of those who do not,” said Dr Victor Lee, Consultant, Department of Surgery, and Director, Pancreas Transplant Programme, SingHealth Transplant.

HOPE FOR CANCER PATIENTS WHO WANT BABIES

An ovarian tissue cryopreservation and a breakthrough ovarian orthotopic transplant surgery may now help to preserve ovarian functions before women commence cancer treatment, giving them the option of conceiving and starting a family after treatment and remission.

The procedure, a first in Singapore, was carried out by SGH doctors on a 40-year-old breast cancer survivor. Her ovarian tissues were transplanted back to the natural ovary location three years after she was treated for cancer. After the procedure, the patient’s menstruation resumed, indicating that she was ready for conception again.

“The freezing of ovarian tissue and storage have shown to preserve the functions of the ovary and vitality of egg follicles, even after several years of storage in liquid nitrogen. Doctors should offer this option of preserving and restoring fertility to suitable patients as part of holistic treatment,” said Dr Yu Su Ling, Senior Consultant, Department of Obstetrics & Gynaecology, and Director, Centre for Assisted Reproduction.
Falls are a leading cause of death and disability in Singaporean older adults. Accurate and early prediction of future falls can facilitate management and prevention of falls. SGH’s Physiotherapy Department conducted a series of studies to examine the role of balance and the risk of falling. Through the ingenious use of game consoles, the team is able to measure patients’ standing balance accurately which improves the prediction of future falls.

“The past years have seen investments in developing originally laboratory-based instruments for routine field use. Yet, by most accounts, we remain in the very early stages of these endeavours. Given the impracticality of current proprietary products, we believe that a convenient alternative is to repurpose affordable and commercially-available devices – that is, the Nintendo Wii Balance Board and Microsoft Kinect,” said Dr Pua Yong Hao, Principal Physiotherapist, Department of Physiotherapy.

Dr Pua and his team have published several papers and they serve as proof-of-concept demonstration that it is possible to unlock deep insights from the extensive data streams now available from affordable, commercially available devices – without having to make major new investments in technology. Dr Pua has led a line of research to examine standing balance and functional ability in older adults with knee osteoarthritis or osteoporosis. The Wii Balance Board is one such tool that is used to measure patients’ standing balance accurately. The team has previously used the results from the Wii Board to predict future falls in moderately-frail older adults, and plans are also underway to use it to guide walking aid prescription for patients who have recently undergone a knee replacement surgery.

But this research development would not have been possible without strong collaborations between healthcare professionals and a sports scientist. Indeed, the idea to repurpose the Wii and the Kinect was initiated by Dr Ross Clark, an exercise scientist and sports biomechanist from Australian Catholic University. Ms Ong Peck Hoon, Principal Physiotherapist, Department of Physiotherapy, also brought a wealth of experience in designing and coordinating research projects in a clinical setting.

But greater collaboration is still required. Dr Pua hopes that the idea of using the Wii and the Kinect to assess fall risks will eventually gain traction and attract a multidisciplinary team of biostatisticians, data scientists, public health experts, nurses, biomedical engineers, and gerontologists. “Given that falls in older adults are multifactorial in cause and effects, the standard of research studies can be elevated only when there is greater cross-fertilisation of ideas and expertise,” said Dr Pua.

Although, for now, these gaming devices complement rather than replace conventional assessment tools, they reaffirm our commitment to better patient care through innovation and better use of medical technologies.
The Wonders of Medical Inventions

Mona Lisa, a culmination of a decade of developmental work by a team of SGH urologists, is a medical innovation that revolutionises prostate biopsies with improved patient safety and accuracy in cancer detection.

Prostate cancer is the third most common cancer among Singaporean men. Conventionally, it is diagnosed with the manual method, in which prostate tissue needed for biopsy is obtained through the rectum. This can cause infection in one out of 20 patients.

But with iSR'obot™ Mona Lisa, more commonly known as just Mona Lisa, prostate biopsies are done via the perineum (the area of skin that is between the scrotum and anus). This reduces the infection rate from 5 per cent to less than 1 per cent – a significant boost to patient safety. Even more remarkable about this revolutionary biopsy invention is its high accuracy of cancer detection rate of 90 per cent, compared to 70 per cent associated with the conventional method.

This novel prostate cancer detection approach reduces post-biopsy morbidity and aids in decision-making for treatment option leading to improved patient’s quality of life. It also allows savings in treatment costs. If the robotic prostate biopsy is negative, patients are very unlikely to have cancer, giving them better reassurance.

Mona Lisa was developed by Biobot Surgical Pte Ltd, together with specialists from SGH’s Department of Urology, Prof Christopher Cheng, Senior Consultant, Dr John Yuen, Senior Consultant, and Asst Prof Henry Ho, Senior Consultant, as well as Nanyang Technological University engineers led by the late Prof Ng Wan Sing. It was in the making as far back as 2003, with the team working tirelessly and fervently to overcome the technical challenges for the pre-clinical and clinical trials.

“The joy when we overcame the challenges was indescribable,” said Asst Prof Ho, who received medical technology training at Stanford University in US through an A*STAR scholarship. In addition, funding support for medical technology was not as strong during the earlier stages of developing Mona Lisa. Now, Singapore is making a concerted push to create a medical technology eco-system, including SingHealth. Initiatives include funding support, talent and expertise nurturing and cross-institutional collaboration. “Funding support now favours translational projects that have a direct impact on patient care. This is important for medical technology development to flourish,” said Asst Prof Ho.

In 2011, Mona Lisa was approved by the US Food and Drug Administration. Just a year later, there was increased commercial interest in the US and Europe. International trials will begin in Germany in late 2013.

A strong advocate for translational medical research, Asst Prof Ho believes time and collaborative mind-set are key components in advancing such developmental work that has immediate impact in patient care. “As clinicians are heavily engaged in patient care, protected time to identify and ponder through clinical problems will facilitate their involvement in Academic Medicine. Without the fear of losing clinical skills and contact, new ideas will germinate over time and collaborations will lead to solutions which can be translated back to patient care,” he said.
A knee implant can typically last at least two decades but such a procedure often poses a challenge to surgeons as it requires a high level of precision. With the new ROBODOC surgical system, such level of precision is now achievable. Patients can now look forward to longer-lasting implants with this new robotic procedure that can cut bone to an accuracy of 0.02mm – finer than a strand of hair. Patients stand to benefit from this advanced procedure as it minimises post-surgery complications, which can occur if the implants are not properly fitted. A better fitted implant would also reduce the need for patients to return for additional surgeries.

**NO FALLOUT, NO CANcer**

SGH’s Nuclear Medicine and PET Department introduced a new radioactive treatment called Peptide Receptor Radionuclide Therapy (PRRT) which may hold the answer to destroying cancer. SGH is one of the first hospitals in the Asia-Pacific region to offer the procedure.

In May 2012, Ms Zhang, a 41-year-old former banker, became one of the first patients to undergo the PRRT treatment. Diagnosed with a rare disease known as neuroendocrine cancer, Ms Zhang underwent a year of arduous treatments which included 10 rounds of chemotherapy and a daily dose of an expensive drug which made her bleed internally. However, after starting on the new treatment, she has been able to enjoy a better quality of life without the ill effects from cancer treatment. As of mid-2013, 14 patients have undergone the treatment successfully.

The number of patients who have undergone the PRRT to date.

14

**‘VIRTUAL THERAPY’**

In recent years, healthcare practitioners have looked to the gaming industry for inspiration in developing cutting-edge techniques to help stroke patients and the elderly improve mobility. In a collaboration among various Allied Health departments including Occupational Therapy, Physiotherapy, Rehabilitation Medicine and Geriatric Medicine, video and computer games were the tools of choice to aid patients on their road to recovery.

The revolutionary use of modern gaming technology has met with great success – SGH, for instance, has developed a supermarket game for stroke patients to practise reaching for objects. KK Women’s and Children’s Hospital, on the other hand, is trying out games as a form of exercise for children with gait and balance problems.

The Nintendo Wii, Xbox Kinect, and even tablets like the iPad, have also been used regularly at therapy sessions. Given the endless possibilities that technology brings to improved patient care, SGH, in partnership with other SingHealth institutions, has been working on several studies and projects to ascertain the feasibility of incorporating more gaming functions into treatment modalities.

Top: Dr Chin Pak Lin, Consultant, Department of Orthopaedic Surgery, demonstrating how conventional instruments can be crude and difficult to use.

Bottom: Dr Chin Pak Lin with his patient Mdm Rokiah Amat, who recovered quickly from the ROBODOC procedure on her left knee.
**Education**

**LIVING LAB**
Tapping on the expertise of engineering students from NUS’ Engineering Design and Innovation Centre, a module has been specially created where students get to design and build innovative solutions to meet the rehabilitative needs of patients from SGH and Bright Vision Hospital.

Some 15 students took up this module where they were given the opportunity to observe and speak to healthcare professionals as they went about their work. Dr Ng Yee Sien, Head and Senior Consultant, Department of Rehabilitation Medicine, said: “We hope to introduce the idea of a ‘living lab’ where students are able to gain hands-on experience with patients in hospitals. This allows them to learn more about patients’ conditions and the challenges that they face, thereby allowing them to customise treatment modalities to better meet patients’ needs.” Dr Ng added: “The module fulfils what engineering is all about – designing solutions to benefit people through technology.”

**RESIDENT NURSE PROGRAMME**
Newly introduced in FY 2012, the Resident Nurse programme is designed to complement SGH’s healthcare team in delivering prompt care to patients. September 2013 will see the graduation of the first batch of 20 SGH Resident Nurses from the Colorectal, Orthopaedic Surgery, Urology and General Surgery departments.

Conducted under the aegis of the SingHealth Alice Lee Institute of Advanced Nursing, this programme trains a pool of highly skilled nurses to support doctors and healthcare professionals in the day-to-day running of clinical work. It also provides the opportunity for Senior Staff Nurses and Nurse Clinicians to develop and upgrade their skill sets.

During the course of the programme, Resident Nurses are trained in areas such as clerking – which was previously done only by doctors, physical assessments, daily ward rounds, selected medical procedures and discharge planning. They will also collaborate with doctors on areas pertaining to patient care.

**GOLDEN APPLE AWARDS**
SGH bagged four awards at the inaugural SingHealth Academy Duke-NUS Golden Apple Awards 2012, which recognises outstanding educators from different healthcare professions.

SGH’s Department of Physiotherapy received the Programme Innovation Award for their work on the Foundations of Lumbar Spine Assessment and Management. They were joined by Assoc Prof Darren Koh, Senior Consultant, Department of Anaesthesiology, who invented the i-Paddle – an interactive web-based learning tool for medical students. Previously, a faculty member would act as a tour guide, leading medical students around the five anaesthesia sub-specialty locations. Now, the interactive capabilities of i-Paddle provide students with content rich information pertaining to activities, topics or knowledge needed in each location. Besides helping students perform tasks, the app enables real time connectivity, and is able to centrally monitor and enhance the performance of students.

Other winners include Ms Esther Lim, Head, Department of Medical Social Services, who was conferred the Outstanding Creative Educator Award, and Mr Ow Yong Lai Meng, Principal Medical Social Worker, Department of Medical Social Services, who was awarded the Outstanding Young Educator Award. They were both recognised for their exceptional contributions in educating the future generation of healthcare professionals.

**LEAP TO ORTHOPAEDIC EXCELLENCE**
The inaugural International Orthopaedic Nursing Congress, themed ‘Leap to Excellence’, was held in November 2012. The Congress, organised by SGH with support from the Singapore Orthopaedic Nurses Chapter, serves as an ideal forum for nurses to share the latest nursing trends and best practices, as well as promote and generate new ideas to elevate current standards of care. With nurses playing a pivotal role in the advancement of orthopaedic care, the event also provided a forum for further research collaborations. The event attracted a total of 900 participants.

“We hope to introduce the idea of a ‘living lab’ where students are able to gain hands-on experience with patients in hospitals.”

Dr Ng Yee Sien

900

The number of participants that attended the International Orthopaedic Nursing Congress
**Research**

**SWEET REWARDS FOR WEIGHT LOSS**

In a study conducted by Duke-NUS and the Lifestyle Improvement and Fitness Enhancement Centre at SGH, participants are given economic incentives to lose weight during a 12-month-long programme.

The study started in January 2013, and is led by Assoc Prof Eric Finkelstein, Deputy Director, Health Services and Systems Research Program, Duke-NUS, and Dr Tham Kwang Wei, Senior Consultant, Department of Endocrinology. It has two main goals – reduce the dropout rate of SGH’s weight-loss programme, and to encourage patients to maintain their weight loss by instilling changes in their lifestyle habits.

“We’re trying to figure out where incentives can be used, whether they are cost-effective, and how we can more broadly tie these things together in what might look like an incentive-based healthcare design,” said Prof Finkelstein.

“The trial is significant as it could help future patients decide which treatment option is best for them.”

Prof Pierce Chow

**HOPE FOR LIVER CANCER PATIENTS**

One of the major difficulties faced by liver cancer patients and doctors is deciding on the treatment route as the illness can behave radically differently from one person to another.

For a more targeted treatment, the AHCCO6, the largest collaborative liver cancer trial in the region, was launched in 2010 to compare the efficacy of oral drug Sorafenib and targeted radiotherapy Yttrium-90 SIR-Spheres, two proven therapies for locally advanced liver cancer.

In 2012, the study was expanded to include an ancillary study on biomarkers – or proteins – that can reveal whether a person possesses characteristics such as being insensitive to a particular drug.

A second extension of the study will involve testing a new way to conduct medical scans of the liver to locate cancer cells more accurately. Investigators will also be tracking the recovery of the liver after initial treatment to determine when the patient is ready for surgery.

The trial, which is due to be completed in 2015, aims to reach out to 360 patients in 28 centres in 11 countries. By July 2013, 202 patients have already been recruited.

Prof Pierce Chow, Senior Consultant, Department of General Surgery, who leads the project said: “The trial is significant as it could help future patients decide which treatment option is best for them.”
NATION’S TOP MEDICAL SOCIAL WORKER
With 17 years of social service experience under her belt, Ms Esther Lim, who heads SGH’s Medical Social Services Department, received the Outstanding Social Worker Award, the nation’s highest honour in the field. The awards, organised by the Singapore Association of Social Workers, were presented by President Tony Tan Keng Yam on 29 October 2012 at the Istana.

Specialising in the field of suicide prevention, crisis and social intervention, Ms Lim is a strong advocate for high standards of professionalism and clinical care. She played an instrumental role in the advancement of Medical Social Workers’ learning, providing training in areas such as suicide and crisis intervention, mental health first-aid, and evidence-based social interventions.

NATION’S TOP NURSE
In July 2012, Ms Lian Siew Bee, Assistant Director, Nursing, Advanced Practice Nurse received the President’s Award for Nurses, the nation’s highest accolade for the profession.

Having been with SGH for 19 years, Ms Lian has taken on multiple roles and is involved not only in clinical practice but education and research as well. She plays a key role in developing structured oncology training for nurses and conducts and promotes research to improve patient outcomes. This includes a study on using green tea as an alternative to antibiotic powder for cleaning infected tumour wounds for cancer patients.

LEARNING WITHOUT BOUNDARIES
A total of 71 medical, nursing and allied health professionals were awarded overseas skills attachment training funded by the Ministry of Health’s Healthcare Manpower Development Plan (HMDP) and SGH. These training programmes include Minimally Invasive Surgery and Robotics Assisted Laparoscopic Surgery, Endoscopic Skull Base and Robotic Head & Neck Surgery, an Integrated Service in Lower Limb Salvage for Peripheral Vascular Disease: Saving Limbs, Preserving Lives (Team Based), and In Vitro Maturation and In Vitro Fertilisation (IVM-IVF) Without Injection for Polycystic Ovarian Syndrome (PCOS) Patients (Team Based). The trainings serve to enhance their knowledge and skills which they can apply to their work and impart to others for better care delivery.
Community Engagement

TOUR DE SGH!
President’s Challenge 2012 fundraising event at SGH was a bustling affair as staff rallied together to raise funds for the needy by cycling their hearts out. Staff paid S$10 for every kilometre cycled by their colleagues. More than S$17,000 was raised by some 50 cyclists who clocked in an astonishing 1,600 kilometres.

SGH also held its signature charity bazaar, where it raised more than S$9,000. During the President’s Challenge finale event, more than 250 SGH volunteers helped out to ensure that the event ran smoothly.

FRIENDS OF SGH
SGH held various outreach programmes in FY 2012, where volunteers had plenty of opportunities to offer their services. One meaningful activity carried out by members of the Volunteer Club was to paint and clean 28 households in the Henderson/ Bukit Merah area. SGH also worked with various community partners and non-profit organisations, such as Silver Connection, People’s Association, the Organisation of Senior Volunteers, and Women’s Initiative for Ageing Successfully, to recruit volunteers for the Friends of SGH Guiders Programme.

The Friends of SGH Guiders Programme has about 30 dedicated volunteers who either station themselves at various points or roam throughout SGH. They actively seek out elderly patients to assist them, especially the lost and weak who need directions. Since 2010, the Guiders have helped more than 30,000 patients.

PAINT THE PERFECT PICTURE
Healing through art is believed to help enhance patients’ physical, social and emotional well-being. In FY 2012, SGH Arts for Health organised more than 16 performances for our patients. One of the most memorable events was a concert by a group of four to 12-year-olds from Canossian School and the Joyful Strings held on 10 November 2012.

Besides music, SGH Arts for Health also worked with support groups such as the Colorectal Cancer Support Group and Eating Disorder Team to co-create exhibitions at the Arts Expressions wall to create a vibrant and healing environment for patients.

Top: Out of their Silent World – a Mondrian-inspired art exhibition by hearing-impaired teenagers and their parents to commemorate the International Week of the Deaf in September.
Bottom: Happy Birthday Singapore! – An exhibition to celebrate our nation’s 47th birthday and in support of the National Day Parade theme, “Loving Singapore, Our Home”.

Top (from left): Dr Terence Kee, Senior Consultant, Department of Renal Medicine, Prof Christopher Cheng, Senior Consultant, Department of Urology and Mr Tan Yoke Yin, Asst Manager, Worklife Unit participating in Cycle for a Cause.
Bottom: SGH staff helping out at the Charity Bazaar.
Key Figures

Singapore General Hospital

<table>
<thead>
<tr>
<th>Size</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed Beds (as at 31 Mar 2013)</td>
<td>1,597</td>
<td>1,579</td>
</tr>
</tbody>
</table>

Workload per annum

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed Occupancy Rate</td>
<td>81.6%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Inpatients</td>
<td>78,036</td>
<td>76,061</td>
</tr>
<tr>
<td>Total Patient Days</td>
<td>474,002</td>
<td>467,278</td>
</tr>
<tr>
<td>Average Length of Stay (days)</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>Total Surgical Operations</td>
<td>79,507</td>
<td>78,413</td>
</tr>
<tr>
<td>Day Surgeries</td>
<td>43,940</td>
<td>44,607</td>
</tr>
<tr>
<td>Inpatient Surgeries</td>
<td>35,567</td>
<td>33,806</td>
</tr>
<tr>
<td>Specialist Outpatient Clinic Attendances</td>
<td>679,967</td>
<td>694,067</td>
</tr>
<tr>
<td>Accident &amp; Emergency Attendances</td>
<td>149,269</td>
<td>146,228</td>
</tr>
</tbody>
</table>

Staffing (as at 31 Mar 2013)

Total: 8,569

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8,569</td>
<td>8,188</td>
</tr>
<tr>
<td>Doctors</td>
<td>994</td>
<td>936</td>
</tr>
<tr>
<td>Nurses</td>
<td>3,914</td>
<td>3,803</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>1,487</td>
<td>1,354</td>
</tr>
<tr>
<td>Others</td>
<td>2,175</td>
<td>2,096</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
Awards & Accolades

**PATIENT CARE**

**Asian Hospital Management Awards 2012**
Runner-up for Clinical Service Improvement Project:
“Response time of Department of Emergency Medicine (DEM) code blue team reduced to less than 5 minutes”
• Ching Sui Ching
• Ho Soo Ling

**CEO Best Clinical Nurse Award 2012**
• Rajashulakshana d/o Rajaram
• Clara Tai Chia Chia
• Tan Hui Fen

**Courage Fund Bursary Award 2012**
• Chen Juan
• Choo Seow Ling
• Chu Ho Yim
• Fong Pe Yuan
• Han Lin Fiona
• Kamsiah Bre Haji Mohsen
• Kee Xiul Ling
• Khoo Bao Lin Elizabeth
• Koh Seow Ying Cheryl
• Koh Shu Wen Esther
• Lai Mei Yin
• Leong Ee Won
• Fiona Leong Pui San
• Liew Min Di Audrey
• Lim Xini
• Lim Shu Yi
• Kellyn Lim Li Juan
• Mohammad Shafiq Bin Omar
• Ng Yee May
• Nurmaria Bte Aksin
• Nurul Fadhilina Bte Noorshah
• Nurul Shakila Bte Kamal
• Rizwan Bin Mohd Anis
• Seah Yee Lin Eunice
• Sharifah Farhanah Binte Abdul Rahman
• Tan Hui Min
• Tan Xin Jin Grace
• Teo Zhao Yu Jacqueline
• Tiang Poh Ching
• Zhang Ye

**GCEO Excellence Awards 2013**

**Outstanding Administrative Staff Award**
• Ramalingam Gobi Nathan

**Outstanding Administrative Staff Award (Special Mention)**
• Wee Mei Ling Jennifer

**Outstanding Allied Health Professional Award**
• Assoc Prof Alvin Lim Soon Tiong

**Outstanding Allied Health Professional Award (Special Mention)**
• Olivia Khoo Ruey Lin

**Outstanding Ancillary Staff Award (Special Mention)**
• Low Seng Kee
• Tay Kim Say

**Outstanding Clinician Award**
• Assoc Prof Tan Seang Beng

**Outstanding Clinician Award (Special Mention)**
• Assoc Prof Tan Ban Hock

**Outstanding Clinician Researcher Award**
• Asst Prof Chuah Thuan Heng Charles

**Outstanding Educator Award (Special Mention)**
• Assoc Prof Chan Choong Meng

**Outstanding Nurse Award (Special Mention)**
• Punasundri d/o Thangaraju
• Tien Choo Eng

**Healthcare Humanity Awards 2012**
• Ho Yoke Kum Lillie
• Hone Swee Mui @ Thia Chwee Mui
• Jamnaranji d/o Kannusamy
• N Tave
• Neo Ah Hoe
• Ng Li Li Deborah
• Ruyani Bte Abu Yamin
• Tan Siew Choo
• Tay Pei Fang
• Yap Chew Theng
• Yeap Theng Hui Stephanie
• Yeo Kee Cheng
• Yuan Long Xia

**MOH Nurse Merit Award 2012**
• Sharonjit Kaur
• Lee Min
• Lee Yean
• Lee May Lin Elaine
• Leong Siew Teing
• Lim Tow Choo
• Liow Siew Ch’ng Eunice
• Seah Soon Peng
• Seah Sok Cheng
• Tan Sue Ching

**National Day Awards 2012**

**Commendation Medal**
• Kong Nyuk Min Sally
• Lee Sook Ling
• Tan Geok Eng
• Dr Tracy Carol Ayre
• Dr Wong Ming Lee Camilla

**Efficiency Medal**
• Goh Seok Tin Irene
• Kanaga Pushpam d/o S Challiah
• Koh Choon Hwa Katherine
• Lee Lay Eng
• Lee Ewe Choon
• Lim Heng Moy Linda
• Lim Poh Ying Christina
• Ng Lay Hwa
• Ng Yuen Jin Angela
• Sim Chee Hong Carol
• Tan Chor Kien
• Wong Sau Kheng Agnes
• Yeo Bee Chin
• Yong Yueh Li Patricia

**Long Service Medal**
• Abdul Samat Bin Haneefa
• Abidah Bte Sulaiman
• Ahmad Bin Amir
• Aishah Bt Adnan
• Ajir Binte Abdul Salam
• Prof Ang Chong Lye
• Anifah Bte Mian
• Arumugam Kamalai
• Asnah Binte Abdul Salam
• Azizah Binte Tawil
• Bahkia Bin Hashim
• Beh Kin Lin
• Boh Tuan Boey
• Assoc Prof Chan Yew Weng
• Chan Poh Wah
• Lee Ang Khee
• Leong Yun Yuet
• Lew Lian Choo
• Liao Yin
• Lim Siew Hoon
• Lim Li See
• Lim Heng Moy Linda
• Lim Lea Keow
• Lim Mei Lian
• Lim Lee Cheng
• Lim Chiew Geok
• Lim Poh Yan
• Lim Tow Choo
• Lim Ah Buay
• Lim Ngii Yoong Grace
• Lim Lily
• Lim Swee Tee
• Assoc Prof Lim Eng Choon Leslie
• Liow Peck Hoon
• Loh Yoke Heng
• Loh Lee Kiang
• Low Siew Eng
• Lua Seok Bian
• Assoc Prof Mack On Pui Peter
• Mahmood Bin Idrose
• Mohd Rashid Bin Ismail
• Muhammad Nasir Bin Jayani
• Musa Bin Ramli
• Nagalingam Saraswathi
• Napisah Binte Ibrahim
• Nasir Bin Ab Manan
• Dr Ng Leng Tai
• Prof Ng Keng Yeen
• Ng Lee Huang
• Ng Hong Eng
• Noorkiah Mohamed Noor
• Nor’Aini Binte Ahmad
• Oi Chong Meng
• Ong Soon Keow
• Ong Lan Huay
• Osman Bin Ma’Ariff
• Ow Juat Lan
• Pakirisamy Parvathy
• Pannirselvam s/o Muthaiah
• Patimah Bte Abdullah
• Perriema Kaniammah
• Phoon Mei Leng
• Punasundri d/o Thangaraju
• Quan Tuck Heng
• Ra’En Bin Ahdan
• Radiah Binte Abdul Manap
• Ramalingam Gobi Nathan
• Revathii d/o Nadesan
• Rogayah Binte Mohamed Kayat
• Rohani Bte Mohamed Dros
• Rohima Binte Sungip
• Rosliah Binte Jufri
• Salamah Binte Othman
• Samikannu Pushpam
• Saw Ah Hua
• Seah Sok Eng
• Seah Sok Cheng
• Senwan Bin Jamil
• Shakuntala Devi d/o J C R G
• Sie Swee Hoon
• Siti Bte Huzairi
• Somasundram Saroja
• Soobramanee Taiwanai
• Soyah Bte Mohammad
• Sutinah Bte Omar
• Syed Mohamed Bin Abubakar A
• Prof Tan Kok Chai
• Assoc Prof Tan Beng Hoi
• Dr Tan Kim Leong Raymond
• Tan Bee Beng
• Tan Seok Luan
• Tan Mary
• Tan Mui Gaik
• Tan Ah Biah
• Tan Lee Hua
• Tan Lay Hong
• Tan Soong Geck
• Tan Puay Khoon
• Tan Wah Choo
• Tan Ah Lin
• Tan Hwee Boon
• Tan Siok Kheng
• Tan Lee Eng Priscilla
• Tan Choon Ying
• Tan Ah Pang
• Teng Hwee Siang
• Teo Poh Lian
• Assoc Prof Tien Sim Leng
• Tien Choo Eng
• Tiong Siew Yin
• Wee Choo Neo
• Wong Ngio Mui
• Wong Kwai Meng
• Wong Yoke Ho
• Woo Mei Har
• Yeo Sok Imm
• Yeo Bee Tang
• Yeo Swee Cheng
• Yeo Siew Hong
• Dr Yu Su Ling
• Yuen Marianne Magdalene
• Zubaidah Bte Sawpi

Public Administration Medal (Gold)
• Prof Ng Han Seong

Novartis Oncology Nursing Excellence Award 2012
• Sarina Bte Saleh (Winner)
• Mabel Chia (Finalist)
• Lee Teng Teng (Finalist)
Outstanding Social Worker Award
• Esther Lim

President’s Award for Nurses 2012
• Lian Siew Bee

Singapore Health Quality Service Award 2013
Superstar Award
• Alice Ang Eng Hong (Nursing)
• Assoc Prof Tan Ban Hock (Clinician)

114 Star Awards
405 Gold Awards
749 Silver Awards

Best Team Award
Clinical Practice Improvement:
• Dr Selina Ho Kah Ying
• Dr Imelda L Ereno
• Lam Keung Hung David
• Masitah Ibrahim
• Subramanian Krishnakumar
• Tay Yih Yann
• Assoc Prof Yeo Cheo Lian

Best Team Award
Service Initiative Improvement:
Safely Receive, Soundly Sleep
• Dr Ren Xun
• Dr Chua Yee Hoon
• Dr Tam Fung Wan
• Dr Tan Chor Kien

SingHealth Excellence Awards 2013
Distinguished Educator Award
• Assoc Prof Lim Boon Leng

Distinguished Mentor Award
• Dr Siok Bee

Distinguished People Leader Award
• Dr Tracy Carol Ayre

Distinguished Visionary Leader Award
• Prof Ang Chong Lye

Distinguished Young Leader Award
• Asst Prof Phua Ghee Chee

Tan Chin Tuan Nursing Awards
• Chua Lee Yan (Winner)
• Teng Hwee Siang (1st runner-up)
• Chong Chwee Hong Clarice (2nd runner-up)

EDUCATION

SingHealth-Lee Foundation Nursing Awards
• Chong Chwee Hong Clarice
• Chua Lee Yan
• Lim Peng Muay
• Nanthakumahrie d/o Gunasegeran
• Noraini Bte Mohd Dawood
• Tan Chor Kien

RESEARCH

NMEA National Outstanding Clinician Scientist Award 2012
• Prof Pierce Chow

NMRC Clinician Scientist Award 2012
• Dr Ling Khoon Lin

NMRC Transition Award 2012
• Asst Prof Chong Tsung Wen
• Asst Prof Leung Ying Ying

PS21 Distinguished Star Service Award 2012
• Toh Siew Pang (Outstanding Activist)

HUMAN RESOURCE

Community Chest Award – SHARE Gold Award

Singapore HEALTH Award 2012
• Singapore HEALTH Award (Platinum) 2012

Singapore HR Awards 2012
• Best Mature Workforce Practices

TAFEP Exemplary Employer Award 2012

Work-Life Excellence Award 2012

OTHERS

Community Chest Award – SHARE Gold Award

International Convention of Quality Control Circles 2012
Two star
• EASE Traffic (Division of Nursing, Department of Emergency Medicine)
• SPINE (Division of Nursing, Ward 64 and Department of Materials Management)
• (Division of Medicine and Service Operations/IT)

Three star
• NEST (Division of Nursing, Ward 52B)
• PETS (Division of Nursing, Ward 76)

Magnum Opus Awards 2012
Best Overall Editorial (Silver)
• Singapore Health

National Safety and Security Watch Group (SSWG) Award
• SGH Security team

2012 International Association for Music & Medicine Conference
Best Poster Award
• Christal Chiang Hei Loi
• Dr Patsy Tan Lee Peng

2012 WebAward
• Healthcare Provider Standard of Excellence

Community Chest Award – SHARE Gold Award

Singapore HEALTH Award 2012
• Singapore HEALTH Award (Platinum) 2012

Singapore HR Awards 2012
• HR Advocate for Strategic Human Resource
• Leading HR Practices for Strategic Human Resource
• Leading HR Practices for Fair Employment Practices
• Leading HR Practices for Learning and Human Capital Development
• Leading HR Professional Award – Judy Ong
“I like my Hospital Play sessions with my friend, Tanuja. I like to paint and play games. It helps me to forget about the pain and about being in a hospital.”

Muhamad Syafiq Bin Fugi, 13 years old, has been hospitalised since September 2012 due to a severe chronic condition. He has been receiving Hospital Play support since his admission to help him cope with his numerous procedures and surgeries.

With Ms Tanuja Nair, Senior Hospital Play Specialist, Department of Rehabilitation, Hospital Play Service
As a leading tertiary referral centre, KK Women's and Children's Hospital (KKH) has an enduring mission to provide excellent, holistic and compassionate care for women and children. Continuing in our long tradition as an academic healthcare institution, we constantly seek to improve the care we deliver to our patients. We are also charged with the duty of preparing and inspiring healthcare leaders to advance better diagnoses, treatments, cures and management options for women and children.

Keeping alive our mission to deliver excellent care, multidisciplinary teams in KKH have developed innovative systems that promise to revolutionise patient care by enhancing safety and improving outcomes. Our team developed the world’s first Double Intravenous Vasopressor Automated (DIVA) system to enhance the management of blood pressure in women undergoing caesarean section under spinal anaesthesia.

The Surgical Counting and Operating Theatre Tracking (SCOTT) system, based on radio frequency identification, developed to enhance the safety of Operating Theatre practice, was recognised with the ‘Most Innovative Use of Infocomm Technology (Public Sector)’ Award at the National Infocomm Awards 2012.

In a medical advancement born from translational research, the Hospital collaborated with the Agency for Science, Technology and Research’s (A*STAR) Institute for Infocomm Research (I2R) to create an automated video surveillance system to watch over children with epilepsy as they sleep. The Automated Detection & Video Analysis of Nocturnal Childhood Events (ADVANCE) system alerts caregivers to unusual movements by the child, and can improve accuracy in monitoring and detection of seizures. The success of these and many other such projects serve as encouragement for our teams to work on translational research projects that directly improve patient care.

The SingHealth OBGYN Residency Program, led by a core team of faculty from KKH and SGH, was presented the RiSE Award for ‘Best Residency Program’ in 2012, in recognition of their implementation of a new model of residency education based on ACGME-I standards.

To empower our nurses to provide more advanced care to patients, as well as to engage in clinical education and research, the Hospital spearheaded the training and deployment of Resident Nurses, and initiated the first paediatric Advanced Practice Nurse role in Singapore for paediatric ambulatory and respiratory care.

The Hospital also embarked on new educational partnerships with Chung Shan Medical University, Nanyang Polytechnic and the National University of Singapore to equip future generations of allied health professionals.

We have a long, distinguished tradition in clinical excellence, medical education and research. Amidst an evolving healthcare landscape and patient needs, the team at KKH is united in our time-honoured mission to better the health and future of every woman and child.

Prof Kenneth Kwek
CEO, KK Women’s and Children’s Hospital
KK Women’s and Children’s Hospital (KKH) is a leader in Obstetrics, Gynaecology, Paediatrics and Neonatology. The 830-bed Hospital is a tertiary referral centre that provides services for women and children with high-risk conditions. With over 400 specialists, the team at KKH is committed to providing excellent holistic and compassionate care, with a mission to improve patients’ health and future.

EXIT is an ideal intervention for fetal airway obstruction, and is used for the management of fetuses with life-threatening airway obstructions.

**Patient Care**

**A BREAKTHROUGH IN TREATING FETAL ABNORMALITY**

In October 2012, the first ex-utero intrapartum treatment (EXIT) procedure at KKH was performed by a team of medical professionals comprising surgeons, anaesthetists, otolaryngologists, neonatologists and the Operating Theatre (OT) nursing team. The procedure was performed on a fetus with a prenatally-diagnosed epignathus – an extremely rare type of oropharyngeal tumour – obstructing the airway.

EXIT is an ideal intervention for fetal airway obstruction, and is used for the management of fetuses with life-threatening airway obstructions. This time-sensitive, multi-stage surgery demands a high level of skill and expertise. Precision in coordination between the multidisciplinary teams involved is critical to ensuring the success of the procedure and the survival of the baby.

The coordination and planning involved in this EXIT procedure was showcased at the Division of Nursing’s Grand Ward Round, underscoring how multidisciplinary collaboration is critical to achieving the best outcomes for patients. The team also made a presentation at the 9th Singapore International Congress of Obstetrics & Gynaecology in August 2013.
As of March 2013, 75 per cent of patients had achieved a 50 per cent reduction in seizures. This new treatment option has since been integrated into the holistic management programme for epilepsy at KKH.

**Reducing Seizures in Epileptic Patients**

In June 2012, a team of doctors and nurses from the Epilepsy Programme at KKH and the National Neuroscience Institute collaborated to implement vagus nerve stimulator implantation for the treatment of refractory generalised epilepsy in children. As of March 2013, 75 per cent of patients had achieved a 50 per cent reduction in seizures. This new treatment option has since been integrated into the holistic management programme for epilepsy at KKH.

The electroencephalography (EEG) facility at KKH also became the first EEG laboratory outside the USA to be accredited by the American Board of Registration of Electroencephalographic and Evoked Potential Technologists (ABRET). This certification affirms the Hospital’s commitment to providing patient care that conforms to the strictest international standards.

**Easing Sleep Disordered Breathing in Children**

Starting March 2013, the Sleep Disorders Unit and the Department of Otolaryngology at KKH are jointly offering dedicated investigative and treatment services for children with complex cases of sleep disordered breathing (SDB) and obstructive sleep apnoea (OSA). These include sleep endoscopy to assess the areas of obstruction and allow targeted surgery, such as pharyngoplasty, palate and tongue-base surgeries. KKH is the only hospital in Singapore to offer this dedicated service for children with SDB and OSA.

A multidisciplinary Airway Clinic and a Tracheostomy Clinic have also been established to provide comprehensive care and support for children with complex airway issues and their families.

**Education**

**Supporting Developmental Needs Together**

In FY 2012, a three-year pilot programme led by KKH’s Department of Child Development (KKH DCD) to help parents and caregivers of children with developmental needs saw a broad range of positive outcomes, with participating parents and caregivers reporting an improvement in coping abilities, reduced stress, depression and anxiety after attending the programme.

The programme delivered a parenting support course called ‘Signposts for Building Better Behaviour’ (Signposts), to help parents cope better and reduce children’s challenging behaviours. During its rollout in Singapore, the Signposts course was conducted 108 times, reaching over 1,500 parents and caregivers of children with developmental needs.

An interim study conducted on 1,021 course participants between January 2011 and August 2012 revealed a significant increase in parents’ and caregivers’ sense of parenting efficacy and satisfaction. A reduction in the daily hassles of parenting and children’s self-absorbed behaviours was also noted.
Initially developed by the Parenting Research Centre of Australia, the programme in Singapore was adapted to local needs through a united cross-organisational effort led by KKH, together with invaluable support from National Council of Social Service, Temasek Cares and community partners including Early Intervention Programme for Infants and Children Centres and voluntary welfare organisations.

KKH DCD shared the Singapore model of Signposts at various international conferences, including the 1st Biennial Australian Implementation Conference and the 9th Family Research Network Forum.

A FIRST FOR TOXICOLOGICAL EMERGENCY TRAINING IN SINGAPORE

Dr Gene Ong, Consultant, Department of Emergency Medicine, led Singapore’s first Toxicological Emergencies Simulation Training (TEST) workshop for Emergency Medicine Residents in February 2013. The interactive course utilised high-fidelity and high-technology simulation scenarios to explore toxicological considerations and management during acute resuscitations in the emergency department.

The participants found the session invaluable for advancing self-directed learning, critical thinking and clinical decision-making skills, and the course was subsequently extended to a training workshop that included both local and overseas medical professionals in April 2013.

ADVANCED PRACTICE NURSES FOR BETTER HEALTHCARE DELIVERY

To empower nurses to play a greater role in advanced care for patients and engage in clinical education and research, KKH initiated the first paediatric Advanced Practice Nurse (APN) role in Singapore for paediatric ambulatory and respiratory care.

In addition to strengthening holistic and collaborative care, the new paediatric APN role will create new opportunities to redesign the healthcare delivery model, encourage service delivery innovation and advance the nursing profession.

In FY 2012, KKH also collaborated with the Alice Lee Centre for Nursing Studies and National University Health System to develop the curriculum for a new paediatric track within the NUS Master of Nursing Programme.

In August 2012, four resident paediatric nurses from KKH enrolled in the first run of this new paediatric track, which will equip them with skills to better manage advanced care for children.
Innovating for Safer Caesarean Sections

Doctors at KKH have developed the world’s first fully-automated system to enhance blood pressure management for women undergoing caesarean sections under spinal anaesthesia.

Low blood pressure can occur in up to 60 per cent of women undergoing caesarean sections under spinal anaesthesia. This can cause nausea, and in severe cases, result in reduced blood flow to the baby unless medical intervention is provided.

The novel Double Intravenous Vasopressor Automated (DIVA) System detects and responds promptly to low blood pressure or slow heart rate in real time by auto-administering a precise amount of vasopressor. With an advanced decision algorithm for enhanced patient safety, the DIVA System sets a new standard in speed and accuracy, and integrates continuous non-invasive monitoring to ensure closed-loop vasopressor administration during surgery.

A preliminary study jointly carried out by KKH and Duke-NUS Graduate Medical School Singapore, showed that the DIVA System is clinically more effective in maintaining blood pressure during caesarean sections under spinal anaesthesia than traditional physician-administered techniques using conventional blood pressure monitoring.

In addition to reinforcing patient safety and boosting patient outcomes, the system also holds much clinical potential for safer and more accurate control and management of blood pressure during surgery and critical care. KKH has been awarded a SingHealth Foundation Grant to further enhance the DIVA system.
A WORLD FIRST IN IN-VITRO MATURATION

An unprecedented case at the KKIVF Centre resulted in what is likely the world’s first in-vitro maturation (IVM) performed on a patient with ovarian cancer.

IVM was performed on four immature oocytes retrieved from the tissue of a patient with ovarian cancer, who needed to have both her ovaries surgically removed. The oocytes were matured and fertilised in the laboratory and two embryos were subsequently transferred back to the patient, resulting in a pregnancy. The patient successfully delivered a healthy baby in May 2012.

The case study has been submitted to the Human Reproduction Journal.

The ADVANCE system can improve accuracy in monitoring and detection of seizures and reduce caregiver stress.

NOVEL SYSTEM IMPROVES SEIZURE DETECTION

A team from KKH and the Agency for Science, Technology and Research’s (A*STAR) Institute for Infocomm Research (I²R) has created an automated video surveillance system to watch over children with epilepsy as they sleep.

Children with epilepsy commonly have seizures during their sleep, leading to stress for caregivers who must watch over them or worry over unwitnessed seizures and the potentially increased risk of sudden unexplained death in epileptic patients.

The Automated Detection & Video Analysis of Nocturnal Childhood Events (ADVANCE) system alerts caregivers to any unusual movements. The system can improve accuracy in monitoring and detection of seizures and reduce caregiver stress. The non-invasive monitoring solution is also child safe.

The team presented the results of the system’s efficacy at the International Child Neurology Congress Brisbane in 2012, and has been awarded an A*STAR Biomedical Engineering Programme (BEP) Grant to further develop the system.
Multidisciplinary CARE for High-Risk Adolescents

With 29 years of nursing experience, Nurse Clinician Aslinna Bte Abdul Jabbar draws on her passion for the nursing profession to educate her peers and facilitate care for at-risk adolescents.

A pioneer member of the Clinic for Adolescent Pregnancy (CARE) team, Nurse Clinician Aslinna Bte Abdul Jabbar, Division of Nursing, is an Adolescent Medicine Resource Nurse at KKH. She is part of a multidisciplinary team of healthcare professionals who work closely to provide integrated health and psychosocial care and education to at-risk adolescents.

At-risk adolescents typically face varied psychosocial, sexual health and behavioural issues ranging from eating disorders and teenage pregnancies to substance abuse, self-harm and violence. To ensure continuity of care for this group of patients, Ms Aslinna provides crucial coordination between the patient and the CARE team, which includes doctors, nurses and medical social workers, enabling the patient to receive seamless and targeted care.

She also takes on the role of educator and mentor, providing talks on sexual health, communication and relationships to at-risk adolescents through the Chitty Chatty Club, and antenatal care education for single adolescent mothers through the Preggy’s Toolbox Antenatal Programme.

Established by the Department of Medical Social Work at KKH, these programmes seek to increase awareness of the legal, social, emotional and health consequences of underage sex, and promote safety, well-being and holistic development in at-risk adolescents.

“Educating adolescents empowers them to make better decisions about their physical, mental and sexual health, giving them the knowledge and the ability to take good care of themselves,” Ms Aslinna said.

In times of crisis, young women and their families often turn to Ms Aslinna even outside working hours, and her dedication spurs her to go beyond the call of duty. “A listening ear is crucial to discovering patients’ and their families’ concerns and issues, which helps all of us in the CARE team to provide relevant help and care that can change young lives,” she added.

Seeking to improve adolescent health, Ms Aslinna actively collaborates in research on sexual health. She provided vital nursing support for Singapore’s first Human Papillomavirus (HPV) vaccine clinical trial for adolescents. The trial sought to prevent HPV and cervical cancer in the young. She is also a co-investigator in a KKH nurse-led research study on HPV education and its effect on knowledge and potential vaccination uptake among teenagers in Singapore.

In the year ahead, Ms Aslinna, together with the Department of Adolescent Medicine and the CARE team, hopes to establish a Young Family Clinic to provide one-stop holistic care for young mothers and their babies.

Besides educating the next generation of nurses and school health advisers, she is also planning to develop an adolescent sexual health module on how to counsel and provide adolescent sexual health care for at-risk adolescents.
In July 2012, Ms Teresa Ng, Senior Nurse Clinician, KK Breast Department, was presented with the esteemed President’s Award for Nurses, the nation’s highest accolade for the nursing profession, in recognition of her compassion and tireless efforts in counselling, educating and empowering women with breast cancer.

A nurse for 24 years, Ms Ng has played a pivotal role in raising breast cancer awareness in Singapore. She has also been instrumental in establishing the KK Alpine Blossoms Support Group, which offers emotional and psychological support to breast cancer patients.

Her goal is to ensure continuity of care for her patients in their darkest hour. “We aim to bring each breast cancer patient through a journey from diagnosis to recovery – nurturing her into a triumphant survivor,” said Ms Ng.

“We aim to bring each breast cancer patient through a journey from diagnosis to recovery – nurturing her into a triumphant survivor.”

Ms Teresa Ng

Six members of the KKH team were awarded Healthcare and Humanity Awards that recognised their outstanding dedication to providing care and comfort for the sick and infirm.

Ms Chia Soon Noi, Assistant Director, Nursing; Ms Teresa Ng, Senior Nurse Clinician; Ms Junaidah Bte Nawi, Nurse Clinician; Ms Coreen Low, Senior Nurse Manager; Ms Catherine Sandra Paul, Nurse Manager, and Ms Elaine Bong, Senior Coordinator, International Patient Services, were honoured for their whole-hearted commitment to ensuring compassionate and excellent care for patients in the local and international community.
HONOURING TEACHING EXCELLENCE

At the National Medical Excellence Awards 2012, Prof George Yeo, Head and Senior Consultant, Department of Maternal Fetal Medicine, was conferred the National Outstanding Clinician Mentor Award for his indelible clinical impact on many areas of Obstetrics & Gynaecology. Over the past 29 years, Prof Yeo has personally trained and mentored numerous specialists, and remains an inspiration to colleagues and mentees alike with his continuous thirst for knowledge, improvement and education.

Dr Bong Choon Looi, Consultant, Department of Paediatric Anaesthesia, and Dr Kevin Lim, Chairman, Division of Surgery, and Senior Consultant, Department of Orthopaedic Surgery, were honoured for their contributions to the education of the next generation of medical professionals.

Dr Bong was awarded the NUS High School of Mathematics & Science’s Inspiring Research Mentor Award 2012 and the Dean’s Award for Teaching Excellence (2009–2010) by the NUS Yong Loo Lin School of Medicine. Dr Kevin Lim received the Orthopaedic Teaching Excellence Award (2011–2012) from NUS.

WINNING ACCOLADES FOR QUALITY SERVICE

At the Singapore Health Quality Service Awards 2013, a total of 434 clinicians, nurses, allied health professionals and administrative staff from KKH were recognised for stellar care and service to patients.

Among the winners were Ms Samantha Ong, Assistant Manager, Service Quality Department, who was awarded the Superstar Award in the Administration category, and Ms Lim Siew Choo, Senior Dietitian, Nutrition and Dietetics, who took home the Superstar Award in the Allied Health category.

Clinicians, nurses, allied health professionals and administrative staff from KKH were recognised at the Singapore Health Quality Service Awards 2013.
Community Engagement

**SUPPORT FOR PRE-SCHOOLERS WITH MILD DEVELOPMENTAL NEEDS**

In May 2012, following the success of the Mission I’mPossible (MIP) programme pilot, Singapore’s first community-based early detection and intervention programme for pre-schoolers with mild developmental needs expanded to become a formal nationwide Development Support Programme (DSP).

Piloted in May 2012 at 91 preschools in Singapore, the DSP offers holistic care and support for children with mild developmental needs within the child’s daily environment, with the option of referrals to the KKH DCD clinic if more intensive support is needed.

The new larger-scale DSP is funded by the Ministry of Social and Family Development (MSF), drawing on the framework developed for MIP through collaboration between the PAP Community Foundation, KKH DCD and the Lien Foundation. The community outreach programme aims to build the capability and capacity of the early childhood landscape nationwide.

KKH DCD has been appointed by MSF to provide consultancy on the DSP, advising and guiding the implementation and initial roll-out of the programme. The department also actively enhances the capability of DSP community partners through clinical placements and mentoring by allied health professionals at KKH.

**A COMMUNITY FOR YOUNG MOTHERS**

Projek Aurora, a community-based support programme for single mothers under 21 years of age, was piloted in May 2012 to provide community-based intervention and build a robust social support system for young mothers.

The project is a collaboration between INSPIRASI@AMP (Association of Muslim Professionals), KKH’s Department of Medical Social Work, MSF and the Health Promotion Board.

Young single mothers generally require psychosocial support and education. Projek Aurora aims to meet their needs and empower them to develop a support network and achieve independence through a range of interventions, including psycho-educational programmes, vocational and other support and counselling.

Medical social workers and nurses from KKH were involved in the implementation of the programme and also provided medical and psychosocial support, such as case management consultations for AMP counsellors and workshops on mothercraft skills.
A frontrunner in paediatric care with several firsts to his name, Assoc Prof Thaschawee Arkachaisri is highly respected for his relentless pursuit of improvement in care and outcomes for young patients, and the positive impact he has made on education and research.

“Children are our hope for the future,” reflected Assoc Prof Thaschawee Arkachaisri, Head and Senior Consultant, Rheumatology and Immunology Service, Department of Paediatric Subspecialties. “With early diagnoses and treatment, many complications, deformities and disabilities can be prevented, and patient outcomes improved.”

In 2009, Assoc Prof Arkachaisri established Singapore’s first paediatric rheumatology and immunology programme to provide diagnoses and treatment for children in Asia. The programme was instrumental in providing early diagnoses and timely care for children with high-morbidity autoimmune diseases in Southeast Asia. He also started a dedicated fellowship training programme to nurture and train more paediatric rheumatologists to meet the needs of the paediatric population in the region.

To further study disease epidemiology, efficacy of treatment and outcomes of childhood rheumatic diseases in Singapore and Southeast Asia, Assoc Prof Arkachaisri went on to create the first web-based Registry for Childhood Onset Rheumatic Diseases (RECORD) to track the incidence and prevalence of rheumatic diseases and monitor the similarities and peculiarities of conditions across the globe. Key contributors to the online resource include paediatric rheumatologists from Singapore, Malaysia, Philippines and Thailand.

He also initiated the Asia-Pacific Paediatric Rheumatology Research and Education Network (AsPREN) – an international research and education collaboration between paediatric rheumatologists from Singapore, Malaysia, Philippines and Thailand – to spur more research on rheumatic diseases and improve overall disease outcomes.

To advance teaching and learning, Assoc Prof Arkachaisri endorses critical assessment and analysis, and instills in his students a spirit of relentless curiosity and inquiry. For his outstanding teaching contributions, Assoc Prof Arkachaisri won the Innovative Educator Award at the SingHealth Resident RiSE Faculty Awards 2012.

Looking to the future, Assoc Prof Arkachaisri hopes to embark on more research studies and raise public awareness of deadly diseases. He noted: “I hope to shape the field of paediatric rheumatology and improve medical knowledge, so that our children can have a better, healthier future, unscarred by disease.”
A MISSION TO IMPROVE REGIONAL MATERNAL AND PAEDIATRIC CARE

In FY 2012, KKH continued to conduct training for doctors and nurses in Vientiane, Laos, as part of a three-year project launched in collaboration with the Singapore International Foundation (SIF).

Multidisciplinary teams comprising obstetricians, paediatricians, anaesthetists, neonatologists and nurses provided training on the management of obstetric and paediatric emergencies to reduce the number of maternal and infant deaths.

A core team of trainers from each Laotian hospital was also selected for special training to establish their own in-house obstetric and paediatric training programme.

INTERNATIONAL STANDARDS IN PAEDIATRIC EMERGENCY CARE

In June 2012, Dr Angelina Ang, Senior Consultant, Department of Emergency Medicine, became the seventh member of an international work group, established by the International Federation for Emergency Medicine, to formulate international standards of care for children in emergency departments.

As KKH upholds an internationally recognised standard of care for women and children, the Hospital now has a privileged role to help set global standards for paediatric emergency care.

A set of recommendations were created to improve emergency care for children throughout the world. The new recommendations were launched at the International Conference of Emergency Medicine in June 2012. The document has also been successfully translated into Mandarin in a collaborative project between the bicultural medical, nursing and allied health staff at KKH and Beijing’s Children’s Hospital, China.

As KKH upholds an internationally recognised standard of care for women and children, the Hospital now has a privileged role to help set global standards for paediatric emergency care.
Key Figures

KK Women’s and Children’s Hospital

<table>
<thead>
<tr>
<th>Size</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed Beds (as at 31 Mar 2013)</td>
<td>827</td>
<td>819</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workload per annum</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed Occupancy Rate</td>
<td>77.3%</td>
<td>76.7%</td>
</tr>
<tr>
<td>Inpatients</td>
<td>68,722</td>
<td>67,847</td>
</tr>
<tr>
<td>Total Patient Days</td>
<td>211,542</td>
<td>212,761</td>
</tr>
<tr>
<td>Average Length of Stay (days)</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Total Surgical Operations</td>
<td>34,300</td>
<td>36,344</td>
</tr>
<tr>
<td>Day Surgeries</td>
<td>14,353</td>
<td>15,810</td>
</tr>
<tr>
<td>Inpatient Surgeries</td>
<td>19,947</td>
<td>20,534</td>
</tr>
<tr>
<td>Specialist Outpatient Clinic Attendances</td>
<td>521,540</td>
<td>533,902</td>
</tr>
<tr>
<td>Accident &amp; Emergency Attendances</td>
<td>174,048</td>
<td>177,414</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staffing (as at 31 Mar 2013)</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>4,335</td>
<td>4,261</td>
</tr>
<tr>
<td>Doctors</td>
<td>598</td>
<td>519</td>
</tr>
<tr>
<td>Dentists</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Nurses</td>
<td>1,868</td>
<td>1,903</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>669</td>
<td>657</td>
</tr>
<tr>
<td>Others</td>
<td>1,194</td>
<td>1,176</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
Awards & Accolades

**PATIENT CARE**

Healthcare Humanity Awards 2012
• Catherine Sandra Paul
• Chia Soon Noi
• Coreen Low
• Elaine Bong
• Junaidah Bte Nawi
• Teresa Ng

Midwife of the Year 2012
• Julie Tay

MOH Nurses’ Merit Awards 2012
• Chia Moh Yuet
• Kwek Choo Poh
• Lo Bo Chu
• Maryani Binte Abdul Wahab
• Musliya Bte Muslim
• Ng Poh Chin

National Day Awards 2012
Commendation Medal
• Paulin Koh

Efficiency Medal
• Catherine Sandra Paul
• Florence Cheang
• Ng Yen Ling
• S Mariyamma
• Tan Seok Gek
• Tay Eng Choo Jane
• Woot Yap Yin

President’s Awards for Nurses 2012
• Teresa Ng

PS21 ExCEL Awards
Best PS21 Project (Silver)
“To improve the level of patients’ satisfaction in nursing care at the inpatient wards”

PS21 Star Service Awards
• Suhaili M Silvester

Singapore Health Quality Service Award 2013
Superstar Award
• Samantha Ong (Administration)
• Lim Siew Choo (Allied Health)

29 Star Awards
90 Gold Awards
315 Silver Awards

Service Initiative Improvement Team Merit Award
“To improve efficiency in data capturing and imaging management for paediatric cardiac patients”

**EDUCATION**

Academy Awards for Professional Development 2012
Partner of Academy of Singapore Teachers

SingHealth Academy Duke-NUS Golden Apple Awards 2012
Outstanding Creative Educator Award
• Dr Chia Yen Yen

Outstanding Young Educator Award
• Dr Chia Yin Nin

Programme Innovation Award
• Nursing O&G Resident Nurse Training Course

SingHealth-Lee Foundation Nursing Awards
• Lee Kim Nai

YLL-NUS Role Model Teachers Award
• Dr Chia Yen Yen
• Dr Lim May Li
• Prof Phua Kong Boo
• Dr Sriram Bhavani
• Prof Tan Cheng Lim
• Dr Wong Choong Yi Peter

**RESEARCH**

Asian Hospital Management Awards 2012
Patient Safety Project
“To enhance compliance with pre-operative verification, site marking and final time-out through process re-engineering for patient safety”

International Exposition On Team Excellence (IETEX) 2012
Gold Award
“To improve efficiency in data capturing and imaging management for paediatric cardiac patients”

MOH National Medical Excellence Awards 2012
National Outstanding Clinician Mentor
• Prof George Yeo

National Healthcare Quality Improvement Poster Competition 2012
First Prize
“Improving the diagnostic process and delivery of intervention services for autism spectrum disorder at a developmental and behavioural clinic for pre-school children”

**HUMAN RESOURCE**

Community Chest
SHARE Award 2012
SHARE Silver Award

Singapore Human Resource Institute Awards 2012
Leading HR Practices in Corporate Social Responsibility Award

Leading HR Executive Award
• Sharon Ho

Enabling Employers Network Recognition Awards 2012
Enabling Employer Award
• KKH

Exemplary Employee Award
• Lim Lin Li

**Most Popular Poster Prize**
“Enhance compliance with pre-operative verification, site marking and time-out through process re-engineering for patient safety”

**National Infocomm Awards 2012**
Most Innovative Use of Infocomm Technology (Public Sector) Category
• Surgical Counting and Operating Theatre Tracking (SCOTT) System

**SingHealth Duke-NUS Scientific Congress 2012**
Best Oral Paper
• Prof Tan Kok Hian
“Plasma membrane vesicles as a source of biomarkers to prospectively stratify pregnant women at risk for pre-eclampsia”

**Team Excellence Symposium 2012**
Gold Award
“To improve efficiency in data capturing and imaging management for paediatric cardiac patients”

Silver Award
“To improve the level of patients’ satisfaction in nursing care during their stay in the inpatient wards at KKH”

“Improve cytogenetics workflow”
National Cancer Centre Singapore

“I received excellent advice from breast and plastic surgeons and the anaesthesiologist, who gave well informed options on treatment and reassured with their wonderfully warm bedside manner. Nursing staff were equally cheerful, upbeat and worked round the clock to assure my well-being.”

Ms Brenda Lim, 39 years old, a breast cancer survivor who underwent a skin sparing mastectomy with immediate reconstruction. She continues to live life to the fullest and has become a strong patient advocate in the fight against this condition.

With Asst Prof Ong Kong Wee, Senior Consultant, Department of Surgical Oncology
National Cancer Centre Singapore (NCCS) believes in strength through clinical service, research, and education in the consistent pursuit for knowledge and capabilities. FY 2012 was the year of research advancements in NCCS.

Three of our clinician-scientists have won the prestigious merit awards at the American Society of Clinical Oncology Annual Meeting this year. This is a first for NCCS where three of our staff won the awards at the same scientific meeting. Their achievements corroborate the high standards that we set for our research work.

Three of our senior clinicians also won Clinician Scientist Individual Research Grants (CS-IRG), another two were awarded the Clinician Scientist Investigator Award, and a Principal Investigator won two Cooperative Basic Research Grants (CBRG). These multi-million dollar grants testify to the strong research culture and milieu in NCCS, of the tight integration between clinical practice and basic research, made possible only through the co-location of clinicians, researchers, and laboratories within the NCCS building.

The NCCS also stepped up translational research collaborations across institutions, of which two notable ones were the newly established Integrated Translational Oncology Network set up with Bayer Healthcare and five other research institutions for the development towards novel therapies for Asian prevalent cancers; and a master research collaboration agreement signed between SingHealth and Sirtex Medical Ltd which will see researchers from NCCS and Singapore General Hospital (SGH) explore the use of Carbon Cage Nanoparticles to target specific cancers such as ovarian and gastro-intestinal carcinomas.

On the clinical front, we re-organised our Specialist Oncology Clinics to introduce a new system which will benefit patients by cutting back on their waiting time to see the doctor. To better utilise our strength in doctors sub-specialising on various cancer types, our specialists were assigned to clinics according to their sub-specialty by tumour types. This means the oncologists need not shuttle from one clinic to another to see their patients, reducing wait time for patients. The new process will also see better utilisation of our nursing support staff.

We also crossed a significant milestone in NCCS’ development when we announced that NCCS would be setting up a Proton Therapy Centre within its new building in the SGH Campus in 2018. This will make NCCS and Singapore the first to offer proton therapy in Southeast Asia.

In preparation for the expansion of NCCS in 2018, more clinical and research staff will be coming on board and we will be looking forward to train and raise their competency towards quality cancer care for our patients.

Prof Soo Khee Chee
Director, National Cancer Centre Singapore
Deputy Group CEO, Research & Education, SingHealth
A Leading Regional Centre for Cancer

National Cancer Centre Singapore (NCCS) has grown over the years to become home to the largest number of researchers, surgeons and oncologists attending to a rising number of cancer patients in the region. NCCS has made rapid advances in the research and treatment of cancer over the past year to improve patients’ lives.

Patient Care

ADVANCED TREATMENT FOR CANCER

NCCS will be the first in Southeast Asia to offer proton therapy, an advanced treatment for cancer. It will be available at NCCS’ new building which is slated to be ready in 2018. This mode of treatment reduces unwanted side effects on patients, especially in children, and produces better treatment outcomes for some cancer types.

NCCS Director, Prof Soo Khee Chee said: “This is a major milestone for Singapore as proton beam therapy is the cutting edge of radiation treatment. It can be used to treat recurrent cancers that standard x-ray radiation therapy may not be able to.”

In addition, the risk of secondary cancers from childhood radiotherapy is 3 to 5 per cent, but it is estimated that this risk will be reduced significantly with proton therapy.

As a national referral centre, NCCS is exploring collaborations with other cancer institutions in Singapore to promote the use of proton treatment. Besides benefiting patients in the local community, the availability of such cutting-edge treatment will give Singapore an edge as a regional medical hub.

POSITIVE RADIATION

NCCS introduced Intra-Operative Radiotherapy (IORT), a new technique used during breast conserving surgery (BCS) that helps to reduce the side effects and length of treatment for early-stage breast cancer patients.

Asst Prof Ong Kong Wee, Senior Consultant, Department of Surgical Oncology, and Dr Wong Fuh Yong, Consultant, Department of Radiation Oncology, performed the first case in June 2012. Seventeen patients have been treated successfully since then.

Although not all patients may be suitable for the procedure and eligibility will depend on several factors, such as how aggressive the cancer is, studies conducted in this area will pave a new way for cancer patients to be treated more efficiently. NCCS is continuing clinical trials with the aim of expanding the use of IORT on more breast cancer patients.
Patients typically receive care from nurses and doctors when they are in their wards. With the introduction of the ‘Quality of Life’ (QOL) team, comprising allied health professionals such as speech therapists, dietitians, physiotherapists, clinical psychologists, wound care nurses and medical social workers, patients will receive much more holistic care for a smoother recovery.

First initiated by the Head and Neck Service for inpatients in Singapore General Hospital (SGH), the QOL team at NCCS joins doctors and nurses on their ward rounds to listen to the needs of patients and offers input and expertise where appropriate.

“We believe that integrating auxiliary care teams into regular clinical rounds will ensure best treatment outcomes for our patients,” said Asst Prof Tan Hiang Khoon, Senior Consultant, Department of Surgical Oncology.

Mrs Tan Yee Pin, Manager, Department of Psychosocial Oncology, who is a member of the QOL team, said: “Information sharing from other disciplines helps us better understand the various aspects of the patient’s condition so we can provide more targeted treatments. This can bring about positive impact on the patient’s well-being.”

EXCELLENCE IN COLORECTAL CANCER EDUCATION

NCCS has been accorded the status of a ‘Centre of Excellence in Colorectal Cancer’ by the European Society for Medical Oncology (ESMO), a leading professional organisation committed to advancing the specialty of medical oncology and promoting a multidisciplinary approach to cancer treatment and care.

This allows greater sharing of knowledge by NCCS and ESMO with other partner cancer institutions to enhance the development of oncology practitioners and ultimately achieve more effective treatments and multidisciplinary care for cancer patients.

Assoc Prof Toh Han Chong, Head and Senior Consultant, Department of Medical Oncology, is NCCS’ representative for the programme. He will sit on the Asia Scientific Committee which is responsible for imparting expertise on planning and implementing the programme.

Dr Iain Tan, Associate Consultant, Department of Medical Oncology, who was appointed to take charge of planning the scientific programme for the partnership, said: “Regardless of our individual sub-speciality, an optimal patient-centred cancer management is our common goal. At NCCS, our disciplines thrive and work together for the best outcomes for our patients.”

IN PURSUIT OF KNOWLEDGE AND PROGRESS

More than 40 speakers and participants from restructured hospitals and the private healthcare sector attended the Liver Cancer Awareness Month (LiCAM) Scientific Forum on management of hepatocellular carcinoma (HCC), followed by a post-graduate course in HCC.

The forum, which touched on pertinent issues and insights on liver cancer, were highly interactive and generated amiable debates. Assoc Prof Thng Choon Hua, Deputy Head, Department of Oncologic Imaging, said: “This is an important forum for surgical trainees to learn relevant knowledge outside of surgery. It shows them the value that other disciplines bring to the total care of the patient, ultimately to the patient’s benefit.”
A TIMELY BOOST FOR SURGICAL ONCOLOGY

NCCS continues to augment its status as a leading regional centre for the training of medical and surgical oncology. With the support of BNP Paribas and the BNP Paribas Foundation, BNP Paribas fellowships were offered to doctors from Vietnam for post-graduate training in the various fields of oncology at NCCS.

Four doctors from Vietnam have undergone this training since 2009. To further reach out to doctors in the region, BNP Paribas and NCCS jointly organised the first NCCS Surgical Oncology Conference in May 2012. About 100 surgical oncologists, experts and allied health professionals from Singapore and regional cancer institutions and hospitals attended the conference. The event focused on the evolving role of surgery in the rapidly changing modalities of treatment, particularly for cancers common in the region.

Asst Prof Tan Hiang Khoon, the conference organising chairman, hopes that such meetings can be held on a regular basis. He said: “The objective of the Conference stems from our desire to alleviate the sufferings of patients who are afflicted with cancer. The best way to do this is to train as many doctors as possible so that they can go back and treat their local community. It is even better if they can train their colleagues because the multiplier effect on the community will be even greater.”

Research

PARTNERSHIPS IN RESEARCH

In January 2013, the Integrated Translational Oncology Network was introduced. Supported by the Economic Development Board (EDB), this research partnership between Bayer HealthCare and five research institutions aims to facilitate the fight against the growth of cancer in the Asia Pacific.

Partners will develop and evaluate novel treatment options for prevalent cancers in collaborative projects and trials. In addition, they will organise joint activities, such as annual meetings, workshops and lectures for regional centres’ participation.

As representatives, Prof Huynh The Hung, Principal Investigator, Laboratory of Molecular Endocrinology, and Dr Daniel Tan, Consultant, Department of Medical Oncology, will aid in the development of this Network.

One of the projects underway at NCCS is the development of in vivo models to identify key markers and pathways that can lead to more targeted treatments for patients.
A double winner of awards from the American Society of Clinical Oncology (ASCO), Dr Iain Tan has built a strong reputation in the area of research for stomach cancer, the second leading cause of cancer deaths worldwide.

A leading colorectal cancer and gastrointestinal stromal cancer research scientist, Dr Iain Tan, Associate Consultant, Department of Medical Oncology, has contributed much to the advancement of cancer care in Singapore. His research on personalised medicine for the treatment of stomach cancer won him ASCO’s Young Investigator Award in 2010 and a Merit Award in 2011.

In addition to his primary appointment at NCCS, Dr Tan is also a clinician scientist at the Genome Institute of Singapore, A*STAR. With the opportunity to work with researchers from some of the world’s most reputable institutions, Dr Tan believes multidisciplinary and cross-institutional collaborations hold the key to uncover even more discoveries that will lead to dramatic improvements in patient outcomes.

“Because cross-talk seeds ideas and engenders new ways of approaching questions, it removes previous perceived barriers. As a result, creativity blossoms and paradigm shifts in thinking are cultivated, and that can lead to major advances,” said Dr Tan. Ultimately, he hopes his research efforts will enable doctors to select the most appropriate and beneficial drugs for individual patients.

Looking to the future, Dr Tan and his team will conduct in-depth research on developing better non-invasive methods for early detection of recurrent cancers as well as tracking and monitoring disease burdens in cancer patients. The research will focus on the two main hurdles in preventing the cure of cancer – the spread of cancer (metastasis) and its escape from treatment (drug resistance) as well as immune surveillance by our immune system and the repair of DNA damage by our DNA repair system – the two key reasons why most people do not have cancer.
TARGETING HARD-TO-TREAT CANCERS
Following a new research collaboration master agreement signed between SingHealth and Sirtex Medical Ltd, researchers from NCCS and SGH will explore the use of Carbon Cage Nanoparticles, bringing new hope for treating hard-to-treat cancers.

Developed by the Australian National University, Carbon Cage Nanoparticles can safely deliver radioactive substances to specific cancer sites located deep within the body and may even evade detection by patients’ immune systems, helping them to target specific cancers. Under this collaboration, researchers will study how cancers like ovarian and gastro-intestinal cancers will benefit from this treatment approach.

“Collaborations with industry partners, such as Sirtex, provide new, cutting-edge technologies that allow us to offer our patients faster and better treatment options,” said Prof Soo Khee Chee.

A CLOSER LOOK AT THE DOMINANT-NEGATIVE EFFECT
A five-year-long research study by NCCS researchers led to the discovery that the dominant-negative (DN) effect of mutant p53 gene in cancers affects the outcome of cancer treatment modalities.

There are currently no drugs or compounds that can alleviate DN effects of mutant p53. The research finding is significant as it offers hope to improve cancer treatment outcomes by selectively inhibiting mutant p53’s DN effect.

The team of researchers, led by Prof Kanaga Sabapathy, Principal Investigator, Laboratory of Carcinogenesis, and Head, Division of Cellular & Molecular Research, is conducting further in-depth analysis to determine the possibility of targeting mutant p53 without affecting wild-type p53 in human cells, laying the first stone for clinical trials in the future to test its efficacy on cancer therapeutic response.

From left: Mr Kevin Lai, Director, Biomedical Sciences, EDB, Prof Ross Stephens, Research School of Physics & Engineering, Australian National University, Ms Enny Kiesworo, Director, Office of Research, SingHealth, Prof Soo Khee Chee, Mr Gilman Wong, CEO, Sirtex, Dr Steve Jones, Global Head of Research & Development, Sirtex.

Our People

MAKING NCCS PROUD
For the first time, NCCS won three awards at the prestigious 2013 American Society of Cancer Oncology (ASCO) meeting. Dr Joanne Ngeow, Consultant, Department of Medical Oncology, Dr Tira Tan, Registrar, Department of Medical Oncology, and Dr Melvin Chua, Registrar, Department of Radiation Oncology, each received a Merit Award for their research projects.

Additionally, Dr Joanne Ngeow was also awarded a National Medical Research Council Fellowship to pursue subspecialty training in cancer genetics at the Genomic Medicine Institute (GMI) at the Cleveland Clinic, Ohio, USA.

PUBLISHING QUALITY RESEARCH
The annual SingHealth Publish! Award lauds the achievements of researchers who have published good research articles in internationally-acclaimed and peer-reviewed scientific or medical journals.

One of these outstanding researchers is Dr Iain Tan, whose article on ‘Intrinsic subtypes of gastric cancer, based on gene expression pattern, predict survival and respond differently to chemotherapy’ was published in Gastroenterology. Another award recipient, Dr Ang Mei Kim, Consultant, Department of Medical Oncology, had her article ‘High XRCC1 protein expression is associated with poorer survival in patients with head and neck squamous cell carcinoma’ published in Clinical Cancer Research.

Asst Prof Narayanan Gopalakrisna Iyer, Senior Consultant, Department of Surgical Oncology, was recognised for his article ‘Incidence and significance of Delphian node metastasis in papillary thyroid cancer’, which was published in Annals of Surgery.

Our People

MAKING NCCS PROUD
For the first time, NCCS won three awards at the prestigious 2013 American Society of Cancer Oncology (ASCO) meeting. Dr Joanne Ngeow, Consultant, Department of Medical Oncology, Dr Tira Tan, Registrar, Department of Medical Oncology, and Dr Melvin Chua, Registrar, Department of Radiation Oncology, each received a Merit Award for their research projects.

Additionally, Dr Joanne Ngeow was also awarded a National Medical Research Council Fellowship to pursue subspecialty training in cancer genetics at the Genomic Medicine Institute (GMI) at the Cleveland Clinic, Ohio, USA.

PUBLISHING QUALITY RESEARCH
The annual SingHealth Publish! Award lauds the achievements of researchers who have published good research articles in internationally-acclaimed and peer-reviewed scientific or medical journals.

One of these outstanding researchers is Dr Iain Tan, whose article on ‘Intrinsic subtypes of gastric cancer, based on gene expression pattern, predict survival and respond differently to chemotherapy’ was published in Gastroenterology. Another award recipient, Dr Ang Mei Kim, Consultant, Department of Medical Oncology, had her article ‘High XRCC1 protein expression is associated with poorer survival in patients with head and neck squamous cell carcinoma’ published in Clinical Cancer Research.

Asst Prof Narayanan Gopalakrisna Iyer, Senior Consultant, Department of Surgical Oncology, was recognised for his article ‘Incidence and significance of Delphian node metastasis in papillary thyroid cancer’, which was published in Annals of Surgery.

From left: Mr Kevin Lai, Director, Biomedical Sciences, EDB, Prof Ross Stephens, Research School of Physics & Engineering, Australian National University, Ms Enny Kiesworo, Director, Office of Research, SingHealth, Prof Soo Khee Chee, Mr Gilman Wong, CEO, Sirtex, Dr Steve Jones, Global Head of Research & Development, Sirtex.
Community Engagement

BE CANCERWISE
To raise cancer awareness and empower the public with the knowledge and skills to help themselves and their loved ones cope with the disease, NCCS conducted a total of eight public forums, eight Cancerwise workshops and nine health talks. These public education channels are part of NCCS’ efforts to provide holistic care to patients.

WALK THE TALK
The organising committee for the 5th LiCAM made a move away from the usual public forums and exhibitions to give the campaign a fresh spin. A walkathon was launched to reinforce the message of healthy living and prevention of liver cancer.

Themed ‘Healthy Living for a Healthy Liver’, the walkathon held in August 2012 attracted more than 300 participants, including cancer survivors and supporters. The event was sponsored by Bayer Healthcare and supported by the Singapore Sports Council.

The global trend of ‘fatty liver’, which is becoming an increasingly attributive cause of liver cancer, was one of the key focuses of the campaign. Two medical seminars were among the activities organised to create greater awareness of the disease.

The LiCAM walkathon attracted more than 300 participants, including cancer survivors and supporters.
The Breast Cancer Awareness Month (BCAM) drew to a close with an outdoor kite cum picnic event at Marina Barrage in November 2012. Drawing inspiration from the kite as a symbol of freedom and emancipation, the event was themed ‘Let’s Go Fly Kite!’

Further elaborating on the theme, Assoc Prof Ho Gay Hui, Senior Consultant, Department of Surgical Oncology, said: “Kite flying is a symbolic gesture for the cancer survivors to show that they are free from cancer and the sky is the limit so long as they are determined to fight the disease. For the others taking part, they will be showing solidarity with their loved ones, united as one, just like the single string that holds the kite aloft.”

**RUN FOR HOPE**

This year’s Run for Hope raised more than S$440,000, and saw the largest turnout ever with 10,000 participants. The annual charity run aims to strengthen local research capabilities and accelerate the speed of research, all for the benefit of patients. In the last five years, more than S$20 million have gone to fund more than 60 cancer research projects at NCCS.

Graced by Minister for Health Gan Kim Yong, who also took part in the 3.5 km run, the event saw over 300 student volunteers from Temasek and Republic Polytechnics helping out in various aspects of the race.

Run for Hope 2012 raised more than **S$440,000**

**PAINTING THE SKY PINK**

Top left and Bottom left: The event, graced by Minister Gan Kim Yong, saw more than 10 senior management executives from SingHealth and established corporations stepping up to Run for Hope’s new Executive Challenge.

Participants of ‘Let’s Go Fly Kite!’ had their share of fun at Marina Barrage.
## Key Figures

### National Cancer Centre Singapore

<table>
<thead>
<tr>
<th>Workload per annum</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day Surgeries</td>
<td>9,938</td>
<td>10,208</td>
</tr>
<tr>
<td>Specialist Outpatient Clinic Attendances</td>
<td>135,076</td>
<td>131,408</td>
</tr>
</tbody>
</table>

### Staffing (as at 31 Mar 2013)

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total: 678</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctors</td>
<td>143</td>
<td>135</td>
</tr>
<tr>
<td>Nurses</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>161</td>
<td>149</td>
</tr>
<tr>
<td>Others</td>
<td>245</td>
<td>220</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
Awards & Accolades

PATIENT CARE

National Day Award 2012
- Efficiency Medal
  - Connie Ong

GCEO Excellence Awards 2013
Outstanding Clinician
- Dr Joseph Wee

Outstanding Nurse
- Connie Ong

Outstanding Allied Health Professional
- Chang Yok Ying

Outstanding Ancillary Professional
- Jennifer Chin

Outstanding Administrative Staff
- Lorraine Yip

NCCS C.A.R.E. Excellence Award 2012
- Ricky Ang Seng Kok
- Simon Chen Chern Jian
- Lim Lay Hong
- Rossnani Bte Abdullah
- Sin Sze Yarn
- Dr Terence Tan Wee Kiat
- Wilson Tan Wee Seng

Tan Chin Tuan Nursing Award Certificate of Merit
- Vimalavathy d/o D.N.

Singapore Health Quality Service Award 2013
Star Award
- Wilson Tan Wee Seng
- Salamah Bte Ahmad

Gold Award
- Jane Guo Lifeng
- Jocelyn Bibit Ortencio
- Ling Bee Chuan
- Nerissa Ramirez Lontoc
- Xiao Yu Lian

Silver Award
- Bennelyn Jhen Algarja Alomia
- Ivy Chan Yin Ling
- Simon Chen Chern Jian
- Chew Yung Hwui
- Hong Yanqi
- Imelda Peralta Lopez
- Sarah Khong Hui Lin
- Suzanne Koh Poh Geok
- Brenda Lee Ann Jee
- Sharon Lek Seow Kia
- Andy Lin Yufeng
- Joshua Loh Mingquan
- Marnelli Ycoy Dunton
- Gloria Ong May May
- Pan Chai Pan
- Sheetha Sinnathambry
- Sin Sze Yarn
- Kym Sor Chai Kam
- Krystle Tang Huey Weng
- Richard Tay Lee Keat
- Teo Lay Cheng
- Teo Lay Choo
- Wong Zhixiong
- Pauline Wong Kwai Ying

RESEARCH

SingHealth Excellence Award
Distinguished Researcher Award
- Prof Kanaga Sabapathy

SingHealth Publish! Award
Outstanding Award
- Dr Iain Tan Bee Huat

Medical Research Award
- Dr Ang Mei Kim
- Asst Prof Narayanan Gopalakrishna Iyer

NMRC Clinician Scientist Award 2012
- Dr Darren Lim
- Asst Prof Narayanan Gopalakrishna Iyer

2012 Illumina Asia Pacific Scientific Summit Poster Presentation – 2nd prize
- Dr Ong Choon Kiat

GEC-ESTRO Congress of Brachytherapy Travel Grant
- Dr Jeffery Tuan

Travel Fellowship by PTCOG51, South Korea
- Dr Jeffery Tuan

12th Annual Congress of the European Society for Photodynamic Therapy, Best Poster Award – 3rd prize
- Dr Patricia S. P. Thong

Society for Experimental Biology and Medicine 2012 International Prize (Asia)
- Dr Maurice Chan

Singapore Science and Engineering Fair 2012 – Silver Award
- Geraldine Chia Wan Ni
- Ng Gee Ling
- Victoria Tay Kai Lin

International Society for Cell and Gene Therapy – Poster Award Prize
- Dr Ivy Ho
Dr Lye Kok Weng was very patient and thorough at explaining the procedure details, giving me the assurance and confidence in the entire treatment plan. Dr Lye taking an interest in every step of my recovery journey speaks volume of the kind of doctor he is.

Mr Brian He, 22 years old, received the "surgery first" approach, which enabled him to recover within 8 months instead of 3 years after his orthognathic treatment.

With Dr Lye Kok Weng, Senior Consultant, Department of Oral & Maxillofacial Surgery
Y 2012 saw the National Dental Centre Singapore reinforce its position as a centre of excellence. We continue to impact our patients’ lives through excellent clinical care, educating dental professionals, extending thought leadership and pursuing research to add new knowledge to dentistry.

We continue to improve access to quality of care for all our patients while our clinicians continue to receive excellent ratings in the annual Ministry of Health patient satisfaction survey. New clinician scientist appointments, a new research mentorship programme and development programmes for clinician educators at the Academic Medicine Education Institute’s Pioneer Fellows Program are some of the new developments we have explored in this year alone. Projects centring on preventing caries in young children and patients with xerostomia, improving outcomes for patients requiring dental implants or jaw reconstruction and improving treatment planning effectiveness with 3D technology form the backbone of our research initiatives.

We continue to build on our position as a leading institution in postgraduate dental specialty training. Our many professional continuing education programmes for the oral healthcare community continue to be relevant and well attended. There will be many more exciting collaborations and discoveries to look forward to as we grow in the coming years.

Along with the rest of the SingHealth family, we are in a transformative phase as we prepare to roll out the Academic Clinical Program for Oral Health in FY 2013.

In every effort, our patients will continue to inspire us as we put patients at the heart of all we do.

Dr Kwa Chong Teck
Executive Director, National Dental Centre Singapore
A Leader in Oral Healthcare

As the largest dental specialty centre in Singapore, the National Dental Centre Singapore (NDCS) continues to improve patients’ lives through excellence in dentistry, extending and evolving the field through our educational offerings and our pursuit of new knowledge through research.

Patient Care

**ADDED CONVENIENCE FOR OUR YOUNG PATIENTS**
With the introduction of NDCS’ new walk-in clinic for infants and children up to the age of 12, parents who need to seek dental care for their child can look forward to shorter waiting time for consultation with paediatric dentists. Launched in 2012, patients at the NDCS Paediatric Walk-In Clinic are seen by a paediatric dentist within an hour. This access-improvement initiative is also open to paediatric patients referred by private dentists.

**RIGHT-SITING**
Right-siting patients at appropriate dental service points such as polyclinics and general practice dental clinics participating in the Community Health Assist Scheme (CHAS) means more convenience and affordability for patients in the long run. NDCS patients who are dentally fit after specialist management are right-sited to a general practice dental clinic or polyclinic to be cared for within the community. Consequently, specialist resources are freed up for patients who need them most.

**EMPOWER PARENTS WITH ONLINE HEALTH EDUCATION**
NDCS’ Paediatric Dentistry Unit launched a health education Facebook page in October 2012 to provide high-quality and accurate online resource for families. This allows parents seeking information on the Internet to interact directly with healthcare professionals. Aimed at empowering parents with correct dental knowledge, patient outreach and engagement on this social media platform is steadily growing.

**VISUAL LEARNING FOR NASOPHARYNGEAL CARCINOMA PATIENTS**
In March 2013, NDCS developed an oral health education video for patients undergoing radiation therapy for head and neck cancers. This informative video helps patients and their caregivers understand how radiation therapy affects their oral functions. It provides clear instructions on how to maintain good oral health during and after cancer treatment. The video is distributed free to patients.

The NDCS Paediatric Dentistry Facebook page provides parents with event updates and the opportunity to interact with dentists for information.
At NDCS, patients with complex oral problems often need to make multiple visits to the Centre to seek treatment at the different clinical departments. In a bid to provide patients with a more seamless experience, a team from NDCS embarked on an EPIC project which successfully reduced waiting time and the number of visits to the Centre.

Due to a small number of endodontists available, patients at the Endodontic Unit often face long waiting time. To address this issue, the EPIC Wave 5 Team 6, led by Dr Ng Yuk Ching, Associate Consultant, Endodontic Unit, and Dr Low Yi Han, Senior Registrar, Periodontic Unit, from the Department of Restorative Dentistry, with team members Mr Lawrence Kwok, Assistant Director, Office of Research, Education and Clinical Affairs, Ms Audra Tan, Manager, Frontline Operations and Ms Rain Seow, Executive, Quality Management, came up with a simple yet ingenious idea to streamline the work process for a more efficient way of maximising existing manpower.

Tapping on the collective wisdom of team members from different departments, the team came up with a series of appointment scheduling initiatives that successfully reduced waiting time for endodontic treatment from 11 to eight months.

The improved workflow is made possible by combining the end-of-root canal treatment review visit together with the consultation visit for the next stage of treatment. With this process improvement, patients have one less appointment to attend and endodontists now have more treatment slots to attend to even more patients.

Cooperation and mutual understanding between the departments and units across NDCS was crucial to the success of the project, which has changed the way endodontists schedule patients. “We were very fortunate that all of us shared a common goal – to implement the most efficient method in delivering the best patient experience,” said Dr Ng.
Cultivating Educators

Developing a strong education pipeline is key to enhancing the education pillar and raising the standard of healthcare education at NDCS. This also provides a new development track for clinicians who have an interest in teaching. Two clinicians, Dr Wong Li Beng, Associate Consultant, Periodontic Unit, Department of Restorative Dentistry, and Dr Eugene Wee, Head and Associate Consultant, Clinical Imaging, Department of Orthodontics, participated in the Academic Medicine Education Institute’s (AM•El) Pioneer Fellows Program for Educators. In the year ahead, more staff will be given the opportunity to lead education development at the Centre.

The Art of ProSe in Dentistry

Residents, orthodontists and oral and maxillofacial surgeons attending the fortnightly dentofacial deformity case conference now have an enhanced approach to tackle clinical questions with the introduction of the Problem Solving by Evidence (PROSE) framework. Launched in January 2013, its objective is to spur evidence-based discussions with regards to patients’ treatment plans.

Using PROSE, teams of clinicians challenge the relevance of current clinical practices and use fresh perspectives obtained from published literature to come up with new hypotheses to achieve new, informed decisions in problem solving. By adding academic rigour to clinical practice, this new system will positively impact the way NDCS’ clinical teams devise and formulate treatment strategies to improve patient care.

Learning from the Best

NDCS Annual Scientific Meeting

The NDCS Annual Scientific Meeting (ASM) in August 2012 saw an excellent turnout of almost 200 general dentists and specialists, as well as more than 90 dental assisting staff. Themed ‘Managing Aesthetic Challenges in Your Clinic’, a theme highly relevant in today’s dental practices, thought leaders from NDCS, Sweden’s Radboud University and invited speakers from private practices delivered excellent presentations and case studies on dentofacial and dental implant aesthetic challenges.

In academic tradition, the Academic Centre for Oral Health Research in NDCS (ACORN) inducted three invited speakers into the Centre’s Roll of Honorary Members of The Congregation at the event. They are Prof Raj Mohan Nambiar, SingHealth Board Member and Visiting Consultant Surgeon (Singapore General Hospital, Khoo Teck Puat Hospital and Tan Tock Seng Hospital), Emeritus Consultant, Changi General Hospital, and Senior Consultant, Ministry of Health (MOH); Prof Anne Marie Kuijpers-Jagtman, Professor and Head of the Department of Orthodontics and Craniofacial Biology, Radboud University Nijmegen Medical Centre; and Dr Thomas Maal, Scientific Researcher, Department of Oral and Maxillofacial Surgery, Radboud University.

An educational event for dental assisting staff held concurrently at the ASM focused on building personal leadership and impactful communication skills.

HMDP Visiting Expert Series

In FY 2012, the Centre hosted several renowned industry figures to speak at the Healthcare Manpower Development Plan (HMDP) Visiting Expert Series. Some of the topics covered included Advanced Oral, Maxillofacial and Facial Aesthetics Surgery, Evidence-Based Dentistry, Third Dimension in Dental Imaging and Practice, as well as Oral and Maxillofacial Radiology.
Dr Wong Li Beng, Associate Consultant at the Periodontic Unit, Department of Restorative Dentistry, believes that education outreach plays a vital role in elevating standards of dentistry.

“We should never set boundaries in our pursuit of knowledge,” said Dr Wong, citing the Chinese idiom ‘学海无涯’ in his emphasis on the value of education.

Dr Wong has witnessed the evolution of medical teachings since he started as a Dental Officer (DO) in 2005. He noted that the teaching of dentistry previously followed a master-apprentice model while the current model focuses on evidence-based teaching. “There is definitely more constructive two-way interaction between teachers and students now,” he remarked positively.

For more effective education outreach to auxiliaries, Dr Wong, who leads the Oral Health Therapy (OHT) team at NDCS, helped start up the OHT Journal Club. The Club keeps therapists abreast of the latest development in the dentistry field and serves as a platform to cultivate a peer-educating culture as the presentations at the Club allow the team to share knowledge and learn from other OHT teams in Singapore.

Dr Wong also leads an education outreach initiative that helps to keep DOs at SingHealth Polyclinics posted on current clinical best practices for greater complement to community-based primary dental care. This initiative sees NDCS specialists from across different disciplines sharing with DOs ways to improve clinical decision-making and refer patients to appropriate, timely tertiary care.

Having had the privilege to be mentored by experienced and caring teachers during his Residency training, Dr Wong sees mentoring as a way of paying it forward. “Leading by example is the key to elevating the standard of dental education. As educators, we should also be active learners to inspire students to take ownership of their own learning,” said Dr Wong.

Paying It Forward
THOUGHT LEADERSHIP IN PROFESSIONAL EDUCATION

As a leading organisation for quality dental care, NDCS continues to be the top local Continuing Professional Education (CPE) leader, providing close to 300 hours of learning opportunities in training programmes and events in FY 2012. NDCS hosted numerous international speakers and experts who shared their rich clinical experience with local practitioners. Some of the key events organised in FY 2012 include the ASM and two HMDPs – ‘The Third Dimension in Imaging and Practice’ and ‘Evidence-Based Dentistry’.

NURTURING SPECIALISTS AND DENTAL AUXILIARIES OF TOMORROW

Grooming the next generation of dental specialists is a keystone at NDCS to ensure a pipeline of well-trained specialists for public dentistry. NDCS is an accredited clinical training centre for candidates taking their Masters in Dental Surgery at NUS. With a large clinical base that provides Residents with valuable hands-on training, NDCS also hosts overseas post-graduate students for clinical attachments as part of their elective requirements. Residency scholarships are offered to qualified candidates. To expand learning and skills for specialists, the Centre now offers specialty certifications for Orthognathic Surgery, Cleft and Craniofacial Orthodontics and Dental Sleep Medicine.

NDCS is also the main training provider for students undergoing National Institute of Technical Education Certificate (NITEC) in dental assisting and dental technology, and have continued to extend training opportunities to the larger dental community. In FY 2012, 16 students graduated from NDCS’ sponsorship programmes.

Research

RISEING TO THE TOP

It is with great pride that NDCS practitioners received awards for their posters and oral presentations at international scientific conferences over the year.

Dr Elaine Tan, Senior Registrar, Department of Orthodontics, was awarded the Best Scientific Paper Award at the 7th Biennial World Cleft Lip & Palate Congress for her presentation on ‘Dental Development of Unilateral Cleft Lip and Palate Children in Singapore’. Similarly, Dr Md Badrun Nafis Bin Saion, Registrar, Paediatric Dentistry Unit, was recognised for his presentation on ‘An In-vitro Investigation of the Acidogenicity of S. Mutans in Milk and Soy Extract’ at the 8th Biennale Conference organised by the Paediatric Dentistry Association of Asia.

In addition, Dr Tabitha Chng, Registrar at the Paediatric Dentistry Unit, was awarded second place for her poster, ‘GLUT2 and TAS1R2 Genotype and Risk of Dental Caries’ at the American Academy of Paediatric Dentistry 65th Annual Session.

Fledging researcher, Dr Elaine Tan receiving her oral presentation award at the 7th Biennial World Cleft Lip & Palate Congress.
CALLING ALL RESEARCHERS
To build up NDCS’ core research manpower, three clinician scientists were appointed for a three-year term. The scheme enables clinician scientists to develop novel research hypotheses that will translate into better healthcare delivery for the benefit of patients. Clinician scientists are appointed based on the scientific merits of their research proposals and their overall track records.

Dr Christina Sim, Senior Consultant, Prosthodontic Unit, Department of Restorative Dentistry, will look at exploring the feasibility of combining k-casein glycopeptide and CPP–ACP to restore oral biofilm homeostasis to control caries in cancer patients.

Dr Mimi Yow, Senior Consultant, Department of Orthodontics, will conduct research in dentofacial development and anomalies.

Dr Nattharee Chancharenonsook, Associate Consultant, Department of Oral and Maxillofacial Surgery, will work with the University of Michigan and the University of Nijmegen to research mandibular bone regeneration using a degradable osteo-conductive scaffold.

THE IMPORTANCE OF MENTORSHIP
To accelerate NDCS’ research development, two research mentors were appointed to provide practical leadership support to clinicians participating in research. They are Prof Niklaus P. Lang, Professor Emeritus, University of Bern, Switzerland; Professor of Implant Dentistry, The University of Hong Kong, 2008–2012, and Prof Teoh Swee Hin, Head, Division of Bioengineering, Nanyang Technological University. Prof Lang will visit the Centre three times a year, and Prof Teoh will visit bimonthly. They will provide strategic consultations on research directions, supervise clinicians with research projects and conduct lectures on relevant research or clinical topics. Both mentors will also provide one-on-one consultation on grant applications and assist mentees in the publication of their papers in scientific journals. With their guidance and leadership, the Centre hopes to improve the process of innovation for every clinician researcher.

Our People

STAFF WELL-BEING MATTERS
At NDCS, the well-being of staff is as important as the pursuit of excellent academic clinical practice.

NDCS conducts an annual employee wellness survey to gather feedback on activities that yield health benefits. In FY 2012, NDCS received the Platinum Award for the Singapore Health Award. This highest national accreditation recognised the Centre’s exemplary workplace health promotion programme.

To recognise long-serving and outstanding staff, NDCS presented long service awards to five staff. The Centre also established a new award to recognise promising Dental Officers. Dr Qian Li, Resident, Department of Orthodontics, was the first dental officer to receive this award.

INSPIRING LEADERSHIP
To further develop leadership, four clinicians and one senior nurse were selected to attend the Organisational Leadership Programme. Organised by SingHealth, the programme equips leaders with better operational management skills for developing new project initiatives that can improve patient care.

Dr Soong Poh Luon, Associate Consultant, Department of Oral & Maxillofacial Surgery, and Dr See Toh Yoong Liang, Associate Consultant, Prosthodontic Unit, Department of Restorative Dentistry, were nominated for MOH’s HMDP fellowship programmes. Dr Soong and Dr See Toh will pursue their fellowships in maxillofacial trauma at the University Hospital of Bern, Switzerland, and maxillofacial prosthodontics at the Memorial Sloan-Kettering Cancer Center, USA, respectively.

In FY 2012, NDCS received the Platinum Award for the Singapore Health Award for its exemplary workplace health promotion programme.
Community Engagement

A GROWING CAUSE
Through our Patient Welfare Fund, NDCS disbursed S$308,000 in financial aid for almost 1,000 patients who needed assistance with treatment fees. Funding came from the SingHealth Foundation and the direct remission of fees was managed by NDCS.

S$308,000
financial aid disbursed by NDCS for almost 1,000 needy patients

CORPORATE SOCIAL RESPONSIBILITY
SingHealth President’s Challenge 2012 was yet another platform where we extended our corporate social responsibility outreach efforts. Thirty children from Infant Jesus Home (Ang Mo Kio) learnt the proper techniques of tooth brushing. In addition, a charity bazaar organised by the Staff Wellness Committee raised over S$1,900 for the beneficiaries of President’s Challenge.

EXPLORING A CAREER IN DENTISTRY
As part of our efforts to grow awareness of dental professions and boost staff strength, NDCS organised open houses and took part in career fairs at schools to help interested students better understand dental care delivery and career options in public dentistry.

An open house was held in December 2012. It attracted over 50 participants with a keen interest in dentistry. Through interaction and a guided tour around the Centre, the students gained a better understanding of dental care delivery, their career options and opportunities for continuing research and education. In November 2012, a similar open house was held for students interested in dental auxiliary careers, namely dental assisting and dental technology.

Children from Infant Jesus Home (Ang Mo Kio) learned proper tooth-brushing techniques, played games and caught a movie on NDCS Community Outreach Day.
Key Figures

National Dental Centre Singapore

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workload per annum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day Surgeries</td>
<td>5,614</td>
<td>5,977</td>
</tr>
<tr>
<td>Dental Attendances</td>
<td>146,034</td>
<td>149,664</td>
</tr>
<tr>
<td>Dental Procedures</td>
<td>155,370</td>
<td>156,026</td>
</tr>
</tbody>
</table>

Staffing (as at 31 Mar 2013)

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>354</td>
<td>348</td>
</tr>
<tr>
<td>Dentists</td>
<td>91</td>
<td>77</td>
</tr>
<tr>
<td>Nurses</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>44</td>
<td>48</td>
</tr>
<tr>
<td>Dental Surgery Assistant/</td>
<td>95</td>
<td>70</td>
</tr>
<tr>
<td>Dental Assistant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>112</td>
<td>140</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
Awards & Accolades

PATIENT CARE

Best Dental Officer Award
• Dr Qian Li

GCEO Excellence Awards 2013
Outstanding Clinician Award (Special Mention)
• Assoc Prof Teoh Khim Hean

National Day Award 2012
Long Service Medal
• Chua Bee Choo
• Loh Boh Tiang
• Seah Kin Huat
• Sim Nguan Hwee
• Dr Mimi Yow

Singapore Health Quality Service Award 2013
1 Gold Award
23 Silver Awards

HUMAN RESOURCE

Singapore Health Awards (HR)
Platinum Award
“Before I had the HVAD pump implanted, I was always out of breath, tired and so weak that I could hardly walk and go about my daily life. Now that I have this heart pump, I can get back to my normal routine and help look after my grandchildren.”

Mdm Helen Tan, 57 years old, the first patient in Singapore to be implanted with the HeartWare Ventricular Assist Device.

With Assoc Prof Lim Chong Hee, Senior Consultant, Department of Cardiothoracic Surgery and Director, Heart and Lung Transplant Programme
National Heart Centre Singapore (NHCS) charted several significant milestones in FY 2012.

On the research front, our Research and Development Unit successfully developed the world’s first human heart cell model to study an inherited heart muscle disease associated with sudden cardiac death. This allows the disease and new treatments for it to be studied in a petri dish without any risk to patients. We are also privileged to have Prof Stuart Alexander Cook join our ranks and bolster the research efforts at NHCS. Prof Cook is a distinguished clinician scientist who won the prestigious Singapore Translational Research Investigator Award in 2012.

NHCS made significant progress in patient care as well. We introduced the new HeartWare Ventricular Assist Device, a third generation heart pump smaller than previous models which does not require a surgical pocket to be created inside the patient’s chest. The new heart pump gives advanced heart failure patients a better quality of life and functional capacity while waiting for a heart transplant. We also performed Asia’s first transapical transcatheter mitral valve-in-valve, a novel minimally invasive valve implantation procedure for patients not suitable for open heart surgery.

Nurturing the next generation of healthcare professionals is a key focus in our Academic Medicine journey. Almost all our heart specialists hold teaching appointments at local medical schools. We also organised various conferences and courses for the cross exchange of knowledge and skills.

Our new building crossed a major milestone in March 2013 with the completion of the superstructure and we celebrated it with a topping out ceremony. The new building will be integrated with age-friendly features and simplified processes to enhance the outpatient experience. In line with the formation of the Cardiovascular Academic Clinical Program, the expanded facility will serve as a conduit for the pursuit of Academic Medicine for better patient care and outcomes.

Prof Koh Tian Hai
Medical Director, National Heart Centre Singapore
Taking Heart in All We Do

National Heart Centre Singapore (NHCS) aspires to be a local and regional core for research, teaching and training in cardiovascular disease. It maintains high standards of clinical expertise, provides quality patient care and advances the healthcare profession through continuous pursuits in research and education.

Patient Care

SEAMLESS CARE UNDER ONE ROOF

NHCS held a topping out ceremony on 21 March 2013 for the Centre’s new building, which is expected to be ready by 2014. The much bigger Centre – spanning 12 storeys – will bring about greater expansion of clinical services and care delivery all under one roof. The one-stop location for consultation, pre-admission testing and surgery for instance, will allow a more efficient care delivery.

At the new building, two streamlined processes will be introduced to enhance patient care delivery. The 1 Queue 1 Bill (1Q1B) system will make the outpatient experience simpler and quicker. With just one queue number, patients can move to various service locations in a more efficient manner. There will also be only one point for payment, which allows clinic consultations, cardiac investigations, and medication charges to be processed in a single bill.

The Same Day Admissions process has also been redesigned to allow patients to have their blood test and pre-operation orientation incorporated in their pre-admission testing visit a week before the surgery, saving patients an extra trip to the hospital.

Prof Koh Tian Hai, Medical Director, said: “The new building has given us a valuable opportunity to restructure our care delivery, putting the patients’ needs first to improve the experience of care and enhance quality, safety, and efficiency.”
THINKING FOR THE ELDERLY
One in three patients at NHCS is aged 65 and above. In view of the ageing population, Mr Alson Goh, Chief Operating Officer, said: “It is important that we create an age-friendly environment that is safe, accessible and comfortable to relieve our elderly patients of any anxiety they may have.”

To better provide the elderly with a pleasant patient care experience, the new building will introduce various age-friendly features so that elderly patients can use the Centre’s healthcare services in a more efficient and effective manner. These include a patient-centred layout, where commonly used clinical services such as blood tests, electrocardiograms (ECGs) and consultations will be done on the same floor to minimise movement within the building. Illuminated signs with easy-to-spot colours will also be used to assist elderly patients who may have difficulty navigating around the building.

Other age-friendly features include handrails, non-slip vinyl floors, and motion-sensor lighting. There will also be a lower counter – recessed at the bottom for wheelchair users to be seated closer in – as well as partitions designed to reduce external sound for patients who are hard of hearing.

A NEW GENERATION HEART PUMP
Patients with advanced heart failure now have the option of getting a new generation heart pump while they wait for a transplant. Known as the HeartWare Ventricular Assist Device (HVAD), it is a much smaller and lighter mechanical heart pump that fits right next to the heart and, unlike its predecessors, does not require a small pocket to be surgically created. Weighing just 160g and measuring the size of a golf ball, HVAD offers patients a better quality of life as they await a heart transplant.

Mdm Helen Tan, 57, is the first patient in Singapore to have this device implanted in September 2012. The result of which has greatly improved her quality of life.

FIXING A LEAK FROM THE INSIDE
High-risk heart patients can now have their leaky heart valves fixed without having to go through an open-heart surgery. The new minimally invasive procedure, called the Transapical Transcatheter Mitral Valve-in-Valve procedure, replaces a new tissue heart valve within one that was previously implanted but has become worn-out or leaky.

Mr Anthony Cher is one patient who has benefited from this new procedure. At 72, doctors had advised that if he were to go for a third heart operation, he would run a high risk of mortality and protracted recovery. Mr Cher took up the new treatment option and became the first person in Asia to undergo the novel procedure at NHCS.

Mr Cher used to experience swelling in his feet, and had problems getting around. After the operation, he attested: “I was so surprised that just four or five days after the operation, I could walk again.”

Asst Prof Soon Jia Lin, Consultant, Department of Cardiothoracic Surgery, who led Mr Cher’s operation, said that patients such as Mr Cher have little recourse.

“We can now offer this as an alternative to a high-risk repeat operation. With a small incision, we can fix this problem without stopping the heart and cutting the old valve out,” Dr Soon said.
Education

EXCHANGE OF IDEAS AND SKILLS
AsiaPCR/SingLIVE, a premier international cardiology conference in Asia, was held from 23 to 26 January 2013. Over 2,000 participants from more than 60 countries attended the conference, where they engaged in a robust exchange of ideas, knowledge, and skills for the advancement of interventional cardiology. More than 80 sharing sessions on the latest in percutaneous coronary intervention were conducted during the conference.

CREATING CLOSURES FOR STROKE PREVENTION
In May 2012, the Left Atrial Appendage (LAA) Asia Pacific Workshop was held in Singapore for the first time. Live cases from the workshop were beamed directly from the Cardiovascular Centre Frankfurt in Germany. Targeted at cardiologists sub-specialising in interventional cardiology and electrophysiology and pacing, the LAA workshop is designed to give participants an overview on all aspects of the LAA closure treatment modality, from its background to current clinical data and new devices. NHCS is the first in Asia to perform the LAA closure procedure with the Watchman device on a 70-year-old patient. The procedure aims to prevent stroke in patients with irregular heartbeat who do not respond well to medication.

ON VALVES AND THERAPIES
Singapore Valve 2012, an annual international course on heart valves and therapies, was held from 7 to 9 September 2012. Drawing more than 200 participants, the course showcased the latest in transcatheter valve technology, including Transcatheter Aortic Valve Implantation and the MitraClip procedure, both of which were first introduced in Asia at NHCS.

Research

FIRST HUMAN HEART CELL MODEL
Researchers at NHCS have successfully developed the world’s first human heart cell model to study an inherited heart muscle disease associated with sudden cardiac death. In July 2012, the 10-member research team published a landmark study in the European Heart Journal, shedding light on how genetic mutations could lead to abnormal heart rhythm and clinical signs of arrhythmogenic right ventricular cardiomyopathy (ARVC).

Using heart cells developed from a patient’s own skin, studies and testing of new treatments can be carried out in a petri dish, without putting the patient at risk.

“What this means for patients is the delivery of a more effective and personalised care. We will be able to tailor the medicine to patients with specific conditions for it to be more effective,” said Assoc Prof Phillip Wong, Director, Research and Development Unit and Senior Consultant, Department of Cardiology.

It is significant that this is the world’s first model to learn the mechanism of the disease, test drugs and develop new treatment methods. The next step is to use the model to deduce an individual’s risks, and tailor personalised preventive programmes for patients.

DECODING THE HEARTBEAT
Prof Stuart Alexander Cook, Distinguished Clinician Scientist and Senior Consultant, Department of Cardiology, was awarded the prestigious Singapore Translational Research (STaR) Investigator Award at the National Medical Research Council Awards Ceremony on 31 October 2012.

Furthering what he started in Britain, Prof Cook’s research focuses on the genetics behind cardiovascular diseases and the identification of new methods of preventing, diagnosing, stratifying, and treating heart conditions.

To Prof Cook, education and research are both fundamental to the practice of medicine. “Research is not an extra. It is what drives clinical excellence,” he remarked.

ENDLESS OPPORTUNITIES TO EXCEL
The Cardiovascular Academic Clinical Program (ACP) introduced at NHCS in December 2012 aims to improve patient care and outcomes via three strategic thrusts – maintaining its position as the leader in innovative cardiac care, enhancing training and education to groom the new generation of healthcare professionals, and intensifying efforts to achieve targeted research breakthroughs.

“Academic Medicine nurtures a mindset of continual improvement and learning that is critical for any medical centre to keep up in a rapidly changing world. Aside from strengthening our growing partnership with Duke-NUS, the ACP provides crucial support to the synergy between clinical service, education, and research,” said Prof Terrance Chua, Deputy Medical Director and Academic Vice Chair, Research, for the Cardiovascular ACP.
Cardiovascular disease is a leading cause of death worldwide. In Singapore, it accounted for one in three deaths in 2010. But with ground-breaking research by clinician scientists such as Prof Stuart Alexander Cook, there is now greater optimism for patients with cardiovascular disease as we develop new ways of preventing, diagnosing, and treating it.

Prof Stuart Alexander Cook, Distinguished Clinician Scientist and Senior Consultant, Department of Cardiology, believes in the importance of translational and clinical research to improve patients’ lives. Prof Cook has, in his illustrious career, carved a significant reputation for his research in cardiovascular disease, with a focus on genes that cause electrical abnormalities in the heart.

FY 2012 has been a momentous year for Prof Cook – he received the Singapore Translational Research (STaR) Investigator Award at the National Medical Research Council Awards, and in collaboration with Harvard University, he and his team identified mutations in Titin, the biggest human gene that leads to heart muscle weakness. This discovery paves the way for the development of a diagnostics kit, and possible treatment in the longer term. The research finding was published in the New England Journal of Medicine.

Yet another new NHCS study that Prof Cook is involved in aims to find out how scarring happens in the heart through the observation of fibroblasts, cells that make scars.

With the initiation of the NHCS-Duke-NUS Heart Cell Bank which models a similar programme in the UK for which he was also responsible, Prof Cook will jump-start the local effort together with a team of NHCS researchers who will conduct genetic studies on heart cells to understand heart disease progression, causes, and treatments.

“The NHCS-Duke-NUS Heart Cell Bank is a resource for the future,” said Prof Cook. He believes such research has enormous potential to better patient care as we gain a deeper understanding of the disease in the local context.

To further our Academic Medicine pursuit, Prof Cook plays a supportive role in encouraging clinicians at NHCS to embrace both clinical and research work. “While it may be challenging for clinicians to juggle these, it is vital that we acknowledge the importance of research,” he said, lauding the close collaboration between NHCS and the Cardiovascular & Metabolic Disorders Signature Research Program at Duke-NUS for growing a critical mass of researchers for heart disease. The new NHCS building, slated to open in 2014, will also provide enhanced clinical and research support that complements Duke-NUS’, which will be a boon to research efforts.

Also a clinician mentor specialising in imaging at the Academic Medicine Research Institute, Prof Cook said: “Mentorship is essential. Without a mentor, I would not have become a clinician scientist today. Some may think that research is easy, but the truth is that it isn’t. If you don’t get the right training and advice, you will find it hard to succeed. That is why mentorship is important.”

Strengthening Research at the Heart

Prof Stuart Alexander Cook
Our People

TAking up the nursing helm
Ms Ho Ai Lian succeeded Assoc Prof Lim Swee Hia as Director, Nursing, on 1 September 2012. The incumbent started her nursing career in 1975, and has served in various healthcare units such as the High Dependency Ward, Surgical Intensive Care, and Coronary Care Unit. Ms Ho will build on the solid foundation laid by Prof Lim and lead NHCS nurses to greater heights in patient care, education, and nurse-led research.

A fruitful fellowship
Dr Chee Fang Yee, Associate Consultant, Department of Cardiology, attended a one-year fellowship training at the University of Alberta, Canada, from 2011 to 2012. Over the course of his fellowship, Dr Chee was attached to four different cardiac rehabilitation programmes and had the opportunity to study their respective recruitment approaches, patient education efforts, and rehabilitation settings. Following his return, Dr Chee has put the best practices gleaned from these programmes to good use at NHCS in areas such as the enhancement of patient education outreach, which is key to successful rehabilitation.

advanced practice nurses
Ms Teo Lee Wah and Ms Dahliana Binte Idris completed the two-year Master of Nursing programme at the National University of Singapore, and commenced their internships as Advanced Practice Nurses at NHCS in August 2012. Armed with a strong nursing foundation and clinical competencies in their chosen scopes of practice, their one-year internship in heart failure and diabetic care respectively will prepare them to take on greater roles in diagnosing and treating acute and chronic diseases.

Community Engagement

President’s challenge
In support of President’s Challenge 2012, NHCS raised a record S$27,000 for the 55 beneficiaries under the campaign. Funds were raised through a wide array of activities, including an online auction and the sale of coffee, homemade snacks, and nostalgic local sweets that were popular in the 90s. A group of NHCS staff also brought children from Metta School @ Punggol on a Duck Tour outing as part of the outreach initiative.

$27,000
The record amount raised by NHCS in support of President’s Challenge 2012

One heart
NHCS participated in the annual Heart Fair held in September 2012. The event was held in conjunction with National Heart Week and World Heart Day. Themed ‘One World, One Home, One Heart’, the Heart Fair aims to reach out to the public on the importance of preventing cardiovascular disease.

Health is wealth
NHCS lent support to a health-screening programme, ‘Health is Wealth’, organised by grassroots leaders from Hougang and Bukit Batok East on 25 August and 9 December 2012 respectively. NHCS nurse volunteers conducted health screenings for 50 needy elderly patients at their homes.

The screening included blood pressure and glucose readings to detect high blood pressure and diabetes – two of the most common health ailments amongst the elderly. The nurses also shared basic health knowledge and arranged referrals to the polyclinics for those who needed further medical evaluation.

Recognising the value of passing on their medical knowledge, the nurses also provided guidance to nursing students involved in the health screening, setting good examples for aspiring nurses.
# Key Figures

## National Heart Centre Singapore

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licensed Beds (as at 31 Mar 2013)</td>
<td>185</td>
<td>185</td>
</tr>
<tr>
<td><strong>Workload per annum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed Occupancy Rate</td>
<td>64.6%</td>
<td>67.5%</td>
</tr>
<tr>
<td>Inpatients</td>
<td>9,539</td>
<td>9,511</td>
</tr>
<tr>
<td>Total Patient Days</td>
<td>43,629</td>
<td>45,648</td>
</tr>
<tr>
<td>Average Length of Stay (days)</td>
<td>4.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Total Procedures*</td>
<td>6,777</td>
<td>6,624</td>
</tr>
<tr>
<td>Day Procedures*</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Inpatient Procedures*</td>
<td>6,759</td>
<td>6,604</td>
</tr>
<tr>
<td>Specialist Outpatient Clinic Attendances</td>
<td>112,023</td>
<td>107,870</td>
</tr>
<tr>
<td>Total Non-invasive Cardiac Investigations</td>
<td>119,091</td>
<td>105,780</td>
</tr>
</tbody>
</table>

*Interventional and Surgical

## Staffing (as at 31 Mar 2013)

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>1,053</td>
<td>963</td>
</tr>
<tr>
<td><strong>Doctors</strong></td>
<td>102</td>
<td>100</td>
</tr>
<tr>
<td><strong>Nurses</strong></td>
<td>442</td>
<td>418</td>
</tr>
<tr>
<td><strong>Allied Health Professionals</strong></td>
<td>192</td>
<td>159</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>317</td>
<td>286</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
Awards & Accolades

PATIENT CARE

GCEO Excellence Awards 2013
Outstanding Clinician Award (Special Mention)
• Asst Prof Kenny Sin

Outstanding Ancillary Award
• William Chua

Healthcare Humanity Awards 2012
• Assoc Prof Chua Yeow Leng
• Rokiah Bte Sulaiman

MOH Nurses’ Merit Award 2012
• Tan Sin Yain
• Siti Fidawati Bte Jasman

National Day Awards 2012
Efficiency Medal
• Foo Lee Lian
• Pearl Wee Gek Choo

Long Service Medal
• Chang Choong Kek
• Assoc Prof Ding Zee Pin
• Ho Ai Lian
• Ismaili Bin Mohamed Tahir Sheriff
• Low Geck Hwa
• Ng Sok Guek
• Ngu Nang Hu
• Phoon Poh Choo
• Seow Lay Hua
• Tan Suan Chew
• Tok Kim Lian Anne

SingHealth-Lee Foundation-D.S. Lee Foundation Nursing Award 2012
• Noorshinah Bte Noor
• Suriani Bte Zahari

SingHealth Supply Chain Management Congress 2012
Best Poster Award, Technology Adoption Category – First Prize

Best Overall Entry – Grand Prize
• Materials Management Department

Team Excellence Symposium 2012
Gold
• Graft of Hope from National Cardiovascular Homograft Bank
• PACE from Ward 44, NHCS
• CTC (Creative Thinking Squad) from Ward 56, NHCS
• BEES from Cardiac Laboratory, NHCS

Silver
• HEARTS from Ward 44, NHCS

6th Tan Chin Tuan Nursing Award
• Khatijah Binte Kassim
• Norazlinda Binte Abdul Malek

9th National Healthcare Quality Improvement Poster Competition 2012
Merit Prize
• HEARTS from Ward 44, NHCS

Education

SingHealth Academy Duke-NUS Golden Apple Awards 2012
Outstanding Young Educator (Nursing)
• Chua Lee Kheng

Research

A*STAR Programme Leader Award 2013
• Assoc Prof Philip Wong

A*STAR Research Grant
• Prof Stuart Alexander Cook
• Assoc Prof Tan Ru San
• Dr Winston Shim
• Dr Zhong Liang

National Medical Research Council Awards 2012
Singapore Translational Research (StaR) Investigator Award
• Prof Stuart Alexander Cook

National Medical Research Council Grant
• Dr Ashish Mehta
• Asst Prof Ching Chi Keong
• Prof Stuart Alexander Cook
• Dr Ewe See Hooi
• Assoc Prof Tan Ru San

Human Resource

SingHealth HEALTH Award 2012
Gold

Work-Life Excellence Award 2012

23 Star Awards
60 Gold Awards
156 Silver Awards
We are grateful for Assoc Prof Louis Tan’s dedicated care and concern for my brother. We would like to thank him from the bottom of our hearts, for all that he has done for us.”

Mdm Oh Bee Low, elder sister and caregiver of Mr Oh Keng Seng, who has been under Assoc Prof Louis Tan’s care since 2002.
Patient Care, Education and Research – these are the National Neuroscience Institute’s (NNI) three pillars of strength. With the introduction of the Neuroscience Academic Clinical Program (ACP), these pillars have been further strengthened through the synergistic effect of the ACP.

ACP is a strategy that will create a platform for greater collaboration amongst all members of Team NNI. The cornerstones of ACP are partnership and teamwork. It will strengthen our goal of driving innovation in Care, Education and Research. Fundamentally, our pursuit of Academic Medicine is to improve the care delivered to our patients.

Advances in Pain Management Surgery, providing improved access to treatment for patients with Young Onset Dementia, publishing a book on Parkinson disease for our patients and their families, are just a few examples of the effort that we have made for our patients to raise awareness of treatments available. Our researchers, hard at work have made wonderful discoveries that lead back to improved patient care. The numerous scientific conferences organised aim at educating the medical community on the latest advancements in care. Regular public forums encourage and inform patients about their condition; always letting them know that there is hope, and help for them at NNI.

With all that we have accomplished, there is that much more to do to improve the quality of life for our patients. Our measure of success will always be the happiness of our patients. As we look back at FY 2012, I am satisfied that we have done much to improve the lives of our patients. As we look forward to 2013, I am confident that there is much, much more we can do for them. We are here for our patients, and we will never cease in letting them know that.

Prof Lee Wei Ling
Director, National Neuroscience Institute
Thought-leader in Neuroscience Care

The National Neuroscience Institute (NNI) is the national and regional referral centre for the management and treatment of neurosciences. With advanced equipment, imaging technology, comprehensive range of neurology-related services and a dedicated Neuroradiology Department, NNI is at the forefront of neuroscience care, research and education in Singapore and beyond.

Patient Care

‘CLICK AND GO!’ TREATMENT FOR STROKE PATIENTS

The introduction of the Tele-stroke service in August 2011 has enabled NNI stroke specialists to assess over 500 acute ischemic stroke patients for their eligibility to be treated with the ‘clot-busting’ tissue plasminogen activator (tPA) drug. The drug has been proven to improve overall outcomes and reduce disability when given to patients within four and a half hours of stroke onset.

Set up by NNI and the Integrated Health Information Systems (IHiS), it is available at Changi General Hospital (CGH) and Khoo Teck Puat Hospital (KTPH). The web-based system enables the neurologist to remotely examine the patient in real time via video conferencing, and evaluate his scans and vital signs.

Dr Rajinder Singh, Consultant, Department of Neurology, said: “Tele-stroke has given our specialists virtual mobility to perform consultations anywhere, to provide faster response and optimal treatment for more stroke patients round the clock. We now use a hub-and-spoke model to concentrate neurological expertise at NNI to serve multiple hospitals and to treat more patients efficiently.”

NEW DEFENSE AGAINST ACUTE STROKE

For acute stroke patients, paroxysmal atrial fibrillation, which may be missed on a routine ECG, is a frequent cause of ischemic stroke that comes with poor prognoses. In order to prevent recurrent strokes, anticoagulation is mandatory for ischemic stroke patients with atrial fibrillation.

Dr Lee Sze Haur, Senior Consultant, Department of Neurology, and a team of stroke neurologists, nurse clinicians and registrars at NNI introduced the Acute Stroke Unit and Paroxysmal Atrial Fibrillation Monitoring System. Operational since July 2012 with a newly renovated ward, the unit is able to accommodate 38 beds and monitor up to 16 patients at any one time.

In addition, patients managed in a stroke unit have a shorter stay, lower mortality rate, and improved functional outcome as compared to patients who are managed in an acute medical ward.

“Tele-stroke has given our specialists virtual mobility to perform consultations anywhere.”

Dr Rajinder Singh
NNI is committed to providing a one-stop service for patients with Parkinson disease and related disorders. Managed by clinical leads Assoc Prof Louis Tan, Senior Consultant, Dr Tay Kay Yaw, Consultant, Department of Neurology, and a team of movement disorders specialists, nurses and physiotherapists, the Integrated Services in Movement Disorders Clinics at NNI was launched in August 2012 to provide patients with direct access to the care they require to regain their mobility.

The project has enabled nurses and physiotherapists to run the clinics with doctors in assessing patients, providing targeted therapy and counselling sessions for patients with mobility disorders. Patients receive physiotherapy and counselling on the same day as their consultation visit, and suitable patients are referred directly to the therapy centre run by the Parkinson’s Disease Society (Singapore).

The introduction of these integrated services has reduced multiple visits for patients, and fostered closer interaction between the multidisciplinary team and the patients.

NNI is the first centre in Singapore to provide comprehensive care for patients with Young Onset Dementia.

**BATTING YOUNG ONSET DEMENTIA**

Although the majority of patients with dementia are elderly, 39 per cent of new cases seen at the NNI Dementia Clinic are under 65 years of age. Early diagnosis and prevention are key to managing young onset dementia with an increased chance of recovery.

The Centre for the Comprehensive Management of Young Onset Dementia (YOD), funded by the Ministry of Health (MOH), was set up in November 2012 to improve clinical care for patients with YOD.

The NNI-SingHealth Polyclinics (NNI-SHP) Cognitive Assessment and Rehabilitation (CARe) Programme was formed to develop comprehensive services for patients with dementia.

It aims to provide an early diagnosis and administer early intervention as well as support patients and caregivers with appropriate education and counselling.

NNI has services specifically tailored for patients with YOD, including advanced neuroimaging, neuropsychological evaluation and cognitive enhancement programmes.

The first centre in Singapore to provide such comprehensive care for patients with YOD, NNI’s cognitive neurologists have been providing hands-on teaching to family physicians of selected polyclinics.

**GETTING BACK IN MOTION**

**GETTING THROUGH THE PAIN**

The majority of chronic pain can be successfully managed with medication, physical therapy and cognitive-behavioural therapy. As an extension of the interdisciplinary pain services offered at the hospital, NNI has introduced the Surgical Neuromodulation Programme for patients who have tried and exhausted all traditional methods of pain management, including medication.

Supported by the MOH’s Health Services Development Programme (HSDP), this project aims to improve patients’ quality of life by relieving chronic pain, restoring function, and augment existing medical and physical therapy. For instance, with advanced technology, an electrode is placed on the spinal cord which will send a small amount of current to stimulate the spinal cord, alleviating chronic pain.
Education

THE NEUROSCIENCE ACADEMIC CLINICAL PROGRAM (ACP)

Following the introduction of the Neuroscience ACP, we can look forward to an acceleration in our Academic Medicine pursuit as there is now greater emphasis on education. It is headed by Academic Chair, Prof Lee Wei Ling, NNI’s Director, and assisted by Academic Deputy Chairs, Assoc Prof Au Wing Lok, Head and Senior Consultant, Department of Neurology at the Tan Tock Seng Hospital (TTSH) Campus, and Assoc Prof Ng Wai Hoe, Head and Senior Consultant, Department of Neurosurgery, and Deputy Director of NNI. Assoc Prof Nigel Tan and Prof Lim Shih Hui, Senior Consultants from the Department of Neurology, are the vice-chairs for Education.

These appointments show the move towards a stronger and closer collaboration between NNI’s two campuses. NNI will also provide educational support to three medical schools: the Duke-NUS Graduate Medical School Singapore, NUS Yong Loo Lin School of Medicine (YLLSoM) and Lee Kong Chian School of Medicine. Beyond this, NNI’s training programmes also admits both local and overseas elective students.

NEW APPOINTMENTS

In September 2012, Prof Lim Shih Hui, Senior Consultant, Department of Neurology was appointed Co-Chair of the Specialist Accreditation Board’s Joint Committee for Specialists Training, overseeing specialists’ training in Singapore.

Dr Kevin Tan and Dr Prakash Kumar, Consultants from the Department of Neurology, were appointed Program Directors of the Neurology Senior Residency Programme at TTSH and SGH respectively. Under the three-year training program, neurology trainees will receive training in both inpatient and outpatient settings and can further take on neurodiagnostic laboratory training, neurology subspecialty and elective postings.

ONE

The Office of Neurological Education, or ONE group, from the Department of Neurology was recently honoured with two education research awards at the 2012 Asia-Pacific Medical Education Conference (APMEC). The group won the first and the runner-up prizes in the Best Paper (Platform) category for two education research studies. The first prize was awarded to a study examining an assessment tool called the Script Concordance Test that assesses clinical reasoning in neurology trainees. The runner-up prize was awarded to a study by two NUS YLLSoM students and the ONE group. This study examines the fear of clinical neurology, termed ‘Neurophobia’, in undergraduates and postgraduate doctors.

NURTURING FUTURE NEUROSURGEONS

NNI has been designated by the World Federation of Neurosurgical Society (WFNS) as one of the recognised postgraduate fellowship training centres in the world, alongside renowned training centres such as the National Hospital for Neurology and Neurosurgery, London, New York University, and Fujita Health University. With this appointment, the Department of Neurosurgery also announced two fellowships per year for young neurosurgeons from developing countries.
Prof Tan Eng King and Assoc Prof Louis Tan, Senior Consultants with the Department of Neurology are Co-Directors heading the NNI Parkinson Disease and Movement Disorders Centre. It is one of two centres in Asia designated as a National Parkinson Foundation (NPF) Centre of Excellence for providing holistic patient care through clinical research, education and outreach.

The incidence of Parkinson disease is expected to rise as Singapore’s population ages. Through strategic partnership between NNI and two major hospitals in Singapore, Singapore General Hospital (SGH) and TTSH, the Centre attends to about 3,000 patients a year. A multidisciplinary team comprising neurologists, neurosurgeons, nurse clinicians, therapists and medical social workers, work closely to deliver seamless and comprehensive care.

To offer the highest quality advanced care to patients, the Centre is committed to research that is vital to the development of new treatments and cures. For example, a recent study showed that specific genetic variants can mediate the protective effects of caffeine-related neuroprotectives in Parkinson disease. This paves the way for further studies to identify individuals who require greater neuroprotection through caffeine consumption. Academic research projects such as this aim to reduce the burden of disease through identification of clinical, imaging or biomarkers with an aim to testing novel therapies.

“We study the genetic underpinnings of neurodegenerative diseases to unravel pathophysiologic clues that may help us identify potential therapeutic targets,” explained Prof Tan Eng King. Prof Tan also hopes to test potential therapeutic drugs and explore cellular replacement therapies that will benefit patients.

Prof Tan’s contributions in the field of neuroscience have made him among a select group of Asians to be elected into the American Neurological Association. He has been instrumental in leading research in movement disorders, particularly in the discovery of genetic risk factors unique to Asians. In 2000, he introduced the Movement Disorders Service at SGH, which set the stage for the full, integrated programme that he continues to run today.

Assoc Prof Louis Tan, who runs the clinical, research and outreach programmes of the Centre at TTSH said: “Parkinson disease is an age-related disease and with the rapidly ageing population in Singapore, there is an urgent need to prepare the healthcare resources in the institutions and the community to better manage this disorder.” Assoc Prof Tan is the Chair of the Asia and Oceania Section of the International Parkinson and Movement Disorder Society, of which Prof Tan is the former Treasurer.
Research

GOING 3D
Virtual reality may be the new solution for rehabilitation in stroke and early dementia patients. Launched in September 2012 by NNI doctors and IT specialists from the IHiS, the 3D software simulates real-life situations and everyday tasks in a local context that patients can easily relate to.

The first of its kind in the Asia-Pacific region, the software works like an interactive game, rewarding patients with instant feedbacks and sound effects, and has various complexity levels to match different abilities. As patients perform different tasks with the computer controls, data from their actions and decisions are tracked.

The virtual reality simulation programme is implemented at clinics that specialise in the assessment and diagnosis of memory disorders. Plans are underway to extend the service to patients at regional hospitals through the tele-health infrastructure.

Asst Prof Nagaendran Kandiah, Consultant, Department of Neurology, said: “The programme helps doctors identify gaps in the patient’s brain function. The software is a departure from the traditional questionnaire administered by a psychologist to test for memory loss. The technology will allow the clinic to better cope with forecasted patient numbers, set to double to 55,000 patients over the next seven years.”

Asst Prof Kandiah, who began work on the pioneering project in 2010, added: “With the programme, doctors and nurses can assess several patients at one time, leading to shorter waiting time, earlier diagnosis and faster treatment for the patient.”

GREEN TEA TO TREAT PARKINSON DISEASE
NNI and researchers at NUS YLLSoM have identified a component in green tea called EGCG that provides cellular protection against Parkinson disease. The study found that EGCG-treated fruit flies exhibited better movement ability and showed significant preservation of their brain neurons, compared to untreated flies. More importantly, the study identified the cellular target that EGCG acts on as the protein AMP kinase – one that helps to regulate energy demand in the brain when activated.

The study, led by Dr Ng Chee Hoe, Associate Research Scientist at NNI, and Assoc Prof Lim Kah Leong from NUS YLLSoM, was published in the October 2012 issue of the Journal of Neuroscience, a leading international neuroscience journal.

This discovery may pave the way for the development of more effective drugs for patients afflicted with this debilitating disorder.
JOINING HANDS TO FIGHT AGAINST TUMOURS

To advance the treatment for brain cancer patients, NNI, NUS and the Singapore Institute for Clinical Sciences (SICS, A*STAR) jointly conducted a study to ascertain the role of a new tumour suppressor known as parkin, and how it affects brain tumour progression in patients. The study showed that the level of parkin expression in glioma cells could determine the survival outcome and molecular features of the tumour that currently cannot be distinguished by morphology-based histological approaches.

The discovery is made through the collaborative work led by Assoc Prof Lim Kah Leong, Dr Carol Tang, Research Scientist, NNI, and Assoc Prof Ang Beng Ti, Senior Consultant, Department of Neurosurgery and Senior Principal Investigator, SICS, A*STAR. The study, which began in 2009, was published in the May 2012 issue of Cancer Research, a leading international cancer journal.

“With this understanding, instead of generalising malignant brain cancer patients, we can now differentiate their tumours based on their molecular characteristics,” said Assoc Prof Lim. Assoc Prof Ang added, “This is significant as the stratification would allow us to formulate the most appropriate treatment for each patient.”

Our People

ADVANCED PRACTICE NURSES

The Stroke and Dementia Services respectively elected Ms Ng Wai May and Ms Linda Lim for the Advanced Practice Nurses (APN) programme. APNs are integral members of the sub-specialty team. Not only are they trained in the overall care coordination and management for their respective sub-specialties, they also run independent clinics and manage patients with stable neurological conditions.

EPIC PROJECTS

One of NNI’s EPIC projects rolled out in FY 2012 was the redesign of data entry process to achieve a more complete capture of stroke activations and the selection process of patients eligible for thrombolysis. Patients with low National Institute of Health Stroke Scale (NIHSS) scores are not selected for thrombolysis therapy, and the project aimed to relook this selection process.

The team is led by Dr Daniel Oh, Consultant, Dr Carol Tham, Registrar, and Ms Ng Wai May, APN, from the Department of Neurology. Since January 2013, stroke activation documentation has improved and more patients with low NIHSS scores have been considered for thrombolysis.

NNI is also embarking on a feeding programme to optimise the nutritional values of outpatients with neurodegenerative diseases. The programme aims to reduce admission rates, increase caregivers’ competencies and save overall medical costs. The project is led by Ms Linda Lim, APN, Ms Li Wei, APN, Ms Tan Chew Seah, Senior Staff Nurse and Ms Wong Siew Li, Dietitian, TTSH.

Another key EPIC project was the “Redesign The CT Scanning Process In Order To Reduce Effective Dose To Patients Whilst Maintaining The Image Quality”, developed by Dr Wai Yung Yu, Senior Consultant, Mr Ho Thye Sin, Principal Radiographer, Ms Wai-Yee Chan, Nurse Manager, Assoc Prof Francis Hui Kim Hoong, Head and Senior Consultant, Department of Neuroradiology, and Mr Henry Ko, Analyst, Centre for Health Services Research, SingHealth.

The project aimed to reduce the radiation dose given to patients during CT scan while maintaining the quality of images rendered. The team found a solution by using different sets of exposure parameters during the scan.
Community Engagement

TOPICS OF INTEREST

NNI participated in numerous forums aimed at increasing public awareness on dementia and Parkinson disease. Two public forums on Parkinson disease were conducted in FY 2012, including the first joint KTPH-NNI public forum on Parkinson disease held in August 2012, a Dementia Public Forum held in October 2012, as well as NNI’s 5th Dementia Awareness Day which was held concurrently, where 250 participants were given free cognitive screenings.

NNI also reached out to community care partners, allied health professionals and General Practitioners (GP) with programmes such as the Community Care Partners Programme (CCPP) for Parkinson disease, and two training workshops titled ‘Better Communication and Healthier Eating in People with Parkinson Disease’ and ‘A Multidisciplinary Approach Towards Caring for People with Advanced Parkinson’. Organised by NNI and TTSH as well as SGH speech therapists and dietitians, the event saw the participation of over 50 partners and healthcare professionals. Five seminars on common neurological conditions were also conducted for GPs and primary healthcare physicians.

In March 2013, the 4th EEG–EMG–AUTONOMIC Workshop, an interactive teaching course with live demonstrations and hands-on tutorials on EMG, EEG and Autonomic Function Tests, as well as diagnostic imaging of the peripheral nervous system, was organised by the Department of Neurology for doctors and healthcare technicians from Singapore and the region.

The Dementia Public Forum was held in 2012, along with a free memory screening for the public.

Dr Tay Kay Yaw, chairperson of CCPP, welcoming participants to the workshop.
Key Figures

National Neuroscience Institute

<table>
<thead>
<tr>
<th>Workload per annum</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Outpatient Clinic Attendances</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40,673</td>
<td>40,795</td>
</tr>
</tbody>
</table>

Staffing (as at 31 Mar 2013)

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>240</td>
<td>239</td>
</tr>
<tr>
<td>Doctors</td>
<td>80</td>
<td>82</td>
</tr>
<tr>
<td>Nurses</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>44</td>
<td>42</td>
</tr>
<tr>
<td>Others</td>
<td>86</td>
<td>84</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
PATIENT CARE

GCEO Excellence Awards 2013
Outstanding Clinician Award (Special Mention)
• Assoc Prof Lo Yew Long

Outstanding Nurse Award (Special Mention)
• Emily Ang Li Ling
• Low Hwee Huang

Outstanding Educator Award (Special Mention)
• Assoc Prof Nigel Tan Choon Kiat

Outstanding Clinician Researcher Award (Special Mention)
• Assoc Prof Christopher Ang Beng Ti

Outstanding Allied Health Professional Award
• Wee Liang Kwee

Outstanding Ancillary Staff Award
• Patricia May Blunden

National Day Awards 2012
Efficiency Medal
• Lau Puay Ngoh

Singapore Health Quality Service Award 2013
Gold Award
• Dr Prakash Kumar
• Dr Shahul Hameed
• Tay Lian Bee

Silver Award
• Chang Chao Li
• Johnny Eng
• Doris Goh Swee Lian
• Grace d/o Krishnan
• Halimatul Sa’adiah Bte Idris
• Jahara Binte Ameng
• Jestase Posman
• Michelle Li
• Assoc Prof Lo Yew Long
• Ng Shih Lee
• Rose Sharon
• Dr Yip Chun Wai
• Linda Yong

EDUCATION

Asia Pacific Medical Education Conference 2012
Best Poster – 1st Prize
• Asst Prof Nagaendran Kandiah
• Dr Kevin Tan
• Assoc Prof Nigel Tan Choon Kiat

Best Poster – Runner-up
• Dr Kevin Tan
• Assoc Prof Nigel Tan Choon Kiat

Duke-NUS Outstanding Faculty Advocacy Award
• Assoc Prof See Siew Ju

Development Award
• Assoc Prof Lo Yew Long

Engagement Award
• Prof Lim Shih Hui
• Assoc Prof Ivan Ng

Learning Award
• Assoc Prof Umapathi N Thirugnanam

Duke-NUS Outstanding Medical Education Research Paper Award
• Dr Nagaendran Kandiah
• Dr Kevin Tan
• Assoc Prof Nigel Tan Choon Kiat

HOMER Grant for Neuroradiology e-learning
• Dr Kevin Tan
• Assoc Prof Nigel Tan Choon Kiat

NHG Outstanding Partner Award (NHG IM Residency Core Faculty)
• Assoc Prof Umapathi N Thirugnanam

NUHS NICE Education Grant
• Dr Kevin Tan
• Assoc Prof Nigel Tan Choon Kiat

NUS Dean’s Award for Teaching Excellence 2012
• Assoc Prof Lee Kim En

NUS Friend of Medical Society Award
• Assoc Prof Lee Kim En

NUS Yong Loo Lin School of Medicine Dean’s Award for Teaching Excellence
• Assoc Prof Lee Kim En

SingHealth Academy Duke-NUS Golden Apple Awards 2012
Outstanding Creative Educator Award (Medical)
• Dr Kevin Tan

RESEARCH

MOH Duke-NUS Block Grant 2012
• Dr Kevin Tan

HUMAN RESOURCE

SingHealth Talent Development Fund (TDF) Award
Faculty development & training
• Tan Il Fan

Education
• Dr Josiah Chai
• Dr Goh Jia Jun
• Dr Jai Rao
• Assoc Prof See Siew Ju
• Dr Seow Wan Tew
• Dr Shahul Hameed
• Tan Il Fan
• Dr Kevin Tan
• Assoc Prof Nigel Tan Choon Kiat
• Dr Simon Ting
• Dr Yip Chun Wai

Service (Administration, Research, Medical Informatics)
• Lee Kah Keow

SingHealth Academy Duke-NUS Golden Apple Awards 2012
Outstanding Creative Educator Award (Medical)
• Dr Kevin Tan
"I am thankful to Dr Gemmy Cheung for restoring my vision. With her astute clinical skills and care, my vision has improved significantly and I am able to enjoy a better quality of life as a result."

Mdm Helen Yeo, 66 years old, almost lost her sight in her right eye due to complications from diabetes.

With Dr Gemmy Cheung, Senior Consultant, Vitreo-Retinal Service
Singapore National Eye Centre (SNEC) reached new heights in FY 2012 on several fronts. In Clinical Service, we introduced a safer, more reliable method of cataract surgery with the femtosecond laser technique. To serve our increasing number of patients better, we renovated our subsidised clinics, which also enhanced the patient flow process and created a better all-round environment. We were re-accredited with the Joint Commission International (JCI) certification, a reflection of our emphasis on achieving the highest standards of quality and patient safety.

On the Education front, SNEC launched the Ophthalmology Academic Clinical Program. This will bring together and strengthen the clinical service, teaching and research capabilities of SNEC, leading to better outcomes for our patients.

In Research, SNEC’s partner, the Singapore Eye Research Institute, reached a significant milestone and marked its 15th anniversary. Among the achievements this year included a S$25 million Translational Clinical Research (TCR) grant, a discovery linking glaucoma to genes that can cause blindness and a special gel that prevents post-operative scars in glaucoma patients.

SNEC continues to make a strong impact in ophthalmology in the international arena. Founding medical director Prof Arthur Lim was lauded for introducing blindness prevention programmes in China while I am pleased to be the first cornea surgeon outside the USA to head the USA-based World Cornea Society.

Overall, FY 2012 was a good year made possible by the efforts of team SNEC – the doctors, nurses, allied health, ancillary and administrative staff.

Prof Donald Tan
Medical Director, Singapore National Eye Centre
Achieving Distinction in Ophthalmology

Since its opening in 1990, Singapore National Eye Centre (SNEC) has grown to become a leading local and regional referral centre for secondary and tertiary management of eye-related diseases. SNEC continues to spearhead and provide specialised ophthalmic care with a strong emphasis on education and research.

Patient Care

CLEARER DAYS AHEAD

In April 2012, SNEC introduced the femtosecond laser technology system, previously used in LASIK surgery, to perform cataract surgery procedures. This new development in microsurgery is not only safer and more reliable in the treatment of cataracts, it also gives ophthalmologists more control when performing microsurgery for eye. “This new technology allows SNEC to ensure better and more predictable outcomes for patients,” said Prof Donald Tan, Medical Director. The new system also offers the potential for bladeless surgery, as some lasers can now make corneal incisions.

FOSTERING BETTER PATIENT EXPERIENCE

In a bid to improve patient satisfaction levels as well as cater to the increasing patient volume, the outpatient (subsidised) clinics underwent renovation. Besides improvements to enhance the ambience of the clinics, age-friendly features such as clear and bold signage for easier navigation for wheelchair-bound and elderly patients were also rolled out. These improvements will go a long way in creating a more pleasant experience for the more than 300 patients that the clinic sees daily.

WE DID IT AGAIN!

SNEC has once again attained the Joint Commission International (JCI) re-accreditation, an international benchmark and endorsement of quality patient care and patient safety. This achievement is not just a validation of our clinical standards, but also a reflection of our emphasis on continuous improvement to provide the highest standards of care for our patients.

Assoc Prof Chee Soon Phaik, Head and Senior Consultant, Department of Cataract Service, performing the femtosecond cataract surgery.

The renovated subsidised clinics will better cater to the increasing number of patients seen at the clinics.

SNEC also launched the Wayfinder Kiosk in April 2012 in an effort to digitise its signage and posters onto a single platform. Patients and visitors will now have easier access to information on doctors, sub-specialties and surrounding amenities with this kiosk.

SingHealth Annual Report 2012 153
A MAJOR MILESTONE IN ACADEMIC MEDICINE

The Ophthalmology Academic Clinical Program (Eye ACP) was formally established in FY 2012 to push the envelope in research and education. Spearheading the Eye-ACP are Academic Chair Prof Donald Tan; Academic Vice-Chair (Clinical) Assoc Prof Chee Soon Phaik, Head and Senior Consultant, Ocular Inflammation and Immunology Service; Academic Vice Chair (Research) Prof Wong Tien Yin, Senior Consultant and Deputy Medical Director (Research), Vitreo Retinal Service; and Academic Vice-Chair (Education) Assoc Prof Ian Yeo, Senior Consultant, Vitreo Retinal Service.

RESEARCH BREAKTHROUGH FOR FAR-SIGHTEDNESS

A team of researchers from SNEC and SERI secured a S$25 million Translational & Clinical Research (TCR) grant in FY 2012, to study issues pertaining to presbyopia.

The team have found a way to reverse presbyopia by establishing that corneal tissue or lenticules re-implanted into the eyes of people with thin corneas can restore corneal thickness. Lenticules that have been surgically removed from people in their 20s to rid them of short-sightedness can be re-implanted into the eye 20 to 30 years later to halt presbyopia.

“We can shape and reshape, and safely implant donated lenticules into the eyes of patients without worrying about rejection,” said Prof Donald Tan, the lead principal investigator.

With clinical trials starting in FY 2013, the study brings new hope for patients in Singapore and across the region suffering from this condition.

IN THE GENES

A discovery at SERI that found three genes linked to glaucoma will transform how doctors identify and treat patients who have a higher chance of developing the disease.

The study, jointly led by Prof Aung Tin, Head and Senior Consultant, Ophthalmology Glaucoma Service, and Deputy Executive Director, SERI, together with Assoc Prof Eranga Vithana, Head of Ocular Genomics Research Group and Associate Director, Basic and Experimental Sciences, SERI has found that a person with all three of the identified genes is three times more likely to have Primary Angle-Closure Glaucoma (PACG) compared to a person who does not have any of the genes. “Ultimately, we hope that genetic marking will better help us identify people at risk in the future,” said Prof Aung.

The researchers will use the results to further investigate the connection between genes and PACG, and eventually, the formation of new techniques and approaches to combat glaucoma.

Three genes linked to glaucoma will transform how doctors identify and treat patients who have a higher chance of developing the disease.
**KNOWLEDGE SHARING**

Doctors and scientists from SNEC and SERI had the honour of having three of their papers published in *The Lancet*, one of the world’s oldest and most respected medical journals. In-depth reviews of the leading cause of myopia and age-related macular degeneration were featured along with an article on the advances in corneal transplantation.

One of the featured articles was by Prof Donald Tan, who highlighted the emerging trend of sutureless key-hole transplants replacing conventional penetrating transplant procedures. Some of the former include Endothelial Keratoplasty (EK) and Deep Anterior Lamellar Keratoplasty (DALK), both of which provide improved visual outcomes, higher graft survival rates and less post-operative complications. SNEC performs 85 per cent of all corneal grafts in Singapore.

The review was co-authored by leading global experts on corneal transplantation who also covered developments in artificial cornea technology and stem cell transplants.

**SUPER-GEL FOR GLAUCOMA PATIENTS**

In a collaboration between SNEC, SERI and Nanyang Technological University (NTU), a team of researchers have developed a slow-acting gel that releases drugs over a 48-hour period, minimising and preventing further scarring in the eyes of patients who have just undergone glaucoma surgery. A clinical trial has shown that the new drug delivery method resulted in 40 per cent fewer injections needed by glaucoma patients after surgery. This also means fewer hospital visits for these patients in future.

Led by Assoc Prof Tina Wong, Senior Consultant, Glaucoma Service, the team comprised Dr Arun Narayanaswamy, Service Registrar, SERI, and Prof Subbu Venkatraman, NTU. SNEC sees more than 600 patients a year for this type of surgery. The team is improving the new treatment method further by using nano-encapsulation and is hopeful that the drug will be available for use by patients in as little as four years’ time.

**THE EYE BALL**

SERI celebrated its 15th year of successful eye research in conjunction with a fundraising gala dinner – The Eye Ball – held on 24 October 2012. The event aims to create awareness and raise funds for eye research that benefits the community. The event, where a total of S$460,000 was raised through table sales, outright donations and the auction of donated items, was graced by President Tony Tan.
With over 250 publications and more than 90 international conference lectures to his name, Prof Aung Tin continues to break new ground in ophthalmology research.

Prof Aung Tin, Head (Research, Education & Development), Glaucoma Service, SNEC, is a specialist in clinical glaucoma, particularly in the areas of Primary Angle-Closure Glaucoma (PACG) and molecular genetics of eye diseases. His achievements in these research areas have won him numerous awards including the prestigious Singapore National Medical Research Council – Biomedical Research Council Clinician Scientist Award, the President’s Science and Technology Award and the Nakajima Award from the Asia Pacific Academy of Ophthalmology.

His active clinical glaucoma research has received substantial funding support over the years, and allowed him to conduct numerous studies on therapeutics, imaging, screening, clinical course and surgical outcomes.

“Glaucoma, if left untreated, leads to irreversible blindness, which is why research in this area is so significant,” said Prof Aung. Under his many leadership designations, including Deputy Director, SERI, Prof Aung has led several major discoveries in glaucoma research.

In FY 2012, Prof Aung, together with Assoc Prof Eranga Vithana, jointly led a research study that linked glaucoma to three genes, where a person with all three of these genes is three times more likely to have PACG compared to a person without any of these genes.

On the possibilities brought about by this new knowledge, Prof Aung said: “This will help us identify those at risk and gain a better understanding of PACG, including helping to explain why some people are genetically predisposed to the disease.” It is the second most common glaucoma found worldwide and affects mostly Asians, among whom those of Chinese ethnicity are anatomically predisposed to PACG.

Another research study led by Prof Aung on the heritability and sibling risk of narrow angles, a known precursor to the development of PACG, found a high heritability of nearly 60 per cent for narrow angles among first-degree relatives of patients with Primary Angle Closure (PAC) and PACG. The results led to the advice that general practitioners caring for Chinese patients suffering from PAC or PACG should encourage these patients to bring their siblings for regular screenings. The study was published in the leading ocular research journal Ophthalmology.

Collaboration plays a significant role in Prof Aung’s research as it provides opportunities for the best minds to come together to share their expertise and resources. He also believes in synergising the strengths of investigators and research scientists to enhance translational research. “It is the collaboration of clinicians and scientists that will elevate the standard of research studies,” he said.

Expanding collaboration locally and internationally will continue to be a key focus for Prof Aung. Looking forward, he will continue his research on PACG, a major cause of blindness worldwide that is expected to become an even more serious problem with the growing aging population.
Our People

RECOGNISING OUR STARS

Leading the World Cornea Society

SNEC was recently placed on the world map of ophthalmology when Prof Donald Tan became the first cornea surgeon outside the USA to be appointed as president of the World Cornea Society. The 37-year-old society, based in the USA, plays a pivotal role in unveiling new techniques and treatment to eye surgeons around the world. Prof Tan attributed his new appointment to Singapore’s prominence in cornea transplants.

First Asian Conferred Bayer Grant

Dr Gemmy Cheung, Senior Consultant, Vitreo-Retinal Service, received a US$25,000 international research grant for a study that will pave the way to early and more targeted diagnosis of Age-related Macular Degeneration (AMD), a major cause of blindness in Singapore.

Dr Cheung is the only Asian among 61 applicants to win the grant, which is part of the inaugural Global Ophthalmology Awards Programme launched by Bayer HealthCare.

FIGHTING BLINDNESS IN CHINA

Prof Arthur Lim, Founding Director of SNEC and Emeritus Senior Consultant, has been working to reduce cataract blindness in China since 1986. Under Prof Lim’s leadership, more than 5,000 local specialists have been trained in 10 eye centres, which he helped establish across the country. Access to these centres has benefitted nearly half a million eye patients to date. By personally performing pro-bono surgery and donating generously to the eye centres in China, he also helped enhance bilateral ties between Singapore and China. He was conferred the 2012 Business China Excellence Award for his contributions to combating cataract blindness in China.

Community Engagement

BRINGING EYE CARE TO SCHOOLS

To educate students on proper eye care, conditions such as myopia and the correct way to wear contact lenses, a series of eye care talks and exhibitions were held in FY 2012 at primary and secondary schools across Singapore.

Held in partnership with various schools and voluntary welfare organisations, the public education programmes reached out to about 2,500 students. One such event was a talk organised by SNEC and the Lions Save Sight Centre in March 2012, where students from Eunos Primary School and Pasir Ris Secondary School learned about the importance of practising good eye habits.

Another outreach programme was a project called ‘At First Sight’, carried out by students from the Wee Kim Wee School of Communication and Information at NTU. The project was a two-month long campaign to educate tertiary students on proper eye care. Dr Lim Li, Head and Senior Consultant (Clinical Service and Education), Cornea Service, provided expert advice on the use of contact lenses. Activities for the campaign included talks, exhibition and a photography competition.

A DAY FOR THE EYE

SNEC also organised community outreach programmes on a regular basis to take eye care services to the community. One event held in November 2012 was National Eye Care Day 2012, which was led by SNEC with the participation of staff from the eye departments of various hospitals such as National University Hospital, Khoo Teck Puat Hospital and Tan Tock Seng Hospital. More than 1,500 participants received free eye screenings at the event.

PRESIDENT’S CHALLENGE

For President’s Challenge 2012, SNEC raised a total of S$21,000 over a four-month period through various fundraising programmes. Staff at SNEC and other SingHealth institutions showed tremendous support for these activities, which included the highly successful charity bazaars and the SNEC Oktoberfest and Beer Challenge 2012.
Key Figures

Singapore National Eye Centre

**Workload per annum**

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day Surgeries</td>
<td>31,990</td>
<td>29,617</td>
</tr>
<tr>
<td>Specialist Outpatient Clinic Attendances</td>
<td>283,153</td>
<td>280,031</td>
</tr>
</tbody>
</table>

**Staffing (as at 31 Mar 2013)**

- **Total**: 604
  - **Doctors**: 95 (2012: 96)
  - **Nurses**: 179 (2012: 182)
  - **Allied Health Professionals**: 95 (2012: 91)
  - **Others**: 236 (2012: 216)

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.

Awards & Accolades

**PATIENT CARE**

- **Asia Pacific Academy of Ophthalmology 2012 Achievement Award**
  - Dr Carol Cheung
- **Asia Pacific Academy of Ophthalmology 2013 Distinguished Service Award**
  - Adj Assoc Prof Lee Shu Yen
- **Achievement Award**
  - Prof Wong Tien Yin
  - Dr Doric Wong
- **Outstanding Prevention of Blindness Award**
  - Dr Gemmy Cheung
- **Nakajima Award**
  - Adj Assoc Prof Jodhbir S Mehta
- **American Academy of Ophthalmology (AAO) 2012 Senior Achievement Award**
  - Prof Donald Tan
- **Business China Excellence 2012 Award**
  - Prof Arthur Lim
- **MOH Nurses Merit Award 2012**
  - Audrey Kon
- **National Day Awards 2012 Public Service Star (BBM)**
  - Dr Dominic Leung
- **Commendation Medal**
  - Margaret Tan
- **Efficiency Medal**
  - Noraini Bte Hashim
- **Long Service Medal**
  - Dr Yvonne Ling
  - Dr Peter Tseng
- **Singapore Health Quality Service Award 2013 Star Award**
  - Dr Daniel Su
  - Yeo Hui Choo Annie
Gold Award
- Dr Rahat Husain
- Wong Lee Yun Lily (Julia)
- Leong Tuck May
- Liew Li Ching Karen
- Lim Su Li
- Sam Pui Yi Shirllyn
- Tan Lay San Carin
- Dr Doric Wong
- Rohani bte Yunos

Silver Award
- Dr Anshu Arundhati
- Dr Boey Pui Yi
- Chan Gam Fook
- Chia Ying Hui Yonah
- Dr Yvonne Chung
- Dr Daphne Han
- Lek Xuan
- Lim Su Yen Laura
- Dr Loo Jing Liang
- Salina bte Masri Khan
- Dr Mohamad Rosman
- Adj Assoc Prof Seah Lay Leng
- Nurayuni bte Selamat
- Cecilia d/o Selvaraji
- Tai Cheah Ee
- Tan Zhen Kiat
- Dr Wang Jenn Chyuan
- Wee Hui Huang Angela
- Wee Bee Choo
- Wong Foong Chung Wendy

SingHealth Outstanding Transplant Nurses Award 2012
- Isabella Lim

Healthcare Humanity Award 2013
The Courage Fund
- Low Siew Ngim

Young Eye Care Ambassador Award (Eye and Health Vision Awards 2013)
- Dr Marcus Ang

RESEARCH

American Society of Cataract and Refractive Surgery (ASCRS) – Symposium
Best Paper of Session
1-K Keratorefractive Lasik
- Dr Cordelia Chan

Video 2nd Prize
- Dr Chelvin Sng

Global Ophthalmology Awards (Bayer Healthcare)
- Dr Gemmy Cheung

The Khoo Scholars Program
- Dr Carol Cheung
- Dr Anna Tan
- Asst Prof Sabanayagam Charumathi

National Medical Research Council Clinician Scientist Award
- Dr Cheng Ching-Yu
- Dr Kamran Ikram
- Adj Assoc Prof Louis Tong

Transition Award
- Asst Prof Nobuyo Yawata
- Asst Prof Sabanayagam Charumathi

NUHS Awards
Faculty Outstanding Researcher Award 2012
- Prof Aung Tin

NHG Eye institute 4th International Ophthalmology Congress Poster Merit Award
- Andrea Petznick

SingHealth Duke-NUS Scientific Congress 2012 Best Oral Presentation – (Clinical Research)
- Dr Arun Kumar Narayanaswamy

Singapore Health & Biomedical Congress 2012
Singapore Young Investigator Basic Science/Translation Research Bronze Medal
- Dr Queenie Li Ling Jun

SingHealth Publish! Award Medical Research Category
- Dr Carol Cheung

Asian Pacific Society of Hypertension and Hypertension Sydney 2012 Young Investigator Grant
- Asst Prof Kamran Ikram

Vision Research EU Vision Research and Ophthalmology – Best Photo
- Kasi Sandhanam

XXX Congress of the ESCRS Best Paper
- Dr Romesh Agunawala

XXX International Adenovirus Meeting Best Poster Award
- Asst Prof Peggy Cheung

2012 ARVO Travel Grant
- Soh Yu Qiang Andrew

2nd Joint International Congress – Refractive online & SICSSO Best Paper
- Prof Donald Tan

3rd Tissue Engineering and Regenerative Medicine International Society World Congress Conference Poster Award – 3rd prize
- Pradeep Paul Panengad

29th Malaysia-Singapore Joint Ophthalmic Congress 2013 Poster Award – 2nd prize
- Dr Henrietta Ho

Poster Award – Merit prize
- Dr Queenie Li Ling Jun

HUMAN RESOURCE / TALENT DEVELOPMENT

Singapore Health Award 2012 Gold Award
- Singapore National Eye Centre

Singapore Effies Awards 2012 Non-profit Category (Bronze Award)
- Singapore Eye Research Institute
Jacqueline is a fine example of a nurse who takes great interest in a patient’s well-being. Besides spending time to explain my condition and blood test results to me, she also provides advice on lifestyle and medication changes as well as reminders on follow up tests.

Mr Robert Tan, 57 years old, has seen an improvement in his hypertension and hyperlipidemia ever since he started consultation with Ms Giovanna.

With De Roza Jacqueline Giovanna,
Nurse Clinician, SHP-Geylang
With the changes in the primary care landscape in 2012, SingHealth Polyclinics (SHP) has had to adapt and strengthen its focus on patient outcomes and experience, through care delivery, research and education.

SHP has enhanced one of our care delivery models, the TeleCare (TLC) programme for patients with well-controlled chronic conditions and patients who require insulin therapy and insulin titration. These telephony programmes enable patients to be managed at home and reduce their clinic visits. Patients are also empowered to take greater responsibility for their own health through self-care management tools.

We are also pleased to announce the formation of the SHP Department of Research to advance capabilities and grow Family Medicine research. SHP launched its first mobile application as part of ASPIRE (Asthma Self-Management Phone Intervention Research), an investigator-initiated study by Dr Tan Ngiap Chuan, Director of Research. Collaboration with other institutions such as SingHealth Investigational Medicine Unit on a GlaxoSmithKline-sponsored Human Papilloma Virus vaccine trial will drive SHP research efforts to bring about better health for patients.

On the education front, we have seen the number of Family Medicine Residents enrolled in SHP double over the previous year’s. Six nursing staff have completed the Master’s Degree in Nursing and are currently undergoing internships at SHP. The progress of our education efforts in FY 2012 bodes well for our goal to be recognised as the leading Family Medicine Centre.

In support of scaling up Family Medicine Residency training, SHP-Geylang is the first polyclinic in SHP to house the Academic Family Medicine Centre, a dedicated training centre that provides a better training environment for our Residents.

These initiatives and achievements are an affirmation of our commitment to our patients and to improve their health outcomes. SHP will continue to push innovation in our care delivery, research and education in the years ahead.

Asst Prof Tan Chee Beng
CEO, SingHealth Polyclinics

Asst Prof Tan succumbed after a two-year battle with prostate cancer on 3 September 2013. He donated his body to the National University of Singapore’s Yong Loo Lin School of Medicine for medical research. Asst Prof Tan was appointed CEO of SHP in 2002 and made invaluable contributions in his time there.
A Family-focused Approach to Healthcare

SingHealth Polyclinics (SHP) is a leader in Family Medicine, offering seamless, patient-centric healthcare across a network of nine polyclinics. SHP provides affordable and accessible primary preventive healthcare services to the community, promotes a healthy lifestyle and empowers individuals with knowledge of common health issues, care and treatment options.

Patient Care

A PERSONAL TOUCH FOR CHRONIC CARE

In June 2012, SHP fully rolled out TeleCare (TLC), a chronic care management delivery service, at all of its polyclinics to provide better care for patients with chronic conditions.

First launched at SHP-Geylang in December 2010 for patients with well-controlled chronic conditions, TLC sees nurses having regular phone contact with patients to review and monitor their health status in between scheduled doctor’s visits. Since its launch, TLC has been warmly received, with over 1,800 patients enrolled in the service to date.

In June 2012, TLC was further extended to patients with diabetes who are required to start on insulin. Recognising that these patients may feel anxious, TLC nurses will guide patients on how to prepare and inject insulin, monitor their blood glucose and identify and manage symptoms of hypoglycemia. More than 600 patients with diabetes have been enrolled in TLC- Insulin Initiation, and 93 per cent have completed the service since its introduction.

Since February 2013, SHP has also extended TLC to patients with poorly controlled diabetes who are on insulin; this was piloted in June 2011 at SHP-Pasir Ris.

In addition, TLC has been particularly useful for patients who require insulin titration. It helps diabetes patients adjust their insulin dose to optimise blood sugar levels without frequent visits to the clinic, reducing the need for long wait for consultations. It also allows hypoglycemia to be recognised early and addressed promptly by our trained nurses, giving patients more independence and greater control over their condition.

To date, 40 patients with diabetes undergoing insulin titration have gone through TLC, with 85 per cent showing a marked improvement in their condition.

Given its extensive reach to patients, TLC changes the healthcare delivery model in Singapore with increased access to primary care. It also serves as a foundation for future care models.
SAFETY COMES FULL CIRCLE

SHP launched ‘Patient Safety Walkrounds’ in January 2013 as part of its continuous efforts to provide good and safe care for patients. Under this initiative, the SHP senior management team conducts visits to polyclinics on a monthly basis to gather staff feedback on patient safety concerns. Since the roll-out, the initiative has increased staff awareness of patient safety and provided opportunities for staff to share their views and suggestions.

Some of the key issues raised include the risk of falls in patients who use the Body Mass Index (BMI) machine at the Health Monitoring Stations and accessibility to other floors within a clinic during an emergency. To address these issues, Clinical Operations and Facilities Department worked with the clinics to improve the design of the BMI machine and accessibility within the clinic.

ENHANCING PHARMACY SERVICES

To improve the overall quality of care for patients, several pharmacy service enhancement initiatives were implemented in FY 2012.

Medication Review Service was rolled out at all nine polyclinics, allowing SHP pharmacists to document cases directly on electronic patient records. Doctors are able to refer easily to the notes made by pharmacists, and take them into consideration during the patient’s consultation. This seamlessly connects healthcare providers with updated information on individual patient’s health records, and is a vital component of patient care. On average, SHP pharmacies review more than 700 cases a month. The Medication Review Service optimises medication therapy and minimises any potential medication issues for patients.

The Anti-coagulation Therapy Management Service (ACS) was another key initiative rolled out by SHP Pharmacy. With a set of pre-defined protocols, it aims to help patients on warfarin better manage their condition through patient education, close individualised monitoring and care. An electronic template has been developed in SHP clinical documentation system (Sunrise Clinical Manager) for ACS documentation.

ACS has been rolled out at three polyclinics – Bukit Merah, Queenstown and Marine Parade – and will be rolled out at the remaining six polyclinics in FY 2013.

SHP Pharmacy also embarked on the direct interface of the electronic prescribing module in the Sunrise Clinical Manager System with the Pharmacy Prescription and Inventory Management System (PPIM System). This initiative eliminates the manual task of keying information into the PPIM System, allowing staff to focus on other duties such as prescription verification, medication picking, dispensing and medication counselling.

Over 700

The number of cases reviewed by SHP pharmacies a month.
Education

HONOURING TEACHING COMMITMENTS
In FY 2012, SHP trained more than 160 medical students – 130 from the NUS Yong Loo Lin School of Medicine (YLLSoM) and 38 from Duke-NUS Graduate Medical School Singapore (Duke-NUS). There were also 24 postgraduate trainees in Family Medicine (FM).

To enable students to have a better appreciation of primary healthcare services, SHP involved students in planning, preparing and delivering various education outreach programmes for the public. Topics covered include allergic rhinitis, diabetes and dementia. As a further affirmation of our teaching efforts, SHP saw an increase in the number of overseas medical student attachments, from six in FY 2011 to 19 in FY 2012.

As part of continual improvements to healthcare quality, SHP organised more than 330 Continuing Medical Education (CME) activities aimed at updating our healthcare professionals’ medical knowledge.

SHP’s training centre, PRiME (PRImary care Medical Education), also organised various workshops and courses for the professional development of Family Physicians. Women's Health was also added to the list of topics to provide more holistic training for Family Physicians.

SHP achieved re-certification as an accredited training centre for FM by the College of Family Physicians Singapore for a period of three years from December 2012 to November 2015. With the re-certification, SHP is now one of four recognised FM Accredited Training Centres conducting core FM CME programmes.

PRiME organises courses such as CPR and AED trainings.

KEEPING ABBREAST OF THE LATEST IN MEDICINE
PRiME organised the 4th SHP Clinical Update Symposium in July 2012 to keep doctors updated on the latest advances in medical knowledge with a focus on primary care and FM.

The event saw a great turnout of close to 190 staff and General Practitioners (GP). Both primary care and hospital specialists shared their clinical experience through case discussions with participants who gathered useful knowledge for better patient management.

Close to 190 staff and General Practitioners attended the 4th SHP Clinical Update Symposium where specialists and participants exchanged their knowledge.
The first Academic Family Medicine Centre in SingHealth Polyclinics.

**Enhancing Family Medicine Residency Potential**

The SingHealth FM Residency scaled up its residency training to four polyclinics – Queenstown, Geylang, Outram, and Sengkang – doubling its intake to a total of 32 Residents.

SHP-Geylang is the first polyclinic in SHP to house the Academic Family Medicine Centre. The training centre has preceptor and interview rooms connected by a long corridor behind the consultation rooms, which allows senior doctors to monitor, observe and engage trainees while they are seeing patients.

**Distance-Learning Improves ElderCare**

In preparation for a new pilot programme on mental health, SHP Pharmacy added two distance-learning courses – Psychiatric Pharmacy Review and Geriatric Pharmacotherapy – both accredited by the Accreditation Council for Pharmacy Education, to prepare pharmacists with the skills and knowledge to better manage the increase in elderly patients.

---

**Research**

**Expanding Our Research Frontiers**

With the formal establishment of the Department of Research in October 2012, SHP aims to further intensify its efforts to develop and expand research bandwidth. Headed by Dr Tan Ngiap Chuan, Director, Research, the Department seeks to develop the research potential of the multi-disciplinary staff at SHP by encouraging staff participation in training programmes in various aspects of research.

These efforts have shown positive results – SHP published a total of 10 research papers in FY 2012, six more than in FY 2011. These papers were published in high impact factor journals such as *Health Quality Life Outcomes* and *BMC Nephrology* as well as core journals such as *Singapore Medical Journal*.

**Creating a Conducive Research Environment**

Three Qualitative Research workshops, organised by the Department of Research, prepared a total of 30 participants to carry out real-time studies and gave them hands-on experience in qualitative research at SHP.

In addition to the workshops, the Department continues to support and guide the participants with twice-monthly in-house Research Consultation Clinics (RCCs) facilitated by Dr Tan Ngiap Chuan and Dr How Choon How, Clinic Director, SHP- Sengkang.

The RCCs provide consultants and budding researchers at SHP protected time and support for one-on-one consultations on their research projects. Each hour-long RCC session allows researchers to seek advice and clarification on their research studies.

SHP’s new research support initiative, the Biostatistical Consultation Clinic, provides statistical support to staff conducting research at SHP. Staff will be assisted in various aspects of their research projects such as study design, data analysis and sample size calculations.

Each hour-long Research Consultation Clinic session allows researchers to seek advice and clarification on their research studies.

---

The number of research papers published by SHP in FY 2012.

---

10
BIG STRIDES IN ACADEMIC MEDICINE

Dr Andrew Wee, Family Physician, Associate Consultant, SHP-Marine Parade, is a key member of a research team from National University Health System (NUHS) that was awarded the National Medical Research Council-Individual Research Grant (NMRC-IRG) in FY 2012 for their research on insulin resistance and mild cognitive impairment among older adults with pre-diabetes or diabetes conditions.

Concurrently, there are 17 research projects in various stages of development, which include collaborative research projects between SHP and other institutions, such as the School of Biomedical & Life Sciences and the School of Chemical & Life Sciences (Optometry) at Singapore Polytechnic, Duke-NUS, YLLSoM and Saw Swee Hock School of Public Health at NUS and the Singapore Eye Research Institute.

SHP has also been actively involved in trials that help test new drugs and vaccines. Dr Tan Ngiap Chuan and Dr How Choon How are the site investigators for an ongoing GlaxoSmithKline-sponsored Human Papilloma Virus vaccine trial, which also involves the SingHealth Investigational Medicine Unit.

In January 2013, SHP also began a sponsored trial with Novartis (Singapore) to assess the tolerability and efficacy of an anti-diabetic drug among Muslim patients during the Ramadan period.

CONTROLLING ASTHMA ON THE GO

AsthmaCare Buddy, a patient-centric smart phone application, was launched in December 2012. This new app allows patients with asthma to better manage their own health through close monitoring and recording of their condition using their mobile devices. It was developed as part of Asthma Self-Management Phone Intervention Research (ASPIRE), an investigator-initiated study conducted by Dr Tan Ngiap Chuan.

Tools such as peak flow meter recording, asthma check assessment and action plans enable users to review their asthma patterns and monitor their progress conveniently. Patients are also able to share management progress with healthcare professionals and get their opinions on areas of concern.

Since its launch, the app has seen more than 1,300 downloads.
In his 13 years with SingHealth Polyclinics (SHP), Dr Andrew Wee, Family Physician and Associate Consultant, SHP-Marine Parade, has observed striking trends in patients and disease patterns as well as the practice of medicine. He turns these into questions that he seeks to answer through research that will impact patients’ lives.

In 2010, Dr Wee had just returned from a Family Medicine Conference where he had presented his findings on the association between dizziness and falls with Vitamin B12 deficiency when he met Mdm Tjoe Lie Hiang, a 76-year-old patient experiencing dizziness and recurrent falls. With his findings in mind, Dr Wee ran a B12 test on Mdm Tjoe and found that her levels were indeed low. She was promptly treated, and her condition improved gradually. She has not had a fall since.

“Dr Wee is a caring, reassuring, and patient doctor. He took the time to listen to my problems and explained my condition and the steps to take to recover. This led to a significant improvement in my health,” said Mdm Tjoe. This is just one example where Dr Wee’s research translated to better patient care.

Dr Wee’s passion for research started when he was just 11 years old, when he created his very own mini Biology lab at home. He also developed an interest in dissection from a book that he bought from his school library’s jumble sale for 70 cents. “I suppose it has been a natural progression from penchant to profession,” he said.

Apart from his innate spirit of inquiry, his deep passion for public interest and safety also motivates him to do research.

Dr Wee advocates the synergistic combination of clinical quality with research, as research’s ultimate goal is the betterment of patient care. He embarked on a Quality Project in 2006 where he pioneered the concept of ‘Registration to Nebulisation Time’ in Asthmatics and trained nurses to examine and initiate life-saving nebulisation therapy. For patients and caregivers, this resulted in better asthma awareness and more timely access to emergency asthma care. SHP nurses benefitted from the trainings as they were better able to engage in enhanced clinical work for asthma care. This concept, now called ‘Registration-to-Rescue’, was rolled out at all SHP polyclinics, and has since been adopted as a Quality Indicator.

Besides being a member of the SHP Research Committee and a peer reviewer for journals, Dr Wee is heavily involved in various prominent research projects. In FY 2012, he obtained his Master’s in Clinical Investigation (NUS) and was awarded a SingHealth Foundation Grant to look into micronutrient imbalance in primary care. With support from the SHP Research Department, Dr Wee also completed a multinational pharmaceutical-sponsored clinical trial that started in early 2013. He is also currently a key co-investigator in an NMRC-IRG Grant that was awarded in FY 2012.

On how to further elevate the standards of research, he said: “Regardless of the type of research, a critical mass of research activity will allow research to self-perpetuate. Peer pressure and peer reviews will keep standards high and raise the quality of research further.”

Dr Wee is grateful that he has been given many opportunities to develop his passion for research at SHP and hopes for family physicians who are passionate about research to persevere. “The many resources now in place for staff in SingHealth to do research create an environment that is conducive for everyone to participate in research and build up the culture,” said Dr Wee.
Our People

DEVELOPING OUR STAFF

SHP is committed to continuing education and staff development to elevate the standard of care for patients.

In FY 2012, a total of S$1.3 million was invested in staff training and development in four key areas – Technical, Quality & Productivity, Business Continuity & Preparedness and Management & Leadership Development. On average, each staff attended 16 training programmes or an equivalent of 58 training hours in the year.

As part of its efforts to groom future healthcare leaders, SHP supported the formal education of 35 staff in the FM Fellowship programme, Master’s Degree in Medicine (FM), Graduate Diploma (various education programmes such as FM, Dermatology, Gerontology, Mental Health), Advanced Diploma in Nursing (Gerontology and Mental Health), Specialist Diploma in Nursing (Diabetes Management and Education) and Master’s Degree in Social Work.

Six nurses have completed the Master’s Degree in Science (Nursing) and are doing their internships at SHP. Twenty staff completed the SingHealth leadership programme, and 71 supervisors attended the Workforce Skills Qualifications (WSQ) leadership and people management programmes to acquire leadership, people empowerment and change-management skills.

To enhance patients’ on-site experience, SHP also provided customised service quality training to 345 staff, yet another reaffirmation of our dedication to the growth and nurturing of the next generation of healthcare professionals.

On average, each staff attended 16 training programmes or an equivalent of 58 training hours in the year.

Community Engagement

CARING FOR THE LESS FORTUNATE

SHP raised close to S$17,000 in its pledge card donation drive for beneficiaries of President’s Challenge 2012. As part of SHP’s outreach efforts, SHP invited 20 children from Faith Acts to its annual movie screening on 23 June 2012.

Dr Adrian Ee, Deputy CEO, SHP, and Mr Chong Kian Teck, Director, Human Resource, with children from Faith Acts.
### Key Figures

**SingHealth Polyclinics**

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workload per annum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyclinic Attendances</td>
<td>1,721,310</td>
<td>1,721,327</td>
</tr>
<tr>
<td>Dental Attendances</td>
<td>28,963</td>
<td>30,810</td>
</tr>
<tr>
<td>Dental Procedures</td>
<td>67,227</td>
<td>72,885</td>
</tr>
</tbody>
</table>

**Staffing (as at 31 Mar 2013)**

<table>
<thead>
<tr>
<th></th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>958</td>
<td>929</td>
</tr>
<tr>
<td>• Doctors</td>
<td>157</td>
<td>145</td>
</tr>
<tr>
<td>• Dentists</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>• Nurses</td>
<td>292</td>
<td>287</td>
</tr>
<tr>
<td>• Allied Health</td>
<td>146</td>
<td>139</td>
</tr>
<tr>
<td>Professionals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dental Surgery</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Assistants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Others</td>
<td>339</td>
<td>336</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
Awards & Accolades

**PATIENT CARE**

**GCEO Excellence Awards 2013**
- Outstanding Allied Health Professional Award (Special Mention)
  - Fan Siew May Sharon

**Outstanding Educator Award (Special Mention)**
- Dr Sally Ho Chih Wei

**MOH Nurses Day Merit Award 2012**
- Pakrisamy Sarojini Devi
- Wong Mei See

**National Day Award 2012**
- Long Service Medal
  - Ng Lee Lan
  - Pushpavalli d/o Selayah
  - Dr Wee Bee Poh Diana
  - Yeoh Lian Huat

**Singapore Health Quality Service Award 2013**
- 1 Star Award
- 7 Gold Awards
- 118 Silver Awards

**Best Team Award**
- SingHealth Polyclinics – Pasir Ris
  “Re-designing the administrative workflow to reduce medical consultation waiting time in appointment clinics in SHP”

**9th Healthcare Quality Improvement Conference 2012**
- Merit Award
  - Dr Hwang Siew Wai
  - Kwok Kwan May
  - Dr Low Lian Leng
  - Dr Low Sher Guan Luke
  - Moses Indra Devi
  - Noor Lisa Bte Ismail
  - Dr Soo Wern Fern
  - Tan Chwee Yan – “Regular Surveillance of Chronic Hepatitis B Carriers in Bukit Merah to Improve Outcomes”

**EDUCATION**

**SingHealth Best Junior Doctors and Medicine Scholarship Awards 2012**
- Best Residents
  - Dr Liu Changwei
  - Dr Poon Zhimin

**10th Asia Pacific Medical Education Conference 2013**
- Finalist, Best Abstract for Poster Presentation
  - Dr Sally Ho – “Family Medicine Residency – A Love-Hate Affair”

**RESEARCH**

**Asia-Pacific Primary Care Research Conference / Research Championship**
- 2nd prize
  - Dr Goh Lay Hoon
  - Dr Ng Lok Pui
  - Dr Tan Yee Leng – “To explore the facilitators and barriers to diabetic patients’ adherence to annual foot screening in primary care: a qualitative study”

**Eastern Health Alliance Annual Scientific Meeting**
- Oral Presentation, 3rd prize
  - Lian Lay Geok – “Knowledge, practice and barrier to self-footcare amongst people with type 2 diabetes in the primary care setting”

- Poster Presentation, 1st prize
  - Agnes Ngoh – “Adult asthma patients who smoke: how much do they know about smoking and its effects on asthma?”
Bright Vision Hospital

“The staff at BVH look into all aspects of patients’ well-being. The therapist always encourages us during our treatment programme. I am really impressed by the care and dedication shown by BVH staff!”

Mdm Tan Poh Char, a patient at BVH, Hope ward

With Ms Lee Shu Hui, Team Leader, Occupational Therapy
The patients we serve make a conscious decision to be cared for at our hospital. Bright Vision Hospital (BVH) understands this responsibility. It has been an exciting year for BVH on several fronts. The renovation of the Hospital was completed in the second half of the year, along with the rolling out of new rehabilitation and ward facilities. The Intermediate and Long-Term Care (ILTC) sector continues to feature prominently in the minds of our government agencies and planners, as they work to cope with the ageing of our population and the affordability of healthcare services for many market segments.

Numerous initiatives involving care integration and outreach were kicked off by the various healthcare cluster service providers to keep our citizens healthy with the appropriate level of care. The funding of these initiatives and the liberalisation of existing schemes reflect sincere efforts to keep healthcare services available and affordable to all who need medical attention.

To meet with the challenges of these times, the nursing and medical teams of BVH have developed and refined their capabilities in the areas of rehabilitation medicine, post-stroke management, post-hip/knee replacement management, wound care and palliative medicine. This has allowed us to remain relevant to the changing needs of the acute hospitals. The effort by our care teams has not gone unnoticed, as the Hospital received heartening feedback on the provision of quality care in the 2012 Patient Satisfaction Survey and the Patient Safety Culture Survey, both of which were conducted by the Agency for Integrated Care.

The opening of our new inpatient gymnasium and the expanded Day Rehabilitation Centre has seen greater patient volume than we expected. We thank the government agencies for new subsidies in transportation and the use of Medisave for outpatient rehabilitative services.

Manpower recruitment continues to be a challenge as we build up our capacities to deal with increased census after the renovation. Fortunately, our staff attrition rate remains relatively low. This has allowed us to schedule and train our staff comprehensively, and to ensure adequate and safe care for all patients. During the year, we were also able to recruit experienced managers for our Rehabilitation and Medical Social Services departments.

Indeed, we have much to be thankful for as we continue to improve and grow with the selfless commitment of our staff, the leadership provided by SingHealth and the generous support from our dedicated partners and the government. We look forward to the year ahead as we build on the good work of prior years, mindful always that patients remain at the heart of all we do.

Mr Chua Puay Hian  
CEO, Bright Vision Hospital
A Sanctuary For Rehabilitation

Bright Vision Hospital (BVH) has built a reputation as an Intermediate and Long-Term Care (ILTC) healthcare provider that offers comprehensive and quality care for its patients, their families and the surrounding community. It also serves as a training and education nexus for professionals and the public in the area of rehabilitation and long-term care for the elderly and infirmed.

Patient Care

Newer, Better Facilities to Meet Rehabilitative Goals

At BVH, technology plays an important role in aiding patients’ recuperative and rehabilitative journeys. In May 2012, the Hospital introduced a new 165 square metre inpatient gym, equipped to carry out individualised programmes designed by the BVH rehabilitation team.

This new rehabilitative facility carries some of the most advanced equipment, such as the body weight suspension unit and the RedCord Suspension Unit, better known as Sling Exercise Therapy (S-E-T). These equipment not only help speed up patients’ recovery, but also allow therapists to carry out therapies more effectively and safely. For instance, the S-E-T allows the patient’s affected limb to be suspended, enabling him to independently perform more repetitions of range-of-motion exercises without having to contend with gravity. This reduces the need for the therapist to physically support the limb, and the patient can reap the maximum rehabilitation benefits in a safe setting.
FOR A BETTER REHABILITATION EXPERIENCE

To enhance the overall experience of patients, new therapeutic facilities such as ‘Snoozeland’, a communal dining room and ‘Garden of Faith’ were introduced in BVH.

‘Snoozeland’ and the communal dining room are welcoming and homely environments purposefully and artfully furnished to ease stress and facilitate the pain management of our palliative patients.

To add a different dimension to therapeutic care, ‘Garden of Faith’, which is wholly maintained by patients, was set up in March 2013. Palliative patients can appreciate nature, share their horticultural knowledge and gain a sense of oneness with nature at this garden.

The courtyard in Respect ward, a new communal area for inpatients at the Rehabilitative Unit, is a bustling social space built to promote social interaction and aid in integrating patients back into the community.

IN THE NAME OF REHABILITATION

BVH embarked on an expansion project for the Day Rehabilitation Centre (DRC) in September 2012 to increase outpatient intake capacity to 50 a day. The bigger and better equipped DRC offers more advanced equipment to enhance outpatient rehabilitation services. BVH also provides transport for wheelchair-bound patients who need to attend their medical appointments and therapy sessions. This new initiative has improved overall attendance at the new Centre.

Top: Snoozeland
Middle: Garden of Faith
Bottom: Courtyard in Respect ward
GOING MULTILINGUAL
To improve communication among a diverse group of staff and patients at BVH, the Hospital introduced in-house language classes for frontline staff and patients. Basic English, Mandarin and Malay language classes are conducted weekly for 12 weeks to help build rapport and better understanding between the many cultures that make up the BVH family.

THIS V IS FOR VICTORY
The need to reduce patient fall rates has always been a key focus at BVH. In FY 2012, BVH launched the ‘Bring Victory to Health’ project, which studied the key factors that lead to falls. Following the study, several initiatives to prevent falls were rolled out, such as putting up distinctive signage at areas of high risk and installing safety bars in toilets. These initiatives resulted in a significant 24 per cent reduction in falls.

GOING UP AGAINST BURNOUT
One of the effects of working in a high-pressure occupation like nursing is ‘burnout’, or the gradual loss of enthusiasm and motivation. A research called the ‘Prevalence of Burnout among Nurses in Bright Vision Hospital, an Intermediate and Long-term Care Facility in Singapore’ was carried out to determine the prevalence of occupational burnout among BVH nurses as well as to explore its causal factors. Two key factors were revealed from the study – the nature of the nurses’ discipline and how often their work interferes with family commitments. Specifically, nurses working in the palliative and rehabilitation units were more prone to burnout. The study underscored the importance of fostering a healthy work-life balance and providing better social and emotional support for our nurses in the palliative and rehabilitation units.

The new Day Rehabilitation Centre is now equipped with more advanced equipment.
Education

ITE-CERTIFIED
In September 2012, BVH Nursing Department was appointed as an approved training centre. This means that BVH staff are ITE-Certified to conduct the Certificate in Healthcare programme for health attendants, nursing and therapy aides. To date, eight participants have attended the course.

COMMUNITY DIALOGUE
To better engage the community, especially the elderly, BVH doctors give public talks on a regular basis to raise awareness on health issues. One of such events took place in April 2012, where Asst Prof Matthew Ng, Head, Medical Services, and Ms Lo Chen Ju, Head, Occupational Therapy, shared stroke prevention knowledge and simple exercise routines with the elderly at the Teck Ghee Community Centre Public Forum.

At BVH’s Charity Walk held in September 2012, a team of BVH staff, including Asst Prof Matthew Ng, Ms Lo Chen Ju, Ms Yong Limin, Rehabilitation Manager, and Ms Mary-Ann Chiam, Food Service Manager, shared stroke prevention knowledge as well as simple exercises with the elderly participants.

THE POWER OF KNOWLEDGE SHARING
Recognising the need to engage family physicians for the benefit of patients, Assoc Prof Lee Kheng Hock, Medical Director, Asst Prof Matthew Ng and Dr Ng Lee Beng, Associate Consultant, Department of Family Medicine and Continuing Care, SGH, organised a talk titled ‘Home Medical Care: Reviving the Lost Art in Family Medicine’ in October 2012. Topics such as the importance of readiness in making house calls, methods of making a comprehensive assessment of the patient in a home environment, recognising common problems and how to overcome them and availability and access to community resources for family physicians were covered.

THE HOW-TO’S OF WOUND CARE
Led by Ms Yang Leng Cher, Senior Nursing Officer, and Ms Liew Lee Foong, Senior Staff Nurse, a two-day workshop titled ‘Management and Prevention of Pressure Ulcers for Enrolled Nurses’ was held in March 2013. The knowledge and skills taught at the workshop will enable Enrolled Nurses to expand their professional roles as they learn more about wound management and common problems that may arise from wound infection.
Driven by an Innate Passion for Care

With Singapore’s ageing population, the training of nurses to meet the needs of long-term care patients is ever more critical now. Ms Yang Leng Cher, Senior Nursing Officer, plays a key role in mentoring the various cohorts of nurses, particularly in the area of direct patient care.

“Nursing education does not end upon graduation,” said Ms Yang. Having been in the nursing profession for 46 years, she believes that nurses should continuously refresh their knowledge and skills through continuing nursing education with the objective of improving patient care and outcomes. “I believe in nurturing nurses from the start. With the right foundation, subsequent teachings can be easily carried out,” she remarked.

Ms Yang’s interest in the nursing profession was largely influenced by her mother who encouraged her to be a nurse to help the injured. A chance encounter with a salesperson promoting modern wound dressings led Ms Yang to further her nursing interest by specialising in perioperative care.

In the early years of nursing, Ms Yang managed a wide range of acute and complex wound care cases. For instance, colorectal cancer patients who have undergone major surgical procedures need to be psychologically, emotionally and physically prepared to adapt to wearing of a stoma bag – a drastic lifestyle change for most patients. Today, she manages patients with chronic wounds. Some examples of patients whom she is taking care of include patients with post-op amputation wounds, diabetic foot ulcers, vascular ulcers and pressure ulcers. In addition, she looks into organising programmes and training for nurses, caregivers and patients so they can better manage the wounds upon discharge. “A caring attitude does not stop after the inpatient stage. Even after patients’ discharge from the hospital, I will continue to help so they know that they are not alone in their journey of recovery,” said Ms Yang.

Ms Yang’s passion for teaching is apparent in how she spends her rest days planning teaching programmes and stays beyond her work hours to complete training plans for fellow nurses. Despite working on a part-time basis and her heavy responsibilities, she also takes the time to organise wound workshops for fellow nurses as well as nurses from other community hospitals and is actively involved in planning and coordinating the Nurses’ Structured Orientation Programme several times a year. “Nurturing nurses is in my blood. I will continue to nurture and motivate nurses to do their best in providing good patient care for as long as I can,” she said.

Ms Yang’s honed expertise in wound management has made her an invaluable asset to BVH. Her dedication to service is acknowledged by her patients, colleagues and the organisation, with her being awarded the Nurses’ Merit Award in 2010 and the Singapore Health Quality Service Gold Award in 2013. “I believe the delivery of good service should have heart, sincerity and honesty,” said Ms Yang. “A smile on a patient’s face, a thank-you or a handshake on their day of discharge are ways to evaluate our good service output,” she added.
Our People

For demonstrating commitment to delivering quality care and excellent service, over 40 staff were honoured at the Singapore Health Quality Service Award (SHQSA) 2013. Six were awarded the Gold Award: Ms Hezlin Binte Adenan, Senior Staff Nurse; Mdm Lau Moh Leng, Nursing Officer; Mr Sakkaravathy Narayanasamy, Senior Staff Nurse; Mdm B. Tamilselvi, Senior Patient Care Assistant; Ms Misamis Auditte Villarin, Enrolled Nurse; and Ms Yang Leng Cher. Over 30 staff were also presented with the Silver Award.

Community Engagement

SMILE!

What would be the best way to create a warm and welcoming setting for patients, staff and visitors of BVH? A big, welcoming wall peppered with a montage of different artwork, calligraphy and photographs.

Launched in October 2012, the novel idea of having a ‘Smile Wall’ at various locations in the Hospital saw an overwhelming response from 43 local artists who donated many pieces of art with themes such as pets, toys and smiles. An appreciation event was held in December 2012 for these generous artists and their contributions.

In 2013, the ‘Smile Wall’ initiative was further developed into Project HeART, a community project supported by the Central Singapore Community Development Council. This ongoing project aims to reach out to a wider segment of the community where anyone can contribute their creative works to the Hospital to bring even more smiles to BVH patients, staff and visitors.
PUTTING THE FUN BACK IN FUNDRAISING

BVH launched several initiatives over the course of FY 2012 aimed at raising funds for the poor and the needy as well as engaging the community in fun and beneficial activities.

Warm Up Those Vocal Chords
Getting families to sing along to classics while raising funds for the poor and needy patients is surely a novel way to celebrate Mother’s Day. In May 2012, 17 BVH patients and 35 volunteers participated in ‘Singalong 2012’ at Hong Lim Park where a total of S$12,000 was raised.

Walking for a Cause
In September 2012, BVH organised a charity walk that raised S$100,000 for needy patients. BVH staff showed united support as they came together to ensure the smooth running of the event. The Nursing Department provided strategic first aid services, while the Allied Health team hosted the Experiential Centre which offered visitors a better understanding of the daily challenges faced by many of our patients at BVH.

Scoring for Charity
Sports and charity have always been a winning way to raise funds and gain youth participation. BVH launched the Charity Netball event in March 2013, which drew close to 150 primary and 700 secondary school students’ participation. The event, held at the Kallang Netball Centre, saw 60 teams vying for top honours. The 2-day event raised more than S$135,000.

The Perfect Swing
A charity golf tournament held in March 2013 organised by the Rotary Club of Singapore West (RCSW) saw more than 100 golfers take to the green for charity. The S$70,000 donated by RCSW was used for the purchase of a new van to provide transportation for needy patients at BVH. The van will be equipped with customised seats and an electric wheelchair lift that will provide added comfort and convenience for patients during their commute to the Hospital.
## Key Figures

<table>
<thead>
<tr>
<th>Bright Vision Hospital</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed Beds (as at 31 Mar 2013)</td>
<td>318</td>
<td>302</td>
</tr>
<tr>
<td>Staffing (as at 31 Mar 2013)</td>
<td>293</td>
<td>256</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent.
Awards & Accolades

PATIENT CARE

Courage Fund Award 2012
• Yeung Chee Yan

ILTC Quality Conference 2012
Poster Competition
• Bring Victory to Health, QI Team –
  “To implement a new strategy to reduce
  fall rate by 50% within 9 months from 1
  October 2011 till 31 July 2012”

Singapore Health Quality Service
Award 2013
Gold Award
• B. Tamilselvi
• Hezlin Binte Adenan
• Lau Moh Leng
• Misamis Auditte Villarin
• Sakkaravathy Narayanasamy
• Yang Leng Cher

Silver Award
• Ang Yian Neo, Sally
• Aye Aye Hnin
• Boo Chin Lee, Jason
• Chan Foong Yee Sara
• Chia Gek Luang
• Halimah Binte Sarim
• Htwe Htwe Hlaing
• Huang Xinyu
• Isidro Ireneose Oreiro
• Jayachandran Amudha
• Khin Mar Yee
• Kok Yew Yee
• Kuan Liming, Melissa
• Lai May Choo
• Lay Lay Soe
• Lim Chye Hoon, Serene
• Lo Nyuk Mui
• Lorie Felipe Buyayo
• Ma Cristina Eguaras Omana
• Maslinda Binte Hashim Pawiro
• Michelle V Bayas
• Minerva Pascua Martinez
• Myo Myo Soe
• Quah Lee Phing
• Remezel O. Deleon
• Sa Myo Min Tun
• Shahidah d/o Rustam Ali
• Shannah Mae Careres
• Siew Keng Wah
• Siti Khalijah Aziz
• Teo Wei Qiang, Kelvin
• Thien Thien Thu
• Vertika. Prakash Mendiratta
• Yeo Swee Boay, Janice
• Yeung Chee Yan
Board of Directors

Mr Peter SEAH Lim Huat
Chairman of the Board
Chairman, DBS Group Holdings Ltd

Mrs Christina ONG
Board Member
Managing Director, Club 21 Pte Ltd

Mr Ernest WONG Yuen Weng
Board Member
Chairman, Fullerton Financial Holdings Pte Ltd

Prof Michael B. WOOD
Board Member
Consultant, Mayo Clinic
President Emeritus, Mayo Foundation

Prof Victor J. DZAU
Board Member
President and CEO, Duke University Health System
Chancellor for Health Affairs, Duke University Medical Centre

Mr Gerard EE Hock Kim
Board Member
Chairman, Eastern Health Alliance Pte Ltd

Mr Philip ENG Heng Nee
Board Member
Chairman, mDR Ltd

Prof Raj M. NAMBIAR
Board Member
Senior Consultant, Ministry of Health
Emeritus Consultant, Changi General Hospital
Visiting Consultant, Singapore General Hospital, Tan Tock Seng Hospital & Khoo Teck Puat Hospital

Mr Willie CHENG Jue Hiang
Board Member
Chairman, Singapore Institute of Directors
Director, Integrated Health Information System Pte Ltd
Mrs TAN Ching Yee  
Board Member  
Permanent Secretary, Ministry of Health

Mr YATIMAN Yusof  
Board Member  
Non-Resident High Commissioner to Kenya and Rwanda

Mr KHOO Boon Hui  
Board Member  
Senior Deputy Secretary, Ministry of Home Affairs  
Director, Institute of Leadership and Organisation Development  
Senior Fellow, Civil Service College

Prof TAN Ser Kiat  
Board Member  
Chairman, SingHealth Foundation  
Emeritus Consultant, Singapore General Hospital  
President, Singapore Medical Council

Mr Lucien WONG  
Board Member  
Chairman and Senior Partner, Allen & Gledhill LLP

Ms KOH Lin-Net  
Board Member  
Chief Executive Officer, Media Development Authority

Prof K Ranga Rama KRISHNAN  
(wef 1 April 2013)  
Board Member  
Dean, Duke-NUS Graduate Medical School Singapore

Mr CHENG Wai Keung  
(wef 1 August 2013)  
Board Member  
Chairman and Managing Director, Wing Tai Holdings Limited

Prof Edward W. HOLMES  
(till 30 November 2012)

Mrs Arfat SELVAM  
(till 30 June 2012)

Mr CHAN Heng Kee  
(till 30 June 2012)
Chief Executive Officers, Directors of National Specialty Centres, and Chairmen of Medical Boards

Prof Ivy NG
Group Chief Executive Officer, SingHealth
Co-chair, Academic Medicine Executive Committee

Prof ANG Chong Lye
Deputy Group Chief Executive Officer, Clinical Services & Informatics, SingHealth
Chief Executive Officer, Singapore General Hospital
Member, Academic Medicine Executive Committee

Prof SOO Khee Chee
Deputy Group Chief Executive Officer, Research & Education, SingHealth
Director, National Cancer Centre Singapore
Senior Vice Dean, Clinical & Academic Faculty Affairs, Duke-NUS Graduate Medical School Singapore
Member, Academic Medicine Executive Committee
Academic Chair, Oncology Academic Clinical Program

Prof Kenneth KWEK
Chief Executive Officer, KK Women’s and Children’s Hospital

Dr KWA Chong Teck
Executive Director, National Dental Centre Singapore

Prof KOH Tian Hai
Medical Director, National Heart Centre Singapore
Academic Chair, Cardiovascular Academic Clinical Program

Prof LEE Wei Ling
Director, National Neuroscience Institute
Academic Chair, Neuroscience Academic Clinical Program

Prof Donald TAN
Medical Director, Singapore National Eye Centre
Co-Director, SingHealth Transplant
Academic Chair, Ophthalmology Academic Clinical Program

Prof FONG Kok Yong
Chairman, Division of Medicine, Singapore General Hospital (till 31 October 2012)
Chairman, Medical Board, Singapore General Hospital (wef 1 November 2012)
Group Director, Medical, SingHealth

Prof Alex SIA
Chairman, Medical Board, KK Women's and Children's Hospital

Assoc Prof Joseph WEE
Chairman, Medical Board, National Cancer Centre Singapore
Academic Vice Chair, Clinical Services, Oncology Academic Clinical Program

Assoc Prof Francis HUI
Chairman, Medical Board, National Neuroscience Institute
Academic Vice Chair, Clinical, Neuroscience Academic Clinical Program

Assoc Prof ONG Biauw Chi
Pro-Tem Chairman, Medical Board, Sengkang Health

Prof TAY Boon Keng
Chairman, Medical Board (International Office), SingHealth
Emeritus Consultant, Department of Orthopaedic Surgery, Singapore General Hospital

Asst Prof TAN Chee Beng
Chief Executive Officer, SingHealth Polyclinics

Mr CHUA Puay Hian
Chief Executive Officer, Bright Vision Hospital

Prof NG Han Seong
Chairman, Medical Board, Singapore General Hospital (till 31 October 2012)
Group Chief Risk Officer, SingHealth (wef 1 November 2012)
Senior Director, Chief Executive Officer’s Office, Singapore General Hospital

1Asst Prof Tan succumbed after a two-year battle with prostate cancer on 3 September 2013.
Corporate Office Directors

Mr SIA Kheng Hong
Group Chief Financial Officer, SingHealth

Dr Edwin LOW Cheng Tee
Group Director, Academic Medicine,
Group Director, Strategic Human Resource, SingHealth
(till 31 July 2013)

Mr TAN Jack Thian
Group Chief Operating Officer &
Group Chief Procurement Officer,
SingHealth
Chief Operating Officer,
KK Women’s and Children’s Hospital

Prof WONG Tien Yin
Group Director, Research, SingHealth
Deputy Medical Director (Research),
Senior Consultant, Ophthalmologist,
Singapore National Eye Centre
Executive Director,
Singapore Eye Research Institute
Ex-Officio,
Academic Medicine Executive Committee

Assoc Prof KOO Wen Hsin
Group Director, Education, SingHealth
Deputy Director, National Cancer Centre Singapore
Co-Director, Academic Medicine Education Institute
Senior Consultant, Department of Medical Oncology, National Cancer Centre Singapore
Ex-Officio,
Academic Medicine Executive Committee

Mr Benedict TAN
Group Chief Information Officer,
Information Technology, SingHealth

Asst Prof CHOW Mun Hong
Director, Clinical Governance & Quality Management, SingHealth
Director, Quality Management, SingHealth Polyclinics

Ms YONG Seow Kin
Director, Facilities Development,
SingHealth

Ms Elizabeth CHOO
Director, Legal, SingHealth

Mr Peter TAN
Director, Business Development,
SingHealth

Ms Esther TAN
Group Director,
Strategic Human Resource, SingHealth
(wef 1 August 2013)
Director, Human Resource,
Singapore General Hospital

Ms LEE Chen Ee
Director, Office for Service Transformation, SingHealth
(wef 1 August 2013)

Prof TAN Kok Hian
Group Director, Academic Medicine, SingHealth
(wef 1 September 2013)
Academic Chair,
OBGYN Academic Clinical Program
Senior Associate Dean,
Academic Medicine, Duke-NUS Graduate Medical School Singapore

Prof FOCK Kwong Ming
Group Chief Risk Officer, SingHealth
(till 31 October 2012)

Mrs TAN-HUANG Shuo Mei
Group Director,
Communications & Service Quality,
SingHealth & Singapore General Hospital

Dr Tracy Carol AYRE
Group Director, Group Nursing, SingHealth
Director, Nursing,
Singapore General Hospital

Assoc Prof Celia TAN
Group Director,
Group Allied Health, SingHealth
Director, Postgraduate Allied Health Institute, Singapore General Hospital

Assoc Prof LOO Chian Min
Chief Medical Informatics Officer,
SingHealth
Director, Undergraduate Education,
Medicine Academic Clinical Program
Head and Senior Consultant,
Department of Respiratory and Critical Care Medicine, Singapore General Hospital
## Key Figures

### SingHealth – Overall

(Year ended 31 Mar 2013)

<table>
<thead>
<tr>
<th>SIZE</th>
<th>LICENSED BEDS (as at 31 Mar 2013)</th>
<th>2,609</th>
<th>▲1.0%</th>
<th>2,583*</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKLOAD PER ANNUM</td>
<td>BED OCCUPANCY RATE</td>
<td>79.1%</td>
<td>▲0.5%pt</td>
<td>78.5%*</td>
</tr>
<tr>
<td></td>
<td>INPATIENTS</td>
<td>156,297</td>
<td>▲1.9%</td>
<td>153,419*</td>
</tr>
<tr>
<td></td>
<td>TOTAL PATIENT DAYS</td>
<td>729,173</td>
<td>▲0.5%</td>
<td>725,687*</td>
</tr>
<tr>
<td></td>
<td>AVERAGE LENGTH OF STAY (days)</td>
<td>4.7</td>
<td>▲0.4%</td>
<td>4.7*</td>
</tr>
<tr>
<td></td>
<td>SURGICAL OPERATIONS: DAY SURGERIES</td>
<td>105,853</td>
<td>▲2.2%</td>
<td>106,239*</td>
</tr>
<tr>
<td></td>
<td>SURGICAL OPERATIONS: INPATIENT SURGERIES</td>
<td>62,273</td>
<td>▲3.0%</td>
<td>60,944*</td>
</tr>
<tr>
<td></td>
<td>SPECIALIST OUTPATIENT CLINIC ATTENDANCES</td>
<td>1,772,432</td>
<td>▼0.9%</td>
<td>1,788,073*</td>
</tr>
<tr>
<td></td>
<td>ACCIDENT &amp; EMERGENCY ATTENDANCES</td>
<td>323,317</td>
<td>▼0.1%</td>
<td>323,642*</td>
</tr>
<tr>
<td></td>
<td>DENTAL ATTENDANCES</td>
<td>174,997</td>
<td>▼3.0%</td>
<td>180,474*</td>
</tr>
<tr>
<td></td>
<td>DENTAL PROCEDURES</td>
<td>222,597</td>
<td>▼2.8%</td>
<td>228,911*</td>
</tr>
<tr>
<td></td>
<td>POLYCLINIC ATTENDANCES</td>
<td>1,721,310</td>
<td>▲0.5%</td>
<td>1,721,327*</td>
</tr>
</tbody>
</table>

*Year ended 31 Mar 2012

---

### STAFFING (as at 31 Mar 2013)

<table>
<thead>
<tr>
<th>Staffing Category</th>
<th>Year ended 31 Mar 2013</th>
<th>Year ended 31 Mar 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>17,522</td>
<td>16,758</td>
</tr>
<tr>
<td>Doctors</td>
<td>2,172</td>
<td>2,012</td>
</tr>
<tr>
<td>Dentists</td>
<td>108</td>
<td>93</td>
</tr>
<tr>
<td>Nurses</td>
<td>6,896</td>
<td>6,767</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>2,871</td>
<td>2,649</td>
</tr>
<tr>
<td>Others</td>
<td>5,476</td>
<td>5,237</td>
</tr>
</tbody>
</table>

Note: Staffing figures refer to Filled Posts, in terms of Full-Time Equivalent, and may not add up to total due to rounding.
## Financial Info

<table>
<thead>
<tr>
<th></th>
<th>Year Ended 31 Mar 2013 (S$ million)</th>
<th>Year Ended 31 Mar 2012 (S$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSETS BY MAJOR CATEGORIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant and Equipment</td>
<td>455</td>
<td>445</td>
</tr>
<tr>
<td>Trade and Other Receivables</td>
<td>653</td>
<td>582</td>
</tr>
<tr>
<td>Other Assets</td>
<td>551</td>
<td>600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,659</td>
<td>1,627</td>
</tr>
<tr>
<td><strong>LIABILITIES BY MAJOR CATEGORIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade and Other Payables</td>
<td>711</td>
<td>674</td>
</tr>
<tr>
<td>Other Current Liabilities</td>
<td>107</td>
<td>97</td>
</tr>
<tr>
<td>Non Current Liabilities</td>
<td>405</td>
<td>447</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,223</td>
<td>1,218</td>
</tr>
<tr>
<td><strong>SHARE CAPITAL AND RESERVES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>436</td>
<td>409</td>
</tr>
<tr>
<td><strong>REVENUE BREAKDOWN BY MAJOR CATEGORIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Revenue</td>
<td>1,131</td>
<td>1,065</td>
</tr>
<tr>
<td>Subvention</td>
<td>1,113</td>
<td>968</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>295</td>
<td>302</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,539</td>
<td>2,335</td>
</tr>
<tr>
<td><strong>EXPENDITURE BY MAJOR CATEGORIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manpower</td>
<td>1,378</td>
<td>1,271</td>
</tr>
<tr>
<td>Supplies and Consumables</td>
<td>388</td>
<td>371</td>
</tr>
<tr>
<td>Other Operating Expenses</td>
<td>648</td>
<td>574</td>
</tr>
<tr>
<td>Depreciation and Amortisation</td>
<td>123</td>
<td>115</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,537</td>
<td>2,331</td>
</tr>
</tbody>
</table>
ACP and Faculty Appointments of Featured Clinicians, Nurses and Allied Health Professionals
(In order of mention)

**Group CEO’s Message**
- Prof Ivy Ng, GCEO, SingHealth; Adjunct Professor, Duke-NUS; Clinical Professor, NUS; and Senior Consultant, Department of Paediatrics, Genetics Service, KKH

**Academic Medicine**
- Prof Soo Khee Chee, DGCEO, Research & Education, SingHealth; Director, NCCS; Senior Vice Dean, Office of Clinical and Academic Faculty Affairs, Duke-NUS; Academic Chair, Oncology ACP; and Senior Consultant, Department of Surgical Oncology, NCCS
- Prof London Lucien Ooi, Chairman, Division of Surgery, SGH; Director, SingHealth Transplant; Academic Chair, Surgery ACP; Professor, Duke-NUS and NUS YLLSoM; and Senior Consultant, Department of Hepatopancreatobiliary and Transplant Surgery, SGH
- Prof Wong Tien Yin, Group Director, Research, SingHealth; Executive Director, SERI; Deputy Medical Director (Research), SNEC; Provost’s Chair Professor and Head, Department of Ophthalmology, NUS; and Senior Consultant, Vitreo Retinal Service, SNEC
- Assoc Prof Eranga Vithana, Head, Ocular Genetics Research Group and Genomics Research Support Platform, and Associate Director, Experimental and Basic Sciences, SERI; Adjunct Associate Professor, Department of Neuroscience & Behavioural Disorders, Duke-NUS; and Adjunct Associate Professor, Department of Ophthalmology, NUS
- Prof Aung Tin, Deputy Executive Director, SERI; Academic Vice Chair (Research), Eye ACP; Professor, Department of Ophthalmology, NUS; and Head and Senior Consultant, Ophthalmology Glaucoma Service, SNEC

**Academic Medicine**
- Prof Stuart Alexander Cook, Professor, Cardiovascular and Metabolic Disorders Program, Duke-NUS; Distinguished Clinician Scientist, and Senior Consultant, Clinical & Molecular Cardiology; and Senior Research Advisor, NHCS
- Prof Terrance Chua, Deputy Group Director, Medical, SingHealth; Deputy Medical Director, NHCS; Academic Vice Chair (Research), Cardiovascular ACP; Adjunct Associate Professor, Duke-NUS; Clinical Associate Professor, NUS YLLSoM; and Senior Consultant, Department of Cardiology, NHCS
- Asst Prof Charles Chuah, Director, Department of Clinical Research; Director, Junior Clinician Scientist/ Clinician Researcher Programs, Medicine ACP; Assistant Professor, Cancer & Stem Cell Biology Program, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Haematology, SGH
- Prof Aung Tin, Deputy Executive Director, SERI; Academic Vice Chair (Research), Eye ACP; Professor, Department of Ophthalmology, NUS; and Head and Senior Consultant, Ophthalmology Glaucoma Service, SNEC

**Academic Medicine**
- Prof Fong Kok Yong, Group Director, Medical, SingHealth; Chairman, Medical Board, SGH; Professor (Medicine) and Senior Associate Dean, Duke-NUS; Adjunct Associate Professor, NUS YLLSoM; and Senior Consultant, Department of Rheumatology and Immunology, SGH
- Assoc Prof Koo Wen Hsin, Group Director, Education, SingHealth; Deputy Director, NCCS; Associate Professor, and Co-Director, AM•EI, Duke-NUS; and Senior Consultant, Department of Medical Oncology, NCCS
Infrastructure Development

• Prof Christopher Cheng, Pro-Tem CEO, Sengkang Health; Adjunct Professor, Office of Clinical & Faculty Affairs, Duke-NUS; Clinical Associate Professor, NUS YLLSoM; and Senior Consultant, Department of Urology, SGH

• Assoc Prof Ong Biauw Chi, Pro-Tem Chairman, Medical Board, Sengkang Health; Director, Clinical Governance & Patient Safety, SGH; Adjunct Associate Professor, Duke-NUS; Clinical Associate Professor, NUS YLLSoM; and Head and Senior Consultant, Department of Anaesthesiology, SGH

Patient Care

• Prof Ng Han Seong, GCRO, SingHealth; Senior Director, CEO’s Office, SGH; Professor, Duke-NUS; Professor, NUS YLLSoM; and Emeritus Consultant, Department of Gastroenterology and Hepatology, SGH

• Assoc Prof Tan Ban Hock, Adjunct Associate Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Head and Senior Consultant, Department of Infectious Diseases, SGH

• Adjunct Assoc Prof Vincent Yeow, Campus Director, Medical Innovation & Care Transformation, and Director, Plastic, Reconstructive & Aesthetic Centre and Cleft & Craniofacial Centre, KKH; Director, Clinical Research (KKH), Surgery ACP; Adjunct Associate Professor, Duke-NUS; and Senior Consultant, Department of Plastic, Reconstructive & Aesthetic Surgery, KKH

Education

• Prof Chay Oh Moh, Campus Director, Education, KKH; Associate Designated Institutional Official, Post-graduate Medical Education, SingHealth Residency; Professor, Pediatrics Program, Duke-NUS; Professor, Department of Paediatrics, NUS YLLSoM; and Senior Consultant, Respiratory Medicine Service, Department of Paediatrics, KKH

• Prof Tan Cheng Lim, Adjunct Professor, Duke-NUS; Adjunct Professor, NUS YLLSoM; and Emeritus Consultant, Haematology/Oncology Service, Department of Paediatric Subspecialties, KKH

• Asst Prof Phua Ghee Chee, Program Director, Internal Medicine, SingHealth Residency; Director, Postgraduate Education, Medicine ACP; Assistant Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Respiratory & Critical Care Medicine, SGH

• Dr Catherine Anne Cox, Adjunct Assistant Professor, NUS; and Acting Head and Senior Psychologist, Psychology Service, KKH

• Mr Ow-Yong Lai Meng, Preceptor cum Coordinator, Family Medicine & Continuing Care Module (social services attachment), Duke-NUS; Module Coordinator, Co-lecturer and Co-tutor, Social Work and Medical Settings, NUS; and Principal Medical Social Worker, Department of Medical Social Services, SGH
Research

• Prof Pierce Chow, Professor, Clinical Sciences, and Course Director, Normal Body Course, Duke-NUS; and Senior Consultant, Department of General Surgery, SGH

• Dr Ling Khoon Lin, Adjunct Assistant Professor, Clinical Sciences, Duke-NUS; Adjunct Assistant Professor, NUS YLLSoM; and Head and Senior Consultant, Department of Gastroenterology & Hepatology, SGH

• Asst Prof Mohammad Kamran Ikram, Clinician Scientist, SERI; and Adjunct Assistant Professor, Centre for Quantitative Medicine, Duke-NUS

• Assoc Prof Darren Lim, Director, Investigational Medicine Unit, SingHealth; Associate Professor, Clinical Sciences, Duke-NUS; and Senior Consultant, Department of Medical Oncology, NCCS

• Asst Prof Narayanan Gopalakrishna Iyer, Director, Clinician Scientist Development Office, Surgery ACP; Assistant Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Surgical Oncology, NCCS

• Asst Prof Chong Tsung Wen, Assistant Professor, Duke-NUS; and Senior Consultant, Department of Urology, SGH

• Asst Prof Leung Ying Ying, Assistant Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Rheumatology & Immunology, SGH

• Asst Prof Charumathi Sabanayagam, Clinician Scientist, SERI; Assistant Professor, Office of Clinical Sciences, Duke-NUS; and Adjunct Assistant Professor, Department of Ophthalmology, NUS

• Asst Prof Nobuyo Yawata, Clinician Scientist, SERI; and Assistant Professor, Clinical Sciences, Duke-NUS

• Dr Andrea Low, Assistant Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Rheumatology and Immunology, SGH

• Dr Gemmy Cheung, Adjunct Assistant Professor, Duke-NUS; Adjunct Assistant Professor, NUS; and Senior Consultant, Vitreo-Retinal Service, SNEC

• Assoc Prof Jerry Chan, Director, KK Research Centre; Chairman, KKH Research Committee; Associate Director, AMRI@KKH; Associate Professor, Duke-NUS; Adjunct Associate Professor, NUS YLLSoM; and Consultant, Department of Reproductive Medicine, KKH

• Assoc Prof Christopher Ang Beng Ti, Deputy Director, Research, NNI; Director, Basic & Translational Research, Neuroscience ACP; Associate Professor, Duke-NUS; and Senior Consultant, Department of Neurosurgery, NNI

• Prof Ecosse Lamoureux, Head, Health Service Research Group, Data Management and Population Health Platforms, SERI; Deputy Executive Director, AMRI; and Professor, Clinical Sciences, Duke-NUS

• Assoc Prof Tan Soo Yong, Director, SingHealth Tissue Repository; Senior Principal Investigator, IMCB; Head, AMPL; Associate Professor, Duke-NUS; and Senior Consultant, Department of Pathology, SGH

• Assoc Prof Lim Soon Thye, Director, Clinical Service, Oncology ACP; Assistant Dean, Career Advising, Office of Education, Duke-NUS; Associate Professor, Duke-NUS; and Head and Senior Consultant, Department of Medical Oncology, NCCS

• Prof Teh Bin Tean, Professor, NCCS; Academic Vice Chair (Faculty Development), Oncology ACP; and Professor, Cancer & Stem Cell Biology Program, Duke-NUS

• Assoc Prof Thng Choon Hua, Adjunct Associate Professor, Duke-NUS; and Deputy Head and Senior Consultant, Department of Oncologic Imaging, NCCS

• Prof Kenneth Kwek, CEO, KKH; Adjunct Professor, Duke-NUS; Adjunct Professor, NUS YLLSoM; and Senior Consultant, Peripartum Unit, Department of Maternal Fetal Medicine, KKH

• Dr Suzanna Binte Sulaiman, Adjunct Assistant Professor, Duke-NUS; Adjunct Assistant Professor, NUS YLLSoM; and Consultant, Department of Obstetrics & Gynaecology, KKH

• Dr Jenny Low, Adjunct Assistant Professor, Duke-NUS; Clinical Teacher, NUS YLLSoM; and Senior Consultant, Department of Infectious Diseases, SGH

• Assoc Prof Tony Lim, Academic Vice Chair, Strategic Programs, Pathology ACP; Adjunct Assistant Professor, Duke-NUS; and Senior Consultant, Department of Pathology, SGH
Our People

SGH

- Prof Ang Chong Lye, DGCEO, Clinical Services & Informatics, SingHealth; CEO, SGH; Adjunct Professor, Duke-NUS; and Clinical Professor, NUS YLLSoM
- Dr Victor Lee, Director, Pancreas Transplant Programme, SingHealth Transplant; Director, Centre for Digestive & Liver Disease; Adjunct Assistant Professor, NUS YLLSoM; and Senior Consultant, Department of Hepatobiliary & Transplant Surgery, SGH
- Dr Yu Su Ling, Clinical Senior Lecturer, NUS YLLSoM; Director, Centre for Assisted Reproduction, and Senior Consultant, Department of Obstetrics & Gynaecology, SGH
- Asst Prof Henry Ho, Director, Device Development, Surgery ACP; Adjunct Assistant Professor, Office of Clinical and Faculty Affairs, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Consultant, Department of Urology, SGH
- Dr Ng Yee Sien, Adjunct Assistant Professor, Duke-NUS; Adjunct Assistant Professor, NUS YLLSoM; and Head and Senior Consultant, Department of Rehabilitation Medicine, SGH
- Assoc Prof Darren Koh, Clinical Coordinator, Associate Dean Office; Associate Professor, Duke-NUS; Associate Professor, NUS YLLSoM; and Senior Consultant, Department of Anaesthesiology, SGH
- Dr Tham Kwang Wei, Clinical Senior Lecturer, NUS YLLSoM; and Clinical Senior Lecturer, Department of Endocrinology, SGH
- Ms Lian Siew Bee, Adjunct Lecturer, Masters of Nursing Program, NUS; and Assistant Director, Nursing (APN), SGH

KKH

- Dr Ong Yong-Kwang Gene, Adjunct Assistant Professor, Duke-NUS; Adjunct Assistant Professor, NUS YLLSoM; and Consultant, Department of Emergency Medicine, KKH
- Dr Bong Choon Looi, Adjunct Assistant Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Consultant, Department of Paediatric Anaesthesia, KKH
- Dr Kevin Lim, Chairman, Division of Surgery, KKH; Academic Vice Chair (Clinical), (KKH), Surgery ACP; Adjunct Assistant Professor, Duke-NUS; Adjunct Assistant Professor, NUS YLLSoM; and Senior Consultant, Department of Orthopaedic Surgery, KKH
- Assoc Prof Thaschawee Arkachaisri, Associate Professor, and Faculty Coordinator, Paediatric Elective Clerkship, Duke-NUS; Associate Professor, NUS YLLSoM; and Head and Senior Consultant, Rheumatology and Immunology Service, Department of Paediatric Subspecialties, KKH
- Dr Angelina Ang, Adjunct Assistant Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Emergency Medicine, KKH
NCCS

- Asst Prof Ong Kong Wee, Director, Resident & Student Research Mentorship Office, Surgery ACP; Adjunct Assistant Professor, Duke-NUS; Clinical Teacher, NUS YLLSoM; and Senior Consultant, Department of Surgical Oncology, NCCS
- Assoc Prof Toh Han Chong, Academic Vice Chair (Research and Education), Oncology ACP; Associate Professor, Cancer & Stem Cell Biology Program, Duke-NUS; and Head and Senior Consultant, Department of Medical Oncology, NCCS
- Asst Prof Tan Hiang Khoon, Director, Philanthropy, Oncology ACP; Academic Vice Chair (Research), Surgery ACP; Adjunct Assistant Professor, Duke-NUS; and Deputy Head and Senior Consultant, Department of Surgical Oncology, NCCS
- Prof Kanaga Sabapathy, Principal Investigator, Laboratory of Carcinogenesis, and Head, Division of Cellular & Molecular Research, NCCS; Professor, Cancer & Stem Cell Biology Program, Duke-NUS; Director, Research, Oncology ACP; and Honorary Joint Professor, NUS YLLSoM
- Assoc Prof Ho Gay Hui, Adjunct Associate Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM; and Senior Consultant, Department of Surgical Oncology, NCCS

NDCS

- Dr Kwa Chong Teck, Executive Director, NDCS; Clinical Associate Professor, NUS Faculty of Dentistry; and Senior Consultant, Department of Oral & Maxillofacial Surgery, NDCS
- Dr Lye Kok Weng, Associate Director, Master of Dental Surgery, Oral & Maxillofacial Surgery, Residency Training Program; Clinical Senior Lecturer, NUS Faculty of Dentistry; and Senior Consultant, Department of Oral & Maxillofacial Surgery, NDCS
- Dr Wong Li Beng, Clinical Lecturer, NUS Faculty of Dentistry; and Associate Consultant, Periodontic Unit, Department of Restorative Dentistry, NDCS
- Dr Eugene Wee, Clinical Lecturer, NUS Faculty of Dentistry; and Head and Associate Consultant, Clinical Imaging, Department of Orthodontics, NDCS
- Dr Christina Sim, Head, Dental Surgery Assistant Certification Programme; Clinical Associate Professor, NUS Faculty of Dentistry; and Senior Consultant, Prosthodontic Unit, Department of Restorative Dentistry, NDCS
- Dr Mimi Yow, Associate Director, Master of Dental Surgery, Orthodontic, Residency Training Program; Clinical Associate Professor, NUS Faculty of Dentistry; and Senior Consultant, Department of Orthodontics, NDCS
- Dr Nattharee Chancharenonsook, Clinical Lecturer, NUS Faculty of Dentistry; and Consultant, Department of Oral and Maxillofacial Surgery, NDCS
- Dr See Toh Yoong Liang, Co-head, Oral & Craniofacial Implant Programme, NDCS; Clinical Lecturer, NUS Faculty of Dentistry; and Associate Consultant, Prosthodontic Unit, Department of Restorative Dentistry, NDCS

NHCS

- Prof Koh Tian Hai, Medical Director, NHCS; Clinical Associate Professor, NUS YLLSoM; and Academic Chair & Vice Chair (Clinical Services)(interim), Cardiovascular ACP
- Assoc Prof Lim Chong Hee, Director, Heart and Lung Transplant Programme, NHCS; Adjunct Associate Professor, Duke-NUS; Clinical Senior Lecturer, NUS YLLSoM and Senior Consultant, Department of Cardiothoracic Surgery, NHCS
- Asst Prof Soon Jia Lin, Director, Cardiothoracic Surgery Residency Training Program, Cardiovascular ACP; Adjunct Assistant Professor, Duke-NUS; and Consultant, Department of Cardiothoracic Surgery, NHCS
- Assoc Prof Philip Wong, Director, Research and Development Unit, NHCS; Director, Research Development Unit, Cardiovascular ACP; Associate Professor, Duke-NUS; and Consultant, Department of Cardiology, NHCS
- Dr Chee Fang Yee, Clinical Lecturer, NUS YLLSoM; and Associate Consultant, Department of Cardiology, NHCS
NNI

- Assoc Prof Louis Tan, Director, Clinical Research (TTSH Campus), Neuroscience ACP; and Senior Consultant, Department of Neurology, NNI
- Prof Lee Wei Ling, Director, NNI; Adjunct Professor, Duke-NUS and NUS YLLSoM; Academic Chair, Neuroscience ACP; and Senior Consultant, Department of Neurology, NNI
- Assoc Prof Au Wing Lok, Academic Deputy Chair, Neuroscience ACP; and Head and Senior Consultant, Department of Neurology, NNI
- Assoc Prof Ng Wai Hoe, Deputy Director, NNI; Academic Deputy Chair, Neuroscience ACP; and Head and Senior Consultant, Department of Neurosurgery, NNI
- Assoc Prof Nigel Tan, Education Director, NNI; Academic Vice Chair (Education), Neuroscience ACP; and Senior Consultant, Department of Neurology, NNI
- Prof Lim Shih Hui, Deputy Group Director, Education, SingHealth; Academic Vice Chair (Education), Neuroscience ACP; and Senior Consultant, Department of Neurology, NNI
- Dr Prakash Kumar, Adjunct Assistant Professor, Duke-NUS; and Consultant, Department of Neurology, NNI
- Asst Prof Nagaendran Kandiah, Assistant Professor, Duke-NUS; and Consultant, Department of Neurology, NNI
- Prof Tan Eng King, Director, Research, NNI; Professor & Deputy Director, Neuroscience & Behavioral Disorders Program, Duke-NUS; Academic Vice Chair (Research), Neuroscience ACP; and Senior Consultant, Department of Neurology, NNI
- Assoc Prof Francis Hui, Academic Vice Chair (Clinical), Neuroscience ACP; and Head and Senior Consultant, Department of Neuroradiology, NNI

SNEC

- Prof Donald Tan, Medical Director, SNEC; Chairman, SERI; Academic Chair, Eye ACP; Professor, Clinical & Faculty Affairs, Duke-NUS; Professor, NUS YLLSoM; and Senior Consultant, Cornea Service & External Eye Disease, SNEC
- Assoc Prof Chee Soon Phaik, Co-Head, Ocular Inflammation & Immunology Research Group, SERI; Academic Vice Chair (Clinical & Faculty Management), Eye ACP; Associate Professor, Duke-NUS and NUS YLLSoM; and Head and Senior Consultant, Cataract Service & Ocular Inflammation and Immunology Service, SNEC
- Assoc Prof Ian Yeo, Deputy Medical Director (Education), SNEC; Academic Vice Chair (Education) & Director, Professional and Postgraduate Education, Eye ACP; Adjunct Associate Professor, Clinical Sciences, Duke-NUS; and Senior Consultant, Vitreo Retinal Service, SNEC
- Assoc Prof Tina Wong, Head, Ocular Therapeutics & Drug Delivery, SERI; Adjunct Associate Professor, Department of Ophthalmology, NUS; and Senior Consultant, Glaucoma Service, SNEC
- Dr Arun Narayanaswamy, Adjunct Instructor, Duke-NUS; and Service Registrar, SNEC
- Dr Lim Li, Clinical Senior Lecturer, NUS YLLSoM; and Head and Senior Consultant (Clinical Service and Education), Cornea Service, SNEC

SHP

- Dr Tan Ngiap Chuan, Director, Research, SHP; and Adjunct Assistant Professor, Duke-NUS
- Dr How Choon How, Clinic Director, SHP-Sengkang; Adjunct Assistant Professor, Duke-NUS; and Adjunct Instructor, NUS YLLSoM

BVH

- Assoc Prof Lee Kheng Hock, Associate Professor, Duke-NUS; and Medical Director, BVH
- Asst Prof Matthew Ng Joo Ming, Assistant Professor, Duke-NUS; and Head, Medical Services, BVH
- Dr Ng Lee Beng, Adjunct Instructor, Duke-NUS; Part-time Lecturer, NUS YLLSoM; and Associate Consultant, Department of Family Medicine & Continuing Care, SGH
**Directory**

**Singapore Health Services Pte Ltd**
31 Third Hospital Avenue, #03-03
Bowyer Block C, Singapore 168753
Tel +65 6225 0488 · Fax +65 6557 2138
www.singhealth.com.sg
UEN No 200002698 Z

### HOSPITALS

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore General Hospital</td>
<td>Outram Road, Singapore 169608</td>
<td>+65 6222 3322</td>
<td>+65 6224 9221</td>
<td><a href="http://www.sgh.com.sg">www.sgh.com.sg</a></td>
</tr>
<tr>
<td>KK Women’s and Children’s Hospital</td>
<td>100 Bukit Timah Road, Singapore 229899</td>
<td>+65 6293 4044</td>
<td>+65 6293 7933</td>
<td><a href="http://www.kkh.com.sg">www.kkh.com.sg</a></td>
</tr>
<tr>
<td>Sengkang Health</td>
<td>167 Jalan Bukit Merah, Tower 5, #06-10, Connection One, Singapore 150167</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NATIONAL SPECIALTY CENTRES

<table>
<thead>
<tr>
<th>Centre Name</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Cancer Centre Singapore</td>
<td>11 Hospital Drive, Singapore 169610</td>
<td>+65 6436 8000</td>
<td>+65 6225 6283</td>
<td><a href="http://www.nccs.com.sg">www.nccs.com.sg</a></td>
</tr>
<tr>
<td>National Dental Centre Singapore</td>
<td>5 Second Hospital Avenue, Singapore 168938</td>
<td>+65 6324 8910</td>
<td>+65 6324 8810</td>
<td><a href="http://www.ndcs.com.sg">www.ndcs.com.sg</a></td>
</tr>
<tr>
<td>National Heart Centre Singapore</td>
<td>Mistri Wing 17, Third Hospital Avenue, Singapore 168752</td>
<td>+65 6436 7800</td>
<td>+65 6227 3562</td>
<td><a href="http://www.nhcs.com.sg">www.nhcs.com.sg</a></td>
</tr>
<tr>
<td>National Neuroscience Institute</td>
<td>11 Jalan Tan Tock Seng, Singapore 308433</td>
<td>+65 6357 7153</td>
<td>+65 6256 4755</td>
<td><a href="http://www.nni.com.sg">www.nni.com.sg</a></td>
</tr>
<tr>
<td>Singapore National Eye Centre</td>
<td>11 Third Hospital Avenue, Singapore 168751</td>
<td>+65 6227 7255</td>
<td>+65 6227 7290</td>
<td><a href="http://www.snec.com.sg">www.snec.com.sg</a></td>
</tr>
</tbody>
</table>

### PRIMARY HEALTHCARE

<table>
<thead>
<tr>
<th>Polyclinics</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyclinics</td>
<td>167 Jalan Bukit Merah, Tower 5, #15-10, Connection One, Singapore 150167</td>
<td>+65 6236 4800</td>
<td>+65 6274 9901</td>
<td>polyclinic.singhealth.com.sg</td>
</tr>
</tbody>
</table>

### COMMUNITY HOSPITAL

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bright Vision Hospital</td>
<td>5 Lorong Napiri, Singapore 547530</td>
<td>+65 6248 6755</td>
<td>+65 6881 3872</td>
<td><a href="http://www.bvh.org.sg">www.bvh.org.sg</a></td>
</tr>
</tbody>
</table>

### PARTNER IN ACADEMIC MEDICINE

<table>
<thead>
<tr>
<th>Academic Institution</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duke-NUS Graduate Medical School Singapore</td>
<td>8 College Road, Singapore 169857</td>
<td>+65 6516 7666</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>