

PULSE

A biannual publication of the
National University Heart Centre, Singapore

www.nuhcs.com.sg

Issue
NO.

26

July - December 2015

REACHING FOR

Great Service

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08/ CLINICAL

Managing
Diabetes
in Heart Patients

19/ EDUCATION

From the view
of a European
Fellow

22/ EVENT

A Donor's Story –
Schroders
Singapore

24/ RESEARCH

Ethnic Differences
in Coronary
Artery Disease

COVER FEATURES

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Pulse is a biannual publication by the
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Singapore (NUHCS).**
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 **National University
Heart Centre, Singapore**

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MCI (P) 098/02/2015.
All information is correct at
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08/ **Managing Diabetes in Heart Patients**

Learn about a new NUHCS service that helps heart patients with diabetes manage the disease better.

19/ **From the view of a European Fellow**

Follow Dr. Leonardus Timmers on his exciting and intriguing journey at our Centre.



04/

Reaching for Great Service

Honouring the ones who deliver excellent service to our patients – NUHCS Patient Service Associates.

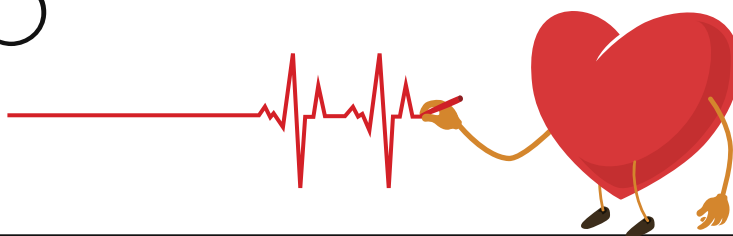
22/ **A Donor's Story – Schroders Singapore**

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24/ **Ethnic Differences in Coronary Artery Disease**

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COVER STORY

 National University
Heart Centre, Singapore





REACHING
FOR **GREAT**
SERVICE

NUHCS Patient
Service Associates

We pay tribute to the group of National University Heart Centre, Singapore (NUHCS) personnel who not only strive to deliver excellent service to our patients but also work dedicatedly behind the scenes to enhance the patient experience.

Our patient service associates (PSAs) form an integral part of the healthcare team and work hand in hand with our doctors, nurses, and allied health colleagues in NUHCS. They are often the first people whom patients and visitors meet when visiting NUHCS.



By Ms. Tan Si Ling
Senior Manager,
Ops & Admin, NUHCS

Si Ling has been a healthcare administrator for over nine years. She works closely with various colleagues in NUHCS to review and improve our internal processes to enhance our patients' experience. Si Ling also oversees the communications and development team of NUHCS to share and communicate key messages to our patients and the public.

Essential Unit of NUHCS

They play a critical role in supporting various administrative and operational functions in NUHCS – including registration, cashiering, assisting the doctors in the consultation room, arranging appointments for patients coming for tests, helping with administrative functions in the ward and many more.

Besides just performing day-to-day operations, they also take on different tasks, such as financial counselling, training

of new staff, and phlebotomy (drawing blood from patients). There are also plenty of opportunities for career progression and advancement. For instance, good performers can rise through the ranks to take on more advanced roles such as managing a team of PSAs and supporting the planning of operations in the centre.

Enhancing the Patient's Journey

Not only do our PSAs endeavour to deliver good service with a smile to our patients every day, they also engage in projects where they come up with ideas to further enhance the patient's journey. For example, a team of PSAs worked with the nurses to brainstorm on a fast track workflow for patients who visit the Heart Clinic for blood tests. This has resulted in a much shorter time taken for patients; some of them only need to spend 10 minutes in the clinic to complete their blood tests.



Acknowledging Efforts

In April 2015, to recognise the contributions and hard work put in by the PSAs, the National University Hospital organised the inaugural PSA day. The attendees enjoyed the wonderful celebrations and a handful of our PSAs from NUHCS even brought home some awards for service excellence and mentoring of junior colleagues.

Our patient service associates – we thank you for your tireless commitment to making every patient experience a better one in NUHCS.



The representatives of excellent service at NUHCS (clockwise, from top left): Denise Lim, Sahara Binte Sam, Sharon Jemima Raj and Francis Loke.



Standing row, from left: Asst. Prof. Chan Koo Hui (NUHCS), A/Prof. Ronald Lee (NUHCS), Asst. Prof. Edgar Tay (NUHCS), A/Prof. Mark Chan (NUHCS), Dr. Derek Yong (NTFGH), Dr. Joshua Loh (NUHCS).

Seated row, from left: Adj. Asst. Prof. Eric Chong (NTFGH), Prof. Tan Huay Cheem (NUHCS), A/Prof. Adrian Low (NUHCS), Dr. Nandakumar Ramasami (NTFGH).



By Prof. Tan Huay Cheem
Director,
NUHCS

Senior Consultant,
Department of Cardiology

Professor of Medicine,
Yong Loo Lin School of Medicine,
National University of Singapore

With a Masters of Medicine in Internal Medicine and Membership of Royal College of Physician, UK, Prof. Tan is an active clinical researcher, visiting professor to several hospitals in China and is an invited speaker to many international cardiology meetings.

Western STEMI Network

Pooling Healthcare Resources

Prof. Tan Huay Cheem elaborates on the Western ST-segment elevation myocardial infarction (STEMI) Network, a collaborative effort that brings enhanced care to patients.

Urgent revascularisation (restoration of blood flow) is the standard of care for patients presenting with 'classic' heart attacks (STEMI). In Singapore, primary percutaneous coronary intervention (PPCI), a minimally invasive catheter-based procedure to open up 'clogged artery' through thrombus or blood clot removal and stent (mechanical scaffold) implantation, is the choice modality of treatment. However, this is an expensive endeavour requiring an onsite cardiac catheterisation laboratory and adequate manpower suitably trained to manage these patients.

Uniting for a Common Goal

In order to provide timely, efficient and cost-effective services to patients with STEMI, National University Heart Centre, Singapore (NUHCS) has worked with Ng Teng Fong General Hospital (NTFGH) to develop the Western STEMI network. Resources are consolidated from the

two healthcare systems by providing a common on-call pool of interventional cardiologists and catheterisation laboratory emergency response team at NUHCS after office hours. All patients diagnosed with STEMI by ambulance medics in the field will be transferred by the Singapore Civil Defence Force ambulance to National University Hospital (NUH) throughout the day, and walk-in patients presenting to NTFGH after office hours will also be transferred to NUH for emergency treatment. However, patients with STEMI presenting directly to NTFGH during office hours will undergo on-site primary angioplasty. The NUHCS cardiac surgical team will provide emergency surgical cover to both hospitals for patients who may require surgical interventions.

This programme will be regularly audited by all stakeholders to ensure that performance and quality of care is compatible with international

standards. In particular, performance targets of median transfer time, median door-to-balloon time, median time from medical contact to balloon (which represents total ischemia time) will be tracked closely.

Changing the Healthcare Landscape

This creative and innovative collaboration, which follows American and European guidelines, not only serves patients with heart attacks in Western Singapore, but also represents a significant paradigm shift in the healthcare delivery model.

This will augur well for high-risk patients, where timely intervention is crucial to their survival.

Managing Diabetes in Heart Patients



The National University Heart Centre, Singapore (NUHCS) team behind the APN-led Cardiac Diabetes Clinic includes (back row, from left) cardiologist Dr. Loh Poay Huan, Advanced Practice Nurse (APN) Ms. Karen Koh and Senior Assistant Nurse Ms. Tham Wai Fong, and (front row, from left) endocrinologist Dr. Sue-Anne Toh, APN Ms. Juvena Gan, Acute Care APN Ms. Lo Chew Yong, APN Ms. Lee Choy Yee and APN Ms. Myint Myint Myat.

APN-led Cardiac Diabetes Clinic

A team from National University Heart Centre, Singapore (NUHCS) collaborated together to set up the APN-led Cardiac Diabetes Clinic (ACDC) to support heart patients' management of diabetes. Advanced Practice Nurse (APN) Ms. Lee Choy Yee gives us the scoop.



The APNs are actively involved in providing patient reviews and management in collaboration with the onsite endocrinologist.



By Ms. Lee Choy Yee
Advanced Practice Nurse,
Department of Cardiology

D iabetes is a common metabolic disorder among patients with cardiovascular disease. In 2012, approximately 1,400 patients seen at NUHCS had poorly controlled diabetes of HbA1c > 9%*. Historically, endocrinologists have managed this patient population.

A Collaborative Service

In order to cater to the increasing patient load, NUHCS collaborated with the endocrinologists to develop a cardio-metabolic clinic. Thereafter, the ACDC service was started from April 2015. The team comprises cardiac APNs, endocrinologist Dr. Sue-Anne Toh, cardiologist Dr. Loh Poay Huan, and is intricately supported by dietitians, pharmacists and various screening partners. This highly orchestrated care is targeted at cardiac patients with HbA1c > 9%.

Beyond glucose control, we aim to holistically optimise cardiovascular risk factors and provide secondary prevention screenings for cardiac patients with poorly controlled diabetes. The cardiac APNs have undergone rigorous supervised training by the endocrinologists to gain greater competency. There are two parallel clinics where the APNs are actively providing reviews, management and education in collaboration with the on-site endocrinologist.

Enhancing the Patient Experience

Approximately 220 patient visits have taken place within six

months of commencement. The intended clinical outcomes would be better control of glucose from HbA1c 9% to 7.5% and optimal control of other cardiovascular risk factors such as high blood pressure and high cholesterol.

We put great emphasis on regular annual screening of kidney profile, as well as foot and eye in order to detect and manage complications early.

As we strive to achieve patients' HbA1c target, we also ensure safety by working with patients to avoid hypoglycaemia hospitalisation.

Choy Yee graduated with a Masters of Nursing from National University of Singapore in 2010 and became an Acute Care Advanced Practice Nurse in 2012. She is involved in the setting up of both APN-led Cardiac Diabetic Clinic (ACDC) and NUH2H Heart Failure Transitional Care Programme.



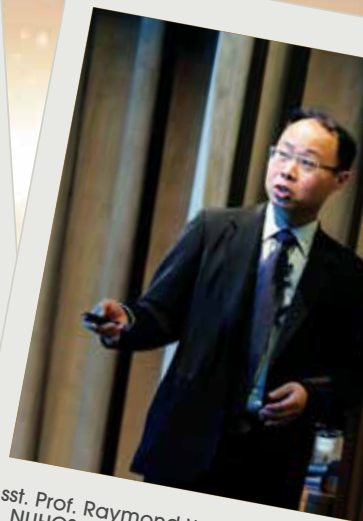
APN Ms. Lo Chew Yong teaching a patient on insulin injection so he can manage it on his own.

*HbA1c refers to the average blood sugar levels over a period of three months. An optimal HbA1c is 6.5-7% while HbA1c > 9% is unacceptable.

The HEART Truth: REVEALED



Five cardiovascular speakers from NUHCS shared on various aspects of heart health with a full capacity at the National University Health System (NUHS) auditorium on 25 July 2015.



Asst. Prof. Raymond Wong, Programme Director, NUHCS Heart Failure Programme, spoke about the brewing heart failure epidemic in Singapore and the strategies to combat it.



Prof. Tan Huay Cheem took the audience through a 100-year journey of the treatment of heart attacks and its current low mortality.



Members of the audience posed thought-invoking questions at the Q&A session. Their overall feedback was highly positive and many of them looked forward to the next The HEART Truth event to learn more.



Asst. Prof. Kristine Teoh, Clinical Director, Department of Cardiac, Thoracic and Vascular Surgery, explained the outcomes of coronary bypass surgery.

Uncovering Mysteries of the Heart

Retaining its usual theme with a new twist, “The HEART Truth: REVEALED”, a biennial English public symposium organised by National University Heart Centre, Singapore (NUHCS), enlightened the audience on heart conditions. Prof. Tan Huay Cheem showcases the key highlights of the event.



By Prof. Tan Huay Cheem
Director,
 NUHCS

Senior Consultant,
 Department of Cardiology

Professor of Medicine,
 Yong Loo Lin School of Medicine,
 National University of Singapore

With a Masters of Medicine in Internal Medicine and Membership of Royal College of Physician, UK, Prof. Tan is an active clinical researcher, visiting professor to several hospitals in China and is an invited speaker to many international cardiology meetings.



Asst. Prof. Pipin Kojodjojo, covered the prevention of sudden death from abnormal heart rhythm.



With the chairing done by Daniel Martin, one of Singapore's most celebrated emcees, the audience was treated to a light-hearted yet informative afternoon of learning and discovery.



Dr. Julian Wong, Programme Director, Vascular Medicine and Therapy Programme, highlighted the condition of peripheral artery disease and treatment methods to prevent limb amputation and improve quality of life.



The Singapore Heart Foundation gave a demonstration of the life-saving technique - cardiopulmonary resuscitation (CPR).



NUHCS World Heart Month 2015

Healthy Living for a Healthy Heart

Asst. Prof. Chan Wan Xian recaps on a series of heart health awareness activities the National University Heart Centre, Singapore (NUHCS) participated in to celebrate World Heart Day 2015.

H ealthy Living Talk, 19 September 2015

The public health seminar aimed to increase public awareness and promote preventive measures in our daily living to reduce the incidence of cardiovascular diseases. Members of the public and NUHCS staff attended the seminar. Our dietitian, physiotherapist and occupational therapist from the NUHCS Cardiac Rehabilitation team joined me to give a series of presentations on healthy living to prevent cardiovascular diseases.

My colleagues shared on healthy tips and exercises; stress management; coronary artery disease; as well as how better screening and management of cardiovascular risk factors and primary prevention could reduce the incidence of cardiovascular diseases. I also shared on its rising incidence worldwide and impact locally. Overall, we hoped to **educate participants on how important adopting healthy lifestyle habits** is to the primary prevention of cardiovascular diseases.



By **Asst. Prof. Chan Wan Xian**

Consultant,
Department of Cardiology

Asst. Prof. Chan completed her advanced specialist training in Cardiology at National University Hospital. She then completed further training in Advanced Heart Failure and Heart Transplantation. Her other specialty interests include heart failure, cardiac imaging, valvular heart disease and heart conditions in women.



Other Heart Health Activities



Singapore Heart Foundation National Heart Week/World Heart Day, 3 October 2015

Prof. Tan Huay Cheem was interviewed by the local press at the event, where NUHCS had a booth at the event to share about creating heart-healthy environments in a fun and interactive way.



Hands-only CPR Awareness, 13 October 2015

NUHCS's certified instructors demonstrated and taught correct cardiopulmonary resuscitation (CPR) techniques to volunteers who practised CPR on mannequins. They learnt how to do Hands-only CPR: pushing hard and fast on the chest without giving rescue breaths. Everyone was encouraged to learn the skill so that they could help when someone collapsed!

European Society of Cardiology Congress 2015

Gaining International Presence

Dr. Chan Po Fun takes us through the key highlights of the National University Heart Centre, Singapore (NUHCS) team's participation at the European Society of Cardiology (ESC) Congress 2015.

The ESC Congress 2015 was hosted in London and attracted more than 32,000 participants, including 26,000 active delegates and 5,000 exhibitors. With the theme, "Environment and the Heart", the congress focused on how we can improve patient care by communicating the most timely and significant advances in prevention, diagnosis and treatment of cardiovascular disease. In all, 500 practice-oriented and interactive sessions and over 4,600 abstract presentations were conducted.

NUHCS at the ESC Congress

Prof. Tan Huay Cheem and A/Prof. Poh Kian Keong were invited to participate in the congress as distinguished faculty members. Prof. Tan chaired a session on "Bioresorbable Scaffold in Coronary Intervention in Daily Practice", while A/Prof. Poh hosted "Echo-imaging Predictors of Cardiovascular Outcome". Prof. Tan was also featured on the ESC online TV channel, Experts Words - CardioTalk.

Other highlights include Prof. Dominique de Kleijn's discussion on "The Innate Immune Response in Reperfused Myocardium", and Dr. William Kong's Best Poster Award for his work on "The Contribution of Pressure Recovery and Three-dimensional Imaging on Echocardiographic Evaluation of Severe Aortic Stenosis for TAVI" (view photo on page 34). A/Prof. Ronald Lee, Asst. Prof. Lim Toon Wei, Dr. Lin Weiqin and Ms. Germaine Loo also presented their research work at the congress.

International Presence

The ESC Congress 2015 enabled NUHCS to showcase its work on the relevant issues in the diagnosis, management and treatment of cardiovascular diseases. We look forward to another great success at the ESC Congress in Rome next year!



By **Dr. Chan Po Fun**
Senior Resident,
Department of Cardiology

In her third year of residency and final year of training at NUHCS, Dr. Chan is a budding cardiologist who remains dedicated to her work despite its gruelling nature. She has a passion for meeting people from all walks of life and constantly challenges her mind with various medical matters.



Watch the video on
youtu.be/PbQ5qN2iRHA



Singapore Prevention and Cardiac Rehabilitation Symposium 2015

Driving Collaborations in Cardiology

Asst. Prof. Raymond Wong gives a first-hand account of an enlightening symposium that brought local and international cardiology experts together for stimulating sharing sessions.



By **Asst. Prof. Raymond Wong**

Director,
Heart Failure Programme, NUHCS

Director,
Cardiac Rehabilitation

Director,
Diagnostic Cardiovascular
Laboratory

Director,
Nuclear Cardiology

Senior Consultant,
Department of Cardiology

Asst. Prof. Wong has special research interests in the fields of heart failure and cardiomyopathy and is involved in many quality improvement projects.

The inaugural Singapore Prevention and Cardiac Rehabilitation Symposium (SPCRS) 2015 was held on 24 October. It was organised by the Singapore Heart Foundation and jointly supported by the National Heart Centre Singapore; National University Heart Centre, Singapore; Singapore Cardiac Society; International Council of Cardiovascular Prevention and Rehabilitation; and World Heart Federation.

The objectives of the symposium were to provide updates and advances in prevention and cardiac rehabilitation in Singapore and to provide a platform for strategic collaborations and sharing among healthcare professionals in the field.

Graced by Mr. Chee Hong Tat, Minister of State, the central theme of the symposium is "Innovative and Holistic Care" and caters to the needs and interests of the multidisciplinary specialties that are integral to Preventive Medicine and Cardiac Rehabilitation.

Learning From the Experts

SPCRS 2015 brought together international thought leaders and local experts to present a

series of educational lectures and interactive how-to sessions. Prof. David Wood from Imperial College London, UK, delivered the keynote lecture. Other notable lecturers included Mr. Mark Vitcenda from the University of Wisconsin Hospital and Clinics in Madison, Wisconsin, USA and Prof. Leonard Li from Tung Wah Hospital, Hong Kong.

Forum for Sharing of Ideas

The symposium also functioned as a forum where multidisciplinary specialties have opportunities to share tenacious issues faced daily by in- and out-patients across institutions, thus providing a networking platform for idea exchanges and innovations. High-valued oral abstracts were selected for presentation according to three pre-specified tracks during the breakout sessions, and tabled for expert moderation as well as best oral abstract award.

SPCRS 2015 was a success with more than 250 attendees from nine countries. We hope to organise the next edition in the near future.



— NUHCS —
Family Day
— 2 0 1 5 —

• Flourishing as One •





Dr. Harish Mithiran Muthiah recollects the memorable moments of a day of rest and recreation that brought the National University Heart Centre, Singapore (NUHCS) family closer together.

A Time to Unwind
 Some 500 NUHCS staff and their family members attended the NUHCS Family Day 2015 on 21 November at Gardenasia, where its surrounding nature was lush than most parts of Singapore. Many participants enjoyed the tutorials on Egg-A Tarium, in which they were taught how to build a self-sustainable plant environment, while others enjoyed an outdoor catch and release fishing at the fish pond under the sun.

Building a Formidable Team
 The event was officiated by Prof. Tan Huay Cheem, Director of NUHCS. He gave a welcome address highlighting the importance of teamwork, after which the whole NUHCS family participated in a series of team-building games. The highlight of the team-building event was

when everyone formed a 500-man circle around Gardenasia, and members of the NUHCS family passed a hula hoop through each person in an impressive time of 9 minutes and 45 seconds.

This incredible feat brings out our NUHCS family spirit and shows that we can achieve anything when we work together.

There were plenty of laughter, good times as well as friendships forged and strengthened, as participants thoroughly had fun at this bonding session. The day ended with 20 lucky participants taking home generous lucky draw prizes including the grand prize of an Omega watch.



By Dr. Harish Mithiran Muthiah
 Associate Consultant,
 Department of Cardiac,
 Thoracic & Vascular Surgery

Dr. Harish started his practice in 2004 and has been working in Singapore since 2009. He has been an Associate Consultant since 2014, specialising in Thoracic Surgery.





Asian Interventional Cardiovascular Therapeutics 2015

Led by Prof. Tan Huay Cheem, the Asian Interventional Cardiovascular Therapeutics (AICT) 2015 took another leap forward in interventional cardiology in this annual three-day meeting.



Every AICT is special; every AICT signifies the collective desire of the Asia-Pacific community to pursue its dream goal of being the pivotal representative meeting in this part of the world; **every AICT carries the immense importance of spreading its presence and be a force in the global landscape of interventional cardiology;** and every AICT should make us all proud..." proclaimed Prof. Tan Huay Cheem, a founding member of AICT and President of Asia Pacific Society of Interventional Cardiology (APSIC) at the opening ceremony of the meeting on 14 Nov 2015 at Dhaka, Bangladesh.

A Sharing by Regional Experts

Into its 11th year of organisation, AICT is the platform interventional cardiology meeting for endovascular experts from the Asia-Pacific region to share its expertise, academic strength and

collective knowhow. The meeting was well-attended by 139 faculties and more than 460 delegates from Bangladesh and the rest of the world. It was supported by various international societies of interventional cardiology: Society for Cardiovascular Angiography and Interventions (SCAI); EuroPCR; Taiwan Transcatheter Therapeutics (TTT), National Intervention Council (NIC) – Cardiological Society of India; and China Interventional Therapeutics (CIT).

"This conference has a very warm and inclusive atmosphere which is unique and fosters a good exchange of experience among colleagues and friends," said Dr. Christoph Kurt Naber, German cardiologist and Course Director of EuroPCR.

Up-close with International Cardiology

The meeting featured 11 live demonstration cases of complex percutaneous coronary intervention from Ibrahim Cardiac Hospital and National Heart Foundation Hospital

in Bangladesh, and Apollo Hospital from Hyderabad India; keynote lectures; case-based discussion; and best case and abstract presentation. Graced by the presence of Guest of Honour, Honorable Minister Mohammad Nasim, Ministry of Health and Family Welfare; and National Professor Brigadier (Retired) Abdul Malik, 'Father of Cardiology' in Bangladesh and President of National Heart Foundation, the meeting received much local media publicity.

Participants also had fun at the cultural gala night and dinner, as well as the APSIC Convocation, in which a total of more than 20 new Fellows were inducted. The meeting had a sombre moment when Prof. Tan paid tribute to Dr. Kazuaki Mitsudo, a giant of interventional cardiology in Asia, who passed away suddenly in October 2015.

As the 11th AICT meeting drew to a close after three days, participants bid farewell to one another and looked forward to the 12th AICT in Taipei, Taiwan in 2016; 13th AICT in Melbourne, Australia in 2017; and 14th AICT in Hong Kong in 2018.

Singapore Cardiac Society Sub-Specialty Seminar

What are the recent advancements and treatments of pulmonary hypertension? Asst. Prof. Edgar Tay relates about these hot topics at a seminar hosted by National University Heart Centre, Singapore (NUHCS).

The inaugural Singapore Cardiac Society Sub-Specialty Seminar on pulmonary hypertension was held in NUHCS on 5 November 2015. The aim of this series of seminars is to update and share insights on cardiology subspecialties. This session focuses on the topic of pulmonary arterial hypertension, a rare and chronic disease. While previously deemed incurable with very poor prognosis, the recent advent of new therapeutic agents has allowed patients to be effectively treated.

Expanding on Pulmonary Hypertension

Our two key speakers, Adj. Asst. Prof. Tan Ju Le, Senior Consultant, Department of Cardiology, National Heart Centre Singapore, and A/Prof. James Yip, Senior Consultant, Department of Cardiology, NUHCS, shared on the topic eloquently. Adj. Asst. Prof. Tan focused on the latest updates in the classification, diagnosis and treatment of the disease while A/Prof. Yip spoke on the role of echocardiography on the diagnosis of these patients. One of our patients very kindly volunteered his time to participate in this forum by allowing us to demonstrate the echocardiographic features of pulmonary arterial hypertension.

Gaining Confidence in Effective Treatment

Over a hundred participants came for this seminar and gave positive feedback on its educational aspect. The seminar has enhanced their understanding of pulmonary hypertension and improved their ability to pick up on this condition. This would hopefully lead to earlier diagnosis, treatments and eventually better outcomes for patients.



By Asst. Prof. Edgar Tay

Senior Consultant,
Department of Cardiology

Asst. Prof. Tay co-leads the transcatheter aortic valve implantation (TAVI) and mitraclip mitral valve repair programme. He subspecialises in the field of adult congenital heart disease, pulmonary hypertension and structural intervention.



Building the NUHCS Expertise LVAD Training in Hamburg

The National University Heart Centre, Singapore (NUHCS) team had the opportunity to receive a left ventricular assist device (LVAD) training. A/Prof. Theodoros Kofidis recounts the experience and how they applied their newfound knowledge to NUHCS.



By A/Prof.
Theodoros Kofidis

Head,
Division of Adult Cardiac Surgery,
NUHCS

Senior Consultant,
Department of Cardiac,
Thoracic & Vascular Surgery

A/Prof. Kofidis does a wide range of less invasive, small-incision and keyhole access procedures for blocked coronary arteries and heart valves. His specialties are minimally invasive procedures for the repair/replacement of the heart valves, which help to minimise trauma to patients, shorten length of stay and produce better cosmetic result.



Resilience, persistence, and constant striving for improvement are key ingredients to every success. The NUHCS left ventricular assist device-heart failure (LVAD-HF) team has accomplished yet another mission towards optimising our LVAD training, knowledge and coordination.

An Extensive Training Experience

Due to NUHCS's international relationships, our multidisciplinary team was invited and hosted by two German Universities – University Medical Centre Hamburg-Eppendorf (UKE), and the University of Lübeck. The comprehensive syllabus featured theoretical courses that were specially fashioned and organised for our team; life case observations, Intensive Care Unit (ICU) and HF ward rounds; as well as an LVAD implantation, which we actively participated in.

The President of the International Society for Heart and Lung Transplantation and the Director of the University Heart Centre, UKE, hosted a dinner in honour of our visit. The dinner was a great platform to interact with each other and build rapport.

Passing on the Knowledge

Our team returned from Germany richer in experience and knowledge. Applying what we have learnt to NUHCS, we conducted a debriefing; produced an educational DVD; developed protocols to better streamline our future efforts; and aligned them with the highest international standards.

Now refreshed and more confident than ever, our LVAD-HF team looks forward to serving patients in Singapore who are in need.

Our local and international ties will play a key role in establishing a programme of quality service and outstanding reputation, as we constantly expand our NUHCS repertoire to include the treatment of advanced heart disease.

We would like to thank Prof. Tan Huay Cheem, Director of NUHCS, for assigning the funds to make this training experience possible.



Back to the Basics of ECG

A Nursing Grand Round Session

Ms. Ting Kit Cheng highlights on the lecture she presented about the basics of the Electrocardiogram (ECG) to better understand and interpret it.

Readng an ECG is often a daunting practice to many as a wrong interpretation may be disastrous.

Being the senior nurse educators of NUHCS, Janice Kee and I were invited to deliver a lecture on "Back to the Basics of ECG" session as part of the Nursing Grand Round – a monthly lecture that is presented by healthcare professionals and aims to promote nursing growth and development towards excellence at the clinical setting.

Basic ECG Knowledge

We were excited and humbled to share an educational learning journey and experience with our fellow peers. During the session, we covered basic components of ECG, steps in ECG interpretation and arrhythmia determination to trigger their memories and help them revisit their knowledge and understanding on the fundamentals of ECG.

Nuggets of Wisdom

We believe in the philosophy of "see one, do one and teach one". We hope that everyone will cultivate this lifelong wisdom

in their daily lives. In return, we have also learnt from the audience and sought their constructive feedback so we can make the teaching sessions more interactive and interesting for them.

I hope that all participants have benefited from these ECG sessions, started taking a more proactive stance in reading difficult or challenging ECGs and hence, become more confident in managing their patients.

The key is to Practise, Practise and Practise more! To quote the great Confucius: "I hear and I forget. I see and I remember. I do and I understand".



By Ms. Ting Kit Cheng
Acute Care Advance Practice Nurse,
Cardiothoracic Intensive Care Unit (CTICU), NUHCS

Kit Cheng is an Advance Practice Nurse with a special interest in acute care. She is currently leading a pilot intensive care liaison programme, which is an extension of Intensive Care Unit (ICU) services. The programme assists and supports Cardiothoracic ICU discharges to the general ward.

From the view of a European Fellow

Interventional Cardiology Training at NUHCS

Discover what a visiting fellow, Dr. Leonardus Timmers, feels about his one-year training stint at the National University Heart Centre, Singapore (NUHCS).

After obtaining a general cardiology training from the University Medical Centre Utrecht, the Netherlands, it was finally time to pursue my dream: interventional cardiology.

My wife, who is a gynaecologist, and I received grants from the Working Group Cardiology Centres in the Netherlands (WCN), the Netherlands Heart Institute (ICIN) and the Queen Wilhelmina Cancer Fund (KWF) for overseas training. We wanted to experience a centre with quality medical care, English as a common language, and the possibility of high-volume hands-on training.

Choosing the Right Institute

So how lah? The choice for NUHCS was easily made. I had already collaborated with the Cardiovascular Research Institute, the research arm of NUHCS, in basic science. I sought to expand the collaboration to the clinical field. Furthermore, my ambition is to build a network in Asia as I anticipate that it will be an even more important player in the world within a few years, with its contribution to science and innovation increasing exponentially.

An Exceptional Experience

I do not regret our choice.

NUHCS is a clinical centre with a very safe and stimulating work atmosphere. All interventional cardiologists in NUHCS are internationally-trained, hard-working, dedicated and inspiring people.

I was also impressed by the extensive expertise of the nurses, medical technicians and radiographers that complete the team in the catheterisation laboratory.

In addition, I had the opportunity to work with many new and innovative medical products and I had ample exposure to complex cardiac interventions, as diffuse coronary artery disease is more common in this part of the world. All these experiences in NUHCS, together with the delightful Asian hospitality and food, tropical climate, and vibrant city, make 2015 an unforgettable experience for me and my family.

I will go home with a strong new set of interventional skills, a solid foundation for future collaborations, and most importantly, many new lifelong relationships and friends. Thank you NUHCS and Singapore! I will be back soon.



By Dr. Leonardus Timmers
Visiting Fellow,
Department of Cardiology

Dr. Timmers is a cardiologist and assistant professor at the University Medical Centre Utrecht, the Netherlands. In 2015, he was trained in interventional cardiology at NUHCS. He has also co-authored over 40 papers in international peer reviewed scientific journals and received several grants for his translational research on myocardial infarct healing.





By Ms. Yvonne Lin

Senior Assistant Manager,
Communications &
Development, Ops & Admin,
NUHCS

Yvonne is a part of the Communications & Development team, which works closely with colleagues across NUHCS and its associates to maintain and develop the Centre's reputation. The team tells the stories of its people, patients and programmes, keeping in mind the mission to provide a comprehensive and holistic approach to the treatment of cardiovascular problems. She manages the website, media relations and external engagements for NUHCS.

A Prof. Malcolm Underwood chaired the **Aortic Surgery Workshop**, where local and international delegates gained a remarkable experience during wet lab sessions and lectures.

B Led by trauma care experts, the **3rd Singapore Chest Trauma Course** provided a platform for ideas and impressed delegates with the dynamic interactions and operative techniques taught.

C Helmed by vascular experts, the new **Endoscopic Vein and Radial Artery Harvesting Workshop** was highly commended for its comprehensive curriculum, organised approach and expert teachings.



10th Asian Cardiothoracic Surgery Specialty Update Course

— A Practical Approach —

D The **Video-Assisted Thoracic Surgery (VATS) Workshop** outdid itself with a programme comprising discussions, lectures and live operation experience with porcine models.

E Several internationally renowned esteemed faculty members came together for the **Minimally Invasive Cardiac Surgery (MICS) Workshop**, which carried out a 3D live transmission of a case operation for the first time at the course.





B

C



rganised jointly with the Royal College of Surgeons of Edinburgh and the Chinese University of Hong Kong, the course had hands-on elements in all its workshops, with limited spaces to increase interaction which presented great educational and training values in areas of cardiac, thoracic and vascular surgery. The success of the 10th Asian Cardiothoracic Surgery Specialty Update Course is the latest in the list of accolades for Cardiothoracic and Vascular Training in the region, which could not have been possible without the strong support of our industry partners and faculty.

Special thanks to our overseas faculty members: Mr. Timothy R. Graham, Mr. Pala B. Rajesh, Prof. Malcolm Underwood, Ms. Cindy Blasewitz, Dr. Anson Cheung, Dr. Sathyaki Nambala, Dr. Sertac Cicek, Prof. Mattia Glauber, Colonel Muhammad Afsheen Iqbal, Mr. Michael E Lewis, Surgeon Captain Mark J. Midwinter, Dr. Calvin Ng, Dr. Soon Sing Yang, Mr. Stephen J. Rooney, Dr. Thorsten Wahlers, Prof. Nguyen van Phan; **and to our local faculty members:** Asst. Prof. Jimmy Hon, A/Prof. Theodoros Kofidis, Prof. Lee Chuen Neng, A/Prof. Thirugnanam Agasthian, Adj. A/Prof. Michael George Caleb, Asst. Prof. Kang Giap Swee, Dr. Darren Lee Hai Liang, A/Prof. Ling Lieng Hsi, Dr. Harish Mithiran Muthiah, Asst. Prof. Ooi Oon Cheong, Asst. Prof. Vitaly A. Sorokin, A/Prof. John Tam Kit Chung, Asst. Prof. Kristine Teoh, A/Prof. Ti Lian Kah and Dr. Julian Wong.

*The **Cardiac Wet Lab** provided key insights for delegates as they learnt aortic root and mitral valve surgery and repair through lectures and hands-on wet lab.*

THE HEART FUND SPECIAL

Schroders

A Donor's Story – Schroders Singapore

Championing a Good Cause

With Schroders Singapore's recent celebration of its 40th anniversary, where it generously donated to The Heart Fund, Ms. Angeline Tan sheds light on an exclusive and heartening story of an organisation that truly wants to make a difference to heart patients.

Schroder Investment Management (Singapore) Ltd ("Schroders Singapore") celebrated its 40th anniversary and the official opening of its new premise in CapitaGreen on 18 November 2015. In conjunction with the celebration, Schroders Singapore made a S\$200,000 contribution to The Heart Fund which it has been supporting over the past two years. We chatted with Mr. Jerry Low, Head of Marketing, Schroders Singapore, to find out more about their benevolent cause as a donor of The Heart Fund.

Why does Schroders Singapore support heart patients?

Giving back to the community is something we hold very close to our hearts. Today, chronic disease has become a real problem for many people and some of them are unable to afford medical treatment. Particularly, heart disease is one of the most common causes of death in the world and in Singapore. Thus, we want to help heart patients in need and contribute towards its research.

What drew Schroders Singapore to The Heart Fund?

We found a home for our aspiration in The Heart Fund. It has been a consistent and reliable presence in Singapore's fight against heart disease, helping needy heart patients and supporting medical research in heart disease as well as continuous medical education and training for healthcare professionals, which are important first steps towards winning this battle.

Why should others get involved in The Heart Fund?

The Heart Fund is highly dedicated and professional in its work and pursuit of excellence in this field, and this resonates well with Schroders Singapore's values as a forward-thinking company. Therefore, we strongly encourage others to support this important cause to help ensure a happier, and healthier, Singapore for all.



As a token of appreciation to Schroders Singapore for their unwavering support to the Heart Fund, NUHCS invited Mr. Kelvin Lam, Director, Intermediary Business, Schroders Singapore (left), to talk about financial planning and investment options during a NUH Grand Round session on 10 July 2015.



(From left) Ms. Susan Soh, Managing Director, Schrodgers Singapore, together with Guest of Honour Mr. Lawrence Wong, Minister for National Development and Board Member of the Monetary Authority of Singapore, presenting the donation cheque to Prof. Tan Huay Cheem, Director, NUHCS.



By Ms. Angeline Tan
Senior Assistant Manager,
Communications &
Development, Ops & Admin,
NUHCS

Fast Facts on The Heart Fund

Schrodgers Singapore was listed in the National University Heart Centre, Singapore (NUHCS) Honour Roll of Donors (for donations of \$10,000 and above) in 2013 and 2015.

Schrodgers Singapore's Donations, 2013-2015

Year	Amount
2015	\$210,000
2014	\$18,000
2013	\$107,500

The above figures include personal donations from Schrodgers Singapore's Managing Director who believes in leading by example.

Angeline is a member of the NUHCS Communications & Development team, responsible for organising all internal and external communications and events. They ensure timely and effective messages on heart health matters to reach patients, staff, media, corporate partners and the general public. Angeline manages the corporate and patient education collaterals, patient education video production and the publicity of The Heart Fund. She is also part of the Pulse editorial team.

Administered by the NUHCS, **The Heart Fund provides financial aid for needy patients and supports both continuous medical research and education programmes** in the field of cardiology with the aim to improve patient care.



(From left) Ms. Geraldine Goh, Director, NUHCS Development Office; A/Prof. Yeo Tiong Cheng, Head, Department of Cardiology, NUHCS; and Mr. Jerry Low, Head of Marketing, Schrodgers Singapore, at the 40th anniversary celebration.

The Heart Fund has assisted 29 patients (applicants) from December 2014 – November 2015.

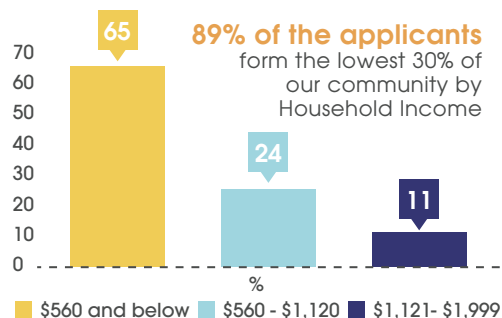
54% 

of the applicants are Singapore Citizens while the rest are Permanent Residents (PRs) and non-residents who have spent a reasonable time in Singapore (working, schooling, supporting family who are PRs)



41%

of the applicants are above 65 years old
The elderly comprises the largest segment, reflecting our ageing population



For full details of the Heart Fund donor report, please log on to <http://www.nuhcs.com.sg/make-a-gift.html>

Ethnic Differences in Coronary Artery Disease

The team from University Medical Centre Utrecht and NUHCS comprises (from left) Ms. Crystel M. Gijssbergs, Ms. Aruni Seneviratna, Prof. Dominique de Kleijn, A/Prof. Mark Chan and Dr. Leonardo Binto De Carvalho.



A Netherlands-Singapore Collaboration

Ms. Crystel M. Gijbarts expounds on the findings of the UNICORN study, which saw significant differences among coronary artery disease (CAD) patients of different ethnicities.



By the year 2020, the largest number of CAD patients will be found in Asia. However, most published epidemiological and clinical reports are from western (White) cohorts while data from Asia is scant. To increase insights into characteristics of CAD patients, collaborative coronary biobanks, between University Medical Centre (UMC) Utrecht, Netherlands and National University Heart Centre, Singapore (NUHCS), were set up.

Studying Ethnic Differences in CAD

In our UNited CORoNary Biobank (UNICORN) study, together with A/Prof. Mark Chan and co-authors, Ms. Aruni Seneviratna and Dr. Leonardo De Carvalho, we compared patient characteristics, cardiovascular risk factors, angiographic CAD severity and mortality. Through the collaboration between UMC Utrecht and NUHCS, we could pool together a unique group of patients (multi-ethnic cohorts) to study.

Results and Findings

We studied 1,759 White, 685 Chinese, 201 Indian and 224 Malay patients undergoing coronary angiography and found distinct inter-ethnic differences. The differences are:

- 1 Whites were 65 years old while Chinese, Malays and Indians were 59, 56 and 55 respectively. Thus, CAD might occur at an earlier age in Malays and Indians than in Chinese and Whites.
- 2 Diabetes and hyperlipidaemia were more common among Malays and Chinese.
- 3 Most importantly, CAD was more severe among the Asian ethnic groups.
- 4 The associations of male gender and diabetes with severity of CAD were significantly stronger in Chinese (risk from diabetes is greater) than in Whites.
- 5 The crude mortality rates did not differ by ethnicity. However, when mortality rates were adjusted for patient characteristics, mortality was significantly higher in Malays.

Our findings provide a better understanding of cardiovascular risk factors in certain ethnic groups and suggest that they deserve stricter attention in primary and secondary prevention of CAD.

For example, Indians and Malays who have severe CAD at a very young age might benefit from earlier instigation of lipid lowering therapy or stricter glycemic regulation in the case of diabetes. Thus, the UNICORN study benefits Singapore as a whole as it promotes the prevention of CAD and its risk factors in different ethnic groups.



By Ms. Crystel M. Gijbarts
Visiting Research Fellow,
Cardiovascular Research
Institute (CVRI), NUHCS

Crystel obtained her medical degree at the Utrecht University, Netherlands in 2012. Thereafter, she started research on ethnic differences in coronary artery disease as a PhD candidate at the department of Experimental Cardiology, University Medical Centre Utrecht. At the CVRI, she is working on several projects that range from ethnicity to the potential role of extracellular vesicle proteins in heart failure and acute coronary syndrome patients.

Recognition for

Public Service Excellence

PS21 ExCel Award



The Public Service for the 21st Century (PS21) is a change movement that aims to build a Public Service in Singapore that is ready to change amidst an increasingly complex operating environment. Asst. Prof. Jimmy Hon shares his unforgettable experience of receiving the Gold award in the Innovation Champion category at the PS21 Excellence through Continuous Enterprise and Learning (ExCel) Awards, and the mitral valve breakthrough solution behind this recognition.

October marked the Public Service month in Singapore. Public officers are rewarded for their work with the annual Excellence in Public Service Awards and PS21 ExCel Awards.

I was very fortunate to have been asked to represent National University Heart Centre, Singapore (NUHCS) and compete against the rest of Ministry of Health (MOH) hospitals and public service agencies for the prestigious PS21 ExCel Awards. The operation and administration teams of National University Hospital (NUH) and NUHCS were extremely helpful in helping and guiding me prepare for my submission. Thankfully, I did not fail them – my submission won a PS21 ExCel Gold award.

Receiving Gold Honours

I feel honoured to clinch the Gold award, being one of only five winners of this coveted title and the only Gold award winner from MOH. During the award ceremony held on 15 October 2015, I had the privilege of sitting amongst Singapore's public service officers who have made significant contributions to our country. They included teachers, fire fighters,

counsellors, social workers, engineers, military men and women, to name a few.

Listening to their contributions was indeed a very humbling experience for me and reminded me why we are all in public sector.

It has indeed consolidated my commitment to public service.

Breakthrough in Mitral Valve Solution

My research project is based on developing a novel transcatheter mitral valve, called VeloX (refer to the next page), to treat high-risk patients with severe symptomatic mitral regurgitation who would otherwise not receive open-heart surgery due to their frailty, old age and co-morbidity. Currently, pre-clinical studies are ongoing.

My research effort was also coupled with my involvement in rolling out our Transcatheter Aortic Heart Valve (TAVI) programme in 2010, which was designed to treat patients with severe aortic stenosis who are not suitable for open-heart surgery. As a result of a concerted team effort from cardiologists and surgeons, including



Asst. Prof. Jimmy Hon (second from left) and his team received the PS21 award from Mr. Teo Chee Hean, Deputy Prime Minister (third from left), at the Public Service Awards Ceremony.

Asst. Prof. Edgar Tay, A/Prof. James Yip and Asst. Prof. Kristine Teoh, the programme was a success.

In addition, I was also credited for assisting our young consultant in the initial development of our department's endoscopic vein harvest programme. Since its inception, vein harvest wound complication rate has dropped significantly.

A Special Reception

President Tony Tan hosted a reception at the Istana for about 500 public officers, including winners of public service awards. This was my first visit to the Istana and it was an extremely memorable experience.

I would like to thank NUHCS and my department for their support and guidance through all these years as well as the operations and administration teams for helping me out with the award submission. This award must be viewed as a team effort as none of what I have done could be achieved without the support and hard work from everyone in NUH. This is definitely a NUHCS team Gold award!

VeloX

Made in Singapore

Asst. Prof. Jimmy Hon relates how he and his dedicated team developed their brainchild, VeloX, an innovative solution to treat mitral regurgitation (MR).

After gaining traction for more than 12 years, TAVI has formally entered the European Guidelines for Treatment of Heart Valve Disease for inoperable and high-risk patients with aortic stenosis. However, there is not a viable transcatheter mitral solution to treat MR patients who are old, frail or have multiple comorbidities as the treatment options are reserved only for those who have suitable anatomy and pathology and most do not fully eradicate MR.

A Collaborative Effort

Sharing a common vision, A/Prof. Leo Hwa Liang, a biomechanical engineer from National University of Singapore (NUS), and I joined forces. A/Prof. Leo provided the engineering know-how while I contributed the much needed physiological, pathological and anatomical knowledge. We also received tremendous support from NUS Medical Engineering Research & Commercialisation Initiative (MERCIC); National University Hospital (NUH) engineers led by A/Prof. Leo; and computational scientists from A*STAR. We were also very fortunate to attain three A*STAR Biomechanical Engineering Programme (BEP) grants over the last four years – two Proof of Concept grants totalling S\$3M and a S\$1.5M grant.

Challenges and Contributions

The central location of the mitral valve within the heart, its neighbouring anatomy and the distinct lack of tough fibrous calcified structure along its annulus made it an engineering enigma to conquer. During the development of the valve, we had to overcome problems of anchorage and prevention of compression, obstruction of left ventricular outflow and paravalvular leak. The engineering team brilliantly understood my technical explanation and conception of this new valve despite my vague ideas; masterfully used engineering graphic software to construct the concept valve; and made multiple drawings, corrections and prototypes. Simultaneously, the

computational scientists used complex computational simulation to ascertain the structural robustness of the stent designs. Our team also had to learn how to construct and sew the valve leaflets onto the valve stents.

It took three years before we had a go at pre-clinical study. Although the valve wasn't perfect, we constantly refined it, including its imaging capability, and learnt from failed experiments. A year later, we saw success, which boosted our morale. With great affection, we called this valve, VeloX.

We are now collecting important pre-clinical data and envisage that there will still be minor design modifications needed as we gain more experience and knowledge with our pre-clinical studies. Nevertheless, we are very much encouraged by our results thus far and are indeed gaining a foothold in the worldwide race of finding a percutaneous solution to treat mitral valve disease.



By **Asst. Prof. Jimmy Hon**
Programme Director,
Cardiothoracic Surgery
Residency Programme, NUHCS
Senior Consultant,
Department of Cardiac,
Thoracic & Vascular Surgery

After receiving surgical training in the highly competitive UK Calman specialist training programme in Cardiothoracic Surgery, Asst. Prof. Hon attained the Fellowship of The Royal College of Surgeons in Cardiothoracic Surgery and the UK Certificate of Completion of Training. With a vast experience in Transcatheter Aortic Value Implantation (TAVI), he is the surgery lead in the TAVI programme in NUHCS.



Combining their expertise, (clockwise, from right) Ms. Elynn Phang, Research Fellow, Department of Surgery, National University Hospital; Asst. Prof. Jimmy Hon; and A/Prof. Leo Hwa Liang, National University of Singapore.

Nurturing and Moulding Nurses

MOH Nurses'

Merit Award 2015

100 nurses were honoured by the Ministry of Health (MOH) at the Nurses' Merit Award 2015 for their outstanding performance and dedication to the nursing profession. National University Heart Centre, Singapore's (NUHCS) Ms. Janice Kee joins the ranks of these nurses for receiving this esteemed award.

Achieving the Honours

I was very honoured and humbled to receive the Ministry of Health (MOH) Nurses' Merit Award 2015 on 24 July. Without the encouragement and continuous support from my family, friends, doctors and allied health care colleagues, I would not have been able to achieve it all on my own. Special thanks to Ms. Karen Koh, Assistant Director of Nursing, and Ms. Chia Lay Hoon, Deputy Director, who have been my role models, watching me grow and develop over the years and standing by me in times of need. I am also grateful to my special friends who have inspired and motivated me all these years.

Fuelling a Passion for Nursing Education

NUHCS has given me many opportunities in shaping and grooming me to become who I am today. In 2008, I met Dr. Emily Ang coincidentally; she learnt that I have an interest in nursing education. Thus, she offered me a sponsorship for Post Graduate Diploma Higher Education. This has unleashed my passion in continuing

education nursing. To quote Lao Tzu, "If you give a man a fish, you feed him for a day. Teach a man to fish, you feed him for a lifetime". Recalling my first mentoring experience with two mid-career switch nurses and others, watching them grow professionally has been very rewarding and meaningful in what I am doing.

Being able to share and impart my knowledge and skills with others has indeed made me feel satisfied with my nursing education path.

Even to this day, I feel so blessed to be in NUHCS and I like to end with another quote: "It's not how much we give, but how much love we put into giving" – Mother Teresa.



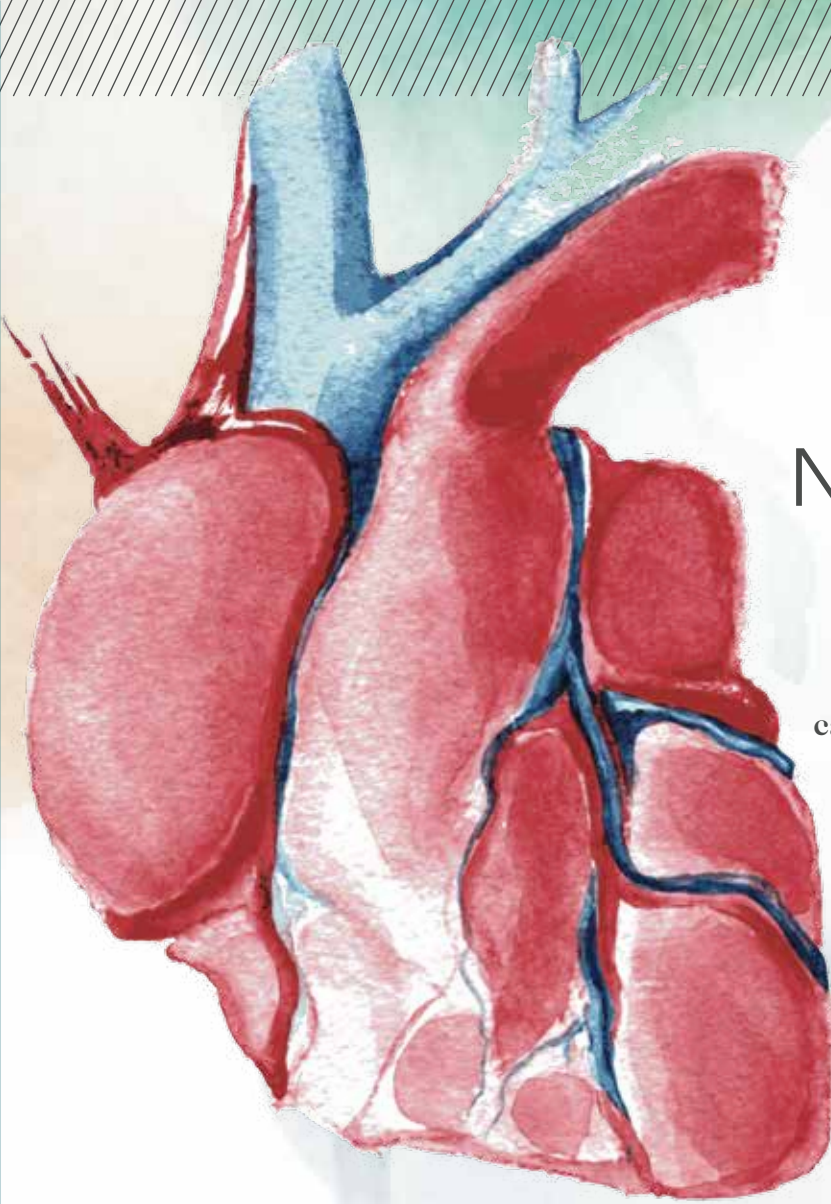
Ms. Janice Kee (centre) received the Ministry of Health (MOH) Nurses' Merit Award 2015 from Dr. Amy Khor, Senior Minister of State for Health (left), and Ms. Tan Soh Chin, Chief Nursing Officer, MOH (right).



By Ms. Janice Kee

Senior Nurse Educator,
Coronary Care Unit (CCU)
Ward 28, NUHCS

Janice joined NUH in 2003 and has been working in CCU Ward 28 since 2004. Having an interest in nursing education, Janice moved on to join the Intensive Care Unit/High Dependency team of educators in 2008. She was able to fulfil her passion for training and sharing knowledge and skills with others. She hopes to venture more into simulation training so that others can benefit from what she has learnt.



“SingValve” – A Mitral Valve Prosthesis with a Natural Design

The National University Heart Centre, Singapore (NUHCS) team received the National Medical Research Council (NMRC) grant which enabled them to carry out their research to design a new mitral valve. A/Prof. Theodoros Kofidis, the Principal Investigator (PI), tells us more about this novel invention that seeks to revolutionise the way mitral valve operates.

Our NUHCS team has worked hard for years to successfully set up an advanced hemodynamic animal experimentation lab. It is accompanied by a biochemical wetlab, where all basic experiments are being carried out. It took eight years and more than S\$10 million of funds from NMRC and National Research Foundation to come thus far. The key contributing factors were good scientific outcomes and a strong and cohesive team, which introduced new surgical approaches to treat cardiac disease and clinched a good reputation with Singapore’s funding bodies, such as NMRC.

Receiving the NMRC Grant

NMRC awarded our team with the entire requested amount of S\$1.5 million to pursue yet another innovative idea, which will hopefully revolutionise the way we operate the mitral valve. So far, mitral valve replacement has been done with rigid and unnatural prostheses, which are invariable, inflexible and circular. Most of the time, they comprise of stents that protrude into the heart’s cavities, causing foreign body reactions, thrombosis, and infection. Their long-term outcomes are acceptable, but

usually do not restore the patient’s life expectancy and the optimal function of the left ventricle.

Revolutionising the Mitral Valve

Thus, we proposed a naturally designed mitral valve prosthesis, called

“SingValve”, which resembles the exact appearance, form and physical properties of a human mitral valve. In the ideal situation, this valve will be fashioned out of the patient’s own tissue.

We further expect that the SingValve will not require any anticoagulation and will be durable for a very long time.

A series of large animal experiments will be carried out, where the SingValve prototype and its variations will be tested and eventually modified to reach the best possible design and outcome. We anticipate the SingValve to reach preclinical status in three to five years from now and hope that it will bring recognition to NUHCS.



By A/Prof.
Theodoros Kofidis

Head,
Division of Adult Cardiac Surgery,
NUHCS

Senior Consultant,
Department of Cardiac,
Thoracic & Vascular Surgery

A/Prof. Kofidis does a wide range of less invasive, small-incision and keyhole access procedures for blocked coronary arteries and heart valves. His specialties are minimally invasive procedures for the repair/replacement of the heart valves, which help to minimise trauma to patients, shorten length of stay and produce better cosmetic result.



Happenings at NUHCS



NUHS Dinner & Dance 2015

NUHCS staff members enjoyed a night of fun and camaraderie with "One World, Many Journeys" at the NUHS Dinner & Dance held at Resorts World Sentosa Ballroom on 5 September 2015.



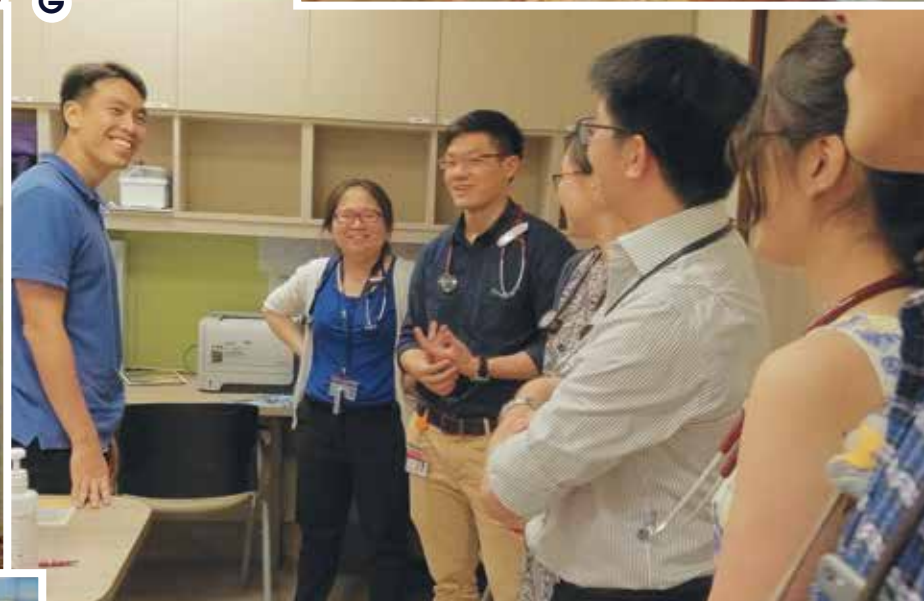
A A/Prof. Theodoros Kofidis was elected member of the elite **American Association of Thoracic Surgeons (AATS)**. Comprising top cardiac surgeons, he is the only other member from Southeast Asia.

A/Prof. Kofidis was also conferred the **Fellowship of the Royal College of Surgeons of Edinburgh** without examination for his contributions to the College and in the field of Cardiac Surgery. He received the award in a special ceremony on 24 April 2015 in Edinburgh, Scotland.

B Sharing cardiology insights and prevention tips, Dr. Low Ting Ting was one of the speakers on the **Shell's Women's Health Panel** organised by the Shell Network of Women on 19 October 2015.

C-D Together with three community organisations, NUHCS staff had a fun and active day at the **NUHS Games 2015** on 19 September, with NUHCS winning third amongst eight Games Teams that competed in seven competitive games.



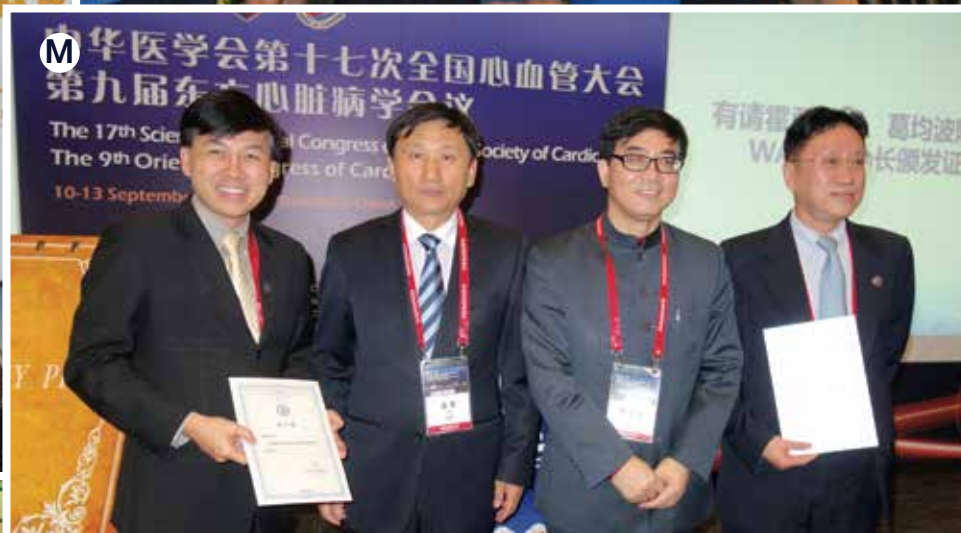


- E - F** Dr. Ivandito Kuntjoro highlighted on modern medicine and medical devices that help to screen, detect, prevent and treat hypertension in **"Hypertension, the Silent Killer"**, a NUHCS-sponsored talk held on 19 November 2015 and attended by members of Raffles Town Club.
- G** At the **M5 Cardiology Review Course** held on 18 December 2015, students obtained relevant information from enthusiastic and friendly bedside tutors.
- H - I** Prof. Chia Boon Lock and A/Prof. Poh Kian Keong received the **"Special Recognition Award" at the Dean's Appreciation for Clinical Teachers ceremony**, held in December 2015. A/Prof. Poh was also awarded the Wong Hock Boon Society Outstanding Mentor Award 2015 in November, with the recognition of *"for your tireless dedication for mentoring and research"*. The two awards are nominated by Yong Loo Lin School of Medicine, National University of Singapore medical students.

J-L NUHCS representatives received various awards for their service to the nation at the **2015 National Day Awards Investiture** on 20 November.

The winners are:

- **Efficiency Medal:** Ms. Lai Shuet Ming, Cardiac Rehab Case Manager, Department of Cardiology (Cardiac Rehabilitation Programme).
- **Commendation Medal:** Ms. Nancy Yeo, Assistant Director of Nursing, Nursing Administration.
- **Long Service Medal:** Ms. Ong Guat Sim, Nurse Clinician, Ward 20 Cardiothoracic ICU and Ms. Ee Seow Choon, Junior Medical Technologist, Diagnostic Cardiac Laboratory.



M Prof. Tan Huay Cheem was appointed the **Vice Chairman of the World Association of Chinese Cardiologists (WACC)** in a ceremony held on 23 September 2015 in Shanghai, China.

N Dr. William Kong clinched the **Best Poster Award** for his work on "The Contribution of Pressure Recovery and Three-dimensional Imaging on Echocardiographic Evaluation of Severe Aortic Stenosis for TAVI" at the **European Society of Cardiology Congress 2015** held on 29 August in London, United Kingdom.

NUHCS *Year-End Party* 2015

Staff gathered for the annual Year-End Party 2015 at the Heart Rehab on 30 December to mark the end of the year and welcome 2016 with a bang! Many participants came sportingly dressed according to the theme of the event, which certainly added colour to the night!



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Validation of the BASIL survival prediction model in Asian patients with severe limb ischaemia undergoing revascularization
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ECMO for severe pertussis: predictors of outcome in the current era
Domico M, Ridout D, MacLaren G, Barbaro R, Annich G, Brown K.

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Patients with unstable angina and myocardial infarction expose remote VSMC phenotype switch and alteration in the proliferation of smooth muscular cell in the aortic wall
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Predictors of left ventricular mass regression following aortic valve replacement
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Minimally invasive mitral valve surgery leads to shorter length of intensive care unit stay compared to conventional sternotomy in an Asian population
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Use of venovenous extracorporeal membrane oxygenation as rescue therapy for a patient with microscopic polyangiitis induced diffuse alveolar hemorrhage—a case report
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Circulating miR-503 and miR-374b-5p are associated with heart failure
Wong LL, Saw EL, Lilyanna S, Martinez EC, Lam SP.

Derivation of risk score in predicting deterioration in left ventricular ejection fraction in patients with low-flow significant aortic stenosis and initially preserved ejection fraction
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Do risk models accurately predict the coronary artery bypass graft mortality risk in patients of Southeast Asian origin?
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Hybrid minimal invasive direct coronary artery bypass, concomitant percutaneous coronary interventions
Sazzad MF, Kofidis T.

McGinn and hybrid multi-vessel coronary revascularization: Looking for the future direction
Sazzad MF, Kofidis T.

American College of Cardiology 65th Annual Scientific Session & Expo, Chicago, United States of America, 2 – 4 April 2016

Door-to-balloon time correlates better with patients outcomes than symptom-to-balloon time
Tan LL, Zheng H, Chow KY, Loh J, Chua T, Tan HC, Foo D, Ong HY, Tong KL, Richards AM, Chan MY.

Dual Platelet Reactivity Testing in Acute Coronary Syndrome
Chan MY, Carvalho L, Fong A, Chin CT, Poh SC, Richards AM, Lee CH, Low A, Tan HC, Troughton R, National University Heart Centre, Singapore.

Increased thrombin generation in both stable and unstable coronary heart disease despite treatment with dual antiplatelet therapy
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Shorter door-to-balloon time is accompanied by reduced heart failure after primary percutaneous coronary intervention despite a temporal increase in heart failure before primary percutaneous coronary intervention
Tan LL, Zheng H, Chow KY, Loh J, Chua T, Tan HC, Foo D, Ong HY, Tong KL, Richards AM, Chan MY.



PROMOTIONS



Dr. Ivandito Kuntjoro
Associate Consultant,
Department of Cardiology
26-Jan-15



Dr. Lin Weiqin
Associate Consultant,
Department of Cardiology
15-May-15



Dr. Tan Li Ling
Associate Consultant,
Department of Cardiology
15-May-15



Asst. Prof. Edgar Tay
Senior Consultant,
Department of Cardiology
1-Jul-15

NEW COLLEAGUE

Dr. Andrew Choong
Consultant, Department of Cardiac,
Thoracic & Vascular Surgery
30-Nov-15




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
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