

# NeusLink

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## ADVISOR

A/Prof Ng Wai Hoe

## ACKNOWLEDGEMENTS

A/Prof Ang Beng Ti  
Dr Ang Kexin  
A/Prof Au Wing Lok  
A/Prof Deidre Anne De Silva  
Goh Mei Lian  
Desmond Khoo  
Dr Nicolas Kon  
Li Wei  
Prof Lim Shih Hui  
Dr David Low  
A/Prof Nagaendran Kandiah  
Ng Wai May  
A/Prof Prakash Kumar  
Prof Tan Eng King  
A/Prof Louis Tan  
A/Prof Nigel Tan  
Dr Tan You Jiang  
Tay Lian Bee  
Dr Joanna Pearly Ti  
Janis Tye  
Dr Wee Chee Keong  
Dr Yeo Tianrong

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Echo of Love Society  
William Ngo

## EDITORIAL TEAM

Janet Lau  
Jenny Kwok  
Adriel Lee

## DESIGN

Redstone Communications

## COPYWRITING

Hedgehog Communications

## ADDRESS

NeusLink c/o Corporate Communications  
National Neuroscience Institute  
11 Jalan Tan Tock Seng  
Singapore 308433  
Tel: (65) 6357 7153  
Fax: (65) 6256 4755  
Email: NNI-CorporateCommunications@nni.com.sg  
Website: www.nni.com.sg

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# NNI STARS SHINE BRIGHT

04

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# NNI Stars Shine Bright

NeusLink celebrates the best minds in neuroscience – NNI staff who have shone brightly like stars in the constellation in 2018, lighting the way for others.

## President's Science Award

The President's Science Award is Singapore's highest honour for scientific achievement. Professor Tan Eng King & Associate Professor Louis Tan are recognised for their outstanding contributions in furthering the understanding and management of Parkinson's disease through identifying clinical biomarkers, developing novel models and therapeutics.

### PROF TAN ENG KING

Deputy Medical Director (Academic Affairs) and Senior Consultant, Department of Neurology



Prof Tan is a clinician-scientist luminary in Parkinson's disease globally and in Singapore. One of his key milestones is the development of the mini mid-brain organoids, a world-first, putting NNI on the world map for Parkinson's research. A multi-award winner, Prof Tan is lauded for his contributions towards scientific inquiry and serves on several international committees related to movement disorders.

*What is a little known fact about you?*  
I would love to live a carefree life.

*What would you have done if you were not a doctor or researcher?*  
Maybe a poet. I used to stick my poems all over the wards as a houseman.

*Could you share a poem with us?*  
Pursue your passion, hug your compassion.  
Do not take Success and Failure to Heart  
We are here to serve our fellow beings.

### A/PROF LOUIS TAN

Senior Consultant, Department of Neurology



A/Prof Tan has dedicated his life to improving the management of Parkinson's disease and other movement disorders. He is the lead for Parkinson's disease treatment and care in NNI. A clinician-investigator, he considers the recent President's Science Award as his most memorable milestone. For him, it is a testament to the resilience and good camaraderie of the team over the past 18 years.

*What would you have done if you were not a doctor or researcher?*  
I would possibly be doing administrative work.

*What do you count as your hobbies?*  
Exercising, jogging and enjoying the outdoors.

*Can you share some advice for junior doctors and researchers?*  
Do your best, never give up, and work as a team.

## President's Award for Nurses 2018

The President's Award for Nurses is the highest accolade for nurses, recognising those who have made significant contributions to the profession and the community.



**LI WEI**  
Senior Nurse Clinician,  
Department of Neurology

One of Li Wei's most significant career achievements is being certified to perform Deep Brain Stimulation (DBS) programming, a procedure normally conducted by neurologists. This was especially poignant when a patient she had treated with DBS programming progressed from being wheelchair-bound to walking independently after the procedure right before her very eyes.

*What is a little known fact about you?*  
My nickname is Winnie, because I love the cartoon character Winnie the Pooh. My favourite line from him is, "You don't spell love, but you feel love."

*What would you have done if you were not a nurse?*  
I wanted to be a pre-school teacher when I was young. Unfortunately, I wasn't able to sing and dance well during the interview.

*What do you count as your hobbies?*  
I collect stamps and Hard Rock Cafe souvenirs from different countries. I enjoy seeing different cultures being represented in these items.

## Nurses' Merit Award

The Nurses' Merit Award from the Ministry of Health recognises nurses for consistent and outstanding performance in professional development and significant contribution towards promoting the nursing profession.



**JANIS TYE**  
Nurse Clinician (NC),  
Department of Neurology

Janis Tye truly represents SingHealth's motto of "Patients. At the heart of all we do." Without hesitation, she would go beyond the call of duty. She once helped a patient to wash his toilet and put in a non-slip mat to prevent falls during a routine home visit.

*What is a little known fact about you?*  
I received my ElderShield 2 years ago.

*What would you have done if you were not a nurse?*  
I would want to be a zookeeper.

*What do you count as your hobbies?*  
This often changes, but my latest pursuit is searching for a queen ant to build an ant colony.

## Nanyang Education Award (School)

Conferred by the Nanyang Technological University, the Nanyang Education Award recognises the dedication of faculty members for enriching the learning experiences of their students.



**A/PROF NIGEL TAN**  
Senior Consultant,  
Department of Neurology  
Deputy Group Director, Education  
(Undergraduate), SingHealth

An education stalwart, A/Prof Tan has dedicated his life to transforming medical education. He is passionate about faculty development, honing the competencies of healthcare educators to better groom the next generation.

*What is a little known fact about you?*  
I enjoy films and I still listen to pop music. A film or a song can provoke thought or inspire action and make us all better people.

*What would you have done if you were not a doctor?*  
A film critic for the New York Times, or a music critic for Rolling Stone. Or maybe a stand-up comedian doing open-mic somewhere in a cafe off Haji Lane!

*Who is your role model and why?*  
Warren Buffet, the legendary investor who remains curious, and remarkably self-deprecating even though he is one of the best investors in the world.

## ✦ National Day Awards ✦

The National Day Awards are presented by the Prime Minister's Office in recognition of outstanding contributions and service to Singapore across different fields.

### TAY LIAN BEE

Senior Medical Technologist,  
Neurodiagnostic Laboratory

Winner of Efficiency Medal and Long Service Medal



Over the last 26 years, Lian Bee has made significant contributions to NNI and healthcare - her double win at the 2018 National Day Awards was well deserved. Lian Bee enjoys mentoring and has trained more than 800 healthcare professionals to-date.

*What would you have done if you were not a medical technologist?*  
I would like to be a teacher.

*If you could be anyone/anything for a day, who/what would you be?*  
I would be a book because you can find knowledge within it and the knowledge can be shared with others as well.

*What do you count as your hobbies?*  
I like to jog. I gained a passion for it after participating in the charity run organised by the Singapore Cancer Society.

### PROF LIM SHIH HUI

Senior Consultant,  
Department of Neurology

Winner of Public Administration Medal (Bronze)



Prof Lim transformed the landscape of medical education in Singapore by raising the bar for training healthcare professionals and specialists in the last 20 years. He has also strengthened regional ties through the exchange of medical knowledge and clinical expertise, beyond Singapore. A visionary, Prof Lim has attained many firsts in medical education as Founding President of the College of Physicians Singapore and Co-Chair of the Joint Committee on Specialist Training.

*What is a little known fact about you?*  
Those in my WhatsApp contact list will know that I am not as serious a person as I may look. I have shared many jokes, philosophical quotes and perspectives about anything and everything under the sun.

*What would you have done if you were not a doctor?*  
I would be a philanthropist.

*What do you count as your hobbies?*  
Badminton as it is a physical and mental game. It is also both strategic and tactical. If I play well, I know that I am neurologically normal.

## ✦ National Medical Research Council Awards ✦

The NMRC Awards recognise clinician scientists and researchers for their outstanding achievements and contributions towards scientific inquiry.

### DR YEO TIANRONG

Consultant, Department of Neurology

Winner of NMRC Research Training Fellowship



Dr Yeo is currently pursuing a full-time PhD at the University of Oxford, made possible by the NMRC Overseas PhD Research Fellowship award which he received in 2016. Dr Yeo is heartened as the award demonstrates NNI and NMRC's commitment to developing research expertise among clinicians.

*What would you have done if you were not a doctor or researcher?*

I would have ended up being an architect. I like to think that I have an artistic side, and have always been fascinated with structures and buildings.

*Who is your role model and why?*

I do not have just one single role model. We are constantly learning something useful from the people that we interact with. This then gets integrated within ourselves (the useful bits at least) and translates into a 'better' version of ourselves.

*What do you count as your hobbies?*

My love for watercolour painting was rekindled while at Oxford. I really like this medium as there is this element of unpredictability and dynamism; the control of the brush strokes and water that determines the way the colour spreads over the paper is absolutely intriguing.

### A/PROF ANG BENG TI

Senior Consultant, Department of Neurosurgery

Winner of Clinician Scientist Award - Investigator



A/Prof Ang has been instrumental in advancing NNI's Neuro-Oncology Research Laboratory. Together with Dr Carol Tang, the team successfully secured a large national-level funding for neuro-oncology research. Winning the NMRC Award has given him great satisfaction and assurance that the team's hard work has paid off.

*What is the best thing about your career at NNI?*

In my sub-specialty practice of endonasal skull base surgery, where many of the tumors affect the nerves subserving vision, I am always heartened to see the improvement in patients' vision post-op and how impactful this is on their quality of life.

*What would you have done if you were not a doctor?*

When I was young, I was fascinated by insects and actually wanted to be an entomologist.

*What do you count as your hobbies?*

I enjoy both Muay Thai and western boxing as they are a great way to de-stress!

## ✦ SingHealth and GCEO Excellence Award ✦

The SingHealth Excellence Award recognises outstanding performance and achievements of SingHealth staff across the cluster. The GCEO Excellence Award distinguishes exemplary professionals in their field of work at the Group level.

### A/PROF AU WING LOK

Deputy Medical Director (Clinical) and Senior Consultant, Department of Neurology  
Winner of Outstanding Clinician Award

A/Prof Au is a Movement Disorders specialist with interests in neuroimaging and electrophysiology. As Deputy Medical Director, A/Prof Au leads the harmonisation of clinical services across NNI's partner hospitals.

The driving force for clinical services, his key milestones include developing a multidisciplinary Parkinson's care team, which contributed to NNI's accreditation as an International Centre of Excellence by the USA National Parkinson Foundation since 2006. A/Prof Au also advanced professional development for nurses through the Advanced Practice Nurse services in NNI to anchor various clinical programmes such as stroke, dementia,

movement disorders, epilepsy and neuroimmunology.

*What's the best thing about your career at NNI?*

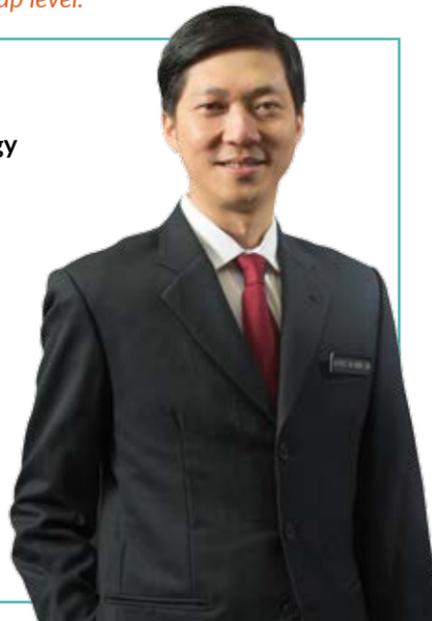
Every day is a wonderful and memorable experience for me. There is so much to learn from our patients and caregivers, not only on medical issues, but life in general.

*What is a little known fact about you?*

I still keep my Playmobil set after all these years, and now my children are playing with them!

*What would you have done if you were not a doctor?*

My childhood dream was to be an architect.



### DR DAVID LOW

Head, Neurosurgical Service, NNI @ KK Women's and Children Hospital and Senior Consultant, Department of Neurology  
Winner of Outstanding Educator Award

Dr Low is a prolific brain tumour surgeon for Paediatric Neurosurgery and Surgical Neuro-Oncology. An outstanding clinician educator, Dr Low is the Programme Director at the SingHealth Neurosurgery Residency programme and Adjunct Assistant Professor of the Duke-NUS Medical School. He is passionate about grooming young neurosurgeons for public service.

*What does this award mean to you?*

It is an affirmation and recognition of the efforts I have put into the neurosurgery residency programme; but more so that the award acknowledges the many other

faculty and programme staff that have supported me.

*What do you count as your hobbies?*

My source of enjoyment is cooking for family and friends. I picked up cooking and baking whilst studying for my medical degree in Ireland.

*What would you have done if you were not a doctor?*

I would still want to be equipped with the knowledge and skills of a doctor, but have the opportunity and fitness to venture into the great outdoors and experience the wonders of nature.

### A/PROF PRAKASH KUMAR MANHARLAL

Head, Neurology, NNI @ Sengkang General Hospital and Senior Consultant, Department of Neurology  
Winner of Outstanding Clinician Researcher Award

A/Prof Prakash has been actively involved in clinical research for more than 15 years, contributing extensively to new knowledge for neurophysiology and subsequently Parkinson's disease. His academic attainment includes 95 publications across journals and books, with more than 30 clinical studies and 60 scientific presentations.

*What does this award mean to you?*

It is a source of validation that I am doing good for my patients and NNI. It lets me know that I am on the right track and motivates me to carry on.

*Can you share some advice for junior doctors and researchers?*

Just do what brings joy to you without being too concerned about recognition. The rewards will come eventually.

*If you could be anyone/anything for a day, who/what would you be?*

I would be an elegant white seabird flying across the globe.



### DESMOND KHOO

Deputy Director, Operations  
Winner of Outstanding Administrative Staff Award

A maestro in operations and project management, Desmond's achievements span over NNI and the Singapore General Hospital (SGH), where he started his journey in healthcare. He successfully set up the innovative automated Visitor Gantry System that regulates the number of visitors in the wards at SGH and continues to innovate service delivery as a key member of the One Campus Operator, SingHealth's integration initiative. At NNI, he managed the large-scale renovation of offices and put in place a Service Quality framework for staff recognition.

*Can you share some advice for juniors?*

Be patient, pleasant and treat everyone with respect. Never do things expecting something in return; do it because you feel that you can contribute.

*What is a little known fact about you?*

I love sports of any kind, as it gives me an excuse to eat more after that.

*What do you count as your hobbies?*

I am obsessed with the cleanliness of my car. This obsessive behaviour has led to my bosses wanting to wear hair nets and shoe covers before getting into my car just to tease me.

## ✦ NUS Yong Loo Lin School of Medicine Awards ✦

The Dean's Award for Teaching Excellence by the National University of Singapore's Yong Loo Lin School of Medicine recognises the dedication and academic excellence of its teaching staff. Additionally, a Special Recognition Award is also given out to faculty members who are role models to aspiring doctors.

### DR ANG KEXIN

Consultant, Department of Neurology  
Winner of Special Recognition Award

Dr Ang Kexin has pushed the frontiers of neuroscience as the first neurologist specialising in neuro-palliative care in Singapore. Her compassion led her to provide holistic care to improve the quality of life for patients with debilitating neurological conditions. An angel to many, her practice is more of an art than a science, treating the individual rather than the disease.

*What does this award mean to you?*

I am very honoured that someone considers me his/her role

model. There are many other deserving recipients and I look forward to cheering for them at future ceremonies.

*Who is your role model and why?*

A/Prof Umapathi is one of my role models because he goes all out for his patients. If the diagnosis for a patient is unclear, he will try to systematically work out the differential diagnoses and how to arrive at the diagnosis, using first principles and pathophysiology.

*What would you have done if you were not a doctor?*

I would not mind being an arts critic as I enjoy the arts.

*What do you count as your hobbies?*

I enjoy reading fiction. A good story can really take my mind off all stress and anxiety.



### DR TAN YOU JIANG

Associate Consultant,  
Department of Neurology  
Winner of Dean's Award for Teaching Excellence and Special Recognition Award

Dr Tan is an outstanding young neurologist with a love for education and lifelong learning. His passion for education was inspired by the mentors that have coached him. This is the second time he has achieved the Special Recognition Award.

*What does this award mean to you?*

An affirmation of the methods of instruction I learnt from my seniors in NNI - that mentoring students beyond neurologic subjects, furthering their learning and life goals, are more fruitful and impactful than merely sticking to a syllabus.

*What is a little known fact about you?*

My seared scallops and steaks are not bad. I assure you, all who have eaten them are still alive.

*What would you have done if you were not a doctor?*

I would start my own business and manage my own investments full time, retire at 50 and really start living!

*What do you count as your hobbies?*

I have an unhealthy obsession with watches and male fashion. Just don't get me started.



A/Prof Umapathi N Thirugnanam, Senior Consultant, Department of Neurology, was also a recipient of the Dean's Award for Teaching Excellence and the Special Recognition Award. Dr Lee Sze Haur, Senior Consultant, Department of Neurology, received the Special Recognition Award.

# Turning the Tide of Dementia

**Breakthroughs in imaging and diagnostics technology now make it possible for early detection of Alzheimer's disease**

With the recent introduction of new screening tools to detect pre-dementia, the National Neuroscience Institute (NNI) is one of the few neuroscience centres in the world that offer ground-breaking diagnostic services for early detection of Alzheimer's disease.

## The need for early detection

As Singapore, Asia and many other countries across the world grapple with a rapidly ageing population, the need for enhanced treatment options and early diagnosis of neurodegenerative diseases have become increasingly important. Dementia affects around 40,000 people in Singapore today, and this number is expected to double to 80,000 by 2030 as the population ages.

A key focus of NNI's dementia research programme has been on investigating the pathophysiology of diseases such as Alzheimer's - one of the main causes for dementia. Associate Professor Nagaendran Kandiah, Senior Consultant at NNI's Department of Neurology and Director of the NNI Dementia Programme, said that a key marker of dementia is the presence of abnormal proteins in the brain called amyloid, resulting in loss of brain cells that regulate memory, calculation and other thinking processes.

"Unfortunately, up until recently, amyloid levels could only be measured after death, during post-mortem examination," he says.



Breakthrough procedures such as the amyloid positron-emission tomography (PET) scan, however, enable early detection of amyloid in patients suspected of pre-dementia, providing a more precise understanding of the changes going on in their brains. The amyloid PET scan works by injecting a radiopharmaceutical tracer into the patient's brain. The tracer then binds to the beta-amyloid plaques in the brain, which appear brightly on a scan.

Yet another diagnostic technique is cerebrospinal fluid testing, whereby a small needle is inserted into the spine and spinal fluid extracted for testing. These two techniques are available at NNI, putting Singapore and the institution on the world map for efforts in improving the treatment and care of Alzheimer's disease.

Currently in Singapore there are an estimated 150,000 pre-dementia patients, of which 50% are likely to develop dementia. However, with early diagnosis of pre-dementia, timely interventions could be made, potentially preventing or delaying the development of dementia.

## Hearing from a patient

One such patient who was recently diagnosed with pre-dementia is Margaret Tan. The retired clerical worker in her 70s started experiencing periods of memory loss and became concerned, especially with a history of dementia in her family - her late mother suffered from dementia and passed away two years ago.

In late 2017, she attended a talk about dementia organised by NNI, and her profile was picked up by the dementia team who invited her to undergo further investigation. Through the amyloid PET scan, it was confirmed that Ms Tan had pre-dementia as a result of Alzheimer's disease. While the news was initially devastating, she decided to stay positive and contribute to the quest of finding a cure for the disease.

"I saw what my mother went through with Alzheimer's and I would like to help others in the future," she says.

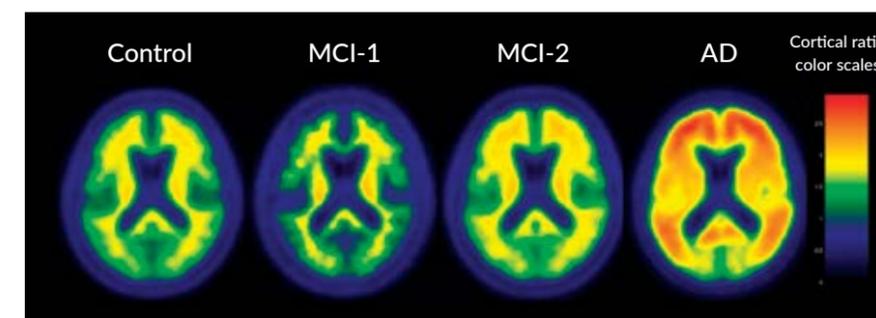
Patients who are diagnosed with pre-dementia through the amyloid PET scan or cerebrospinal fluid test are eligible to enrol in clinical trials with NNI.

Currently, there are three anti-amyloid clinical trials for patients with pre-dementia, and NNI is one of a few centres in the world offering all three. Ms Tan is enrolled in one such trial, which is aimed at slowing down the decline in memory and general function by reducing further build-up of amyloid in the brain.

"I may be getting a bit more forgetful, but I am still independent and can do things on my own," says Ms Tan, who practises qigong every day, spends time with friends and goes to church regularly.

Indeed, her active lifestyle helps to keep the disease at bay. Says A/Prof Nagaendran: "Someone else with the same amount of amyloid may already have dementia."

**Amyloid deposits show up bright red on the PET scans, allowing doctors to confirm if a patient has pre-dementia, also known as mild cognitive impairment (MCI).**



Source: Comparison of F-FDG and PiB PET in Cognitive Impairment, Journal of Nuclear Medicine, Vol. 50, No. 6, June 2009

goodtoknow

## Signs of Pre-dementia

Sufferers of pre-dementia may show these symptoms:

- Persistent forgetfulness that last for more than six months which are noticeable by the people around them
- Forgetfulness occurring in those with a family history of dementia or those who have suffered a stroke
- Difficulty in wayfinding
- Impaired planning

Should you have any of the symptoms or notice loved ones that may exhibit the signs, do consult a physician who may refer you for further investigations. You may also call the National Neuroscience Institute at 6357 7153 for further advice on the pre-dementia screening.



# A New Hope for Stroke Patients

Advanced neuroimaging offers more options for acute stroke treatment



Up until recently, patients brought to the hospital more than six hours after the onset of a stroke, had little to nil chances of reversing their condition. Now, thanks to the results of two recently concluded trials - Dawn<sup>1</sup> and Defuse<sup>2</sup> - as well as advancements in neuroimaging, doctors at the National Neuroscience Institute (NNI) are now able to treat patients outside the optimum treatment window. However, doctors advised caution on the new finding as only a small number of stroke patients might be eligible for this treatment.

## More options for stroke treatment

Dr Wee Chee Keong, Consultant at NNI's Department of Neurology, explained that as doctors, they are always evaluating the literature to learn about the latest and most effective treatments for patients.

"Previously, we did not know much about the outcomes for treatment beyond six hours. Because, as time goes by, more and more brain tissue die. However, the publication of these two trials has shown that with more advanced imaging, there is still a small group of patients with salvageable brain cells that we can help with existing clot removal techniques."

Dr Joanna Pearly Ti, Consultant at NNI's Department of Neuroradiology, shared that since the implementation of this new protocol, NNI has already operated on a small number of patients.

"We have had a few patients coming in after the usual time window who have been treated with endovascular therapy. They had excellent outcomes - regained a lot of their functionality and their independence.. It is unlikely that they would have been considered for the treatment before the trial results came out," she said.

Despite this advancement, doctors at NNI continue to stress the importance of going to the hospital early. "The earlier you come, the more brain cells we save. Even with these latest techniques, only about 1-3% of stroke patients in Singapore will be eligible," added Dr Wee.

## Becoming better prepared to deal with stroke

Last year, close to 8,000 persons in Singapore suffered a stroke. This number is expected to increase due to the country's ageing population. NNI, as the national centre for neuroscience care, has been ramping up its efforts to improve patient care and educate the public about stroke symptoms and treatment options.

As part of public outreach, the national stroke awareness campaign 2018 was launched in October, together with the 17th Singapore International Stroke Conference organised by NNI. During the opening ceremony, Associate Professor Deidre Anne De Silva, Head of the Department of Neurology (NNI @ SGH Campus) and Chair of Stroke Services Improvement team shared:

**"Stroke can happen to anyone at any age. 1 in 6 people will suffer a stroke in their lifetime. It is important for the public to recognise stroke, act F.A.S.T. (see sidebox) to call 995. You never know when you may encounter a loved one, an acquaintance or a stranger who is suffering an acute stroke – you can make a difference to a stroke victim's outcome by knowing what to do."**



From left: Dr Carol Tham, NNI; A/Prof Ng Wai Hoe, NNI; Mr Amrin Amin, Senior Parliamentary Secretary, Ministry of Home Affairs and Ministry of Health; A/Prof Lo Yew Long, NNI and Dr Wee Chee Keong, NNI.

Even more important than being able to react quickly, however, is the need to take preventive measures. A/Prof Ng Wai Hoe, Medical Director, NNI explained: "Neurological diseases make up the second heaviest disease burden for Singapore. However, 80% of strokes are preventable by

leading a healthy lifestyle, eating right and exercising."

In this instance, the old adage "prevention is better than cure" certainly rings true for prevention of stroke.

<sup>1</sup>Nogueira RG et al, for the DAWN Trial Investigators. Thrombectomy 6 to 24 hours after stroke with a mismatch between deficit and infarct. N Engl J Med 2018;378:11-21.  
<sup>2</sup>Albers GW et al, for the DEFUSE 3 Investigators. Thrombectomy for stroke at 6 to 16 hours with selection by perfusion imaging. New Engl J Med 2018;378:708-718.

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## To spot a Stroke think F.A.S.T.



**F**ace drooping  
Is the person's smile uneven?



**A**rm weakness  
Can the person raise both arms and keep them up?

# SPOT STROKE

Fast discovery helps recovery



**S**peech difficulty  
Does the person's speech sound slurred or unclear?



**T**ime to call 995  
If the person shows any of these signs, they need to be rushed to the hospital immediately.



# Pathways Towards **NURSING** **EXCELLENCE**

*The work of nurses from the National Neuroscience Institute (NNI) is markedly different. NeusLink finds out what it takes to be an NNI nurse and the professional development pathways for NNI nurses.*

## **A uniquely fulfilling experience**

Unlike nurses in hospital settings who typically only witness part of a patient's journey, NNI nurses are often involved with the entire continuum of care – from diagnosis to supporting them in the community. This gives them a deep sense of satisfaction, as they journey along with their patients through different phases of their illnesses.

For these nurses, holistic care includes physical examination of their patients' neurological impairment, reviewing their medication and adherence, patient education and providing close monitoring through tele-consultation.

Ms Ng Wai May, Deputy Director, Nursing, NNI, adds that NNI nurses are also exposed to a wider range of interprofessional activities such as monitoring patients' functional status in the operating theatre while surgeons perform awake surgery.

Such opportunities not only hone clinical competencies but enhance other aspects such as interprofessional collaborative practice, analysis and leadership.

## **The nursing journey at NNI**

NNI has both Enrolled Nurses and Registered Nurses, who are deployed to various departments, including Neurology,

Neurosurgery, Neuroradiology or Neuroscience Specialist Outpatient Clinic (NSOC).

For professional development, Enrolled Nurses have the opportunity to convert to Registered Nurses by taking on a 3-year nursing diploma at local polytechnics and other institutions.

NNI also supports professional development of nurses through further training. These include both local and overseas training with opportunities to exchange knowledge and share best practices at major medical conferences all over the world. NNI nurses have also presented posters at international conferences such as a recent symposium on stroke care.

## **GOH MEI LIAN**

SENIOR ENROLLED NURSE, NEUROSCIENCE CLINIC

**D**emonstrating that it is never too late to improve yourself, Goh Mei Lian embarked on her Diploma in Nursing in 2016, after more than 20 years working as an enrolled nurse.

She shared that it was tough in the beginning, especially after not being in a classroom environment for so many years. Nevertheless she managed to persevere, and now looks back fondly on her decision to pursue further studies.

She is thankful for the various people that have supported her, from the management who encouraged her to pursue the course full-time to the helpful classmates she has met along the way.

During her studies, Mei Lian used her wealth of nursing experience to contribute to her classes. "During our presentations and assignments, the younger peers tap on the working experience of the more mature students," she explained.

Mei Lian revealed that the main driving factor that keeps her going is her children. "I want to be a role model for my kids to tell them that it is never too late to pursue your passion. If I can do it, so can you."

**“**Do not be afraid to take the first step even though it is always the hardest, because accomplishment starts with the decision to try.**”**



## **LI WEI**

ADVANCED PRACTICE NURSE, DEPARTMENT OF NEUROLOGY

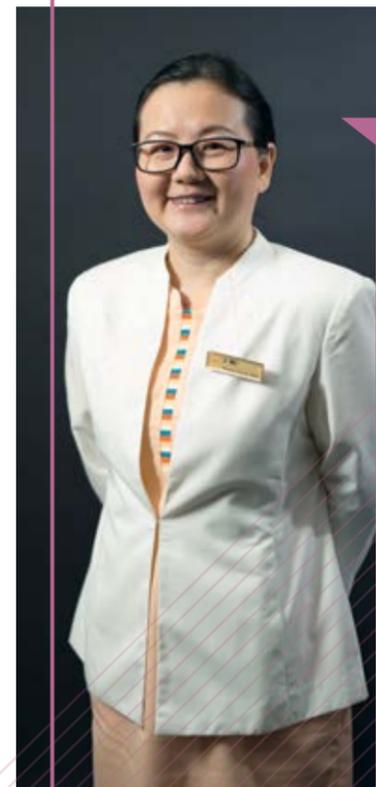
**O**ne of the first Advanced Practice Nurses (APN) and non-medical prescribers in NNI, APN Li Wei is a fine example of the opportunities available to nurses in the institution. In her three decades of nursing, Li Wei has consistently pushed boundaries at the workplace and expanded the scope of nursing.

Li Wei is the first APN to run a nurse-led clinic in NNI in 2011, a new chapter for nursing in NNI. She is certified to perform the programming for Deep Brain Stimulation (DBS), a type of neurosurgery for patients with Parkinson's disease that helps them regain some mobility. This programming is normally conducted by neurologists.

Her latest milestone is being certified as a collaborative prescriber – a non-medical doctor who is able to prescribe medications and order investigations. Says Li Wei: "This practice of collaborative prescribing streamlines the clinical services. Stable and non-complicated patients can be reviewed by APN or pharmacists instead of the doctor. There is no need to wait for a doctor's prescription, which saves time off getting medication for patients; doctors too can attend to more complex cases."

Li Wei's exemplary leadership and commitment towards her patients have made her a widely respected role model among other nurses. It was, therefore, befitting that Li Wei was presented with the President's Award for Nurses given in recognition of outstanding nurses in Singapore and their significant contribution to the profession and the community.

**“**In order to provide safe and efficient care to patients, nurses not only need to have solid nursing knowledge, skills and experience, but must also possess passion and commitment.**”**



# Winning the Nation's HIGHEST AWARD FOR SCIENTIFIC ACHIEVEMENT

*A team led by Prof Tan Eng King, Deputy Medical Director (Academic Affairs) and Director, Research, National Neuroscience Institute (NNI) has won Singapore's highest award for outstanding research contributions to Parkinson's disease*

2018 has been an exceptional year for NNI with many staff recognised for neuroscience excellence across clinical service, education and research. One award, in particular, stands out as it represents the highest national accolade that a team or individual can receive in the field of science.

On 25 September 2018, Prof Tan Eng King and his research team consisting of A/Prof Louis Tan, Deputy Director, Research, NNI, A/Prof Lim Kah Leong, Visiting Lead Scientist, NNI and Prof Ng Huck Hui, Executive Director, Genome Institute of Singapore, A\*STAR, were awarded the 2018 President's Science Award (PSA) for their breakthrough research in Parkinson's disease -

having generated the world's first live human midbrain in the laboratory.

This significant development signals countless new possibilities for the delivery of more precise therapeutics and drug interventions, which could hopefully culminate in the cure for Parkinson's disease. Their efforts validate the importance of synergy between patient care and science to advance the understanding and management of Parkinson's disease for improved care. In addition to the development of a human midbrain, the team has identified critical clinical biomarkers for the development of novel models and therapeutics for Parkinson's disease.

Over the past five years, their passion and spirit of enquiry have yielded many promising results in addition to their landmark development of the mini human midbrain. These include:

- Identifying monoamine oxidase inhibitors as drugs to slow down the progression of Parkinson's disease
- Developing a tool with extended sensitivity to assess an individual's risk of developing Parkinson's
- Identifying an Asian gene variant in individuals who are at risk of developing Parkinson's
- Discovering a link between Parkinson's and Alzheimer's disease, which has led to further drug trials

Many of these breakthroughs come at a time when neurodegenerative diseases, such as Parkinson's disease and dementia place a significant burden on healthcare systems, especially in Singapore and other countries with rapidly ageing populations.

As a result of the team's outstanding research efforts, opportunities for partnerships with industry, clinical and research institutions have opened up, while healthcare policies to improve clinical care for Parkinson's disease have been enhanced. Prof Tan said that these results are representative of the team's desire to take research and turn them into meaningful clinical outcomes for patients. "It exemplifies the concept and significance of actualising 'bench to bedside.'"

## Taking a patient-driven approach

In line with the team's desire to improve clinical outcomes, they have been taking cues from patients to direct their research work.

Prof Tan as the Parkinson's disease research team lead explained that the team's primary motivation stemmed from questions by patients about alleviating the symptoms of Parkinson's and was symbolic of NNI's research ethos: "where patients direct science, and science directs medicine".

## Making waves in the medical and scientific community

As a result of the efforts by Prof Tan and his team, NNI's standing in the international community has been raised, and continues to be accredited by the Parkinson's Foundation, based in the United States as an international centre of excellence.

Individual team members are also getting due recognition as outstanding scientists in their own right. Prof Tan, for example, was recently awarded the C. David Marsden Lectureship, one of the most prestigious global accolades, for his contribution to basic translational research in the field of Parkinson's.

Even though the 2018 President's Science Award shone a spotlight on the achievements of Prof Tan and his team over the past five years, A/Prof Ng Wai Hoe, Medical Director, NNI, was quick to remind us that recent efforts are part of a much longer research journey that has taken 18 years. This is a culmination of medicine and science coming together.

Prof Tan received the C. David Marsden Lecture Award in October 2018 by the International Parkinson and Movement Disorder Society (MDS). The award is a global accolade recognising him as an outstanding and inspiring neuroscientist, whose exceptional contributions have enhanced the understanding of Movement Disorders.



Source: Robert Levy Photography

From left: Prof Claudia Trenkwalder, MDS; Prof Tan Eng King, NNI; Prof Marie Vidailhat, Salpêtrière Hospital, and Prof Christopher Goetz, President, MDS.

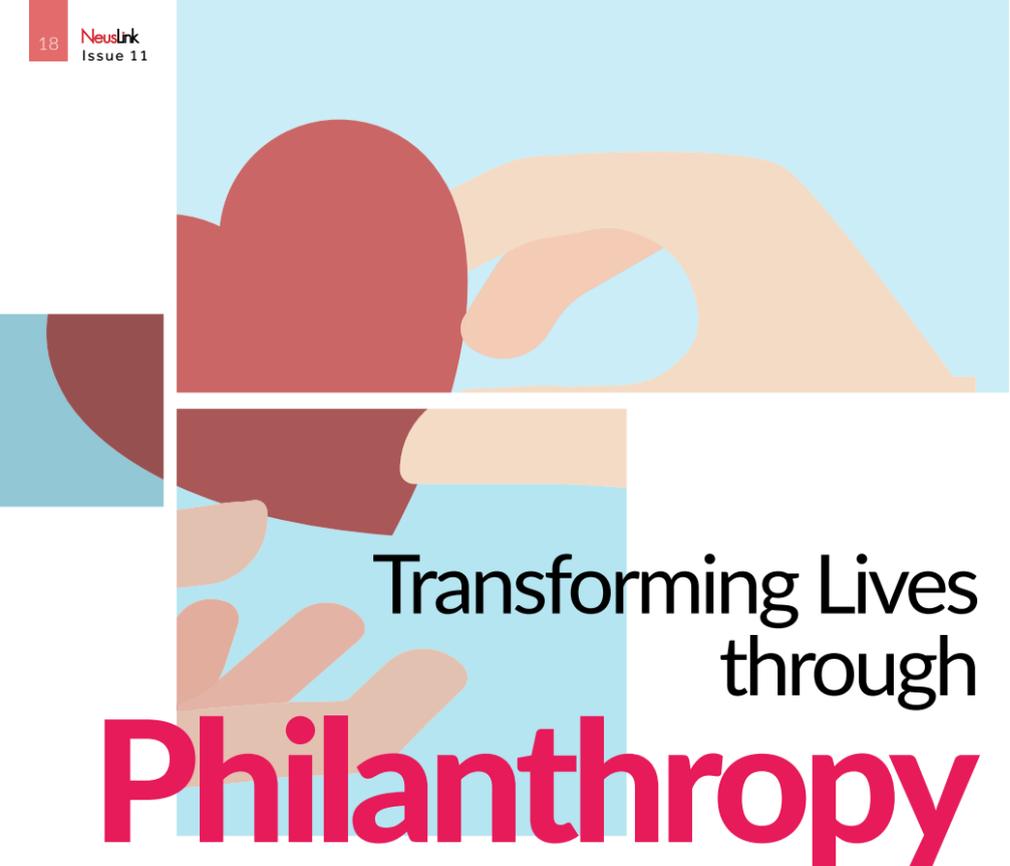


Source: Robert Levy Photography

Prof Tan giving his C. David Marsden Lecture on 3D Human Brain Organoids: Towards a Better Disease Model. Prof Tan shared the limitations of current models of Parkinson's disease, concepts, challenges and potential applications of 3D human brain organoids.



From left: A/Prof Louis Tan, NNI; Prof Tan Eng King, NNI; President Halimah Yacob; A/Prof Lim Kah Leong, NNI and Prof Ng Huck Hui, A\*STAR.



# Transforming Lives through Philanthropy

*Building a culture of giving to transform patients' lives*

Philanthropic aid through grateful patient giving programmes has transformed care outcomes for healthcare institutions globally. Beyond clinical care, advancing medicine through research and education is NNI's mission to improve the lives of patients. Philanthropy enables and brings research and education efforts into better patient care outcomes. At NNI, we aim to foster a culture of philanthropy by garnering the goodwill of grateful patients and generous donors to improve patient care.

In 2018, NNI organised two key fundraising events. 'The Father' was organised with local theatre company Pangdemonium in March 2018. More than 280 attendees watched the play. Another milestone fundraising event, the One Heart, One Mind Neuro-Awareness Roadshow was held from 1 to 9 September at the Changi Airport, reaching out to the public. Dementia patients were given a special ride by our corporate partner, the Lamborghini Club. These initiatives were pivotal to increasing awareness of neurological conditions in the community and raised more \$90,000 from 300 donors towards neuroscience research.

## Impacting lives with philanthropy

Through philanthropic efforts, NNI has been able to improve patient care with new treatment modalities as a pledge of NNI's commitment to advance neuroscience care. Donations have also helped some patients with medical expenses and enabled NNI researchers to pursue medical breakthroughs.

## New minimally invasive neurotechnology

Last year, NNI was the beneficiary of the Echo of Love concert with proceeds raised going towards patients who require financial aid. The generosity of the Echo of Love donors also made it possible for NNI to acquire a new minimally invasive surgical equipment to treat patients with stroke and brain tumours. With a faster recovery time, patients are able to enjoy a new lease of life.

Dr Nicolas Kon, Consultant, Neurosurgery, NNI shared that the new minimally disruptive surgical technology has become a vital option for haemorrhagic stroke patients. "The new surgical equipment brought new neuro-technology

to our shores, a first for haemorrhagic stroke patients. This is significant as recent data has shown that patients who have undergone such surgery require a shorter stay in the intensive care unit."

## Overcoming frozen gait

Freezing of Gait (FOG) is a sudden momentary block that occurs during walking. Patients afflicted with Parkinson's disease struggle with mobility, increasing their risk of falls. Funding from philanthropy enabled researchers at NNI to start developing a new device that detects the onset of FOG in real-time. The device will supply guiding cues back to patients to overcome their impairment and prevent falls. This will enhance rehabilitation and ultimately improve the patients' quality of life.

## Improving patients' lives

Mr William Ngo has muscular dystrophy. Five years ago, the 53 year-old learnt to paint, using his mouth to hold the paintbrush. Now he earns a living selling his watercolour art works. William received help from the NNI Fund and the SG Enable Assistive Technology Fund in 2017 when his electric wheelchair needed replacement. "I want to thank everyone who gives to the NNI Fund," says William. "With this wheelchair, you have given me the power of freedom so I can work and continue to give back to society by sharing my journey with others."

## Clinician advocates

More importantly, the clinician connector that facilitated the request was A/Prof Umaphathi N Thirugnanam, William's physician whose deep empathy moved him to acquire a new set of wheels to restore William's freedom and key daily activities.

Clinicians play a unique role in healthcare philanthropy. When physicians, nurses and staff are involved in philanthropy, they become more committed, compassionate and empathetic - increasing their engagement with the patient and their families. It sometimes helps to remind them of their critical role in healthcare and how much their compassionate care means to patients. With increased financial aid, patients can focus on their recovery or have some of their worries alleviated when faced with a long-term debilitating condition.

**NNI CAREs**  
Give ♥ Volunteer ♥ Serve

## NNI CAREs

At NNI, the spirit of giving and volunteerism demonstrates the commitment towards patient care. Beyond the goodwill of donors, giving starts from within and it is through employee giving that the impact on the lives of patients can be multiplied. NNI CAREs was launched in August 2018.

NNI CAREs is an acronym for NNI Cares for Assistance, Research and Education. 'Care' refers to the support provided. 'Assistance' includes financial aid for needy patients. 'Research' and 'Education' are key areas supported by philanthropy. Together, they are linked to the three pillars of clinical care, research and education.

How does NNI care?



30% of NNI staff contribute monthly to the NNI Fund for needy patients and/or the NNI Health Research Endowment Fund which contributes to our progress in education and research.



NNI staff volunteer regularly at key NNI corporate and fundraising events. They also help patient support groups such as Parkinson Society Singapore in their own time.



The NNI family is committed to making an impact on the community around us through corporate social responsibility (CSR). This enhances NNI's journey of giving.

Through generous philanthropic support for research and education initiatives, NNI can continue to push the frontiers and shape neuroscience care for a better tomorrow. Our staff's commitment to monthly giving strengthens our mission to advance neuroscience care in Singapore.

## Visit by Echo of Love Society

In appreciation of their generosity, NNI brought the Echo of Love Society donors on a visit to the Operating Theatre at Singapore General Hospital to view the minimally invasive surgical equipment acquired from their donation.

A/Prof Ng Wai Hoe, Medical Director, A/Prof Au Wing Lok, Deputy Medical Director (Clinical) and Ms Sandra Koh, Chief Operating Officer were joined by Dr Nicolas Kon, who explained in detail how the new technology works to remove stroke blood clots and tumours with minimal damage to brain tissue.

The Echo of Love Society was so moved by NNI's commitment to improve treatment options for our patients that they have pledged further support in 2019. They will be organising another concert this year to raise funds for NNI to acquire new technology with the aim of improving care outcomes.

*More information on the concert can be found in the event listing on page 23.*



# HIGHLIGHTS



## SingHealth President's Challenge (SHPC) 2018 @ Jurong Bird Park



As part of SHPC 2018, the NNI team brought beneficiaries from the Parkinson Society Singapore to the Jurong Bird Park for an up close and personal time with feathered friends.

## 'ONE HEART, ONE MIND' Neuro-Awareness Roadshow 2018

▼ People with dementia, their family and caregivers were treated to a special ride by members from the Lamborghini Club

▼ Ready, steady! A game for steady hands where one wrong move could activate the alarm!



Big smiles as Guest of Honour Dr Mohamad Maliki Osman, Senior Minister of State (Defence & Foreign Affairs) and Mayor, South East Community Development Council graced the event.

◀ NNI's partners at the Opening Ceremony  
From left: Anson Ang, Visual Studio Singapore; A/Prof Ng Wai Hoe, NNI; Dr Mohamad Maliki Osman, Senior Minister of State (Defence & Foreign Affairs) and Mayor, South East Community Development Council; David Ong, Lamborghini Club Singapore and James Fong, Changi Airport Group.

▼ NNI carolers brought cheer to patients at the wards at Tan Tock Seng Hospital on 21 November 2018.



From left: Emily Ang, Dr Peter Hwang, Sandra Koh, Wendy Teo, Dr Vincent Ng, Minna Sim, Teo Boon Choon, Belinda Sia, A/Prof Ng Wai Hoe and Dr Adeline Ng.

## NNI Caroling 2018



▲ NNI's very own Santa Claus Dr Ramez Kirillos with nurses from Ward 10.

## 8<sup>th</sup> SINGAPORE INTERNATIONAL PARKINSON DISEASE AND MOVEMENT DISORDERS SYMPOSIUM



From left: Prof Tan Eng King, NNI; A/Prof Louis Tan, NNI; Prof Tan Chorh Chuan, Chief Health Scientist, Ministry of Health; A/Prof Ng Wai Hoe, NNI and A/Prof Au Wing Lok, NNI.



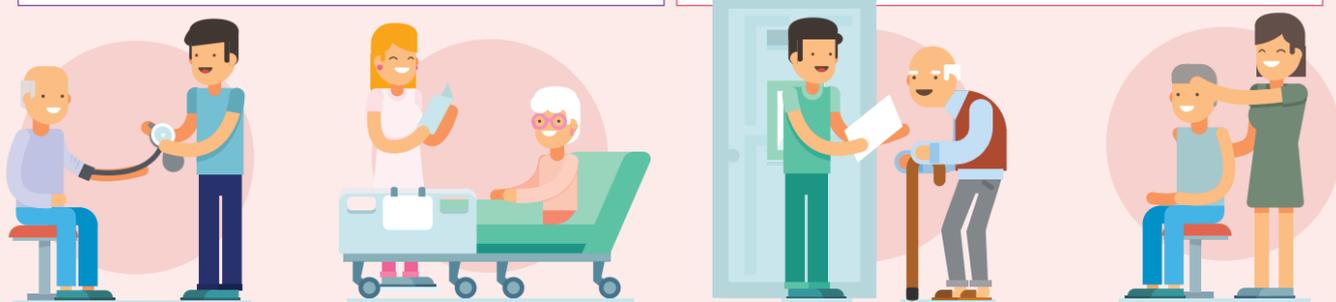
NNI's Parkinson's Disease and Movement Disorder teams from SGH and TTSH enhancing competencies to continuously deliver quality patient care.

NNI celebrates the achievements of Parkinson's Disease Community Care Partners and Home Care Training and Support Programme advocates.



# Patient Support Groups

<p><b>Brain Tumour Society (Singapore)</b></p> <p>Venue: Singapore General Hospital, Learning Space (Block 6 Level 1) Outram Road, Singapore 169608</p> <p>Telephone: (65) 8738 5669</p> <p>Email: enquiry@braintumoursociety.org.sg</p> <p>Website: braintumoursociety.org.sg</p>	<p><b>Dementia Support Group CARE Programme (Cognitive Assessment &amp; Rehabilitation)</b></p> <p>Venue: National Neuroscience Institute 11 Jalan Tan Tock Seng, Singapore 308433</p> <p>Email: mei_mei_nyu@nni.com.sg</p> <p>Website: www.nni.com.sg/PatientsandVisitors/SupportGroups/Pages/Dementia-Support-Group-2017.aspx</p>
<p><b>Head Injury Support Group</b></p> <p>Venue: National Neuroscience Institute 11 Jalan Tan Tock Seng, Singapore 308433</p> <p>Email: TBI_enquiries@nni.com.sg</p> <p>Website: www.nni.com.sg/PatientsandVisitors/SupportGroups/Pages/Head-Injury-Support-Group.aspx</p>	<p><b>MND (Motor Neuron Disease)/ALS Support Group</b></p> <p>Venue: National Neuroscience Institute 11 Jalan Tan Tock Seng, Singapore 308433</p> <p>Telephone: (65) 6330 6363</p> <p>Email: da_neuroscience@nni.com.sg</p> <p>Website: www.nni.com.sg/PatientsandVisitors/SupportGroups/Pages/MND-ALS-Support-Group.aspx</p>
<p><b>Muscular Dystrophy Association (Singapore)</b></p> <p>Venue: 9 Bishan Place #06-01, Junction 8 Singapore 579837</p> <p>Telephone: (65) 6259 6933</p> <p>Email: mdas@mdas.org.sg</p> <p>Website: www.mdas.org.sg</p>	<p><b>Parkinson Society Singapore</b></p> <p>Venue: Block 191, Bishan Street 13 #01-415, Singapore 670191</p> <p>Telephone: (65) 6353 5338</p> <p>Website: www.parkinson.org.sg</p>
<p><b>Parkinson Disease Support Group</b></p> <p>Venue: National Neuroscience Institute 11 Jalan Tan Tock Seng, Singapore 308433</p> <p>Telephone: (65) 6357 7138</p> <p>Email: da_neuroscience@nni.com.sg</p> <p>Website: www.nni.com.sg/PatientsandVisitors/SupportGroups/Pages/PD-Support-Group-Calendar-2017.aspx</p>	<p><b>Parkinson Disease Support Group</b></p> <p>Venue: Singapore General Hospital, Learning Space (Block 6 Level 1) Outram Road, Singapore 169608</p> <p>Telephone: (65) 9295 3331 (Office hours)</p> <p>Email: neurocare@sgh.com.sg</p> <p>Website: www.sgh.com.sg/patient-services/support-groups/pages/parkinsons-disease-support-group.aspx</p>
<p><b>Singapore Epilepsy Foundation</b></p> <p>Venue: 149 Rochor Road, #04-07 Fu Lu Shou Complex, Singapore 188425</p> <p>Telephone: (65) 6336 9336</p> <p>Email: admin@epilepsy.com.sg</p> <p>Website: www.epilepsy.com.sg</p>	<p><b>Singapore National Stroke Association</b></p> <p>Venue: Leisure Park Kallang, 5 Stadium Walk #04-02A Singapore 397693</p> <p>Telephone: (65) 6222 9514</p> <p>Email: contact@snsa.org.sg</p> <p>Website: www.snsa.org.sg</p>



## NNI KEY EVENTS 2019

**18-19  
MAY 2019**

Toa Payoh  
HDB Hub



### NNI Brain Awareness Roadshow

The NNI Brain Awareness Roadshow aims to raise public awareness of common neurological conditions such as stroke, dementia, brain tumours and Parkinson's disease. Themed "Better Minds, Better Lives, Better Tomorrow", the Roadshow features an exciting programme that focuses on early intervention, prevention and rehabilitation.

Event highlights include interactive activities, a patient education exhibition, health carnival, public talks and Parkinson's disease screening.

For more information, contact  
**NNI-CorporateCommunications@nni.com.sg**

**25  
MAY 2019**

Kallang Theatre



### Care Concert VI

The Echo of Love Society is organising "Care Concert VI", a charity concert with NNI as the main beneficiary. Funds raised will support new treatment modalities for improved care outcomes.

The concert will be held over two sessions. The afternoon performance will be free-of-charge for senior citizens to enjoy Chinese musical classics with a fundraising concert held in the evening with tickets priced at \$30 and \$50.

For more information, contact  
**CorpDev@nni.com.sg**

**29-31  
AUG 2019**

Shangri-La Hotel  
Singapore



### 13<sup>th</sup> International Congress of the Asian Society Against Dementia and 6<sup>th</sup> Singapore International Neuro-Cognitive Symposium

The Asian Society Against Dementia (ASAD) organises a yearly international congress, hosted by various Asian Pacific countries. Singapore will be the host country for the 13<sup>th</sup> ASAD Congress.

The theme is "Early Diagnosis and Timely Intervention of Neurocognitive Disorders". The pre-Congress workshops on 28 August 2019 will focus on cognitive assessment and practical biomarker application in dementia. The main congress will take place from 29 to 31 August 2019, with the sharing of latest developments, clinical applications and management in the field of neurocognitive disorders.

For more information, contact  
**NNI\_Secretariat@nni.com.sg**



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Neuroscience Care  
For A Better Tomorrow



For more information,  
please visit [www.nni.com.sg](http://www.nni.com.sg)

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