

The Heartbeat
of National University
Heart Centre, Singapore

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PULSE

Issue 33 • July 2019



NURTURING FUTURE GENERATION OF DOCTORS

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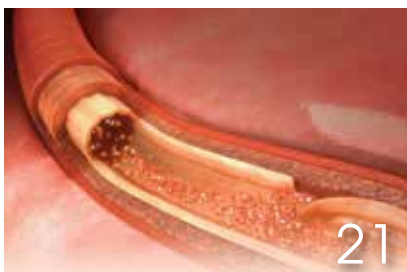
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NURTURING FUTURE GENERATION OF DOCTORS



Cardiology and
Cardiothoracic Surgery
Residency Programmes for
undergraduates and
postgraduates.

At National University Heart Centre, Singapore (NUHCS), we provide undergraduate and postgraduate programmes on cardiology and cardiothoracic surgery for both aspiring and trained doctors who wish to enhance their skills. Since the programmes' induction, we have helped numerous doctors acquire more sophisticated skills for the benefit of patients.

Asst. Prof. Low Ting Ting, Asst. Prof. Jimmy Hon Kim Fatt and Asst. Prof. Yeo Wee Tiong share more about the Cardiology Programme for Undergraduates, Cardiothoracic Surgery Residency Programme and Cardiology Postgraduate Programme respectively.

Back row (left to right): Dr. Ong Shan Yin Jeanne, Dr. Lim Yinghao, Asst Prof. Lin Weiqin and Asst Prof. Yeo Wee Tiong.

Front row (left to right): Asst. Prof. Low Ting Ting, Asst. Prof. Jimmy Hon Kim Fatt and Dr. Lowell Leow Choong Kiat.



By Asst. Prof. Low Ting Ting
Consultant,
 Department of
 Cardiology



Asst. Prof. Low is a cardiologist who subspecialises in adult congenital and structural heart disease, pulmonary hypertension and heart disease in pregnancy. Beyond clinical work and research, she enjoys teaching and nurturing the young (her little boys and students alike). She is also an advocate for women and self-care, and is currently the Director of the Women's Heart Health Programme.



Cardiology Programme for Undergraduates

At NUHCS, our cardiologists are actively involved in medical education and training the next generation of doctors. Our clinician-educators design the curriculum for cardiovascular systems learning and provide a structured learning programme for the Yong Loo Lin School of Medicine, National University of Singapore.

Exposure to clinical cardiology starts in the second year of medical school where foundational skills are taught in ambulatory clinics. In year three, medical students are posted to wards, and they learn through a series of small group teachings and bedside tutorials. Students may also opt for an elective two-week Cardiology Programme in the following year where they gain

more exposure about subspecialty management and complex cardiac procedures. In the final year, the undergraduates function as interns in cardiac wards with guidance and supervision. NUHCS also runs the Chia Boon Lock Cardiology Review Course annually, a comprehensive revision course for final year students comprising of talks on topic reviews and clinical short cases.



By Asst. Prof. Jimmy Hon Kim Fatt
Senior Consultant,
 Department of Cardiac,
 Thoracic and Vascular
 Surgery
Programme Director,
 NUH Cardiothoracic Surgery
 Residency Programme



After receiving surgical training in the 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 experience in transcatheter aortic valve implantation (TAVI), he is the surgery lead in the TAVI programme in NUHCS.



By **Asst. Prof. Yeo Wee Tiong**
Senior Consultant,
Department of
Cardiology



Asst. Prof. Yeo is a cardiologist who specialises in adult congenital heart disease arrhythmia management. He is certified by the European Heart Rhythm Association (EHRA) as an Electrophysiology Specialist and Cardiac Device Specialist.

Cardiology Postgraduate Programme

Cardiology is a major component of several residency programmes, including Internal Medicine, Emergency Medicine and Family Medicine. NUHCS' faculty members are regularly invited to provide subspecialty teaching on common cardiology topics. During their clinical rotations at NUHCS, trainees benefit from an enriching structured programme encompassing clinical exposure, teaching rounds and journal clubs. To value-add to learning experience, we also launched the inaugural PACES Cardiology course earlier this year to

improve trainees' proficiency in the cardiology station for PACES examination.

Accredited by the American College of Graduate Medical Education-International (ACGME-I) since 2013, the Cardiology Postgraduate Programme trains the next generation of cardiologists and equips them with essential skill sets to function as future-ready cardiologists. The training covers all major aspects of cardiology practice in various settings with a key emphasis on research. The research output of our

trainees has been well recognised with some entering the highly competitive Junior Academic Faculty Scheme organised by the National University of Singapore.



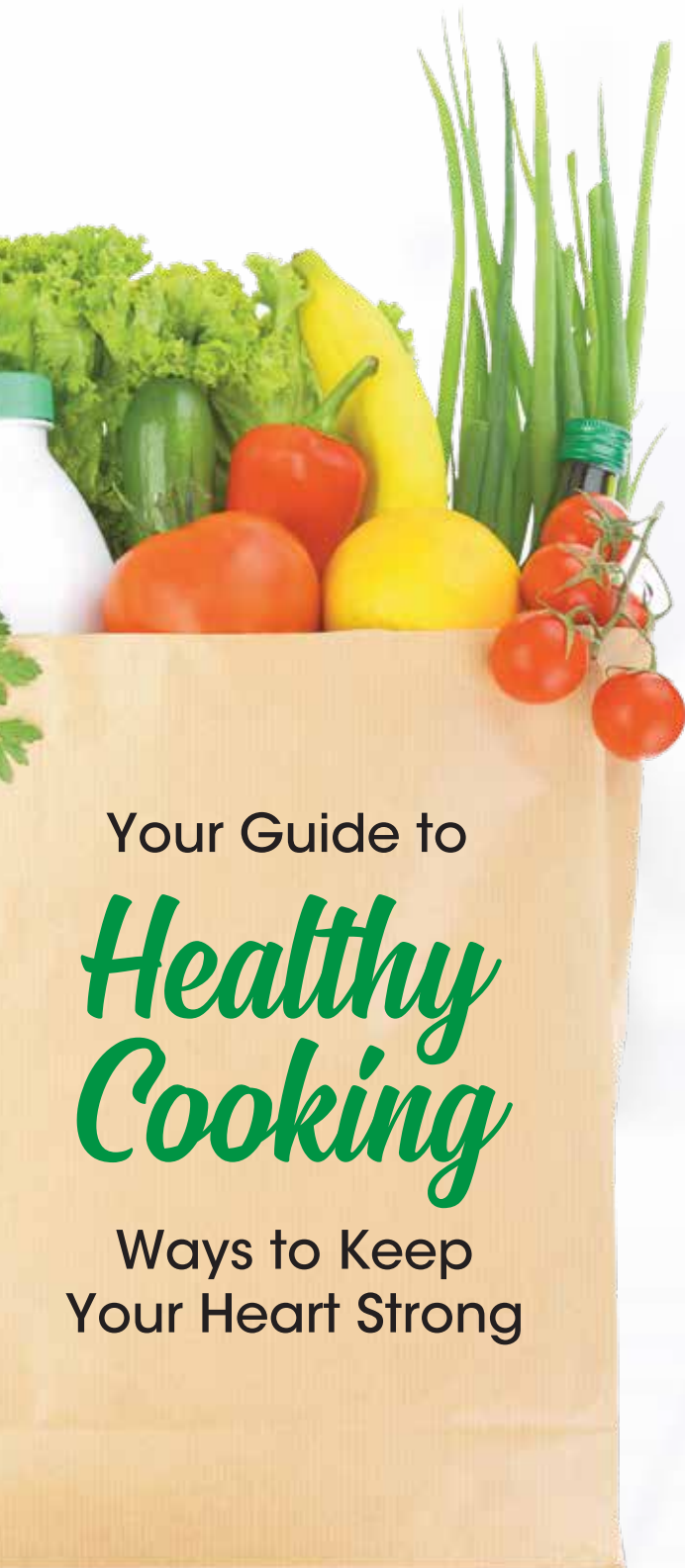
Cardiothoracic Surgery Residency Programme

Our Cardiothoracic Surgery Residency Programme offers trainees a full complement of cardiac surgical interventions, from time-honoured surgeries such as coronary artery bypass, valve repairs and replacements to enhanced techniques like minimally invasive cardiac surgery and transcatheter aortic valve implantation. The programme is also an integral part of NUHCS Aortic Centre which provides surgical and endovascular management of aortic diseases.

At the Division of Thoracic Surgery, our residents are exposed to a high volume of pulmonary, pleural, mediastinal and tracheal procedures, receiving full-breadth training in thoracic surgery, including open and minimally invasive thoracoscopic surgery and airway surgery. Our academic medical centre carries a strong research heritage, and also provides them with the opportunity to participate in Basic Science,

Clinical and Translational Research. In addition, our residents attend regular teaching sessions, wetlab workshops and simulation courses such as the recent Coronary Anastomosis Workshop.

We aim to have all our graduates independently practising cardiothoracic surgery in either an academic institution or in private practice.



Do you love to cook but are not sure how to create a healthy meal? Here are some grocery shopping tips and a heart-healthy recipe to get you started.

What to take note when buying groceries:

Shopping List

Dietitian's Choice

Rice, noodles and pasta

Unpolished rice
Brown rice bee hoon / vermicelli
Wholemeal pasta
Wholewheat noodles

Bread

Wholemeal and multigrain bread

Biscuits

Wholewheat biscuits and crackers which are not cream-filled

Cereals

Oatmeal, muesli and wholegrain cereals

Meat, fish, poultry and alternatives

Fresh fish, lean meat and poultry (remove poultry skin and trim away fat from meat)
Beancurd, lentils and beans

Milk, cheese and yoghurt

Skimmed / low-fat milk
Light / low-fat cheese
Non-fat / low-fat and low sugar yoghurt

Soy milk

Calcium-fortified, no-sugar / reduced sugar soy milk

Vegetables

Any kind of fresh vegetables

Fruits

Any kind of fresh fruits

Margarine

Soft margarine low in trans fats and saturated fats

Oil

Monosaturated oils (olive oil, canola oil, peanut oil, sesame oil and rice bran oil)

Seasoning

Herbs and spices

Snacks

Unsalted / lightly salted baked nuts
Naturally sweetened raisins

Drinks

Plain / mineral water or drinks with reduced / no sugar

This information is brought to you by NUH Department of Dietetics.

Your Guide to

Healthy Cooking

Ways to Keep Your Heart Strong

Recipe idea for
your next meal:

EIGHT TREASURE PORRIDGE

INGREDIENTS:

¼ cup raw brown rice* & ¼ cup
white rice / ½ cup healthy rice



3 tbsp red beans, soaked overnight

4 tbsp oats, quick cooking

200g fish fillets / chicken breast (boneless),
finely chopped (for vegetarians: use vegetarian
fish / vegetarian chicken / tauhu)

1 tbsp Chinese wine / mirin (optional: can be
omitted for halal option)

½ carrot, shredded

½ cup medium sweet potato
(Japanese / local), cubed

1 thin slice of ginger

1 tbsp soy sauce

Pinch of white pepper

½ tbsp sesame oil

1 cup raw cabbage, finely chopped

1 tbsp ikan bilis (anchovy), soaked for 10 mins and
rinsed* (can be omitted for vegetarian / low salt option)

Spring onions / parsley (for garnishing)

**Soak in hot water for 1 hour. May use shortgrain brown rice for
a starchier porridge.*

**May omit the ikan bilis and use homemade fish broth instead.*



Serves 2

METHOD:

1. If using fish, marinate the fish with the wine / mirin, 1 tsp soy sauce and sesame oil. Set aside.
2. To the broth, add the rice, red beans, sweet potato and carrot.
Bring to a boil. Reduce heat and simmer, partially covered, until porridge
and vegetables turn soft.
3. Add in the meat / vegetarian meat, ginger and the rest of the vegetables
and all the seasoning. Simmer for another 15 to 20 mins.
4. Garnish with spring onions and parsley.

Note: Make sure the fire is on the lowest setting and occasional stirring is recommended to prevent burning.

Recipe provided by NUH Department of Dietetics.



DEVELOPING the New Generation

Sharing Knowledge through
Multidisciplinary Integrated Approach

Continuously imparting clinical knowledge to the next generation of clinicians has always been a mission of National University Heart Centre, Singapore (NUHCS). At the recent MedMICS Programme, surgeons learnt more about minimally invasive cardiac surgery (MICS).



The Collaborative Workshop

Held from 25 to 27 March 2019, the collaborative workshop organised by NUHCS and Medtronic focused on sharing knowledge and skills of MICS to surgeons from Taiwan.

Various arenas of MICS such as the tips and tricks of MICS and MICS coronary artery bypass surgery procedure steps, were shared. Participating surgeons also had the opportunity to analyse and discuss real-life cases.

Growth in Capabilities

Over the years, MICS has grown in

“The successful 3-day programme received positive feedback with participants expressing great appreciation for the workshop’s quality content.”

capabilities and complexities as a result of its multidisciplinary integrated approach. We hope to continue the knowledge sharing with more healthcare providers in future.

By **A/Prof. Theodoros Kofidis**
Head and Senior Consultant,
Department of Cardiac, Thoracic & Vascular Surgery



A/Prof. Kofidis is a cardiothoracic surgeon who specialises in less invasive and hybrid heart surgery, heart failure surgery and off-pump procedures. He contributed greatly to heart-related research, with his innovations, discoveries, journal articles and patents. He also founded an initiative to promote research and innovative technology in surgery (I.R.I.S.).



Hearts That BEAT TOGETHER

The Power of a Support System

Two is better than one. When illness strikes, it may be hard for us to get through the tough times. However, the support of our friends and loved ones makes our journey easier. The PULSE editorial team had a chat with Mr. Haris Bin Hussain, 60, to find out what kept him strong throughout his heart recovery journey.



Mr. Haris Bin Hussain,
60, Heart Disease Survivor

Could you share with us your heart story?

It all started in February 2018 when I was in Malacca with my friends. Between 10pm to 11pm, I suddenly felt cold sweat and uneasiness in my body, which reminded me of the heart disease symptoms I had seen in a video two weeks back. I was very worried so I tried to rest and stay calm but the symptoms did not go away.

I decided to go back to Singapore and admit myself into the hospital. I was told that I had a heart attack and was diagnosed with a heart condition. I had the shock of my life. The next day, I underwent a stent procedure. Before the heart attack, I was actually a diabetic patient and my late mum had diabetes and a heart condition. I was also a sportsman and enjoyed activities such as badminton, dragon boating and mountain climbing.

How did you cope throughout this trying period?

In the beginning, I was in shock because I did not expect to get a heart condition and it worried me a lot. However, being a part of the Caring Hearts Support Group (CHSG) has helped my recovery journey. Hearing the experiences of other heart patients gives me encouragement. They provide emotional support and motivate me by saying, "Come on, this is life, you can still make it. You can still go anywhere despite this." When I am with them, I do not feel like a heart patient, but just a friend getting to know another friend.

How did your family support you?

By being there for me. We made it a point to meet each other over the weekends as my children have their

own families. We also have a family group chat where we share our problems and encourage each other.

What is one thing you would like to say to fellow heart disease survivors?

Sharing is caring. Your experience can make others feel better and discover things they have never heard of before.

What is one thing you would like to say to the public?

Maintain a balanced lifestyle. Exercise and diet are very important. You must also check your health every now and then as nobody can be fit all the time.

CHSG is a voluntary initiative by patients of National University Heart Centre, Singapore (NUHCS). The group is established with the aim of providing support and encouragement for fellow patients in their journey. Activities organised by the CHSG include:

• Monthly Walks



• Educational Talks



• Exercise Sessions



• Sharing / Networking Sessions



• Social Get-togethers



• Community Engagement and Events



Membership is FREE!

For more information or to be a member, please contact Ms. Magdalene Chia at mchia@kucinta.com.



“Keep The Beat!” Campaign 2018

Running for a Worthy Cause

It is said, “The best gift is giving from your heart”. With this in mind, National University Heart Centre, Singapore (NUHCS) organised the second edition of “Keep The Beat!” campaign in 2018 to raise funds and awareness of heart conditions to keep hearts beating.

Giving from the Heart

With the successful completion of the inaugural “Keep The Beat!” fundraising campaign in 2017, NUHCS organised the second edition of “Keep The Beat!” fundraising campaign in December 2018.

Every Step Counts

24 Heart Ambassadors, comprising a mix of staff members, heart

advocates and one heart attack survivor, challenged their limits in the Standard Chartered Singapore Marathon on 8 December 2018 to raise funds and create awareness of heart conditions.

Through their efforts, they clocked a combined distance of 170km and raised a grand total of \$21,257 for the campaign.

All proceeds were channelled to The Heart Fund, a sub-fund of NUHS Fund Limited, to support heart patients in need of financial aid and to support continuous medical research as well as education programmes in the field of cardiology so as to improve patient care.

Please contact us at nuhcs@nuhs.edu.sg if you or your company has ideas for meaningful fundraising initiatives, and we will be in touch with you shortly.

Completed a total of **170km**



Total of **\$21,257** raised

“ Visit <https://www.giving.sg/nuhs-fund-limited/NUHCSHeartFund> to give to needy heart patients today because **YOUR giving keeps hearts beating!** ”



By **Dr. Sim Hui Wen**
Associate Consultant,
Department of
Cardiology



Currently an Associate Consultant at National University Heart Centre, Singapore (NUHCS), Dr. Sim's research focused on medication adherence, aortic stenosis and acute coronary syndrome. She believes that scientific research is the fundamental key to staying abreast of medical advancement.

The DIRECT Oral Anticoagulant Study

A System to Improve Medication Adherence

Direct oral anticoagulant (DOAC) is a type of "blood thinner" used to treat heart conditions such as atrial fibrillation (AF), an abnormal heart rhythm. Discover how a recent study is helping to improve medication adherence to DOAC.

The Purpose of DOAC

DOAC is the current standard of care to reduce the risk of stroke in patients with AF, yet studies showed that one in four patients have poor adherence to it. The shorter half-lives¹ and lack of reliable laboratory tests to measure adherence to DOAC can expose such patients to a higher risk of stroke.

EMRISTA Research Grant

The EMRISTA (Emerging Markets Thrombosis Investigator-Initiated Research Program) grant by Pfizer was established to fund innovative

medical research across Pfizer's emerging markets, including Africa, Asia, Latin America and the Middle East.

“ We were awarded the EMRISTA 2018 grant to study the Internet-of-Things (IoT) Smart Film Medication Adherence System, a solution aimed at improving medication adherence to DOAC in patients with AF. ”

Leveraging Technology

The solution comprises low-cost, disposable Bluetooth-enabled printed circuit boards posted onto the back of drug blister packs that are paired with "Correct Pill", a smartphone app.

Besides reminding patients to take their medication on time, it also detects individual pill dispensing through the blister pack. Supervised by A/Prof. Mark Chan, Senior Consultant, Department of Cardiology, NUHCS, the Smart Film system has been tested in our pilot study using atorvastatin², and has shown to improve LDL-cholesterol³ level.

¹ Time taken for a drug to become 50% less active in the bloodstream.

² A medication used to lower cholesterol.

³ Low-density lipoprotein, a type of cholesterol that contributes to fatty buildups in the arteries.

Western STEMI NETWORK

A Nexus of Care for Patients

At the heart of Singapore's western health cluster is the Western ST-segment Elevation Myocardial Infarction (STEMI) Network, a joint effort with National University Hospital (NUH) Emergency Department, Ng Teng Fong General Hospital (NTFGH) and Singapore Civil Defence Force (SCDF).

By **Dr. Loh Poay Huan**
Consultant,
Department of
Cardiology



Dr. Loh received his medical and cardiology specialist training in the UK and obtained the Membership of the Royal College of Physicians (MRCP) in 2001. He also received a cardiology specialist accreditation with the British General Medical Council in 2012 and the Singaporean Specialist Accreditation Board in 2013. He worked as consultant interventional cardiologist in the UK for two years before joining NUHCS.



Tripartite Collaboration

The Western STEMI Network is a collaborative protocol system involving National University Heart Centre, Singapore (NUHCS), NUH Emergency Department, NTFGH, as well as SCDF.

The network aims to:

- **Centralise** the primary percutaneous coronary intervention (PCI) service delivery in NUHCS for the western health cluster.
- Build a clinically **efficient** and **cost-effective** service based in a tertiary cardiac centre, well supported by disciplines including critical cardiac care and cardiothoracic surgery.

Progress and Achievements

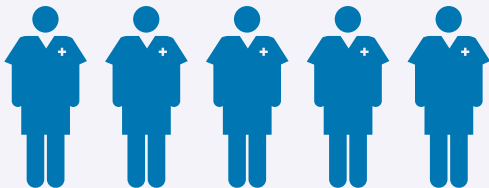
The network was developed when NTFGH was based at the Alexandra Campus and saw a smooth transition of service to its permanent site in Jurong on 30 June 2015.

“Since its inception, over 500 STEMI patients have been treated within the network each year, and majority of the patients were directly presented to NUHCS.”

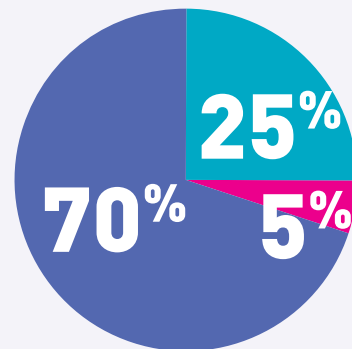
Since the introduction of the Western STEMI Network, despite the increasing number of heart patients, the median treatment time for transferred patients has shortened significantly in a year. Recently, the Western STEMI Network achieved recognition by the NUHS-Mochtar Riady Pinnacle Award, and will strive to form the foundation for future acute cardiac services within the cluster.

Fast Facts on Western STEMI Network

No. of STEMI patients treated each year: **>500**



Breakdown of STEMI patients



- Presented directly to NUHCS
- Transferred from NTFGH to NUHCS
- Treated at NTFGH

Median treatment time for transferred patients:

2017

81.4
mins

2018

73.9
mins



Sharing Expertise in Vascular Surgery

By Dr. Dharmaraj Rajesh Babu
Consultant,
 Department of Cardiac,
 Thoracic and Vascular Surgery



Dr. Rajesh is a vascular surgeon who has a keen interest in minimally invasive endovascular procedures. He is also an active member of several various professional organisations such as the Society of Endovascular Specialists and the Society of Dialysis Access Specialists. He also enjoys teaching postgraduate trainees and sharing best practices with specialists from around the region.

The field of vascular surgery is a rapidly changing specialty, especially with minimally invasive procedures meeting the needs of high-risk patients. The Division of Vascular Surgery at National University Heart Centre, Singapore (NUHCS) has been training doctors on how to use evidence-based treatments to help patients overcome challenging vascular conditions. Dr. Dharmaraj Rajesh Babu shares details of the workshops.

Course Director and Lead Faculty Dr. Rajesh (second from the right) with Dr. Peter Chang (Faculty) (far right) and delegates from South East Asia.



Hands-on Training for Regional Specialists

Over the years, the NUHCS' Division of Vascular Surgery has been sharing their expertise with physicians across the Asia Pacific region. This year, the division is running a series of workshops on vascular pathology for regional specialists.

In collaboration with the medical device industry, two workshops were held from 26 to 27 March and 16 to 17 April 2019. Both workshops received full attendance by physicians from Bangladesh, Indonesia, Malaysia, Philippines and Vietnam. Each of the two-day peripheral vascular workshops included a series of lectures, live demonstrations in a hybrid operating theatre, post-procedure debriefing sessions and hands-on practices with simulators.

As the Course Director, I am tremendously proud of the faculty and the

positive feedback from the participants. We will be organising at least five more workshops featuring aortic and peripheral endovascular procedures in the coming months.

Cultivating Awareness of Vascular Conditions Management

We have also conducted research studies to enhance our understanding of vascular pathology and treatment response.

“ We are committed to creating awareness of vascular conditions management by conducting public talks and on-going medical education events for general practitioners.”

In the future, we hope to develop collective expertise by proctoring in heart centres across the region.



Participants from various Asian countries consisting of interventional radiologists and vascular surgeons.



MAKING A MARK in the global interventional cardiology landscape

EuroPCR 2019

From live demonstrations to delivering lectures, here are National University Heart Centre, Singapore's (NUHCS) teams' highlights from the EuroPCR meeting held on 24 May 2019.

On 24 May 2019, NUHCS was invited for the second time to transmit a live demonstration of a percutaneous coronary intervention to EuroPCR, the largest European interventional cardiology meeting. The two teams, the first comprising Prof. Tan Huay Cheem, Director, NUHCS, and Asst. Prof. Edgar Tay, Senior Consultant, Department of Cardiology, NUHCS; the second team, included Asst. Prof. Joshua Loh, A/Prof. Ronald Lee, Senior Consultants, Department of Cardiology, NUHCS, and Dr. Saurabh Rastogi, transmitted two complex coronary cases to an international audience of about 7000 delegates in Paris, France. Both teams were commended for the educational value of the transmission.

We showcased our technical expertise and also demonstrated the systematic and evidence-based approach to the interventional procedures using modern imaging modalities such as intravascular ultrasound (IVUS) and optical coherence tomography (OCT). Both Prof. Tan and A/Prof. Adrian Low, Senior Consultant, Department of Cardiology, NUHCS, also delivered lectures during the meeting.



On screen (left to right): Asst. Prof. Edgar Tay and Prof. Tan Huay Cheem transmitting a live demonstration to the audience in EuroPCR.

“The transmission embodied the close collaboration between NUHCS and the entire European fraternity, marking another significant milestone for us in the global interventional cardiology landscape.”



Spontaneous Coronary Artery Dissection

Not Just an Ordinary Heart Attack

A heart attack is commonly understood to occur due to plaque build-up or rupture in the coronary artery¹. Sometimes it is not an ordinary heart attack but the result of spontaneous tearing in the coronary artery wall. Asst. Prof. Low Ting Ting shares more about this condition, known as spontaneous coronary artery dissection (SCAD).

What is SCAD?

The artery wall has three layers and when a tear in an inner layer occurs, blood can become trapped between the layers and cause the artery wall to bulge inward. This affects blood flow reaching the heart muscle and leading to a heart attack.

“SCAD is generally rare, and its prevalence is estimated to be between 1 to 4 per cent of all heart attacks.”

Who does it affect?

SCAD affects women in about 90% of cases. Historically, it was thought to affect mostly young women of reproductive age. How-

ever, recent studies showed that older postmenopausal women could also suffer from SCAD, even though the majority are less than 65 years of age.

Affected patients often do not have the typical risks for heart disease such as diabetes, smoking or obesity. Instead, they have different risk factors such as a family history of arterial weakening or fragility.

What can you do?

SCAD is difficult to diagnose before it causes a heart attack, as it does not have any warning signs. Seek consultation or treatment immediately if you suspect that you have symptoms of a heart attack, even if you are a young woman with no known typical risks for heart disease.

By Asst. Prof.
Low Ting Ting
Consultant,
Department of
Cardiology



Asst. Prof. Low is a cardiologist who subspecialises in adult congenital and structural heart disease, pulmonary hypertension and heart disease in pregnancy. Beyond clinical work and research, she enjoys teaching and nurturing the young (her little boys and students alike). She is also an advocate for women and self-care, and is currently the Director of the Women's Heart Health Programme.

¹ Blood vessels on the heart's surface.

Prevention Programme for Heart Disease

Cardiovascular disease has consistently been ranked as the top three causes of hospitalisation and death in Singapore. However, the threat of this disease can be averted if people take preventive measures early. Asst. Prof. Yeo Tee Joo shares more about the methods and the programme.



Increasing Risks of Heart Disease

Studies showed that one in five Singaporeans have one or more risk factors for cardiovascular disease such as diabetes, hypertension, high cholesterol, smoking and physical inactivity. These conditions contribute to ischemic heart disease, which eventually leads to heart failure. For patients with established cardiovascular disease, the healthcare costs pose a significant burden not only for them, but also for their families and the society and healthcare system at large.

Early Intervention

There is an opportunity to intervene at an early stage to halt the progression of these cardiovascular risk factors. Some primary prevention methods include smoking cessation, control of blood pressure, blood sugar and cholesterol levels as well as increase physical activity and promote healthy eating.

In a primary prevention programme, an individual's cardiovascular risk factors are identified. Depending on the symptoms present, further investigations may be arranged to either detect the disease at an early stage or recommend suitable physical activity.

“If you are at high risk of cardiovascular disease, why not join a primary prevention programme to improve your heart health?”

By **Asst. Prof. Yeo Tee Joo**
Consultant,
 Department of
 Cardiology



Asst. Prof. Yeo completed subspecialty fellowship training in Cardiovascular Prevention and Rehabilitation at the Toronto Rehabilitation Institute and Sports Cardiology at St George's, University of London. He is now focused on improving the NUHCS Cardiac Rehabilitation experience for patients and establishing the Sports Cardiology service in NUHCS.

Visit <https://www.nuhcs.com.sg/Our-Services/Specialties/Pages/Preventive-Cardiology-Programme.aspx> for more information.

DOCTOR WITH A MISSION

The Learning Journey of Dr. Chang Guohao

The nurturing of young doctors is essential to grow and strengthen local medical expertise. Dr. Chang Guohao, currently a cardiothoracic surgeon at National University Heart Centre, Singapore (NUHCS), was grateful for the opportunities during his training in NUHCS, which rooted his interest in cardiac surgery.

I was honoured to have been given a chance to further my surgical skills at NUHCS' Cardiac, Thoracic and Vascular Surgery Department. Throughout my internship, I received basic specialty training in General Surgery and advanced specialty training in Cardiothoracic Surgery. My mentor, A/Prof. Theodoros Kofidis, Head and Senior Consultant, Department of Cardiac, Thoracic and Vascular Surgery, NUHCS, also provided numerous learning opportunities in the field of surgery and research, as well as exposure to the international arena and hospital administration.

I would like to thank A/Prof. Kofidis for this priceless learning experience,

without whom my keen interest in cardiac surgery would not have taken root. I am also grateful for the knowledge my teachers have imparted me and the valuable learning points I received from patients throughout my career.

As a young cardiothoracic surgeon, I strive to continuously sharpen my skills and knowledge. My career has just begun, and as I embark on this journey, it is my mission to give back to my country and the institution that has nurtured me through my teachers, colleagues and patients.



By Dr. Chang Guohao

Associate Consultant,
Department of Cardiac,
Thoracic and Vascular
Surgery



Dr. Chang is a specialist in cardiothoracic surgery with interest in all aspects of adult cardiac surgery and extracorporeal life support (ECLS). During his training as a cardiothoracic surgeon, he was awarded the Fellowship of the Royal College of Surgeons of Edinburgh.

Go Red

for Women Luncheon 2019

Celebrating International Women's Day

Did you know that more than 2000 women in Singapore die from heart disease each year? To promote heart health in women, National University Heart Centre, Singapore (NUHCS) supported at the 'Go Red for Women Luncheon 2019'.



TAKE THIS QUIZ

Lunch to Empower

In celebration of International Women's Day 2019, NUHCS partnered with Singapore Heart Foundation for the 'Go Red for Women Luncheon 2019' held at the Singapore Chinese Cultural Centre on 8 March 2019.

Equipping Women with Heart Health Knowledge

Apart from supporting as a booth partner, NUHCS was also represented by two speakers who shared about the relations between heart disease and women, as well as tips on living a heart-healthy life through nutrition, physical activities and stress management. NUHCS also engaged with participants on women-specific heart health tips through activities such as the Plinko game.



How heart healthy are you? Take this quiz to find out!

If two or more of the following apply to you, visit your healthcare provider for a complete risk assessment and develop a plan to manage or reduce your risk factors.



Gender, Age, Health Condition

I am a woman above 50 years old. / I am over menopause. / I had my ovaries removed.



Cholesterol Level

My total cholesterol is 240mg/dL (6mmol/L) or higher. / I am not sure.



Family History

My father/brother had a heart attack before 55 years old. / My mother/sister had a heart attack before 65 years old. / My parent(s)/sibling(s)/grandparent(s) had a stroke.



HDL Cholesterol

My HDL ("good" cholesterol) is less than 40mg/dL (1mmol/L). / I am not sure.



Blood Pressure

My blood sugar is 140/90mmHg or higher. / A doctor/nurse has said my blood pressure is too high. / I am not sure.



Physical Activity

I do less than a total of 30 mins of physical activity on most days.



Smoking

I smoke. / I live/work with people who smoke regularly.



Weight Issue

I am overweight by 9kg or more.



Stroke History

I was told that I have carotid artery disease. / I have had a stroke or transient ischemic attack (TIA). / I have a disease of the leg arteries, a high red blood cell count or sickle cell anaemia.



Diabetes

I have diabetes (with fasting blood sugar of 126mg/dL or higher). / I need medicine to control my blood sugar.

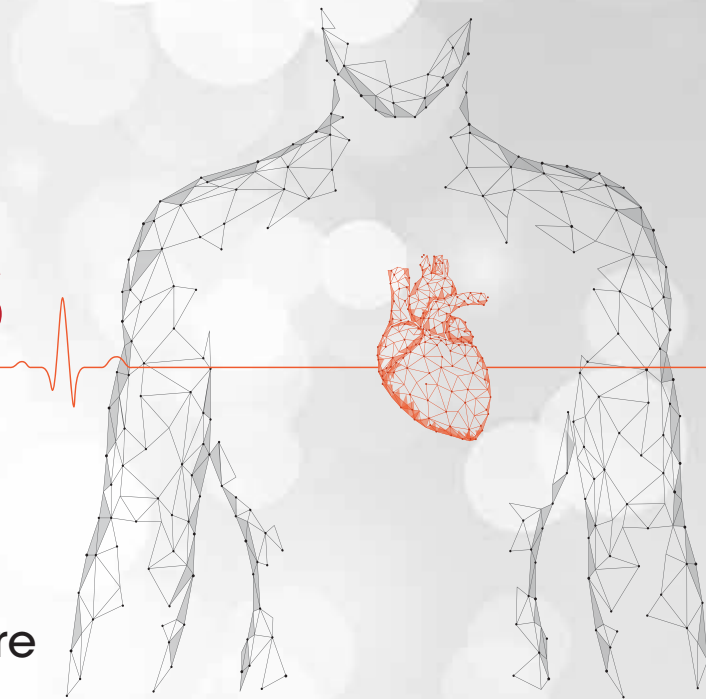


Heart Disease History

I have coronary heart disease, atrial fibrillation or other heart condition(s). / I have had a heart attack.

BUILDING CAPABILITIES

FOR HEART VALVE TREATMENTS



A Comprehensive Valve Centre with a Multidisciplinary Team

According to a recent United Kingdom (U.K) study, the number of patients aged 65 and above with significant heart disease now stands at 11.3 per cent. This number is projected to increase exponentially over the next few years due to the rapidly ageing population. National University Heart Centre, Singapore (NUHCS) has been preparing itself to manage the surge and increasing complexities. Asst. Prof. Edgar Tay Lik Wui shares more about this new endeavour.

A Team in Preparation

Over the last 10 years, the team at NUHCS has been strengthening its skills and infrastructure to manage heart valve disease, a unique and complex condition. It has since met the international criteria as a level-1 comprehensive valve centre with expertise in transcatheter heart valve therapies, minimally invasive surgical treatment, three-dimensional echocardiographic imaging, structural computed tomography and cardiac magnetic resonance imaging capability.

Multidisciplinary Team Approach

At the Heart Valve Centre, a multidisciplinary team carefully evaluates large amounts of clinical data and a myriad of treatment options before recommending treatment strategies (with their inherent pros and cons) to patients.

“Patients at the centre benefit from an enhanced streamlined care process where they are guided by nurses and coordinators who assist them from initial contact to post-procedural care.”

Members of the multidisciplinary team also form their own information source and support.

Further Developments with Primary Care Providers

The centre's next phase of development will include the engagement of primary care providers to set up community programmes. This is to help to evaluate and monitor patients, as well as streamline referral processes. There will also be

By Asst. Prof.
Edgar Tay Lik Wui
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.

further public education and empowerment to be implemented in the next few years. Together, we strive to continue providing care for patients with heart valve disease in Singapore.

An Integrated Approach to HOLISTIC CARE

Singapore Cardiac Society 31st Annual Scientific Meeting

The Singapore Cardiac Society held their 31st Annual Scientific Meeting (ASM) from 5 to 7 April 2019. Themed "The Heart and Beyond: Integrated Approach to Holistic Care", this year's conference attracted more than 500 participants from 11 countries. Asst. Prof. Yeo Tee Joo shares the highlights of the meeting.

“ At the ASM’s pre-symposium “C-Factor” competition, National University Heart Centre, Singapore (NUHCS) emerged victorious in a nail-biting finish. Our team (made up of Dr. Shaun Chook, Dr. Woo Jia Wei and Dr. Sia Ching Hui, Senior Residents, Department of Cardiology), successfully defended our title for the third year running. ”

NUHCS Juniors’ Achievements

At the research competition rounds, our juniors did us proud by achieving several prizes. Dr. Matthew Ackers Johnson, Cardiovascular Research Institute of Singapore (CVRI), and Dr. Sia won their respective free paper

sessions. For the Young Investigator Awards, Dr. Annadoray Laveniah, CVRI, and Dr. Tan Lek Wen, Genome Institute of Singapore (GIS), took home the first and second prize in the ‘Basic Science’ category. Dr. Koo Chieh Yang Christopher, Associate Consultant, Department of Cardiology, won first prize in the ‘Clinical’ category.

Meaningful Sharing at the Conference

Our nursing, allied health and cardiology representatives from NUHCS also took up coordinating, speaking and chairing roles at the ASM, enhancing the quality of the meeting. A/Prof. James Yip, Senior Consultant, Department of Cardiology, also delivered an inspirational 31st SCS Lecture on ‘Evolution of Adult Congenital Heart Disease in Singapore’.

As Organising Chairman for the event, I am deeply grateful for all the support received.



“C-Factor” champions (second from the left to right: Dr. Sia Ching Hui, Dr. Woo Jia Wei and Dr. Shaun Chook).

A/Prof. James Yip speaking on the evolution of adult congenital heart disease in Singapore.

By Asst. Prof.
Yeo Tee Joo
Consultant,
Department of
Cardiology



Asst. Prof. Yeo completed subspecialty fellowship trainings in Cardiovascular Prevention and Rehabilitation at the Toronto Rehabilitation Institute and Sports Cardiology at St George’s, University of London. He is now focused on improving the NUHCS Cardiac Rehabilitation experience for patients and establishing the Sports Cardiology service in NUHCS.



Innovation Pitch CHALLENGE

Organisers and speakers at the conference.

Exploring How Technology Can Improve Cardiovascular Care

For the betterment of patients, healthcare providers are continuously exploring the use of technology to provide quality care. The Innovation Pitch Challenge held at the ACC Asia Conference 2018 in Shanghai was one such meeting where they gathered and delved into it.

“*The Innovation Pitch Challenge encouraged participants to think of creative ways to transform and improve cardiovascular care using technological tools.*”

Sharing Knowledge with Fellow Professionals

The December 2018 conference welcomed A/Prof. Poh Kian Keong, Senior Consultant, Department of Cardiology, National University Heart Centre, Singapore (NUHCS), as one of the judges for the competition. In addition, A/Prof. Poh delivered a lecture on bicuspid aortic valve and contributed to a plenary session on “Lessons from the Leaders: An Editor, a Researcher and a President Tell Their Stories”. Besides

serving as faculty, he also sat in the planning committee of both the 2017 and 2018 editions of the ACC Asia conferences.

Other Singapore Representatives

Other faculty from Singapore included Asst. Prof. Edgar Tay, Senior Consultant, Department of Cardiology, NUHCS, Governor of ACC Chapter, and Dr. Ong Hean Yee, President of the Singapore Cardiac Society.

Future ACC Asia Conferences

We look forward to ACC Asia Conference 2019 and 2020 which will be held in Japan and Singapore respectively.

Innovative Pitch Challenge Winner

Biofourmis emerged as the eventual winner with its proposal on using artificial intelligence to predict and prevent clinical exacerbations of cardiovascular conditions.

A/Prof. Poh Kian Keong discussing the challenge with the other judges.

BODY SOS

Spreading the Message on Hypertension

By **Asst. Prof. Lim Toon Wei**
Senior Consultant,
 Department of
 Cardiology
Director,
 Coronary Care Unit



Asst. Prof. Lim was awarded a PhD from the University of Sydney for his research work, which included one of the largest randomised clinical trials of atrial fibrillation ablation techniques. As part of his practice, he implants pacemakers, implantable cardioverter-defibrillators and performs both conventional and complex ablation procedures for all forms of arrhythmias.



Want to know how you can control your blood pressure? Get the tips from our doctor who appeared in a recent episode of Body SOS.

I was invited to be on Channel 8's Body SOS programme (小毛病, 大问题 Season 7, Episode 26) in December 2018.

“In this episode featuring hypertension, I addressed issues such as the correct way of reading blood pressure, risk factors of high blood pressure, and complications, as well as how to maintain a healthy range.”

Having been on a few “serious” TV health shows before, this pro-

gramme surprised me with its refreshingly natural and light-hearted approach. Host Mark Lee and the celebrity guests were affable and entertaining on and off camera. One

of my experience highlights was the opportunity to take Ms. Pan Ling-Ling's blood pressure!

Watch the episode on:
<https://goo.gl/V1ohDi>

TIPS for taking blood pressure:

STEP 1 Start with the basics

You can take your blood pressure on either arm.

STEP 2 Take note

Do not wrap the cuff around the sleeve. Roll up your sleeve and wrap the cuff around your arm.

STEP 3 For optimal results

Rest for at least 15 minutes before taking your blood pressure and relax to ensure an accurate reading.



Possible complications if you have high blood pressure:



Atherosclerosis
 (hardening of arteries)



Cardiovascular and
 cerebrovascular diseases



Stroke



Kidney failure

FORGING LIFELONG BONDS

Alumni Gatherings for Former National University Heart Centre, Singapore (NUHCS) Trainees



NUHCS organised two alumni gatherings at the China Interventional Therapeutics (CIT) Meeting in Beijing on 29 March 2019 and the Philippine Society of Cardiovascular Catheterization and Intervention (PSCCI) Meeting in Manila on 13 April 2019 respectively. Prof. Tan Huay Cheem reminisced about his training experiences.

Remembering the Training Days

The CIT Beijing alumni gathering was attended by more than 20 interventional cardiology fellows and catheterization laboratory or Coronary Care Unit nurses from China who were formally trained at NUHCS. The attendees recounted heart-warming memories of their training days in NUHCS, which were tough but filled with fond anecdotes. The bond forged among the fellows was also strong and palpable. Since the first session that was organised in 2011, it has become a tradition with the growing number of attendees.

At the PSCCI Manila gathering, many former Filipino interventional cardiologists also attended the keynote lecture and shared their experiences in Singapore and current work situations over dinner.

“The NUHCS Overseas Interventional Cardiology Fellowship Programme has borne much fruit since its inception in 2000. It has also transformed the lives of countless patients and molded the practice of endovascular therapy in the Asia Pacific region.”

Long-Lasting Connection with NUHCS

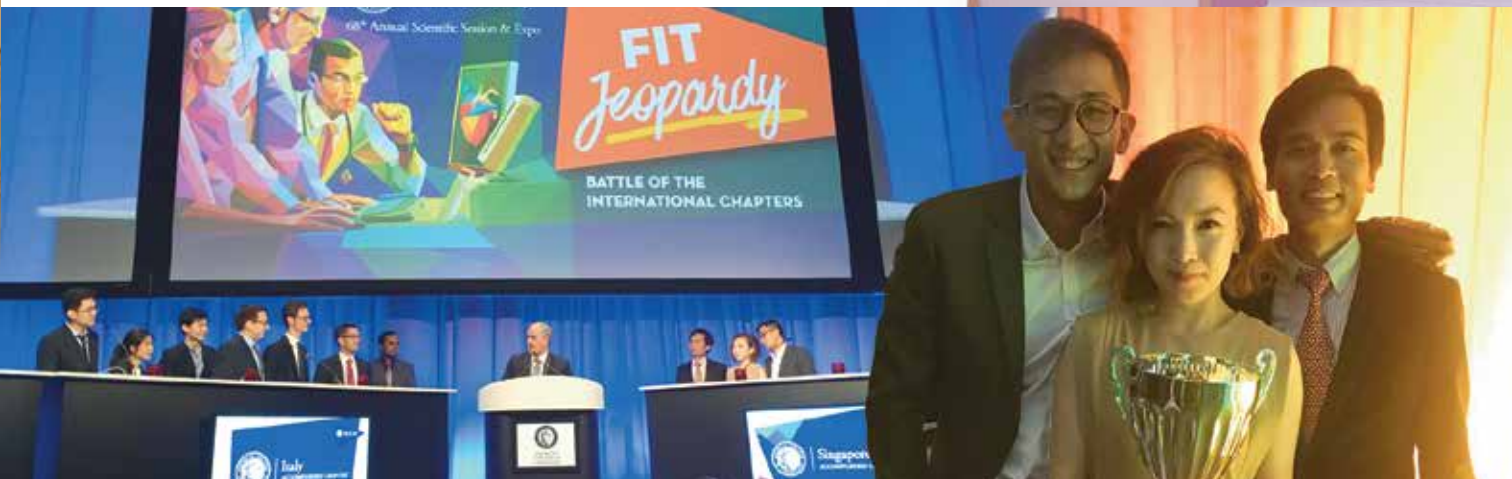
The lifelong connection these alumni have with NUHCS and one another is commendable, and many will be taking the opportunity to revisit Singapore at the AICT-AsiaPCR Interventional Cardiology Meeting organised by NUHCS in July. They will also be joining in the celebrations for Singapore's bicentennial year.



KNOWLEDGE SHARING ON Cardiovascular Treatments

Held in Manila in the Philippines on 9 Feb 2019, the American College of Cardiology Extended Scientific Summit (ACCESS) brought forth updated clinical knowledge on heart health.

ACCCESS 2019 was attended by Cardiovascular professionals from the region. A/Prof. Poh Kian Keong, Senior Consultant, Department of Cardiology, National University Heart Centre, Singapore (NUHCS), delivered the plenary lecture, 'Echocardiography: New Technology, New Application'. The President of the ACC, Dr. Richard J. Kovacs, also delivered the second plenary lecture on athletes' hearts.



FELLOWS-IN-TRAINING Jeopardy Competition

Doctors from National University Heart Centre, Singapore (NUHCS) took centre-stage at a competition held during the American College of Cardiology (ACC) 68th Annual Scientific Meeting.

Dr. Lauren Wang, Dr. Thet Khaing and I participated in the meeting's Fellows-in-Training (FIT) International Jeopardy competition on 18 March 2019.

Our team arrived in New Orleans, United States of America, a day before the competition, having severe jetlag and expecting strong competition from

other international chapters including Argentina, Italy and Thailand. During the competition, we grabbed a strong early start and racked up a steady lead despite challenges from the competition. We eventually clinched the win with a score that was more than twice that of the next runner-up.

This would not have been possible

without the enduring support and guidance of our heads of departments, programme director, and other mentors who have tutored and helped us in our journey. Special thanks go out to the Singapore Cardiac Society and Singapore ACC faculty members for giving us the opportunity and support in the run-up and during the competition itself.

We are deeply honoured to represent Singapore and are grateful to bring the trophy back again.

By **Dr. Lim Yinghao**
Associate Consultant,
Department of Cardiology

A Year of TOGETHERNESS

National University Heart Centre, Singapore (NUHCS)'s patient support group, the Caring Heart Support Group (CHSG), organised a year-end gathering for members to bond and reminisce.



Members of CHSG gathered on 28 December 2018 to celebrate the end of a fruitful year, as well as to usher in 2019. CHSG has tripled in size since its inception in March 2018, currently comprising more than 100 active heart patient members.

Together with cardiac rehab team members from NUHCS and Singapore Heart Foundation, we relived activities in 2018 such as CHSG's overseas retreat to Malacca and Christmas carolling at National University Hospital.

Upcoming highlights in 2019 were also shared and the official CHSG t-shirt was launched. CHSG has grown from strength to strength and we look forward to our continued partnership!

By Asst. Prof. Yeo Tee Joo
Consultant,
Department of Cardiology

GEARING UP for a Clinical Exam

A hands-on course was conducted for the first time to prepare candidates for the Practical Assessment of Clinical Examination Skills (PACES).

The inaugural Cardiology PACES Course held on 30 March 2019 was attended by 32 participants. It was designed to accommodate the needs of candidates sitting for the Membership of the Royal Colleges of Physicians (MRCP) PACES examination.



Fully subscribed in just two weeks, the course included a comprehensive lecture as well as practical training with the help of patient volunteers, thus providing the candidates with valuable learning points.

Feedback from the candidates was positive, especially on the tutors' teaching skills and course quality. Everyone felt that they had improved their skills and knowledge after the course.

We would like to thank the nurses, operations staff, tutors and senior staff who have supported the course enthusiastically. We are also extremely appreciative of our patient volunteers who deeply share our belief in medical education.

We will be back again soon with more education initiatives.

By Dr. Lim Yinghao
Associate Consultant,
Department of
Cardiology



Congratulations

to our OneNUHS Stars Presentation winners!

The OneNUHS Stars Presentation Ceremony is a platform to celebrate our staff achievements and milestones. We recognise their dedication and hard work and are proud to present our long service award winners!



**Ms. Senbagam D/O
Sivaramakrishnan**
Cardiovascular Nursing
Nurse Clinician I



Ms. Lai Shuet Ming
Department of Cardiology
Manager



Ms. Chan Poh Chee
Ward 20 CTICU
Senior Enrolled Nurse I

Congratulations on Your PROMOTION!



Dr. Chen Zhengfeng Jason
Associate Consultant,
Department of Cardiology
April 2019

Dr. Lim Yinghao
Associate Consultant,
Department of Cardiology
April 2019

Dr. Koo Chieh Yang Christopher
Associate Consultant,
Department of Cardiology
April 2019

Dr. Sim Hui Wen
Associate Consultant,
Department of Cardiology
February 2019

Dr. Ng Jun Jie
Associate Consultant,
Department of Cardiac,
Thoracic and Vascular Surgery
January 2019

Clinical Research ACCOLADES

The annual NMRC Awards & Symposium organised by the National Medical Research Council (NMRC) recognises Clinician Scientists and provides a platform to showcase ongoing research and NMRC-funded projects. Congratulations to our award recipients for their achievements!



A/Prof. Ronald Lee
Senior Consultant
Department of Cardiology, NUHCS
Associate Professor
Department of Medicine, NUS Medicine

Clinician Scientist Award
SENIOR INVESTIGATOR



A/Prof. Roger Foo
Senior Consultant
Department of Cardiology, NUHCS
Associate Professor
Department of Medicine, NUS Medicine
Principal Investigator
Cardiovascular Research Institute, NUHS

Clinician Scientist Award
SENIOR INVESTIGATOR



**Asst. Prof.
Chester Lee Drum**
Consultant
Department of Cardiology, NUHCS
Assistant Professor
Department of Medicine, NUS Medicine
Principal Investigator
Cardiovascular Research Institute, NUHS

Clinician Scientist Award
INVESTIGATOR

PUBLICATIONS

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ABSTRACTS

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Infective endocarditis in patients with bicuspid aortic valve: Clinical characteristics, complications, and prognosis of a multicenter observational study

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Increased Left Ventricular Remodelling Index in Paradoxical Low-Flow Severe Aortic Stenosis with Preserved Left Ventricular Ejection Fraction Compared to Normal-Flow.

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Loss of pumilio 1 phosphorylation turns off the regulation of miRNA-221 on gene p27kip1 in the heart

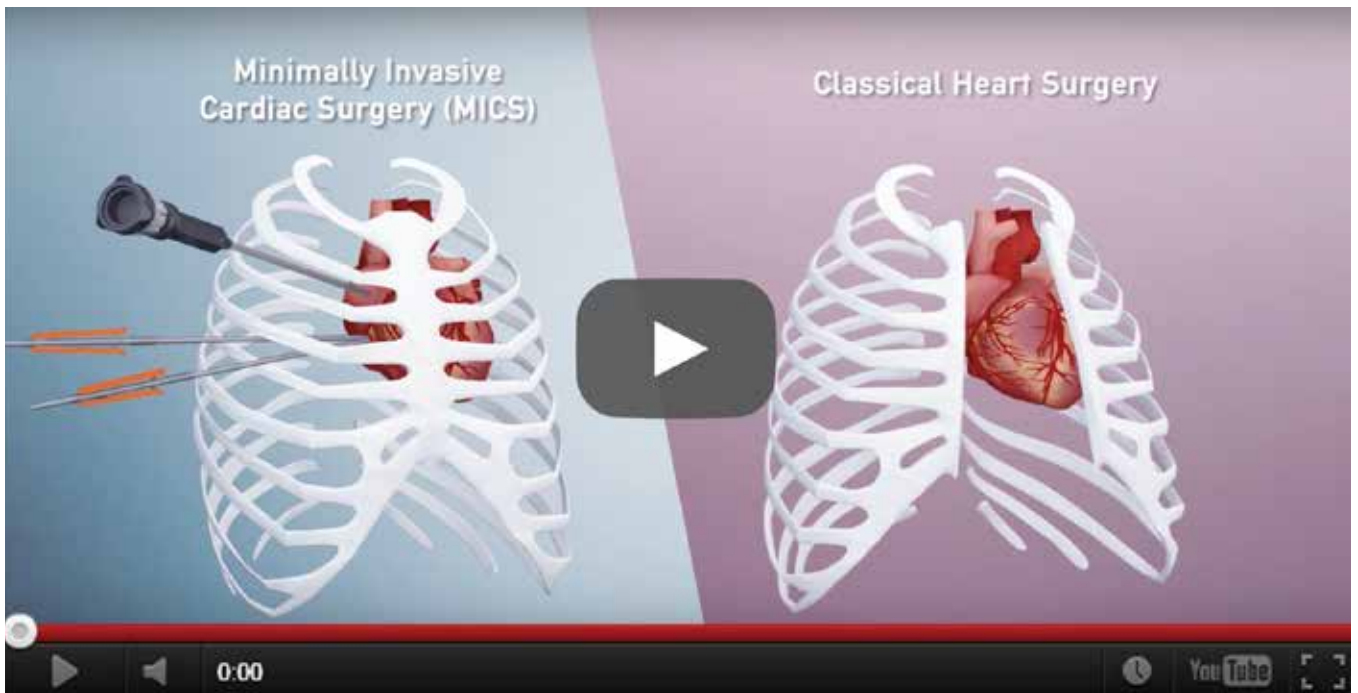
YZ. Zhou, **AMR. Richards**, **PPW. Wang**.

Through differential targeting of cardiac myocytes and fibroblasts, miR-221 promotes myocardial recovery and averts adverse remodeling after infarction

YZ. Zhou, **AMR. Richards**, **PPW. Wang**.

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