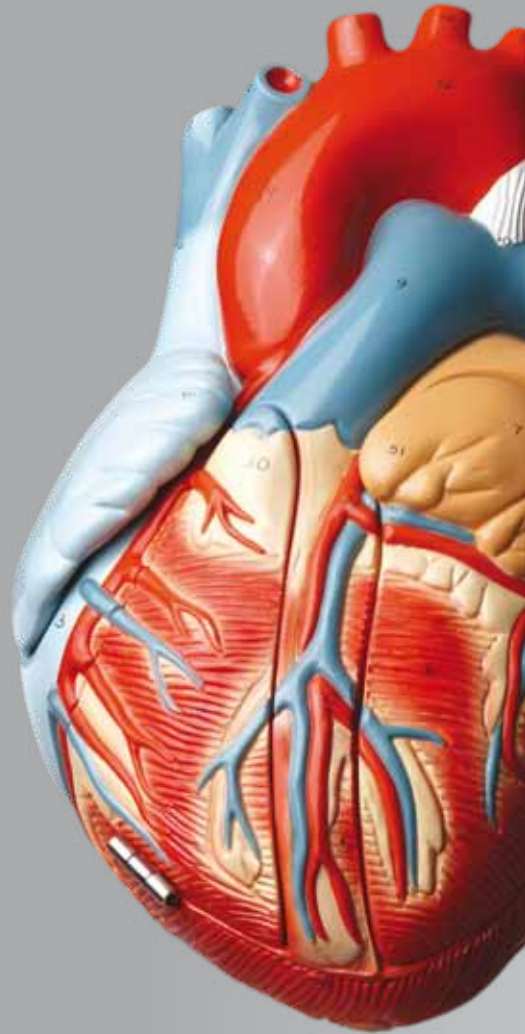




National Heart  
Centre Singapore  
SingHealth



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# 15

## NATIONAL HEART CENTRE SINGAPORE

Specialist Care from the Heart

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The National Heart Centre Singapore (NHCS) has always been very focused on patient care. It is therefore no surprise that we have a national award winner this FY2010, for her extraordinary dedication and commitment to patient care. Ms Lim Suh Fen bagged the President's Award for Nurses. This award represents the top accolade for the profession.

In patient care, we introduced the new robotic-assisted lobectomy which removes tumours in early-stage lung cancer patients. This minimally invasive procedure, the first in Southeast Asia, improves patient safety and allows a faster recovery. A multidisciplinary pulmonary hypertension clinic was also set up to provide comprehensive and seamless care for this group of medically complex patients. In July 2010, we celebrated our 20th anniversary in heart transplantation in Singapore.

The NHCS' efforts towards becoming a truly digital hospital has reaped encouraging progress. Various initiatives were rolled out including Closed Loop Medication Management and Computerised Physician's Order Entry modules, and nurse charting.

Education remains a core focus with our regular scientific meetings, cardiac technology diploma and fellowships programmes which contribute

to building a proficient cardiovascular workforce both locally and in the region. A stem cell workshop was also conducted to share our research expertise with local researchers.

A/PROF KOH TIAN HAI  
Medical Director, National Heart Centre Singapore

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## PATIENT CARE

The NHCS, as the standard bearer for cardiovascular care in Singapore, constantly makes new strides in patient care.

The Centre successfully performed Southeast Asia's first robotic-assisted lobectomy in Southeast Asia in August 2010, using the Da Vinci Si Dual system. This puts the NHCS among about 25 institutions in the world offering this procedure. The landmark surgery allows surgeons to remove tumours from early-stage lung cancer patients with increased precision with the use of robotic arms which a surgeon controls from a remote console. Benefits include enhanced safety, a shorter hospitalisation, less pain from the surgery, a lower risk of infection and a smaller wound.

2010 was also the 20th anniversary of the NHCS' heart transplant programme. The Centre carried out its first heart transplant on 6 July, 1990. To date, 53 heart transplants have been performed, giving severely ill heart patients a new lease of life.

The NHCS is among the early adopters of some of the most advanced techniques in heart valve therapy and has successfully treated many patients in Singapore and the region. The Centre now does more repairs, instead of replacement of heart valves, reducing the reliance of patients on blood thinning medications post-surgery and giving them a longer and better quality of life. In September, the Centre held a symposium to share its expertise.

“To do better, we must not only have the drive and passion but practise lifelong learning and constantly innovate.”

DR FONG MENG KUM  
Assistant Director of Nursing,  
Nursing Development Unit

The inaugural *SingVALVE 2010 – Symposium of Heart Valve Therapies* attracted about 100 doctors from the Asia-Pacific region.

In February 2011, the NHCS set up the multidisciplinary pulmonary hypertension (PH) clinic with SGH, allowing cardiologists, respiratory physicians and rheumatologists to meet, discuss and manage complex PH cases.

The clinic runs once a month and allows the clinicians involved to provide comprehensive and seamless care for their patients, reduces the inconvenience of multiple trips for consultation and provides opportunities for doctors to create a database for future research.

Harnessing the use of IT to improve work process, the Centre rolled out the Closed Loop Medication Management (CLMM) system in its inpatient wards. The system allows for a common view of inpatients' medication information and improves workflow in the dispensing and administering of medication. It also enhances patient safety with its online alert checks and introduced a more structured approach to medication ordering.

In the second quarter of 2010, the NHCS implemented the nurse charting system in its inpatient wards. Doctors and nurses are able to view the clinical charts, hourly charts and intake or output charts electronically from all parts of the hospital at any time. The system removes the possibility of human error due to poorly written charts, or the need for manual calculations. It frees up more time for nurses to devote to patients.

## EDUCATION

The NHCS initiated a slew of educational activities this past year as part of its mission to groom the next generation of healthcare professionals.

Over 1,700 international healthcare professionals participated in the 2nd AsiaPCR/SingLIVE. The Centre's annual cardiology conference was held in partnership with EuroPCR, a top interventional meeting in the world. The course contributes to the advancement of education and information for the cardiovascular community in Asia-Pacific.

Together with Singapore Polytechnic, the NHCS has trained 147 cardiac technologists through the Biomedical Science (Cardiac Technology) diploma programme since 2000. This is the only formal diploma programme with Cardiac Technology as an option in Asia.

Cardiac technologists are important team members in the continuum of care for heart patients. They work in three main areas, carrying out diagnostic tests such as ECGs, performing cardiac ultrasounds and assisting doctors during cardiac procedures such as coronary angioplasty and electrophysiological study. They also alert doctors of abnormalities in test results and explain test procedures to patients.

As a tertiary cardiac centre and premier interventional cardiology centre in Asia, the NHCS takes a lead role in cardiovascular medicine training both locally and regionally. The Centre has trained 131 international fellows to date in the various sub-specialties. The fellows were from countries in the region including Bangladesh, India, Indonesia, Myanmar, Philippines, China and Vietnam. Many of these fellows have assumed leadership positions in their countries after completion of their training.

## RESEARCH

The NHCS continues to push ahead in the discovery of advanced methods for the better delivery of patient care.

The Centre has the largest clinical trials unit wholly dedicated to cardiovascular trials in Singapore. As of 31 March 2011, the NHCS has 39 ongoing trials, one of which is an Acute Coronary Syndrome (ACS) trial collaboration with Duke University Medical Centre, Daiichi-Sankyo, Lilly NUS and Quintiles.

A notable trial is the RE-LY trial which has brought about a new oral anticoagulant that is more effective in preventing strokes in patients with atrial fibrillation (a disorder of the heart rhythm) than the standard therapy, warfarin, which has been used since 1950s.



Dr K. Gunasegaran (left), Dr Chin Chee Tang

**DR K. GUNASEGARAN**  
Senior Consultant, Cardiology, NHCS

**DR CHIN CHEE TANG**  
Consultant, Cardiology, NHCS

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Dr K. Gunasegaran and Dr Chin Chee Tang believe in the sharing of knowledge. Dr Chin sees it as a responsibility while Dr Gunasegaran says ultimately, teaching is “the greatest gift we have to give to future generations.”

Both men walk the talk.

Dr Gunasegaran is the Director of the Cardiology Fellowship Programme, spearheading training programmes for registrars in the department. He also teaches at Duke-NUS Graduate Medical School. Dr Chin organises the core curriculum teaching sessions for specialty trainees and lectures and tutors doctors preparing for the MRCP.

“Without teaching there is no learning,” Dr Chin says, adding that it is especially critical in the field of medicine where learning is a continual process, with an ever increasing knowledge base.

Both say, the goal of teaching is to educate future generations of doctors and health professionals to better serve their patients. “Never stop learning,” Dr Gunasegaran advises, “and in the process always pay it forward through teaching and educating.”

Together with Web Biotechnology Pte Ltd, the NHCS jointly conducted a user acceptance trial on a new wireless ECG monitoring system, a rapid feedback programme which allows healthcare providers to respond promptly to patients' symptoms, no matter where they are. The results of the two-week trial showed that almost all trial patients find the new system easier to use and are more comfortable with it. Without the hassle associated with the wired systems, patients are more likely to be compliant to the test. This is crucial in identifying their symptoms early and render timely treatment to prevent or delay the progression of heart disease.

In FY2010, the NHCS published 65 papers in international journals including the widely read and influential New England Journal of Medicine (NEJM) and Cardiovascular Research, a publication of the European Society of Cardiology (ESC).

The Centre's Research and Development Unit (RDU) hosted a stem cell hands-on training workshop in October 2010 with StemCell Technologies Inc., Canada. The workshop enabled the sharing of RDU know-how in stem cell biology and was tailored to impart technical expertise for all researchers learning to handle human embryonic stem cells in feeder-free systems. This fully enrolled workshop included participants from various laboratories from Biopolis, NUS and NTU.

## OUR PEOPLE

The NHCS remains committed in training and developing its people to elevate the standard of cardiovascular care in Singapore. Four consultants with the Department of Cardiology at the NHCS completed their fellowships at renowned overseas healthcare institutions.

Dr Tan Boon Yew, Consultant, Cardiology, spent two years at the Johns Hopkins Hospital in the US. There, he worked on a research project focused on genetic testing and Arrhythmogenic Right Ventricular Dysplasia/ Cardiomyopathy (ARVD/C) patients. He was also trained in clinical

electrophysiology and ablation of complex tachyarrhythmia, as well as advanced device-based therapy for cardiac arrhythmias. Dr Tan aims to establish a registry, similar to the ARVD/C programme at Johns Hopkins Hospital, for Singaporeans and their families with sudden cardiac death.

Dr Peter Ting, Consultant, Cardiology, spent close to two years at the Mazankowski Alberta Heart Institute, Canada. In his time there, Dr Ting focused on preventive cardiology and cardiac rehabilitation and was trained in advanced echocardiography, focusing on myocardial contrastechocardiography and 3-Dimensional (3-D) echocardiography. He plans to devise a syllabus and training programme in preventive cardiology and rehabilitation for medical trainees rotating through cardiac rehabilitation, and eventually also for medical students at the university.

Dr Chin Chee Tang, Consultant, Cardiology, was attached to the Duke Clinical Research Institute, Duke University Medical Center in US for a year where he was trained in cardiac database development. Through his involvement in various large registries, he learnt about the development and structure of such registries. He also studied trends on patient care to improve clinical outcomes, patient safety and reduce healthcare costs. Dr Chin aims to develop a mortality/ischaemic risk and bleeding risk assessment for patients admitted with acute coronary syndromes tailored specifically for Singapore and refine national cardiology databases for acute coronary syndromes and cardiac catheterisation/percutaneous coronary interventions.

Dr Tang Hak Chiaw, Consultant, Cardiology, spent a year at The Heart Hospital, UCL Hospitals, in the UK, gaining extensive and thorough exposure on the management of cardiomyopathy patients. Upon his return, he started the Cardiomyopathy Clinic at the NHCS. Senior Staff Nurse Suriani Binte Zahari, received the Health Manpower Development Plan (HMDP) scholarship to pursue Advanced Thoracic Nursing at Cleveland Clinic, US. The HMDP attachment focused on overall management of thoracic and lung transplant patients in inpatient and outpatient settings.

The Centre's rigorous efforts in talent development reaped several notable awards. Ms Lim Suh Fen, Assistant Director of Nursing, NHCS, was conferred the President's Award for Nurses on 29 July 2010. This yearly national award for nurses is given by the President of Singapore in recognition of nurses' commitment, professionalism and dedication to excellent nursing care. Ms Lim is an inspirational nursing professional who displays exemplary leadership and skills resulting in noteworthy accomplishments that include setting up the Singapore Heart Centre Ambulatory Service. Her passion and dedication to nursing have brought her much admiration from both patients and staff.

Ms Rokiah Bte Sulaiman, Principal Enrolled Nurse, NHCS, was among the winners of the 4th Tan Chin Tuan Nursing Award in November 2010. The Award is the highest accolade for enrolled nurses in Singapore. It recognises enrolled nurses who are exemplary in their dedication to patients, demonstrate excellence in their nursing careers and made significant contributions to the nursing profession and the community.

## COMMUNITY ENGAGEMENT

For the NHCS, community events are a way of giving back to the underprivileged and are invaluable for engaging the public. The NHCS held a public forum, *Understanding Heart Valve Disease*, in February which drew 230 participants. The forum helped participants to learn how to recognise the symptoms of the disease and the available treatments for it. They also learnt about the National Cardiovascular Homograft Bank, a depository bank for heart tissue graft, started by the NHCS.

The Centre's medical social workers organised a sandcastle-building event for more than 100 needy heart patients and their family members at East Coast Park, a team building exercise to instil hope, raise self-esteem and confidence in the participants.

The NHCS also reached out to youth beneficiaries from the Care Corner

Family Service Centre through telematches and food sales as part of the President's Challenge 2010, raising over S\$17,000.

Ramping up its fundraising efforts for the Heart2Heart Fund, the NHCS raised close to S\$314,000 in FY2010. The Fund helps provide financial assistance to needy patients. It also supports research and development, and training and education among others.



KEY FIGURES	FY10	FY09
<b>Size</b>		
Licensed Beds (as at end Mar)	185	185
Beds in Service	185	183
<b>Workload per annum</b>		
Bed Occupancy Rate	71.9%	72.7%
Inpatient Admissions	10,274	9,955
Inpatient Discharges	10,281	9,928
Total Patient Days	48,566	48,660
Average Length of Stay (days)	4.7	4.9
Total Procedures*	6,968	6,683
Day Procedures*	34	34
Inpatient Procedures*	6,934	6,649
Specialist Outpatient Clinic Attendances	107,228	101,113
Total Non-invasive Cardiac Investigations	108,076	103,249
<b>Staffing (as at end Mar)</b>		
Total	894	836
Doctors	88	85
Nurses	406	375
Allied Health Professionals	131	117
Others	269	260

\* *Interventional and Surgical*

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



**MS CHUA LEE KHENG**  
**Nurse Educator, NHCS**

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Teaching is a passion to Nurse Educator Chua Lee Kheng, who has been teaching, motivating and mentoring nurses for more than a decade.

This passion is clear not just from the clutch of prestigious awards she has earned, but from her influence. When Ms Chua speaks, her students listen. “The course exceeded my expectations,” said one participant about a patient counselling course she conducted in 2010. “I love NE Chua for her entertaining and engaging discussions. Keep it up! Love it!”

Ms Chua has mentored clinical instructors in a range of places from Wards 44 and 56, to Cardiothoracic Intensive Care Unit and the Nursing Development Unit. “Mentorship nurtures and grows the new nurse. With appropriate support, guidance and supervision, we are able to enhance their clinical experience and prepare them to undertake clinical roles,” she says.

Ms Chua conducts training for nurses, allied health professionals and volunteers at the Singapore General Hospital Campus, SingHealth and the National Healthcare Group. She also conducts training for the public in her own time and volunteers at various NHCS events such as Family Day and career fairs.

Perhaps she is taking to heart the advice given to her by her own teacher – a quote from Florence Nightingale, “Live your life while you have it. Life is a splendid gift; there is nothing small about it.”

## AWARDS & ACCOLADES

### PATIENT CARE

**Singapore Health Quality Service Award 2011** 139 staff – 11 star, 14 gold, 114 silver

**National Day Awards 2010 (Efficiency)** Chang Choong Kek; Zhang Yuanshan Clara

**National Day Awards 2010 (Long Service)** Chan Siok Tian; Saroja d/o Murugasu; Sim Sok Tiang Rosalind; Yip Yeok Mui

**President's Award for Nurses 2010** Lim Suh Fen

**4th Tan Chin Tuan Nursing Award 2010** Rokiah Bte Sulaiman

**2010 SingHealth Best Junior Doctors Award (Cardiology)** Dr Leow Khang Leng

**MOH Nurses' Merit Award 2010** Dhaliana Binte Idris

**PS21 Star Award 2010** Lee Mei Bao Jasmine

### EDUCATION

**SingHealth-Lee Foundation-D.S. Lee Nursing Excellence Award 2010** Ho Foong Nun; Khatijah Bte Kassim

## RESEARCH

**National Medical Research Council Grant** Dr Wei Heming

**Save the Children Korea Travel Grant** Dr Zhong Liang

**SingHealth Duke-NUS Scientific Congress 2010** **Best Poster Award (Translational)**  
Dr Ashish Mehta; Manasi

**Singapore Cardiac Society 23rd Annual Scientific Meeting** **Young Investigator Award (3rd Prize)**  
Dr Sun Xiaoming

**Young Investigator Award (1st Prize)**  
Dr Zhong Liang

**Best Abstract**  
Dr Zhong Liang

## HUMAN RESOURCE/TALENT DEVELOPMENT

**Work-Life Excellence Award 2010** NHCS

**Singapore Health Award 2010 (Gold)** NHCS