

KNOWLEDGE
ACHIEVE
TEACH
NURTURE
PATIENTS
INSPIRE
UNDERSTAND
ENCOURAGE

Towards an
Age-Friendly Environment

Providing a more pleasant patient journey through
our healthcare systems

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Learning Trip to Duke University

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Patent Granted for New Stroke
Antibody

Accelerating the discovery of a new antibody that
can protect cerebral blood vessel damage

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Advancing neuroscience education from generation to generation



Assoc Prof Nigel Tan

With the Neuroscience Academic Clinical Program (ACP) formed in 2012, substantial efforts have been made to establish NNI as an international education institute of excellence in the field of neurosciences. Together with clinical care and research, education is a third and necessary pillar to ensure quality patient care along the care continuum at every level, and through an evolving healthcare landscape.

Behind the Neuroscience ACP are key drivers Prof Lim Shih Hui, Senior Consultant, Department of Neurology, NNI and Assoc Prof Nigel Tan, Senior Consultant, Department of Neurology, NNI.

Said Assoc Prof Tan: "The Academic Medicine framework and culture change will allow us to improve education in a systematic, thoughtful way – not just in NNI, but throughout SingHealth and hopefully the nation."

As part of the SingHealth Academic Healthcare Cluster with the widest and most

diverse patient case-mix in Singapore, NNI provides a rich environment for education. Students from both Duke-NUS Graduate Medical School and Yong Loo Lin School of Medicine are being posted to either one of NNI campuses for clinical teaching, and most of NNI's staff members have academic appointments with either school. To date, NNI has trained an estimated 70% of Neurology Advanced Specialty trainees in Singapore and is the main training institution for neurosurgery and neuroradiology. It also trains 65% of all internal medicine residents in neurology.

NNI is also actively involved in Continuing Medical Education (CME), Continuing Nursing Education (CNE) and organising advanced training and conferences for healthcare professionals in Singapore, around the region and beyond. For Primary Care physicians, there is an on-going series of seminars and lectures, held throughout the year. NNI's nurses also teach at Nanyang Polytechnic (NYP) and at the Alice Lee Centre for Nursing Studies.

Assoc Prof Tan said, “We are looking at in-house faculty development with NNI Education Day 2013 being the start. Six NNI staff, including neurologists, neurosurgeons and nurses are also midway through or have graduated with higher degrees in education. We intend to continue to develop our in-house education capabilities and skills - our staff are our most precious resource.”

NNI’s education initiatives include the use of evidence-based methods to reinforce bedside teaching. This is done through methodologies, activities and initiatives such as Team-Based

Learning (TBL), debates, elective quizzes, E-Lectures and Spaced Learning, as well as, Evidence-Based Medicine (EBM) Journal Club, grand rounds and neurology examination videos.

Assoc Prof Tan also brought up the notion of building Communities of Practice (CoPs), which are shared interest groups who interact and share best practices: “We are all involved in education. However, many of us do not have chances to interact and share ideas about education all that often. Only with interactions and conversations such as the NNI Education Day can CoPs form to exchange ideas and provide opportunities for collaboration and improvement.”

Office of Neurological Education (ONE)

A milestone in education for NNI, the Office of Neurological Education (ONE) was created in 2004 to further improve and coordinate Neurology teaching at NNI-TTSH with Assoc Prof Lee Kim En as its first head.

In 2011, the ONE team won the SingHealth Academy Golden Apple Programme Innovation Award for their programme

“Team Based Learning for Undergraduate Neurology Education”, and continues to drive undergraduate and postgraduate teaching and learning at NNI today.

ONE also actively pursues education research, and has published several papers in this area and received three research awards.



Prof Lim Shih Hui

With dedicated mentors, educators and staff members at NNI, a vibrant culture of education is being nurtured, where a passion for teaching and learning is lovingly passed on from one generation to the next.

Prof Lim shared: “Teaching is important in the progress of mankind. Medicine and related fields are rapidly progressing, and patients are the recipients of our care. Without teaching, not only will the learning curve be very steep for the learners, our patients will suffer till the healthcare providers become clinically competent.”

He added, “When my trainees gain confidence in clinical evaluation and become more meticulous, I know that patients will be well looked after by them.”

Education Office

The NNI Education Office aims to coordinate and integrate medical and nursing education across both of NNI’s campuses. It looks after the education and faculty development needs of our NNI staff.

70% Neurology Advanced Specialty trainees in Singapore are trained at NNI

Is the **MAIN** training institution for Neurology, Neurosurgery and Neuroradiology

80% of NNI medical staff hold academic appointments with either Duke-NUS-Graduate Medical School or Yong Loo Lin School of Medicine

Singapore’s **ONLY** comprehensive neurosurgical teaching programme is provided by NNI Neurosurgery department

The **ONLY** Royal Australasian College of Surgeons (RACS) approved neurosurgery department in South-East Asia to conduct advanced training for FRACS (Neurosurgery) registered doctors

Unique and dedicated **Neuroradiology module** offered only at NNI, for residency and fellowship rotations

Almost **1000 students** have gone through the NNI Clinical Programme

Received **14** Education-related Awards in 2013

Towards an Age-Friendly Environment

The Age-Friendly Initiative (AFI) is an effort spearheaded by SingHealth to create awareness and inspire partnering institutions to provide a more pleasant patient journey through our healthcare systems. Take a walk to see the age-friendly measures implemented at NNI.

In November 2013, NNI was also presented with the Age-Friendly Award. This was presented to all SingHealth institutions who had taken part in making their facilities age-friendly for their patients.



Overhanging signs and floor signages offer further guidance.



Sheltered pick-up/drop-off area with no obstacles allows easy wheelchair/trolley access. A nearby security officer provides assistance with automated glass doors easing entry/exit.



Wheelchairs available for use.



Hospital directory at main entrances are available in our four official languages. NNI block signage is in orange for quick identification.



Universal symbols avoid ambiguity or confusion.

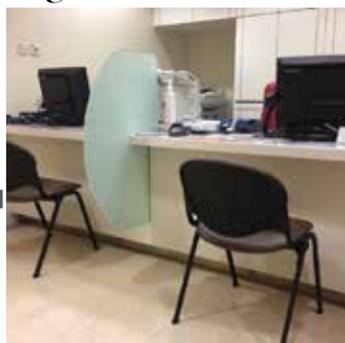
Your journey to the Neuroscience Clinic, Neurodiagnostic Laboratory and Neuroradiology Department



Registration

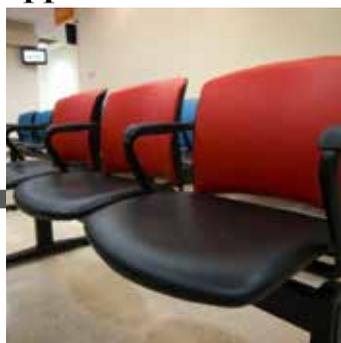


Wide and well-lit clinic entrance makes it convenient for patients using wheelchairs. A reception is the first point of contact while patterned glass doors aid patients with reduced vision; slip-resistant vinyl floors prevent falls.



Low table-tops at reception, with added wheelchair access.

Waiting for your appointment



Colour-contrast chairs to aid vision.



Your number has been called!



Wide corridor space and room entrance.



Individual consultation/procedure room clearly shows queue display and room number.



Large television screens with high contrast broadcast information.



Floor signage for better visibility.

Seeing the doctor



Height-adjustable exam couch.



Handrails are curve-ended into the wall for safety, with an end-marked groove for patients with reduced vision.

Freshening up



Non-slip floors and grab bars installed. Call bells are available while wheelchair-friendly washrooms feature low sinks, a slanted mirror and ample space for movement.

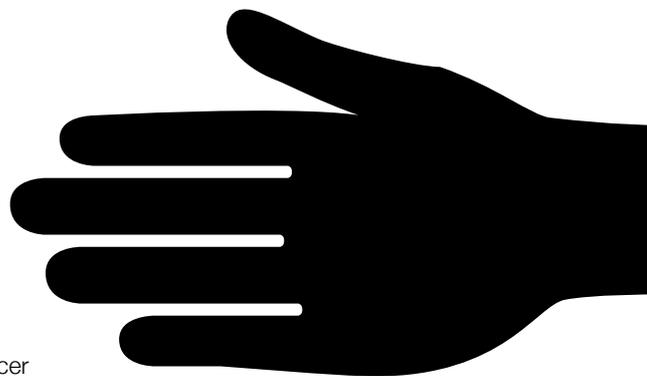
Collecting your medication



As Tan Tock Seng Hospital's pharmacy is undergoing renovation, all patients are directed to the Emergency Department's pharmacy.



Ample room for wheelchairs is available at waiting areas.



Ms Eileen Ng (left) and Ms Tan Siok Bin



Ms Samantha Soh (left) and Ms Zhou Lifeng

The signature Children's Cancer Foundation's fundraising event aims to raise funds and spread the awareness of childhood cancer. Participants step forward to shave their head bald; a representation simulating one of the ordeals that a child with cancer is subjected.

Four of our colleagues, Ms Samantha Soh and Ms Zhou Lifeng, Senior Staff Nurses with the Department of Neurosurgery, along with Ms Eileen Ng and Ms Tan Siok Bin, Senior Radiographers, Department of Neuroradiology gladly took the bold step. Their symbolic gesture helped to show children with cancer and their families that they are not alone.

The 11th Hair for Hope event was held at VivoCity on 27 and 28 July 2013, with more than 7,000 shaves.

6th NNI Dementia Awareness Day

Held on 23 November 2013, the 6th NNI Dementia Awareness Day attracted almost 200 participants, presenting the latest evidence-based research on dementia while engaging the public in enriching and candid discussions. Later in the day, a free Memory Assessment offered participants evaluation on their cognitive functions and risk of dementia.

Dr Nagaendran Kandiah, Consultant, Department of Neurology, who chaired the forum said, "Early detection is important. Instead of waiting for the full, irreversible effects of dementia to set in, people must realise that they have the ability to curb the progression of dementia."

In past years, the event has been successful in identifying early dementia in about 20% of our memory screening participants.



Member of the audience with a question at the public forum



Memory screening tests in progress

Gain without Pain NNI's 1st Pain Management Public Forum



On 6 July 2013, NNI's 1st pain management forum invited experts from various disciplines to share on topics related to chronic pain, and help sufferers gain a better quality of life.

Speakers included Assoc Prog Ng Wai Hoe, Organising Chairman, and Senior Consultant and Head, Department of Neurosurgery. The other speakers comprised a team from Tan Tock Seng Hospital (TTSH), Mr Brandon Yew, Acupuncturist, Dr Stephen Chan, Consultant and Head of Acute Pain Service, and Ms Ivy Ho, Senior Physiotherapist. They covered a breadth of topics from Eastern to Western treatments, practical exercises as well as Surgical Neuromodulation.

Near-200 members of the public left the forum empowered with greater knowledge and practical tools for pain management.



Dr Nagaendran giving his talk at the public forum

NNI's 1st Education Day

Although many of us are involved in education at NNI, there is often very little opportunity for us to meet, interact, and discuss our experiences in education. Education Day was thus planned as a day for people to meet, chat, share experiences, and learn together.

On 27 September 2013, over 50 staff from NNI came together for an afternoon at the Copthorne King's Hotel. Organised by the Neuroscience Academic Clinical Program (Neurosc ACP) Office and led by Assoc Prof Nigel Tan, Academic Vice-Chair for Education, the event was to encourage interaction and advocate an exchange of ideas amongst all our educators. It was encouraging to observe staff from different departments; neurology, neurosurgery, neuroradiology, nursing, research and administrative staff coming together for an afternoon of sharing and learning.

After lunch and an ice-breaking exercise, the participants broke up into small discussion groups. Some of the topics discussed included how people learn, and how they taught as teachers. A few psychological tests were done to help participants gain insight into their personal teaching and learning styles.

There was a substantial amount of discussion generated within and between groups, with lots of humour, honesty and energy in the room. Some talked about their personal experiences as teachers or students, others raised questions, while many others shared tips about teaching and learning. The facilitators - Dr Prakash Kumar, Dr Jai Rao, Dr Nigel Tan and Dr Kevin Tan - kept the discussion flowing smoothly by encouraging groups to voice their comments and opinions.

Finally, everyone reflected and shared their thoughts about the attributes of a good teacher. The session ended with everyone writing down their reflections and action plan for change on a card, which was then mailed back to them a month after Education Day.

Overall, participant feedback was very positive, and it was very heartening to see our colleagues mingling, discussing and exchanging ideas in a relaxed, fun manner. Education works only when people interact and have conversations, and we hope that future education activities such as Education Day will help bring people together.



Assoc Prof Ng Wai Hoe, Dr Nicolas Kon, Assoc Prof Helen Tjia



Icebreaker before the session - all participants were grouped according to their birth month





From left: Associate Professors Louis Tan, Director (Clinical Research/TTSH campus), Prakash Kumar, Neurology Department, Seow Wan Tew, Director (Neurosurgery Education), Ng Wai Hoe, ACP Deputy Chair & Head, Neurosurgery, Tchoyoson Lim, Director (Neuroradiology Education), Deidre De Silva, Director (Clinical Research/SGH campus), Lim Kah Leong, Research Department, Nigel Tan, Acad Vice-Chair (Education), Au Wing Lok, ACP Deputy Chair & Head, Neurology, and See Siew Ju, Director (Neurology Education). With them is Ms Jean Chua from Neuroscience ACP office (front row, third from right).

Neuroscience ACP key appointment holders visit Duke

A team from the Neuroscience ACP heads north to develop education and research opportunities back home.

In early October 2013, a team of key appointment holders from the Neuroscience Academic Clinical Program (ACP) went on a study trip to Duke University School of Medicine in Durham, North Carolina, USA. Their visit lasted five days, from 8 to 13 October.

Objectives of the study trip were to learn from Duke on several key fronts including the Duke Neuroscience Program, Residency research training, mentorship programmes and faculty development. The team was also there to identify areas of possible collaborations and learn how clinical services may help to support further education and research activities at NNI.

The trip's first meeting was kicked off by Duke Professor of Neurology, Dr Mark Stacy, who shared about movement disorder research, followed by Prof Allen Soong, who gave a tour of the Duke-UNC Brain Imaging and Analysis Center.

The team met the Associate Director of Graduate Medical Education, Kathryn M. Andolsek and Assistant Professor of Medical Education; Assistant Dean of Graduate Medical Education, Alisa Nagler, who shared about educational opportunities for residents such as teaching methods and evaluation, as well as, changing accreditation rules and the challenges behind it.

The ACP team was also invited to join the department in their weekly Neurology grand rounds, followed by a tour of the Duke University Hospital and Duke Garden by Prof Joel Morgenlander. He also shared with them about talent retention and appreciation; an engaging session that struck a chord with every member in the team.

Another highlight of their trip was a meeting with Asst Prof Brad Kolls on Telemedicine and Dr Larry Goldstein, who gave an overview of the Comprehensive Stroke Center. Other meetings included an overview of the Duke Institute for Brain Science (DIBBS) by Dr Michael Platt, developing expertise in Neuroscience Nursing

by Ms Dorothy Taylor-Senter and Ms Sara Sullivan, Roles for APPs in Neurology by Mr Robert Blessing and Ms Kelly Blessing as well as a Neuroradiological overview of fellowship and research programmes by Dr David Enterline and an overview of Neurobiology Department Research by Dr Steve Lisberger.

The study trip was truly a learning experience. By the end, the team was recharged with fresh ideas, a renewed team spirit and mostly, a burning desire to demonstrate and lead the way forward, and bring the Neuroscience ACP to greater heights.



Duke Briefing with Prof Morgenlander



Gathering at the Duke meeting room

Caring to Teach

NNI Clinician Educators

With the launch of the Neuroscience Academic Clinical Program (ACP), the Clinician Educator track was formalised to recognise and nurture current and future healthcare professionals who contribute extensively to medical education, as well as, clinical care.

Clinician Educators play an integral role in the Academic Medicine mission by helping shape and nurture a vibrant academic environment. They help cultivate a strong spirit of inquiry to drive care innovation, and improve the future of Medicine through education.

Dr Kevin Tan, Consultant, Department of Neurology and Clinician Educator said, "Teaching is about passing on the right values and helping the next generation become better than us."

Clinicians who demonstrate a passion for developing and nurturing the next generation of healthcare professionals are provided resources and opportunities to pursue their interests. There are faculty development programmes to build skills in teaching, assessment and feedback. Education research on improving teaching methodologies and learning outcomes is also frequently conducted to ensure evidence-based outcomes.

From dedicating time to mentor medical students, to training medical professionals both locally and overseas, or presenting at international education conferences, Clinician Educators are devoted towards education as a cornerstone of quality patient care.

On his role as a mentor, Dr Shahul Hameed, Consultant, Department of Neurology said, "I had been taught by excellent doctors in the past and I would like to do the same for the future generation of medical students to evolve into good medical professionals."

With health professional education evolving from teacher to learner-centred, didactic to interactive, and from an apprenticeship model to more structured training, passionate Clinician Educators become ever more critical to keep today's learners engaged.



"The new generation of learners are diverse and engaging them is a different challenge. Now, education is less of a transmission of knowledge from teacher to learner and more a collaboration between teacher and student."

– Dr Kevin Tan
Consultant, Department of Neurology

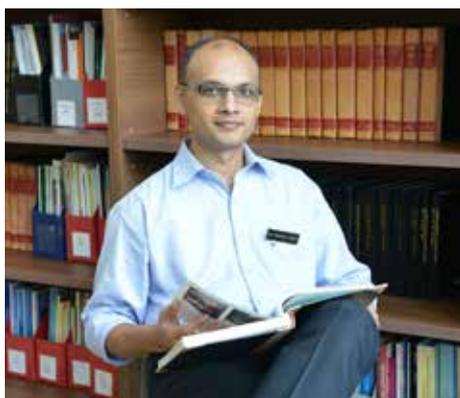
"Technology will have a significant impact on higher education and a major influence on teaching methodologies. From passive learning, education has evolved into active learning, from teacher-centred, it has become more student-centric."

– Dr Shahul Hameed
Consultant, Department of Neurology



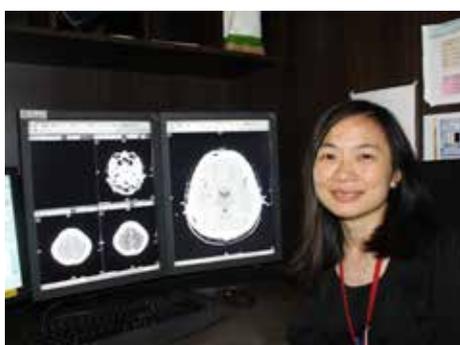
"I have always been the questioning sort. Incorporating technology has helped to ensure that I have multiple sources of information in my learning. Education has moved away from just providing knowledge, to providing real experiences. This allows for an enriching learning experience, and better engagement with learners."

– Dr Jai Rao
Registrar, Department of Neurosurgery



"It is a curiosity to learn that drives me to teach. There is also a real joy in knowing that your student has learned something and learned it right."

– Dr Prakash Kumar
Senior Consultant, Department of Neurology



"Always remain intellectually curious and excited. And pass the passion on!"

– Dr Ng Peng Soon
Associate Consultant, Department of Neurology

"An able mentor isn't only one that patiently and effectively imparts knowledge and skill sets, but one who also considers the face behind the radiology scan - one who cares."

– Dr Wynne Chua
Registrar, Department of Neuroradiology



Nursing a new era of Education

These are some efforts and initiatives undertaken by our nurses, in training and education:

- In 2013, our nurses hosted Miss Filissa M. Caserta, Health Manpower Development Plan (HMDP) Visiting Expert
- Hosting nurses from Indonesia, Malaysia, Philippines, Thailand, Hong Kong for clinical attachments
- Delivering lectures at Nanyang Polytechnic's (NYP) Advanced Diploma in Nursing (Neuroscience) course
- Supporting clinical attachments for Advanced Diploma students, and undergraduate and postgraduate students from NUS
- Invited to give talks at the National Healthcare Group's Stroke Management Course in 2013
- Facilitated a session for students undergoing the Master of Nursing course with NUS in 2013
- Collaboration with Tan Tock Seng Hospital (TTSH) to give in-service talks to the wards caring for patients neurological conditions
- Conducted practical teaching sessions for the usage of the National Institutes of Health Stroke Scale (NIHSS) during the set-up of NNI's Acute Stroke Unit (ASU)
- Presented at the 11th Asia Pacific Medical Education Conference (APMEC) on "Rebooting Neurology Nurse Clinician in Service Education with a new Program using Interactive Case-Based Learning – A Pilot Study" and "Needs-based Approach in Organising Nursing Seminar"
- One of our nurses attained a Postgraduate Diploma in Higher Education, an opportunity to develop practical teaching skills



NNI's Advanced Practice Nurses (APN) from left: Emily Ang, Li Wei, Linda Lim, Ng Wai May

Nurses from NNI are increasingly being recognised for their knowledge and expertise in education-related activities.

As part of the on-going development and upgrading of nursing skills, NNI's nurses are sent for the Master of Nursing programme offered by the National University of Singapore (NUS), to become Advanced Practice Nurses (APN). APNs collaborate closely with doctors on a daily basis to provide a multitier service delivery system that can better meet the needs of patients. They act as a bridge between patient and clinician.

Belonging to a tertiary Neuroscience Centre, NNI nurses are often called upon to train nurses who are sub-specialising in the neurosciences with trainees coming from

local institutions as well as from around the region.

In addition, NNI nurses are actively involved in quality improvement activities to provide evidenced-based care to our patients. They serve in committees at the hospital and national levels to develop clinical care pathways, guidelines and protocols. Our nurses have also supported national campaigns such as the National Healthy Lifestyle Campaign and create public awareness on neurological conditions.

In the drive towards Academic Medicine, Nurse Educators will gain an increasingly important role as the bearers of knowledge, ensuring the quality of patient care from one generation to the next.

Learn & Lead!

On 5 July 2013, the inaugural Neuroscience Nursing Seminar saw some 75 nurses gather at NNI to the theme of 'Learn and Lead!'

Organised by Course Directors from the Department of Neurosurgery, Dr Jai Rao, Registrar and Ms Samantha Soh, Senior Staff Nurse, the seminar had the intent to empower nurses with the knowledge necessary to manage and understand the specific conditions that occur in neuroscience patients. Also supported by the Education Director's Office of NNI, the seminar sought to impart values of research, learning and sharing of knowledge amongst the nurses.

Experienced nurses from Singapore General Hospital, KK Women's and Children's Hospital and Tan Tock Seng Hospital, as well as, in-house experts from NNI were on hand to lead eager nurses on the journey of learning. Some of the topics covered include 'How to Read Brain CT (Computed Tomography) scans', 'Critical Care of Neuroscience Patients – A Nursing Perspective', 'Essential Skills in Managing Spinal Cord Injury', 'The Neurological Assessment – Tips and Tricks' and 'The Management of the Paediatric Epileptic Patient'.

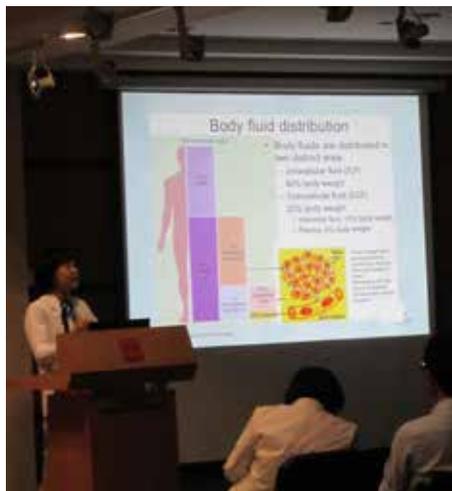
The half-day seminar proved enriching for nurses by encouraging feedback received on how participants were instilled with a sense of lifelong learning and continual improvement as an integral part of the profession.



Dr Jai Rao teaching on the basics of reading Computed Tomography (CT) scans of the brain



The Audience Response System (ARS) encouraged interaction during the seminar



Advanced Practice Nurse (APN) Serene Tan, Tan Tock Seng Hospital, sharing on Common Fluid and Electrolyte disorders in Neuroscience



Participants during a lecture

Aspire to Inspire

On 3rd July 2013, the Ministry of Health awarded one of our very own nurses, Nurse Clinician Ng Hwee Lan, with the Nurses' Merit Award. The recipients of this Award have demonstrated consistent and outstanding performance for the past three years, and participated in professional advancement courses for their development and have made contributions to promote a professional image of nursing. Needless to say, we are very proud of Sister Hwee Lan's accomplishment.

"Hwee Lan is a dedicated and caring nurse clinician who is humble and unassuming. She leads by example and handles all tasks

given to her efficiently," shared Assoc Prof Au Wing Lok, Head and Senior Consultant of the Department of Neurology.

Sister Hwee Lan has been with NNI for nine years, and feels very honoured to receive the award. "It is rewarding to know that my input, no matter how small, has an impact on the lives of patients whom I care for, after they are struck down by illness or injury," she says. "I will continue to strive to provide quality patient-centred care and assist patients on their road to recovery. Guided by my personal motto 'Aspire to Inspire', I hope to continue to inspire the next generation of nurses in this wonderful profession."



Hwee Lan receiving the award from Minister of State for Health and Manpower, Dr Amy Khor.



Ng Hwee Lan, Nurse Clinician



“Enjoying my work and having a real interest in what I do enabled me to become a better learner when I just started out in this field. Now, teaching my nurses what I know provides me with a sense of satisfaction. I am glad to pass on what I know. Keeping up to date with changes, and sharing the knowledge, is important.”

– *Low Hwee Hwang*
Nurse Manager,
Department of Neuroradiology



“My mentor has always been willing to share her skills, knowledge and expertise with me. The information and feedback shared helps to support my weaknesses and sharpen my strengths. I have learnt the importance of showing a good example of team leadership, and hope to pass this on.”

– *Chan Wai Yee*
Nurse Manager,
Department of Neuroradiology

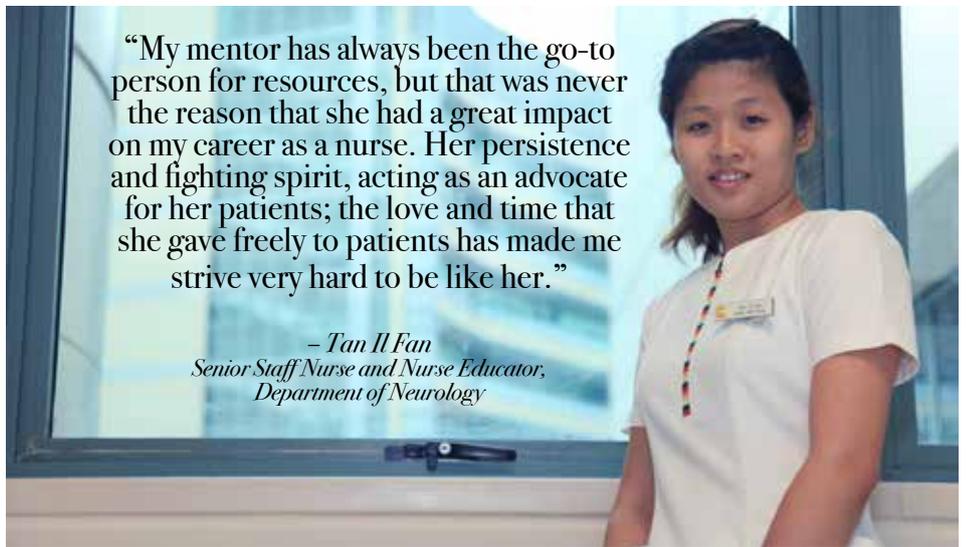


“We all take turns to be each other’s teacher at one point or another. It is a constant sharing of knowledge, information and ideas among like-minded people. Knowledge is meant to be shared. That’s how we all grow and learn.”

– *Samantha Soh*
Senior Staff Nurse and Nurse Educator,
Department of Neurosurgery

“My mentor has always been the go-to person for resources, but that was never the reason that she had a great impact on my career as a nurse. Her persistence and fighting spirit, acting as an advocate for her patients; the love and time that she gave freely to patients has made me strive very hard to be like her.”

– *Tan Il Fan*
Senior Staff Nurse and Nurse Educator,
Department of Neurology



“Learning is a life-long process. It also depends on one’s desire and determination to acquire knowledge. However, without guidance from mentors/teachers, one might be lost for direction in the ocean of knowledge. I am fortunate to have had many great mentors/teachers throughout the path of my career.”

– *Li Wei*
Advanced Practice Nurse,
Department of Neurology



“Go the extra mile. Knowledge, skill and experience is gained with time; but a life that influences another life is what happens in a mentor-mentee relationship. Once, one of my mentors said to me, ‘Water can flow, or it can crash.’ Be adaptable.”

– *Emily Ang*
Advanced Practice Nurse,
Department of Neurosurgery

“Education is an interactive process. It involves continuous communication for both the teacher and learner.

In my experience, everyone has their own way of learning and teaching. If the learner does not communicate his obstacles to effective learning, the teacher may not be aware of them. Continuous communication will facilitate the process of education.”

– *Zhou Lifeng*
Senior Staff Nurse, Department of Neurosurgery



NNI Hosts the 15th ICP Conference

The International Conference on Intracranial Pressure (ICP) and Brain Monitoring has returned to Asia, and NNI was proud and honoured to host the 15th ICP Conference which was held from 6 – 10 November 2013.

The conference, chaired by Assoc Prof Ivan Ng, from the Department of Neurosurgery, is a scientific and academic event focusing on the importance of neuro-monitoring and the management of diseases of the central nervous system. The 15th ICP saw a gathering of over 150 clinicians from around the world, including neurosurgeons, neurologists, intensive care specialists, anesthesiologists, basic scientists, clinical researchers and other professionals such as mathematicians and engineers devising new procedures, techniques and equipment for the monitoring of ICP.



The participants of ICP 2013



Conference chairpersons Assoc Profs Ivan Ng (left) and Ang Beng Ti (right).

CCPP Workshop – 1st Combined NNI-SGH-TTSH-PDSS Workshop

On 28 September 2013, over 30 allied health professionals and nurses attended the NNI-Community Care Partners Programme (CCPP). Dr Tay Kay Yaw from the Department of Neurology, and Organising Chairman, said that the CCPP workshop aimed to help care coordinators and staff be adequately trained and in turn, equip them with the knowledge to train their colleagues at their own centres, and to care for people with Parkinson Disease. This workshop was specially organised to update participants with assessment techniques from the therapy and nursing perspective.



13th Advanced Neuroradiology Course

In its 13th year running, the Advanced Course yielded more than 230 participants from 16 regional and international countries. This year's Course, led by Course Director Dr Yu Wai-Yung, Senior Consultant, Department of Neuroradiology, opened the doors for discussion on a wide range of topics; from paediatric neuroradiology to aging and dementia. The local and international faculty also spoke about subjects such as neuro-oncology, stroke and interventional neuroradiology.

Interactive sessions using an Audience Response System (ARS) allowed active participation and complemented delegates' learning. These interactive sessions covered common neurovascular conditions for non-interventionists and the paranasal sinus anatomy.

The Resident Review Course for trainees continued after its launch during last year's Advanced Course. More than 25 participants attended the Course preparing them for the Fellowship of the Royal College of Radiologists (FRCR) examinations.

The Review Course was facilitated by Assoc Prof Tchoyoson Lim, Senior Consultant, Department of Neuroradiology. Case studies were selected in general Neuroradiology topics, with material ranging from common emergency Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) of the brain and spine, to advanced Neuroimaging. Participants benefited greatly from the Review Course, which covered a wide array of Neuroradiology topics.



Dr Yu Wai-Yung welcoming the Course participants



Assoc Prof Tchoyoson Lim chairing a discussion between Course speakers and participants



Dr Tham Cheok Fai

“Father” of Neurosurgery

8 October 1925 - 4 December 2013

Tribute from Assoc Prof Ong Peck Leong, Senior Consultant, Department of Neurosurgery

How His Legacy Began

Although not the first neurosurgeon in Singapore, Dr Tham is acknowledged as the “father” of Singapore neurosurgery. Dr Tham was already a Consultant Orthopaedic Surgeon at “C” Orthopaedic Unit, Singapore General Hospital (SGH), with a special interest in spinal surgery when Dr Tseng Yuen Lin, the first fully trained neurosurgeon in Singapore, passed away.

In 1962, he was sent by the Ministry of Health to train in neurosurgery under Dr Murray Falconer at Guy’s, Maudsley and King’s College Hospitals in London. He returned in 1965 to start a section in Neurosurgery at the Department of Surgery under Dr Choo Jim Eng at the Thomson Road Hospital, with only Tuesdays to do his operations.

I was posted to Thomson Road Hospital in 1972 as a houseman. Each month, one houseman would be posted to the Surgery Suite to assist consultants during operations. When my turn came on the first Tuesday, I asked Dr Tham whether I could assist him. He happily agreed.

Dr Tham was meticulous in his operations. In those days, neurosurgery was carried out on the same day following imaging with ventriculograms or cerebral angiogram. With the patient intubated under general anaesthesia, a burr-hole was made and about 20 ml of air was introduced into the lateral ventricle. We would then accompany the still-anaesthetised patient to the Radiology Suite. There, we had to lift and turn the unconscious patient over one full turn to make the air flow into the other ventricles before taking X-rays. Using the primitive equipment available then, routine operations sometimes lasted more than 12 hours. One needed patience and a strong mental and physical constitution to do neurosurgery.

In 1973, the Department of Neurosurgery and Neurology was set up at Tan Tock Seng Hospital (TTSH) as recommended by the Committee on Medical Specialisation. Dr Tham was to head the Department of Neurosurgery until his retirement. To train more neurosurgeons, he reached an agreement with Dr John Lekias and Dr Bryant Stokes of the Neurosurgery Services in Perth, Western Australia to send trainees there to train under the Neurosurgery Training Programme of the Royal Australasian College of Surgeons.

The Patient Always Comes First

Dr Tham had a fearsome reputation as a strict disciplinarian. This was only because he cared so much for his patients. He insisted on “doing things right the first time, all the time”. He taught his doctors by example the basic requirements of surgery: Firstly, to have good clinician skills before becoming good surgeons; secondly to develop good surgical habits, and last but not least, to be humanistic and ethical. Many doctors, including myself, were inspired by him to train in neurosurgery.

Dr Tham was dedicated to his patients and would often spend more than an hour taking the history, examination and consent for operation, patiently explaining the procedure and answering all the patient’s questions. All these would be carefully documented in the case records with his beautiful cursive writing.

Valuable Foresight

At a time when Singapore doctors were looking toward Britain for their surgical training, Dr Tham was one of the first to realise the need to learn from North America. Between 1974 and 1976, he arranged with the Foundation for International Education in Neurosurgical Surgery for 12 neurosurgeons from the US and one from Canada to serve in Singapore on rotation, providing consultancy service and training young neurosurgeons. This was the start of our collaboration with North American neurosurgeons. With doctors training in both Australia and North America, the number of trained neurosurgeons in the department gradually increased.

The first dedicated Brain CT Scan in Singapore at TTSH in 1977 was also Dr Tham’s initiative. It was then the most expensive radiological equipment in Singapore, and indeed the only in the region! This was the start of the modern era of neuro-imaging in Singapore.

For his excellent work, Dr Tham was awarded the Public Administration Medal (Gold). He was also honoured by the Australasian College of Surgeons and the American Association of Neurological Surgeons for his achievements.

Since those early days, the Department of Neurosurgery has grown in size and achievements, and is now acknowledged as one of the finest in the region. All these are due to him in no small measure. In the words of Isaac Newton: “If we have seen further it is by standing on the shoulders of giants.”

Dr Tham Cheok Fai has passed away and we all mourn his loss, but his legacy lives on in the department he has built up.

NNI's 1st Research

Day



Prof Wong Tien Yin

Innovating research, advancing clinical care. Neuroscience ACP's First Research Day

To celebrate NNI's research work and to encourage greater research collaborations, the Neuroscience ACP organised its First Research Day on 19 July 2013.

During the event, NNI Director of Research and Academic Vice Chair for Research, Prof Tan Eng King outlined NNI's research achievements along with future plans to nurture research to greater heights, including the formalised Clinician Scientist track. Guest-of-Honour, Prof Wong Tien Yin, Group Director, Research, SingHealth, next delivered a passionate talk on "Innovate to Advance – Treating Tomorrow's Patients With Today's Research", sharing how better research would lead to better clinicians and healthcare.

The event also saw the presentation of abstract papers with three winners emerging from the categories of Basic Science, Neurology and Neurosurgery each.

Recognising outstanding research work arising out of NNI, the inaugural NNI Publish! Award was presented to Dr Ng Chee Hoe, Associate Research Scientist for his publication: 'AMP Kinase Activation Mitigates Dopaminergic Dysfunction and Mitochondrial Abnormalities in Drosophila Models of

Parkinson's Disease'. The prestigious research award is based on criterion such as originality and highest impact factor.

Assoc Prof Ng Wai Hoe, who gave the closing address, ended the event on an aspirational note. He said, "The transfer of research from bedside to bench, from clinical science to molecular studies has given significant insight into the mechanism of disease. This translational research is the clinical research of the future which holds enormous promise."

7 Research Project Guidelines by Prof Wong Tien Yin

- 1 Spot the trends
- 2 Aim to be outstanding
- 3 Seize opportunities
- 4 Be focused
- 5 Be persistent
- 6 Think outside of the box
- 7 Don't settle

Abstract Presentation Winners

Basic Science

Gold	Zhang Wei
Silver	Chong Yuk Kien
Bronze	Gandi

Neurology

Gold	Woon Fung Peng
Silver	Russell Chander
Bronze	Giselle Reinoso

Neurosurgery

Gold	Ling Ji Min
Silver	Julian Han
Bronze	Lester Lee

OF FLIES

& MEN

“Parkinson Disease (PD) is a very complex disease that is presently incurable. I would like to see what we propose as a therapeutic strategy, be validated and accepted by other researchers.”

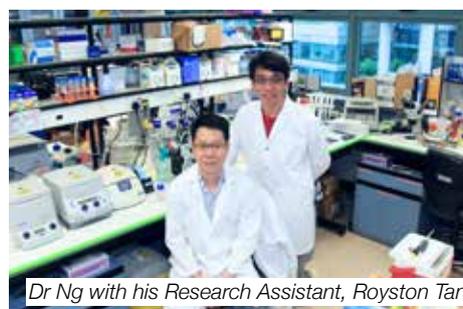
The path of research is rarely a smooth one, and research scientists often meet obstacles and may not be able to foresee their end goal. Dr Ng Chee Hoe, Associate Research Scientist and NNI Publish! Award winner at Research Day 2013 shared, “When we first begin a project, we have no idea what to expect. We can only collect the data and reformulate the hypothesis; connect the dots as we go along so that the interpretation of our findings are logical and the research becomes more robust. It is hard for us to speculate accurately; therefore, it’s best to take one step at a time.”

Dr Ng has however, taken many leaps since he first began his scientific research in the Institute of Molecular and Cellular Biology (IMCB). There, he used mouse models to study the regulation of immune cells under the supervision of Prof Lam Kong Peng. When he received his PhD, he was given an offer to work at NNI for PD research under Assoc Prof Lim Kah Leong, Principal Research Scientist, NNI. He took up the offer, knowing that it would mean a drastic

switch in the field of research, including a change of models from mice to fruit flies. He said, “But I like working on different models as they offer a different kind of challenge. It was an easy move as it was a shift from a complex to a simple model. I have also found the scientific community for fruit flies more open to collaborations.” The short three-month lifespan of flies also enables Dr Ng’s research to obtain data from mature flies faster, an element important in PD research.

For Dr Ng, NNI as a globally competitive research institution would mean being, like the more established counter-parts, able to consistently unravel new discoveries. As a research scientist, one should be persistent and hone the ability to follow up on many years of work.

He added, “Collaboration is important in catalysing discoveries. There are people who are working on closely related topics and together, it could lead to the discovery of something far greater than if a discovery was made alone.”



Dr Ng with his Research Assistant, Royston Tan

“Ultimately,” he explained, “We can learn much about PD using the simple fruit fly, and these findings may be clinically relevant for PD research.”

His research has so far bore fruit. Together with Assoc Prof Lim, they discovered AMP kinase as a suppressor of Parkinsonian phenotypes in PD fly models. More is to be done and the next step for Dr Ng would be to combine his specialised background in immunology with neurology. “Neuroinflammation is a topic common in neurological degenerative diseases such as Alzheimer’s and PD. So far there is no lab at NNI focused on neuroimmunology,” he said.

Part of Dr Ng’s work scope also includes mentoring students – from polytechnic to university undergraduates, for periods of two months to a year.

He said, “I enjoy teaching and the students can contribute significantly in differently allocated projects. Sometimes we do not even know the end result of the projects ourselves, so we both end up learning from the risky venture.”

As a teacher, Dr Ng is less concerned about winning awards and more about the learning journey. He shared, “It is enough as long as the students learn something useful.”

Dr Ng Chee Hoe received the first NNI Publish! Award from Assoc Prof Tchoyoson Lim

Dr Ng Chee Hoe received the first NNI Publish! Award from Assoc Prof Tchoyoson Lim

Opening the window of opportunity to prevent Stroke



Assoc Prof Deidre Anne De Silva, Consultant, Department of Neurology, NNI has found that there is room to optimise care for people with atrial fibrillation (AF) who are at risk for stroke.

A study conducted by NNI at the Singapore General Hospital campus has found that the majority of stroke patients with known AF - an important risk factor for stroke - were not on optimal treatment to reduce the risk of stroke occurrence.

AF occurs when the two upper chambers of the heart (atria) beat rapidly and unpredictably, producing an irregular heartbeat. This causes blood to form clots in the heart, which can travel to the brain and result in stroke. In Singapore, AF affects some 50,000 people and is associated with a five-fold increased stroke risk.

From a research study of 60 stroke patients, a joint team from NNI-SGH made up of Assoc Prof Deidre Anne De Silva, Assoc Prof Chang Hui Meng and Medical Officer Dr Arun Prakas, found that while nearly 80% were aware that they had AF, only 20% were on appropriate anticoagulant medication. Of these, only 30% were being treated at optimal levels.

Principal Investigator, Assoc Prof De Silva shared, "The findings show a missed opportunity for primary stroke prevention. More can be done to reduce stroke risk simply by ensuring patients with AF are on optimal therapy."

Her research aims to provide evidence to improve healthcare service in Singapore. She explained, "By the time patients reach us at Neurology, it is too late as stroke has already occurred and may cause devastating disability or death."

This missed window of opportunity is one of Assoc Prof De Silva's main research foci. She hopes to develop the research further by studying a wider pool of patients. Currently, with optimal AF treatment, patients can reduce their risk of stroke by 3% per year. A parallel study conducted at NNI at its Tan Tock Seng Hospital (TTSH) campus showed similar findings. More than 75% of stroke patients knew of their AF condition, but only 2% of the patients studied were on optimal therapy.

With treatment options of both traditional and novel anticoagulation drugs available, Assoc Prof De Silva, who is also the President of the Singapore National Stroke Association (SNSA) is hopeful that there will be an increase in the adoption of treatment.

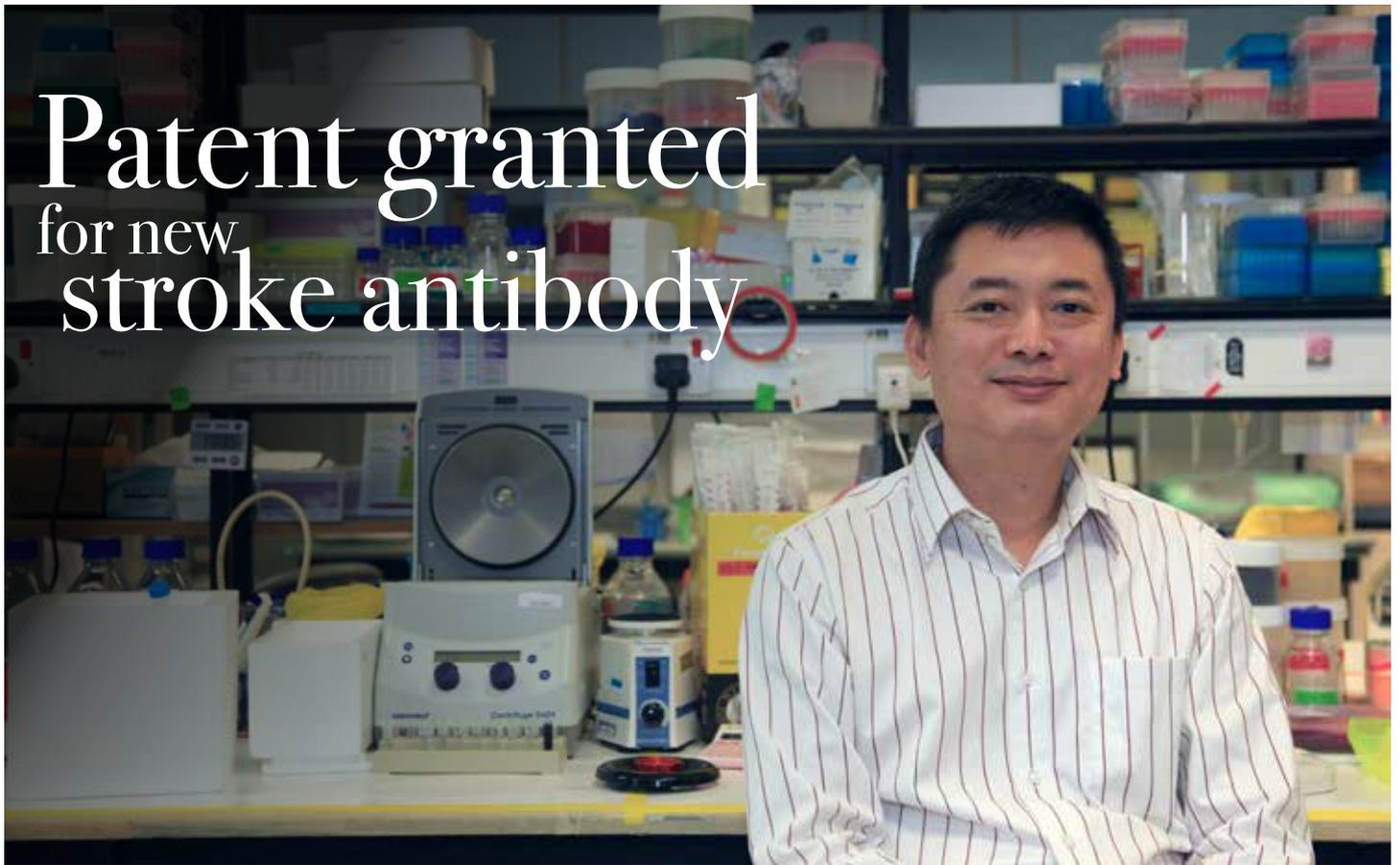
"Patients with AF should be assessed for the likelihood of them suffering from a stroke, and for any potential adverse effects of treatment. They should then be appropriately counselled and advised by their doctors," Assoc Prof De Silva added.

To this aim, early detection with health and ECG screenings as well as education among the elderly population continue to be important factors to minimise the risk of stroke.



Assoc Prof Deidre De Silva (seated second from right) with her team

Patent granted for new stroke antibody

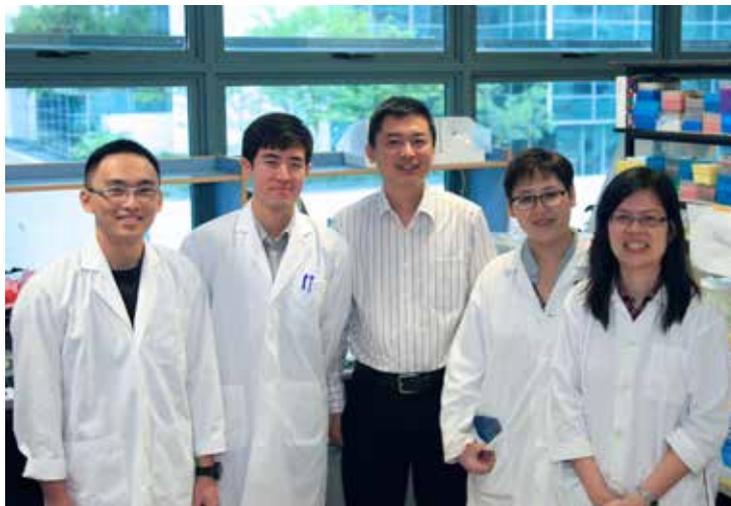


Within the critical window period of four-and-a-half hours after a stroke, Dr Liao Ping and his team are accelerating the discovery of a new antibody that can protect cerebral blood vessel damage.

"Research is a competitive field," Dr Liao Ping, Principal Investigator and Head of the NNI Calcium Signalling Laboratory shared and added, "Every day we are monitoring what is going on in the field; what the new publications are. Once a finding is published, anything that follows behind means much less."

In three years, Dr Liao and his team have obtained a patent for a new antibody that could potentially treat stroke after the occurrence. The team discovered that an increased expression of a channel protein called TRPM4 is harmful to blood vessels. When TRPM4 is suppressed, more blood vessels grow. This finding could improve the survival of vascular cells after ischemic stroke, thus reducing the extent of stroke damage in survivors.

The findings were published online on PubMed in September 2013 and within a month, was quoted in another paper, attesting to the rigour and impact of the original discovery. The project was the lab's first.



Dr Liao Ping and team

Of his particular research angle, Dr Liao said, "When I first established the lab, I felt that the first line of changes occurs in the membrane. I knew that if we could protect cell damage at the membrane level, it would have more critical significance."

He added, "There are three research approaches: basic, clinical and translational. I am personally more interested in translational medicine as I want to turn my research into something that can be beneficial to patients."

Under Dr Liao's guidance, the lab has gone far with a patent secured and strong peer interest. But the journey is far from over.

Sharing what it takes to succeed in this field, Dr Liao said, "Scientific training requires a lot of things. You have to be social to build connections with other scientists. Your grant submissions must be flawless, sometimes requiring up to 20 rewrites. And then you have to defend it and stand back up quickly when it is rejected."

The team is currently taking their research further by testing the antibody in animals with plans to develop an advanced human antibody with fewer side effects. Even then, Dr Liao already has his eye on research that can save tissue at the acute or chronic stages of stroke.

He shared, "We are interested in all stages of stroke therapy and a second study will look at enhancing neurogenesis to improve stroke at the chronic stage."



6th

Singapore International Parkinson's Disease and Movement Disorders Symposium

4 – 5 April 2014 | The Academia, Singapore General Hospital

SYMPOSIUM HIGHLIGHTS

Plenary Sessions

- † The Role of Basal Ganglia in Normal and Abnormal Movements
- † Is There a Need to Refine the Definition of Parkinson's Disease?
- † Stem Cells and Other Cellular Therapies in Parkinson's Disease: Hope or Hype?
- † Role of Trans Magnetic Stimulation in the Management of Movement Disorders
- † Updates on Paroxysmal Dyskinesias
- † Posture Abnormalities in Parkinson's Disease: Clinical Manifestations and Pathogenesis
- † Exercise and Training for Parkinson's Disease: What is Possible?
- † Updates in the Management of Early Parkinson's Disease
- † Updates in the Management of Advanced Parkinson's Disease
- † Future Therapeutic Targets for Parkinson's Disease
- † Video presentations

Parallel Sessions

- † Neurophysiology of Movement Disorders
- † Use of Botulinum Toxin for the Management of Movement Disorders
- † Parkinson's Disease Interdisciplinary Care
- † Translational Research in Parkinson's Disease
- † Evidence-based Pharmacological Management of Parkinson's Disease (Motor and Non-motor Symptoms)
- † Deep Brain Stimulation (DBS) Surgery
- † Rehabilitation for Parkinson's Disease

REGISTRATION and ENQUIRY

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Events Calendar

(January – June 2014)

January

- 7 – 9: Asian Australasian Advanced Course in Paediatric Neurosurgery



February

- 22: Neuroscience Seminar for Family Physicians: Epilepsy and Sleep Disorders



Dates subject to change.

Enquiry and Registration

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 Email: nni_secretariat@nni.com.sg
 Website: www.nni.com.sg

April

- 4 – 5: 6th Singapore International Parkinson's Disease and Movement Disease Symposium
- 12: Parkinson's Disease Public Forum



- 26: Neuroscience Seminar for Family Physicians: General Neurology (Headache and Giddiness)

May

- 24: Neuroscience Seminar for Family Physicians: Neuromuscular Disorders and Neuropathic Pain

June

- 6: Neuroscience Nursing Seminar



SUPPORT GROUPS

Dementia Support Group CARE Programme (Cognitive Assessment & Rehabilitation)

National Neuroscience Institute
 Neuroscience Clinic, Level 1
 Tel: 6357 7124

Motor Neuron Disease Support Group

National Neuroscience Institute
 Neuroscience Clinic, Level 1
 Tel: 6357 7153

Parkinson Disease Support Group

NNI at Tan Tock Seng Hospital
 National Neuroscience Institute
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 Tel: 6357 7138

Parkinson Disease Support Group

NNI at Singapore General Hospital

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Stroke Support Group

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