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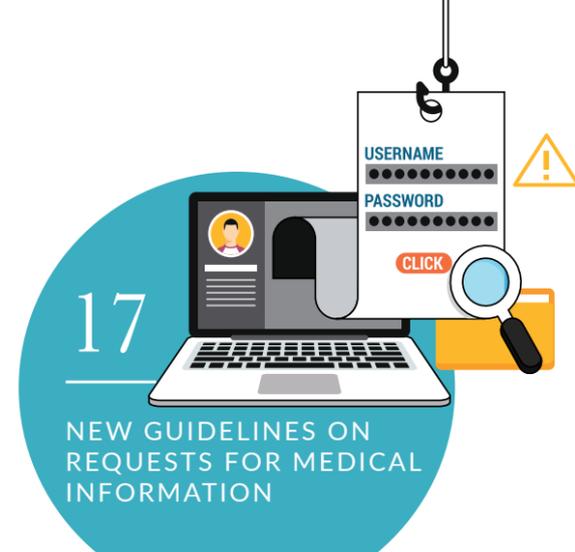


12

RAPID EYE
MOVEMENT SLEEP
BEHAVIOUR
DISORDER

20

NNI BRAIN
AWARENESS
2019



17

NEW GUIDELINES ON
REQUESTS FOR MEDICAL
INFORMATION

CONTENTS

ISSUE 12

04 MEDICAL DIRECTOR'S
MESSAGE

05 NNI MILESTONES

06 CELEBRATING THE SILENT
HEROES OF SCIENCE

07 A NOD FOR SERVICE
EXCELLENCE

08 BUILDING COMMUNITIES
WITH GLOBAL HEALTHCARE

10 BETTER HEALTHCARE
DELIVERY THROUGH
TEAM-BASED CARE

12 ASLEEP AND VIOLENT

13 STROKE MEMORY
REHABILITATION
PROGRAMME

14 UNDERSTANDING
DEMENTIA IN
PARKINSON'S PATIENTS

16 \$25 MILLION BOOST FOR
PARKINSON'S RESEARCH
EXCELLENCE

17 NEW GUIDELINES ON
REQUESTS FOR MEDICAL
INFORMATION

18 CLINICIANS KNOW BEST

20 NNI BRAIN AWARENESS
2019

22 CARE CONCERT VI

23 EVENT LISTING



18

CLINICIANS
KNOW BEST

06

CELEBRATING
THE SILENT
HEROES OF
SCIENCE



07

SINGAPORE
HEALTH
QUALITY
SERVICE
AWARDS
2019
WINNERS



The National Neuroscience Institute (NNI) commenced operations on 1 June 1999 and 2019 marks our 20th year of providing specialised neuroscience care for Singapore.

We have come a long way from our humble beginnings as Departments of Neurology and Neurosurgery in Tan Tock Seng Hospital. The neuroradiology department was also established to offer holistic and integrated neuroscience care. Today, we have expanded neuroscience services to six sites across Singapore (Tan Tock Seng Hospital, Singapore General Hospital, Changi General Hospital, KK Women's and Children's Hospital, Sengkang General Hospital and Khoo Teck Puat Hospital) to serve the nation.

NNI is the main training site for neurologists, neuroradiologists and neurosurgeons in Singapore, with the largest neurology and neurosurgery departments locally. The neuroradiology department remains the only such department in Southeast Asia. As forerunners for the Advanced Practice Nurse scheme, our specialised nurses are empowered to provide optimal condition-specific care. Allied Health colleagues also play crucial roles in the rehabilitation of our patients. This ensures seamless care for patients beyond consultation. I am grateful to all who have advanced neuroscience care over the last two decades to the current team-based, interprofessional multidisciplinary care teams of today.

We continue to invest in the future by grooming the next generation of neuroscience professionals. Our clinical educators are the cornerstone in imparting knowledge and expertise so that future generations practise at even higher standards of care.

Research is the main driver of innovation for better care of neurological conditions. The NNI research teams have received numerous accolades such as the President's Science Award and \$25 million from the National Medical Research Council's Open Fund Large Collaborative Grant, awarded only to programmes with the highest scientific impact. These achievements are testament to neuroscience excellence at NNI. Although we may not always find a cure to many neurological conditions, our research efforts will make a difference to the lives of our patients.

For the next lap, NNI will focus on care innovation through neurotechnology, precision medicine and providing integrated team-based care. As healthcare professionals, our pursuit of improvements to care must be relentless. Join us for the next chapter as we continue to provide quality care for our patients through clinical innovation, transformative education and patient-focused research. Together, we shape neuroscience care for a better tomorrow!

Afterall, *'Alone we can do so little; together we can do so much.'* – Helen Keller.

ASSOC PROF NG WAI HOE
Medical Director and Senior Consultant
National Neuroscience Institute



NNI MILESTONES



CELEBRATING THE *Silent Heroes of Science*

A day in the life of a lab manager from Eugenia Hong (left), Asian Scientist Lab Tech of the Year 2019.



Beneath every scientific breakthrough lies hundreds of hours of research, and behind every scientist is a laboratory technologist who ensures the day-to-day operations of a lab run smoothly.

Eugenia Hong is one such lab tech who has been with NNI for almost 10 years. For her, a typical day involves ensuring that the lab is in good running order. This means making sure that items such as chemicals and reagents are stocked up, and that all equipment are functioning well.

This is, however, just a small part of the more routine work that she is responsible for. Eugenia also has to take on numerous other ad-hoc matters such as coordinating meetings and research requests, orientating new members around the lab, assisting with grants and ethics applications... the list goes on.

As part of the rigors of working in a lab, Eugenia has to be prepared for emergencies that could happen at any time, even after regular working hours. She shares, "Once in 2017, I received a call around 2am informing me that one of our cell culture incubators was down. I immediately booked a cab and went down to the lab to shift our cell culture plates to another functioning incubator."

With such dedication to her job, it is little surprise that her boss A/Prof Lim Kah Leong,

Visiting Lead, Strategic Alliances, Research, NNI and Head of Department of Physiology, National University of Singapore (NUS) Yong Loo Lin School of Medicine, holds her in extremely high regard.

Ever since starting another lab at NUS in February 2018, he has tasked Eugenia to manage the lab at NNI, and even attend Principal Investigator meetings on his behalf. "Eugenia practically runs the entire operations at NNI, and it has been seamless thus far," says A/Prof Lim.



Meet the team at the NNI Neurodegenerative Laboratory

So, how does Eugenia, who is also a mother of two young kids, do it all without getting burnt out?

She says that it is through time management and prioritising. "Good and thoughtful planning is important when so many different things come together. What keeps me going is that I enjoy my work, I have very supportive and fun colleagues and a good boss."

4 QUESTIONS WITH EUGENIA HONG

1 What is the most interesting thing you have had to do as a Lab Tech?

Ironing lab coats for my boss and his associates during the filming for the President's Science Award.

2 How have you seen NNI evolve over the years?

NNI Research has certainly been given more recognition now as compared to 10 years ago.

3 What is the most rewarding thing about your job?

To be part of a bigger team that is working hard to help Parkinson's disease patients.

4 How does it feel to be trusted to manage the entire lab?

It is a huge responsibility and can be challenging at times to manage the lab operations of the entire team. My boss always jokes that if he needs to go to jail, he will bring me along.

A Nod for SERVICE EXCELLENCE

Outstanding staff honoured at the Singapore Health Quality Service Awards 2019

24 NNI staff were honoured at the Singapore Health Quality Service Awards (SHQSA) ceremony held on 15 January 2019 in recognition of their commitment to service quality.

As Singapore's first dedicated platform that honours healthcare professionals who deliver quality care and excellent service to patients, the SHQSA is a reminder of each staff's commitment to put "Patients at the Heart of all We Do."

Medical Director of NNI, A/Prof Ng Wai Hoe, shared that a patient's experience at NNI is very much shaped by his encounter with staff. It was heartening to see among the awardees, patient service associates, healthcare attendants, allied health professionals, physicians and administrative executives. "[I see] many diverse roles coming together with a single purpose to provide quality and affordable care for NNI patients. This is reflective of the multidisciplinary care that we provide," he said.

NNI STAR AWARD WINNERS

Ms Sherlynn Ang, Medical Technologist, Neurodiagnostic Laboratory and Dr Vincent Ng, Senior Consultant,

Department of Neurosurgery are no strangers to awards, both being former recipients of SHQSA Silver and Gold awards.

Both feel honoured by this latest accolade. Said Sherlynn, "I appreciate that my patients took the time to write nice things in their feedback forms which led to this achievement. I'm glad that they appreciate my efforts."

In a similar manner, Dr Ng said that the award was an encouragement for him to do even better for NNI's patients.

Recalling one of his earliest memories of wanting to be a doctor, Dr Ng shared candidly that he was inspired by the iconic TV scene where the sign of an operating theatre (OT) lights up after a patient was wheeled in for surgery. "It was great to see the doctor coming out and saying that the operation was successful. I wanted to be that doctor."

In many ways, Dr Ng has become that doctor "being part of the team to treat patients, dealing with the main surgical problem, seeing them get better and finally cured".

Sherlynn too embodies patient-centric care in her job as a medical

“It was great to see the doctor coming out [of an Operating Theatre] and saying that the operation was successful. I wanted to be that doctor.”
Dr Vincent Ng



technologist. One of her main roles is to perform nerve conduction studies to help with patients' diagnosis. This procedure involves the use of electrical current to stimulate the patients' nerve, which can be quite uncomfortable and even painful.

Many patients often feel anxious before the test and reluctant to go through the procedure. In such situations, Sherlynn goes the extra mile to help patients overcome their fears by explaining the procedure in detail, and chatting with them during the procedure to distract them from the pain.

The compliment from a patient's caregiver captures it best: "My mum was very anxious about the test [and almost didn't want to come for today's test]. Sherlynn's demeanour and gentle manner laid to rest her anxiety... She is a natural at patient care."

NNI STAR AWARD WINNERS (2017 - 2018)

Name of Nominee	Designation	Department	Staff Category	Year Awarded	Award Category
Siti Sabariah Binte Mohamed Na'aim	Senior Patient Service Associate	Neuroradiology	Ancillary	2017	Star
Tan Siew Sin Priscilla	Patient Service Associate	Neuroscience Clinics	Ancillary	2017	Star
Chee Hock Soon	Team Leader	Neuroradiology	Ancillary	2018	Star
A/Prof Helen Tjia	Senior Consultant	Neurology (TTSH Campus)	Clinician	2018	Star



Bronze, Silver, Gold and Star Award Recipients of the SHQSA 2019

BUILDING COMMUNITIES *with* GLOBAL HEALTHCARE

NNI contributes as a global citizen to provide accessible quality healthcare to communities.



In 2016, NNI nurses organised a mission trip to Mittaphab Hospital, Laos, where they conducted a stroke training programme for local nurses.

Access to quality healthcare is often unequal across the globe. To narrow that gap, healthcare professionals from developed countries are getting involved in global health initiatives to share knowledge, expertise and equipment with communities from less developed countries or address imminent health threats.

Over the years, NNI staff have contributed to global healthcare initiatives in countries such as Myanmar, Laos, Vietnam, Sri Lanka, China, Egypt and Kenya.

A GLOBAL TOUCH DURING EARLY BEGINNINGS

NNI, established in 1999, received valuable assistance from an international community for the setting up of its neurosurgery department. Many of NNI's esteemed neurosurgeons were trained by neurosurgeons from Australia, the US and the UK.

The transfer of knowledge from an international community was pivotal for the progress of neurosurgery. A key milestone was a partnership with the Royal Australasian College of Surgeons, where Singaporean neurosurgeons undergo

training in Perth before they come back with a diploma prior to further neurosurgical training.

NNI is committed to grooming the next generation of neurosurgeons. Today, around three-quarters of the neurosurgeons in Singapore are trained by NNI, as well as Fellows who come from other countries to train here.

GROWING STROKE CARE IN THE REGION

Since 2015, a group of nurses from the neurology department have been helping to improve stroke care in Southeast Asian countries

such as Myanmar, Laos and Vietnam with plans to collaborate with Thailand next. The goal of this programme is sharing knowledge and clinical applications to create a sustainable framework for stroke care in the region.

Prior to their first Myanmar trip in 2015, the team developed a systematic framework which included volunteer recruitment, design and stroke care. This was to ensure that the training programme, which included lectures and bedside hands-on sessions, were relevant to the nurses and allied health professionals in the area.

Advanced Practice Nurse Tan Il Fan shares, "As we went into Myanmar without much knowledge about their culture and practices, things did not go according to plan." When the team conducted a hospital tour at Yangon General Hospital, they observed that patients' family members

were also heavily involved in delivering care to patients.

Instead of simply teaching bedside care skills to the nurses, they decided to also focus on the importance of educating family members. Together with the local nurses, the NNI team developed educational material for family members in Burmese.

"This experience was not just a one-way exchange, but a partnership. It taught us to broaden our minds in terms of approaching teaching in a different way," says Il Fan.

While it has been exciting for NNI healthcare professionals leading community outreach programmes in less developed countries, more can be done. A/Prof Ng Wai Hoe, Medical Director elaborates:

"There are three thrusts that will help an organisation shape its outreach initiatives. Firstly, it is to acknowledge that our position of privilege comes with the *responsibility* of developing others. Next, we need to *reflect* on the strengths of the organisation and its people that can be leveraged on, as well as how to improve current efforts. After recognising these will we experience a *renewal* in our mindset and consequently, our approach towards global health to ensure our effectiveness and long-term benefits of global health programmes. With constant reflection and renewal, we hope to develop a more cohesive framework to ensure integrated care is delivered to the communities that need them."

Blazing a Trail for Global Health

Prof Michael Haglund, Professor of Surgery, Neurobiology and Global Health at Duke University Medical Centre in North Carolina, was in Singapore recently as the Keynote Speaker for NNI's "Global Health: A Neuroscience Perspective" forum. Prof Haglund talked about his work in Uganda, as well as his philosophy on global health.

Since 2006, he has been involved in various global health projects to raise the standard of neurosurgery in less developed countries. Efforts included providing more than 92 tons of medical equipment and supplies worth US\$13million to Uganda, starting Uganda's first neurosurgery residency programmes, and organising surgical camps to raise the capabilities of local staff. Today, Prof Haglund's efforts in Uganda have become a model for other medical organisations to follow.

Prof Haglund shared that while global health issues in the past revolved largely around communicable diseases such as HIV and malaria, the trend has shifted towards non-communicable diseases with the top four issues being cardiovascular disease, stroke, cancer and brain tumours.

To deal with these emerging trends, Prof Haglund believes that the key is embracing a continuum of care model that involves nursing, physical therapy and rehabilitation beyond conventional service mission trips.

Measuring outcomes through research is just as crucial to ensure the sustainability of programmes.

"You can do a service trip and make an impact for one. But to take it to a different level, you need research and data to assess if efforts were effective. You really don't know if your actions made an impact unless you measure it."

"Global health in my view is about trying to decrease the disparities between high income countries like Singapore and low and middle-income countries, where they're desperately in need for care, training and even technology."

Prof Michael Haglund



BETTER HEALTHCARE DELIVERY THROUGH *TEAM-BASED CARE*

NNI launched its Interprofessional Education and Collaborative Practice programme to raise the standard of education for healthcare professionals to provide better team-based care.

With team-based care delivery models emerging as the main approach for providing coordinated, affordable and quality medical services, the training for healthcare professionals should follow accordingly. Launched in June 2019, the Interprofessional Education and Collaborative Practice (IPECP) is an NNI programme that integrates interprofessional education and training to improve patient care outcomes.

Explains A/Prof Kevin Tan, Education Director and Senior Consultant, Department of Neurology, NNI, "The term IPECP was chosen because we believe that education is closely linked to collaborative practice, which is when health professionals from different professional backgrounds work together to deliver patient care. There is research evidence that Interprofessional Education (IPE) promotes Interprofessional Collaborative Practice (IPCP) by breaking down silos of fragmented and episodic care, and encourages coordinated and continuous care instead." The programme aims to improve the quality of team-based healthcare by enhancing collaborative care delivery amongst healthcare professionals.

To foster a culture of interprofessional collaborative practice, NNI's strategy includes understanding staff attitude towards teamwork, internal and external training in team-based care, and alignment of the institute's organisational culture with interprofessional learning. For the first year, the project focused on identifying



ABOUT THE IPECP LOGO

Encompassing the essence of interprofessional education and collaborative practice, the IPECP logo serves as a reminder for team-based education and healthcare delivery.

Orange is used to symbolise energy together with a gradient to represent a diversity of perspectives contributed by the various health professions. The overall logo visual comprises of a 4-person huddle to symbolise teamwork, and a symbol of a cross to signify that perspectives, energy and teamwork are focused on patient care.



people and bringing various clinicians, educators and researchers from NNI, SingHealth and international expertise together to form implementation and research teams.

"Moving forward, we will be collaborating with internationally-renowned Health Professions Education trainers and researchers. Together, we will run training sessions and design research studies to understand how we can implement IPECP effectively in NNI," shares A/Prof Tan.

The IPECP was made possible by a generous grant of \$450,000 from the Lee Foundation. This will help to fund key faculty development activities such as external consultant visits to NNI, study trips to learn from other centres which are strong in IPE and IPCP, faculty training and development, evaluation of staff attitudes and effectiveness of the programme.

A/Prof Tan says that the programme is promising and has potential for wider impact. Noting that NNI's current care delivery approach already involves nurses and doctors across clinical departments working along-side one another. "We want to use this opportunity to improve existing and build new clinical teams, services and programmes that take IPECP into consideration."

"Ultimately, we hope that the lessons learnt can help our fellow healthcare institutions locally and internationally as they embark on their own IPECP journey," says A/Prof Tan.

Meet the IPECP team comprising clinical, research and administrative staff.

From top left in clockwise direction: Dr Jai Rao, A/Prof Kevin Tan, A/Prof Nigel Tan, Tang Shihui, Foo Yang Yann and Amy Cheng. Not in picture: Jeannie Lum.

ASLEEP AND VIOLENT

Are you thrashing, punching or kicking in your sleep? Such abnormal movements during sleep could be a sign of a condition known as rapid eye movement (REM) sleep behaviour disorder or RBD.



Rapid eye movement sleep behaviour disorder (RBD) usually happens during the REM phase of sleep where you dream most vividly. It is normal for your body to experience paralysis during this stage of sleep. However, those who suffer from RBD may move forcefully, from limb twitches to punching or kicking that may hurt themselves or their bed partner.

Dr Xu Zheyu, Consultant at NNI's neurology department, shared that sufferers of RBD can punch or kick their partners or fling themselves out of the bed, often without knowing. "They find out what they have done only when their partners tell them the next morning."

Unfortunately, most patients do not seek medical attention or treatment until they injure their partners as they do not know that RBD is a medical condition. Explained Dr Xu, "They tend to brush it off as something normal, an unusual dream or a sign of ageing." More importantly, RBD is now known as an early symptom of diseases such as Parkinson's disease (PD), Lewy body dementia and multiple system atrophy. PD currently affects 6,000

to 8,000 persons in Singapore and is a long-term chronic illness with debilitating symptoms.

Given the higher risk of RBD patients getting neuro-degenerative disorders, it is now possible to diagnose and treat these disorders early with regular monitoring of RBD.

NNI plans to study RBD further to predict the progression of diseases such as PD. The study is likely to involve thorough sleep-history taking and finding biomarkers that link patients with RBD to neuro-degenerative diseases.

Treatment for RBD is available and begins with a sleep study to confirm the diagnosis. This is followed by medication to help with sleep problems like insomnia, anxiety and violent actions. Individuals and family members need to watch out for signs of abnormal sleep behaviour and get help early. Dr Xu advised, "Early diagnosis and treatment reduce episodes of self-injury. We can also monitor the development of future neuro-degenerative disorders."

STROKE MEMORY REHABILITATION PROGRAMME

DEMENTIA IN STROKE PATIENTS

With Singapore's rapidly ageing population, the incidence of chronic diseases like stroke and dementia will increase.

Stroke is currently the second largest cause of acquired cognitive decline globally. Singapore experiences one of the world's highest rates of stroke, with approximately 7,000 new stroke patients each year. Currently, data from NNI demonstrate that 37.3% of patients develop post-stroke cognitive impairment (PSCI) within six months post stroke. The global incidence of PSCI in stroke patients is reported to range from 20 to 40%.

PSCI patients being in the mild cognitive impairment stage, may present with a lesser degree of impairment in global cognition, mental flexibility, problem solving, attention, long-term memory, information processing speed, language, and navigation ability. However, if left untreated or undiagnosed, these impairments can affect the quality of life, mental health and employability with deteriorating cognition. This is also likely to increase the chances of institutionalisation and contribute to a higher mortality rate. As a growing public health burden, care options for PSCI are limited both in Singapore and worldwide as PSCI is under recognised and as a result undertreated. Current stroke rehabilitation programmes emphasise mainly on physical and functional rehabilitation but not cognition.

STROKE MEMORY REHABILITATION (SMART) PROGRAMME

The Stroke Memory Rehabilitation programme (SMaRT), a three-year collaborative project between National Neuroscience Institute and Temasek Care Foundation, aims to provide a comprehensive preventive treatment regime for post-stroke patients to prevent cognitive decline.

SMaRT is a structured rehabilitation programme aimed to help post-stroke patients improve aspects of cognition like memory, attention and executive function. The programme caters to stroke patients (within the first year of suffering a stroke) with mild physical impairments but significant cognitive impairments. Participants will take part in educational talks and hands-on activities. The programme covers commonly affected cognitive domains such as memory, attention and executive function (complex planning, higher thought process and execution of these tasks).



Cognitive decline may continue post stroke, though 16 to 20% of patients will improve in their cognition. While most improvements occur in the first three months, it is optimal for rehabilitation to continue for at least one year after the stroke. Studies have shown that effective cognitive rehabilitation approaches have been reported for neurological deficits such as neglect and aphasia, hence the SMaRT Programme seeks to improve cognitive outcomes for better management of PSCI.

ENROLMENT CRITERIA

To join the programme, participants should:

- Be between 18-80 years old
- Have had a stroke not more than 12 months ago
- Have been experiencing poor memory three to 12 months after their last stroke
- Not have prior memory complaints or diagnosis of dementia made by any doctor
- Not have any prior diagnosed psychiatric conditions
- Have made significant physical recovery with minimal physical disability or none

For more information, contact the team at 9660 8587 during office hours (Monday to Friday, between 8.30am to 5.30pm)

PROGRAMME STRUCTURE

Over 8 weeks, participants will be empowered and engaged with activities focusing on:



BRAIN ESSENTIALS
Staying healthy promotes both cognitive and general wellbeing. Participants will learn about eating well, various types of activities to keep the body and mind fit, as well as sleep and stress management to enhance emotional wellbeing.



EXERCISE
This segment explores various low to medium impact exercises that can be done on a daily basis to keep fit.



CORE COGNITIVE REHABILITATION COMPONENT
This segment focuses on memory, attention, executive function and visual spatial rehabilitation.



EMOTIONAL WELL BEING
Participants will learn various stress management and relaxation techniques.



ASSESSMENT
There will be an assessment before each run of the programme, on the last day of the programme to monitor progression. Upon completion of the programme, there will be a review of the patient again on the third and sixth month.



Dr Adeline Ng with Alisa Yong, Clinical Research Coordinator (left) and Jayne Tan, Senior Clinical Research Coordinator.



“We can place those at higher risk in structured programmes that increase physical activity and cognitive stimulation, as part of active intervention to delay the onset of cognitive decline”

Dr Adeline Ng

UNDERSTANDING DEMENTIA

in Parkinson's Patients

Her passion to improve lives took her from the clinic and into the research laboratories. Dr Adeline Ng shares how she plans to advance intervention options for Parkinson's disease patients with dementia through research.

Like most doctors, Dr Adeline Ng's key motivation has always been to improve the lives of her patients. As a Consultant Neurologist specialising in dementia and witnessing the long-term suffering of the patients, Dr Ng was moved to go beyond clinical practice in search of better care. Dementia is one of many neurological diseases that still lack a cure. Dr Ng decided that the best way forward was to tackle dementia from a molecular level.

She shares that this passion for research first began in 2014 during her fellowship at the Memory and Aging Centre, University of California, San Francisco, focusing on Young-Onset Dementias (YODs). During this time, she began to notice rising numbers of patients with degenerative conditions caused by genetic mutations.

"This got me interested to see if we could discover any variants or genetic mutations that were unique to our Asian population," she says.

Back in Singapore, Dr Ng continued to pursue her interest in research alongside her clinical duties. Even though it was physically tiring having to continue seeing patients while juggling research work, it was something that Dr Ng felt was necessary.

Dr Ng explains, "After all, without clinical work and patient contact we won't know what the clinical question is, and therefore would not know what to focus on for our research."

The other factor that has kept her going has been the shared passion for patients that she enjoys with her colleagues from the other departments. In fact, it was through collaborations with her Parkinson's disease (PD) colleagues that sparked off her interest to study the cognitive degeneration of PD patients.

"As colleagues, we realised that there was an unexplored area in PD dementia, especially locally. As a dementia specialist, I naturally became interested in investigating the cognitive aspect of Parkinson's," says Dr Ng.

EMBARKING ON HER LATEST RESEARCH PROJECT

For Dr Ng, research is like a marathon that requires resilience and endurance. It has taken her team, comprising Clinical Research Coordinators Jayne Tan and Alisa Yong, almost two years of preparation work to secure funding for the latest study on dementia in PD patients.

Their efforts finally paid off when Dr Ng received the Transition Award (TA) from the National Medical Research Council (NMRC) at the NMRC Research Symposium in April 2019. The grant of \$375,000 will help to fund Dr Ng's latest research project for the next three years.

Dr Ng says that winning the grant was rewarding, but it also reminds her of the responsibility that now lies in her hands. "The funds have been given to the study... So I have to make sure that whatever we do in this study will take us further and that patients will be able to benefit from it."

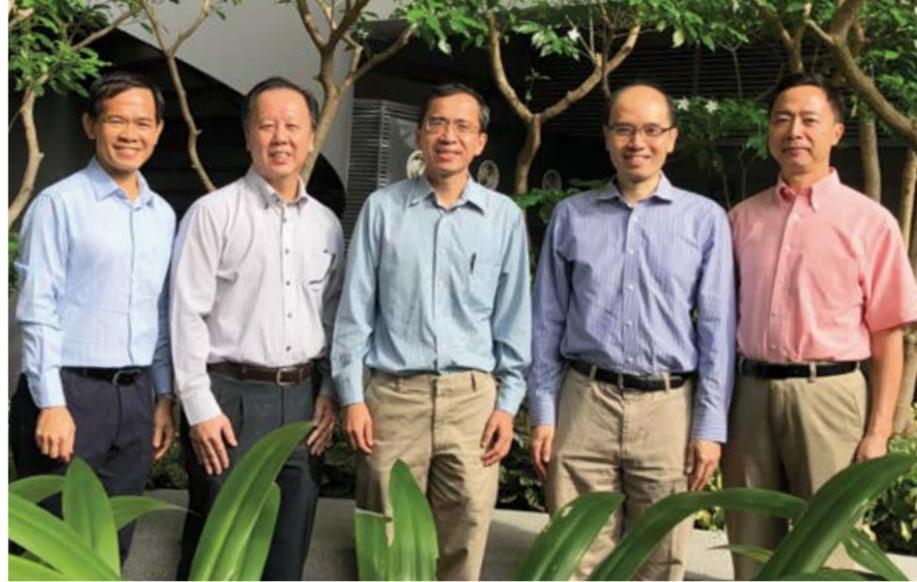
For this project, Dr Ng is investigating how variations of a certain gene promotor (SNCA-Rep1), which is present in all human DNA, contributes to the risk of dementia in Parkinson's patients.

"Our goal is to try and prove how patients with certain variations of this gene promotor are more susceptible to PD dementia," adding that if successful, they will be able to develop models that can predict which PD patients are more likely to suffer cognitive decline. "This is in line with the NMRC's goal of enhancing precision medicine initiatives," she says.

In terms of patient outcomes, Dr Ng says that identifying patients who are at higher risk of cognitive decline will enable closer follow-up and earlier intervention.

What is perhaps most exciting about this research is that by understanding the biological mechanisms of PD better, more pharmacological treatments and therapeutics can be developed. One day, this may lead to a cure for dementia in PD, which has always been Dr Ng's goal from the start.

\$25 MILLION BOOST



for Parkinson's Research Excellence

A record \$25 million research grant from the National Medical Research Council (NMRC) was awarded to the Singapore Parkinson's Disease Translational Research Programme.

Prof Tan Eng King, Deputy Medical Director (Academic Affairs), NNI, and his team consisting of A/Prof Louis Tan Chew Seng (NNI), A/Prof Lim Kah Leong (NUS), Prof Ng Huck Hui (Genome Institute of Singapore) and Prof Zhang Su-Chun (Duke-NUS Medical School) were awarded a historic \$25 million grant for the Singapore Parkinson's Disease Programme (SPARK).

The grant amount for SPARK is part of the \$82 million awarded to research projects of national and regional impact such as gastric cancer, lymphoma, cardiovascular disease and diabetes, under the Open Fund Large Collaborative Grants programme from the National Medical Research Council (NMRC). With the \$25 million grant, it will enable the rollout of SPARK Phase II.

The team aims to build upon the findings and resources from the first phase of SPARK to achieve two main goals. One – to discover new drugs that treat and slow down the progression of Parkinson's disease (PD), and

two – to develop new technology for early diagnosis of PD.

Prof Tan explained that "identifying risk and protective factors to allow for preventive measures, effective monitoring of the condition and close monitoring of at-risk subjects for signs of the disease," may lead to better treatment for patients and prevent healthy individuals from developing PD through genetic intervention or lifestyle modification.

Today, PD affects 6,000 to 8,000 in Singapore, with three in 1,000 people above the age of 50. These figures will rise rapidly with the country's ageing population. Hence, there is an urgent need to find treatments to slow down or cure PD.

"Our goal is to eventually screen healthy individuals for early diagnosis, and as much as possible, prevent individuals from developing PD," said Prof Tan.

Phase II of Singapore Parkinson's Disease Programme (SPARK)

 Develop an integrated clinical, biochemical, imaging, and genetic profile to better stratify at-risk individuals for the management and prevention of Parkinson's disease

 Conduct clinical trials based on previously identified targets

 Conduct health services research to identify factors that influence disease progression and healthcare costs to improve quality of life for patients

 Develop cutting-edge technology to create next generation human brain models to find better treatments

 Commercialise discoveries and patent technologies developed through startup companies and/or in partnerships with industries

 Validate new drug targets and partner with industries to develop clinical-grade compounds

New Guidelines on Requests for Medical Information

As an extension of patient care and safety, healthcare institutions have a responsibility to safeguard patients' data. Here are guidelines for healthcare professionals for request of patients' medical information.



Updates on Medical Conditions

Patients should identify a spokesperson as the main point of contact between the hospital, patient and family members.

🔒 PATIENTS WITH MENTAL CAPACITY

- Should be given face-to-face (including video conference) to patient or spokesperson.
- Can be communicated to other persons with patient's agreement or in the presence of the patient/spokesperson.
- Can be provided over the phone but should be limited to the spokesperson with identity verification.
- Can be provided to next-of-kin (NOK) who is not the nominated spokesperson.

🔒 PATIENTS WITH REDUCED OR LACK OF MENTAL CAPACITY

- Should be referred to the spokesperson or communicated in the presence of the spokesperson when requested by other persons.
- Can be released over the phone to the spokesperson after identity verification.
- May be provided to NOK based on the patient's best interest, with spokesperson's agreement.

🔒 CRITICALLY ILL PATIENTS

- May be released to an alternative person if the spokesperson is uncontactable.

🔒 DISCLOSURE OF NEWLY DIAGNOSED HIGH STAKES CONDITIONS (E.G. AIDS/HIV, CANCER)

- Are to be done in person with the patient. Patients must consent if other parties are required to be present.
- Undertaken by doctors who are Registrars/Senior Residents or equivalent and above.

ALL CONVERSATIONS SHOULD BE DOCUMENTED.



Management of Request for Documents

🔒 MEDICAL REPORTS

- Verify patient's identity with request of NRIC before releasing reports.
- Can be collected by a representative upon submitting a Letter of Authorisation with the patient's consent. Present both parties' NRICs.

🔒 OTHER DOCUMENTS

- Includes blood test results, memos, radiological reports, repeat prescription, discharge summary and medical certificate.
- Should be released directly to the patient when made during consultation.
- Can be made via phone call, but collection should be done personally either by the patient or a representative. Both parties' NRICs should be presented and release of document should be recorded.



Communication with Patients Residing Overseas

Sharing of information via e-mail is appropriate if:

- At least one face-to-face consultation has been conducted with verification of e-mail address.
- Patient has consented to communicate via e-mails with this recorded in ClinDoc.
- Confidential documents are password protected with password provided to patient in person.

Patient's medical information can be e-mailed to NOK residing overseas if the patient has consented with this consent documented.



For more information, contact nni_enquiry@nni.com.sg.



CLINICIANS KNOW BEST

A/Prof David Low, Head and Senior Consultant at the Department of Neurosurgery at NNI, shares his belief that clinicians play a critical role in advocating for philanthropy to advance patient care.

ENHANCING CARE THROUGH COMMUNITY SUPPORT

For A/Prof David Low, his journey in philanthropy first began as a Senior Consultant at KK Women's and Children's Hospital (KKH), sub-specialising in Neuro-oncology and Paediatric Neurosurgery. From treating the children that suffered from brain cancers, he realised that there was a real need to provide support for patients and their families, from diagnosis to their treatment journey and even after completion of treatment.

Giving the example of a child with a brain tumour, he shares that upon diagnosis, the entire family requires emotional and psychological support due to the devastating news. "And for the child,

after he or she has completed treatment, they may still have certain physical and learning disabilities, affecting their return to school and normal life. All these need to be addressed," he says.

Unfortunately, A/Prof Low says that Singapore lacks a well-established comprehensive support system for such patients and their families. It therefore made perfect sense to partner brain tumour survivor Ms Melissa Lim, who was looking to establish such a society. A/Prof Low was glad to use his role as a clinician to help drive this initiative.

"Together, we set up the Brain Tumour Society

(Singapore), or BTSS, and for the last couple of years we have been growing our membership and programmes, making people more aware of our society and what it represents," says A/Prof Low.

BRIDGING NEEDS THROUGH PHILANTHROPY

On the role of clinicians in philanthropy, A/Prof Low explains that through their job of managing and treating patients, they are uniquely placed to form a bridge between potential donors and the causes that need help.

"There are many donors around [who] want to make a meaningful donation. Very often, they may not know where to start. In our daily role, clinicians see where the needs are and where donations can go towards improving clinical care. By helping donors to better understand what their contribution is supporting, we help them ensure that their donation really benefits the patients and improves outcomes."

In addition to his role as Vice-President of BTSS, A/Prof Low is also actively involved with the VIVA-KKH Paediatric Brain and Solid Tumour Programme as a steering committee member. "Here the philanthropic role is slightly different. It focuses on seeking funding for research and improvement of clinical services," he says.

Giving some background to the programme, A/Prof Low says that previously, most of the research on childhood cancers were focused on blood cancers such as leukaemia. However, less was being done in the area of brain and solid tumours which account for half of all childhood cancers. Since KKH manages the vast majority of childhood brain and solid tumours in Singapore, the Viva Foundation for Children with Cancer (VIVA) approached KKH with the possibility of providing funding to improve cancer care in the area.

A/Prof Low was thus roped in to be part of the team to make a proposal and presentation to

◀ Under the VIVA-KKH programme, a multi-disciplinary team comprising the surgeon, oncologist, radiographer, therapists, nurses and neuro-psychologist provides holistic and streamlined care.



"After our role as a surgeon is completed, philanthropic work allows us to continue the journey with the patient and family... This gives us a sense of fulfilment and also motivates us as clinicians to continue doing what we can for other patients and families."

A/Prof David Low

VIVA. "We gave the pitch, explaining to them why there was a need for us to look into brain cancers and solid tumours. We were fortunate that VIVA Foundation was forthcoming to contribute and partner with us to close the gaps in brain and solid tumour treatments."

Incidentally, Mrs Jennifer Yeo, the founder and Chair of VIVA Foundation, personally battled cancer in the family. Her youngest son, Freddy was diagnosed with Acute Lymphoblastic Leukaemia when he was three years old. He eventually recovered after many years of treatment but this experience left Jennifer convinced that medical research can transform patient care. Working together as like-minded partners in this case not only re-ignites clinicians' passion and commitment to patients but also enhances the standard of care delivery.

Today, as a result of the \$8 million donated by VIVA as well as matching funds, the programme has helped foster an enhanced multidisciplinary approach to looking after patients with brain and solid tumours. "From the point of diagnosis, we now have multidisciplinary board meetings, discussions and clinics to review these patients, enabling us to provide a more tailored treatment plan for each patient," says A/Prof Low.

Additionally, the VIVA-KKH Paediatric Brain and Solid Tumour Programme is also evolving and expanding towards assisting less-developed hospitals in the region with medical expertise, financial support and information sharing. Such a development will bring enhanced paediatric cancer care and improve lives beyond Singapore.

A/Prof Low says that being involved in advocacy and healthcare philanthropy to help patients has been a very rewarding experience for him.

"After our role as a surgeon is completed, philanthropic work allows us to continue the journey with the patient and family. This gives us a sense of fulfilment and also motivates us as clinicians to continue doing what we can for other patients and families."



Committee members from BTSS' 2018 Brainy Car Rally, which aimed to raise awareness of brain tumours.

NNI BRAIN AWARENESS 2019

► NNI Brain Awareness 2019 was held on 18 and 19 May at the Toa Payoh Hub. Themed “Better Minds, Better Lives, Better Tomorrow”, NNI aims to raise awareness of neurological conditions, such as dementia, Parkinson’s disease, stroke and brain tumours.

The two-day community roadshow featured free Parkinson’s screenings, education booths, health talks as well as interactive games on prevention, early intervention and management of common neurological conditions.



▲ Guest-of-Honour Mr Chee Hong Tat, A/Prof Ng Wai Hoe, Medical Director and Mr David Tan, NNI Patient, launched the NNI Brain Awareness Roadshow. Mr Tan was diagnosed with Parkinson’s disease six years ago and he inspires others on how he copes with the condition.



▲ Free Parkinson’s screening for residents aged 60 years and above who had not seen a doctor for movement-related problems.

Mr Chee Hong Tat, Senior Minister of State, Ministry of Trade & Industry and Ministry of Education, Member of Parliament (Bishan-Toa Payoh GRC) graced the Opening Ceremony.



▲ GOH interacting with invitees of the Opening Ceremony and the volunteers at the various booths.



▲ NNI staff volunteers manned the booths over two days, interacting with the public through games, demonstrations and display panels.



▲ Games at the booths highlighted the challenges faced by patients with neurological conditions.



Mr David Tan discovered his flair for painting through art therapy sessions. He presented his painting titled “Be Strong, Be Determined, Live On” to Guest-of-Honour Mr Chee Hong Tat.

► NNI Nurses and Patient Service Associates performed a spectacular rendition of Bollywood dance to the song “Aaja Nachle” which means “Come and Dance”.



► SingHealth and community partners supported the event with performances such as Dementia skit, hip hop dance, belly dance, kickboxing and Zumba.



▲ Medical professionals from NNI and partner institutions shared their expertise and answered questions on stroke, dementia, brain tumour, Parkinson’s disease, food for brain health, spinal injuries, occupational therapy, brain aneurysms and more.

CARE CONCERT VI



▲ A total of \$350,000 was raised for NNI HREF, which enables NNI scientists to drive ground-breaking research in neurological conditions to improve patient care and outcomes.

▼ Care Concert VI performers at the final curtain call after a stunning concert.



◀ Mr Chia Chor Meng, Justice of Peace, Bintang Bakti Masyarakat (BBM), Chairman of Care Concert VI, singing his heart out in a special performance.



▲ Lights all around during Singapore's classic 城里的月光 <Moonlight in the City>.



▲ NNI staff volunteers from various departments came together to support the event.



▲ The audience took a trip down memory lane as various artistes in elaborate costumes serenaded them with classic songs.

In support of NNI, Echo of Love Society (EoLS), a volunteer-run group held a charity concert Care Concert VI, 爱心情牵 at Kallang Theatre on 25 May 2019 to raise funds for NNI Health Research Endowment Fund (HREF).

The concert showcased an exciting line-up of classics in celebration of Singapore's bicentennial.

NNI KEY EVENTS AUGUST - DECEMBER 2019

29 - 31
AUG



13TH INTERNATIONAL CONGRESS OF THE ASIAN SOCIETY AGAINST DEMENTIA AND 6TH SINGAPORE INTERNATIONAL NEURO-COGNITIVE SYMPOSIUM

📍 Shangri-La Hotel Singapore

i 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 13th ASAD Congress this year.

Themed "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.

📱 Scan the QR code to register



For more information, contact eventsecretariat@nni.com.sg

9 - 11
OCT



19TH ADVANCED NEURORADIOLOGY COURSE AND 5TH INTERVENTIONAL NEURORADIOLOGY WORKSHOP

📍 Lee Kong Chian School of Medicine, Novena Campus

i The 19th Advanced Neuroradiology Course and 5th Interventional Neuroradiology Workshop aims to educate healthcare professionals on the latest in Diagnostic Neurology and Interventional Neuroradiology.

Featuring an exciting panel of overseas and local faculty, the course comprises discussions on Diagnostic and Interventional Neuroradiology. Doctors, radiographers and nurses in Radiology, Neurology, Head and Neck surgery, Oncology and other Neuroscience discipline staff will harness new insights from the discussions.

📱 Scan the QR code to register



For more information, contact mayalagu_kanni@nni.com.sg

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NOV



NEUROSCIENCE NURSING SEMINAR

📍 SCAPE The TreeTop, Level 5

i Calling all nurses! Join us at the 7th edition of NNI's Neuroscience Nursing Seminar to gain new insights on the future of neuroscience care and research.

Themed Integrating Clinical, Research & Education in Neuroscience Nursing, the seminar aims to provide nurses, doctors and allied health professionals with the latest developments in patient care and research, as well as patient communication skills.

📱 For more information, log on to www.nni.com.sg



Make a Difference to Neuroscience Care

More than 50,000 persons in Singapore suffer from neurological conditions such as dementia, Parkinson's disease, stroke and brain tumour. Patients requiring assistance will rise as the population ages.

DID YOU KNOW?



1 in 6

will have a stroke in their lifetime



Stroke is the
2nd highest cause
of disability in Singapore



Up to 8,000 people

have Parkinson's Disease in Singapore



More than 40,000 people

have dementia in Singapore

YOU CAN MAKE A DIFFERENCE

NNI Fund (Patients) assists patients who need help with their care and daily living. Your support helps patients focus on their treatment and gives them hope for a better tomorrow

Patients with neurological conditions may be:

- On lifelong medication and require medical follow up
- Severely disabled and need help for day-to-day tasks
- Unable to work or have to switch to lower paying jobs

NNI Health Research Endowment Fund (HREF) supports our scientists to achieve research breakthroughs to improve care for current patients and future generations.

The National Neuroscience Institute is the national and regional specialty centre for the management and treatment of neurological conditions, as well as for education and research conducted in the field. NNI offers over 20 subspecialties in neuroscience care and treats a broad range of illnesses affecting the brain, spine, nerve and muscles.



Find out more at
www.nni.com.sg/giving

