

GP IN-SYNC

A monthly e-newsletter by
NUH GP Liaison Centre



**GP Appointment
Hotline +65 6772 2000**

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Specialist in Focus



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Dr Lim Toon Wei graduated from the University of Sydney in 1997 with First Class Honours. He completed his physician's training in cardiology at Westmead Hospital (Sydney, Australia) and was admitted as a Fellow of the Royal Australasian College of Physicians in 2006. Following this, he was a Cardiology Research Fellow till 2009 at Westmead Hospital, working in the area of catheter ablation for cardiac arrhythmias, particularly that of atrial fibrillation. He was awarded a PhD from the University of Sydney for this research work, which included one of the largest randomised clinical trials of atrial fibrillation ablation techniques.

In 2009, he joined the University of Ottawa Heart Institute as a Clinical Fellow in Cardiac Electrophysiology before returning to his hometown in 2010 to join the National University Heart Centre as a Consultant.

While Dr Lim sees general cardiology patients, his clinical and research interest is in cardiac arrhythmias (heart rhythm disorders). As part of his practice, he implants pacemakers, implantable cardioverter-defibrillators and cardiac resynchronisation pacemakers or defibrillators. He also performs both conventional and complex ablation procedures for all forms of arrhythmias.

Dr Lim is active in medical education and is a core faculty member of the Cardiology Senior Residency Programme. For the past two years, he has also served as the Honorary Secretary of Singapore Cardiac Society.

Clinical Highlights

Heart Arrhythmias

A heart arrhythmia is a generic term for an irregular heartbeat. It occurs when the electrical system that regulates heart rhythm malfunctions. Depending on the arrhythmia's duration rate, degree of regularity and its effect on blood flow and blood pressure, it may be either insignificant or life-threatening.

There are four main types of arrhythmia:

1. **Premature (extra) beats**, which is the most common type, and is mostly harmless.
2. **Supraventricular arrhythmias** are fast heart rates. Types of supraventricular arrhythmias include atrial fibrillation (AF).
3. **Bradyarrhythmias** also known as bradycardia occurs if the heart rate is slower than normal.
4. **Ventricular arrhythmias** begin in the ventricles and can be very dangerous.

Some symptoms of arrhythmias include palpitations, dizziness, fainting, chest pain and shortness of breath. Blood tests, and ECG and a heart monitor worn by the patient would be required for a diagnosis to be made. There are various treatment methods ranging from lifestyle changes, medications which help to control the heart rates to surgical procedures such as the implantation of pacemakers, defibrillators. Some arrhythmias are best treated with catheter ablation, which is a minimally invasive procedure that can be highly successful for many conditions.

About five per cent of individuals aged above 55 years suffer from atrial fibrillation (AF), the most common form of heart rhythm disorder in Singapore. This important condition is often undiagnosed or undertreated, yet can increase stroke risk by five fold and is frequently associated with heart failure. Many recent advances in the treatment of this condition, such as novel anticoagulation as well as ablation therapy, means that recognising this disorder is crucial as these patients' outcomes can be significantly improved.

In 2014, NUHCS introduced a hockey puck-sized heart monitor that patients can bring home, to help doctors determine more easily if abnormal heart rhythm is an issue. Patients carry the device for two weeks or longer. ECG readings are recorded when they place their two thumbs on their device every time they feel an abnormal rhythm. The data collected over two weeks is much more comprehensive compared to previous ECG monitoring systems that require patients had to wear electrodes on their torso for about one to two days. It is particularly useful for patients who have infrequent symptoms.



E100 Device



GP Liaison Centre (GPLC)

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Specialist in Focus

Assistant Professor Jimmy Hon

MB ChB (Bristol, UK), MRCS (Eng), MRCSEd, FRCS (C-Th), CCT (UK)

Senior Consultant

Department of Cardiac, Thoracic & Vascular Surgery, National University Heart Centre, Singapore (NUHCS)

NUHCS Programme Director

NUH Cardiothoracic Surgery Residency Programme

Assistant Professor

Department of Surgery, Yong Loo Lin School of Medicine, NUS



Assistant Professor Jimmy Hon graduated from The University of Bristol Medical School in the United Kingdom (UK) in 1996. He started his career as a research fellow pursuing basic science research under the direction of the world-renowned heart surgeon Professor Sir Magdi Yacoub in London. As a young researcher, he was one of the principle investigators who secured a prestigious British Heart Foundation project grant. His research has led to numerous significant scientific publications.

His surgical training began at St. Mary's Hospital, UK, thereafter he secured a position in the highly competitive UK Calman specialist training program in Cardiothoracic Surgery and completed six years of intensive training in London to become a fully trained heart and lung surgeon. His specialist training experiences included The Royal Brompton Hospital, The London Chest Hospital, St. Bartholomew's Hospital and Guy's Hospital. Dr Hon pursued his subspecialty interest in minimally invasive aortic valve surgery in Vancouver, Canada. During his fellowship, he performed numerous TAVI and Minimally Invasive Aortic Valve Replacement procedures.

In early 2010, he returned to Singapore to join NUHCS as a consultant surgeon. Given his experience with TAVI in Vancouver, Dr Hon was heavily involved in the start-up program for TAVI in NUHCS. He is currently the surgery lead for the NUHCS TAVI program.

Dr Hon speaks fluent English, Mandarin, Hakka and Cantonese. He also fully understands Hokkien and Teochew.

Clinical Updates

Mitral Regurgitation

Mitral valve is located between the two chambers on the left side of the heart which directs blood flow in one direction - from the upper chamber (left atrium) to the lower chamber (left ventricle). When this valve does not close completely, mitral regurgitation or backflow of blood in the left ventricle occurs.

In severe cases, reduced blood flow is pumped out of the heart. This creates excessive workload on the heart leading to dilation of the heart chambers. If left untreated, it can result in heart failure and death.

There are currently several options of treatment available for mitral regurgitation. These include medical treatment, open heart surgery, or less invasive valve repair methods.

In Singapore, up to 300 patients a year replace their mitral valve, along with another 100, who have theirs repaired. However, there is a large group of patients who cannot undergo open heart surgery due to several reasons like old age, poor health conditions etc.

Velox

At NUHCS, Velox, a man-made heart valve device has been developed by an NUS team led by Associate Professor Leo Hwa Liang, Department of Biomedical Engineering and Dr Jimmy Hon, Department of Surgery and also a Senior Consultant at the Department of Cardiac, Thoracic and Vascular Surgery, NUHCS, to treat mitral regurgitation through keyhole surgery. Velox is made of animal tissue and a combination of nickel and titanium, which gives it a unique feature.

The procedure using this new device does not require the patient's heart to be stopped the way open heart surgery does. This method, where the heart valve is delivered through a small incision using a catheter into the heart, allows patients who are too weak for open heart surgeries to replace their faulty valves. This new procedure will also help reduce recovery time from surgery.

Although there is one other procedure done on a beating heart, it is only available for a very small group of patients. Dr Hon added, "VeloX will restore the unidirectional flow of the blood in the left heart and help alleviate the symptoms associated with mitral regurgitation.

This transcatheter valve offers palliative treatment for the patients who were denied surgery, especially those with multiple co-morbidities."

Earlier phases of the project have provided encouraging results. Currently, this device has entered pre-clinical testing.



A team of researchers from the National University of Singapore has developed a novel prosthetic heart valve, known as *VeloX*, which can be implanted using a minimally invasive approach for treatment of a serious heart valve disorder called mitral regurgitation.



Research Team



Shaping Medicine for the Future

CME Registration: <https://nuhcme.com.sg/>

News Updates

From kidney failure patient to sports medallist



The National University Hospital (NUH) has set up a new dedicated facility to provide integrated care for sports & exercise-related conditions for the western population of Singapore.

When his kidneys failed 20 years ago, Lim Seah Hor had little hope that he would someday get a second lease of life with a kidney transplant, much less bag a few sporting medals in his lifetime. On dialysis for a decade before undergoing a successful transplant at National University Hospital (NUH) in 2005, Mr Lim said that he felt as if he had “struck the lottery” when he first received news of a successful kidney match. He felt luckier still when he was selected to be a World Transplant Games (WTG) candidate for the first time in 2011, after participating in the Singapore Transplant Games organised by the Society of Transplantation (Singapore).

Last year, the 52-year-old taxi driver was one of six organ transplant recipients from Singapore who took part in the WTG held in Argentina in August. He brought home three medals; gold for badminton doubles, and bronzes for Tejo singles and doubles, although he has no formal training in either sport. In fact, he had picked up Tejo, a popular Argentinian sport that involves throwing a metal disc across a distance to a clay-covered board, from watching YouTube videos and getting tips from a coach before the games commenced.

Overall, the team from Singapore, which took part in events such as badminton and squash, won 19 medals: three golds, four silvers and 12 bronzes. “Never in my entire life did I imagine I would be able to participate in a world sporting event. I felt so proud standing on the podium holding the Singapore flag,” said Mr Lim, who shared fitness tips to encourage transplant patients to take up exercise at an NUH event earlier this month. In the previous games in 2011 and 2013, he bagged the silver and bronze medal for badminton doubles, respectively. Mr Lim’s positive and upbeat attitude are a vast difference from his pre-transplant days. His kidneys were irreversibly damaged after his high blood pressure spiralled out of control — one of the leading causes of kidney failure.

At the time, he was a single parent with a five-year-old daughter, struggling to make ends meet. The diagnosis, he shared, tipped him over the edge and he attempted suicide by slitting his wrists. “I was such a danger to myself that the ward nurse had to restrain my hands and legs. I came to my senses after the doctors and social workers counselled me,” he said. Without a suitable kidney match from his family members, Mr Lim relied on thrice-weekly dialysis to survive.

To make ends meet, he clocked 10 to 12 hours of work daily despite struggling with fatigue and ill health. “Most of my daily taxi earnings went to paying for dialysis treatment. My daughter was cared for by relatives and neighbours, basically anyone who was free to look after her while I worked. Life was tough,” he said. During those dark moments, Mr Lim started going for weekly badminton sessions with a group of fellow dialysis patients. The sport was a welcome distraction to his daily struggles, he said. “Being able to sweat it out felt good. Emotionally and physically, I felt better the next day after some exercise. My appetite would improve, and my ankles and legs would be less swollen, which is a common problem for people with kidney failure.” Mr Lim continued to remain active even after his kidney transplant, resuming gentle exercise such as walking to rebuild his stamina two months post-transplant.

He would take morning walks at around 6am before starting work, eventually resuming his regular badminton sessions. “I like doing sports because it energises me. Like other transplant patients, I have to take many medications (immunosuppressants) for life. I feel that exercise is a natural way to help me ‘detox’ after taking so many pills every day,” said Mr Lim. Some of Mr Lim’s current medication can cause weight gain, higher blood glucose and bone-mass loss, putting him at a higher risk of diabetes and osteoporosis. Certain immunosuppressants can also impair energy production in the body, leading to fatigue, but regular exercise can help negate this, said Dr Wang Mingchang from NUH Sports Centre. “Regular exercise post-transplant also helps control blood pressure and cholesterol levels, decreasing one’s risk of death from cardiovascular disease, which is the main cause of death among kidney transplant patients,” Dr Wang said, adding that studies have shown transplant recipients who exercise regularly may not require as high a dose of immunosuppressants as those who lead sedentary lives.

Mr Lim continues to work hard to ensure he remains fit enough to continue competitive sports. He also hopes that more organisations will come forward to sponsor fellow transplant recipients so they can participate in the next WTG. Said Mr Lim, whose recent WTG trip was sponsored by the National Kidney Foundation: “Hopefully, more fellow transplant recipients will be able to get sponsorships so they can compete in the next Transplant Games to help raise awareness of organ donation. We also want to show others that transplant patients can continue to live healthy lives.” In Singapore, the number of organs donated for transplants remains low. As of June 2015, 488 people are on the waiting list for organ transplants, of which 367 are waiting for kidneys.

Source: TODAY (Published on 23 December 2015)

Upcoming GP CME Events

Date	Topic
19 March	Contemporary Cancer Issues
19 March*	NUH Spine GP Updates – Encore 2016
2 April	Fundamentals of Upper GI Diseases and Advances in Treatment
28 May	Common Issues in Developmental Paediatrics

Registration & Lunch will start at 1.00 PM

*Event Venue:

Level 11, Seminar Room T02/03

1E Kent Ridge Road, Singapore 119228

Please call us @ 6772 2535 / 5079 for registration & enquiries please visit our CME Portal @ <https://nuhcme.com.sg/>.