



e-catalyst

ACCELERATING RESEARCH



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Highlights of SHBC 2016

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Understanding Breathing Clearer

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RESEARCHERS' FEATURE



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- A Day in the Life of a Biostatistician

EDUCATION

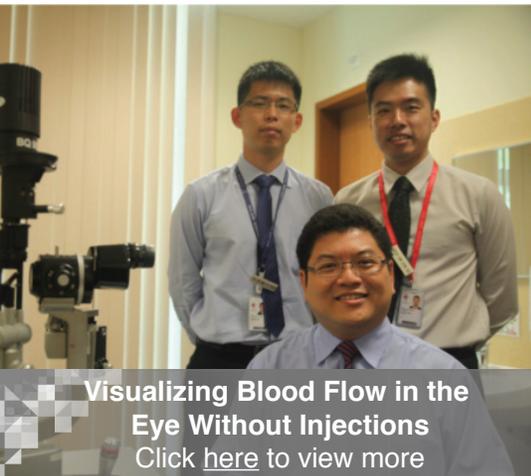


- Broadening Horizons through Postgraduate Education
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Launch of the Singapore Mental Health Study II



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Visualizing Blood Flow in the Eye Without Injections
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Restructuring our research focus and strategies

In our 'NHG's Research Journey' series, the Institute of Infectious Diseases and Epidemiology (IIDE) shares on how cross-disciplinary research has contributed to its growth in research. Click [here](#) to view more

Launch of the Singapore Mental Health Study II

The second Singapore Mental Health Study (SMHS), will be conducted in 2016 and aims to **evaluate changes in the prevalence, risk factors and healthcare needs for important mental illnesses studied in 2010**. The three-year, \$4.9 million project initiated in April 2015 and funded by the Ministry of Health (MOH) and Singapore Millennium Foundation of the Temasek Trust, is led by the Institute of Mental Health (IMH) Research Division in collaboration with the MOH and Nanyang Technological University.

The SMHS survey questionnaires were programmed into a tablet-based interview mode in three languages – English, Mandarin and Malay. Questionnaires that were not used in the last survey – **those assessing suicidality, hoarding behaviour and sleep and childhood problems**, were cognitively tested in over 20 residents to verify the appropriateness and acceptability of the language in the local setting.

A ten-day interviewer training was conducted from 18 July 2016 at IMH where **30 field interviewers were trained in all aspects of the survey including ethical considerations, administration of the survey, ancillary survey processes as well as interviewing in Mandarin and Malay**. Training included class-based lectures, round the table and one-to-one practice sessions and interviewing practice with mock and real respondents. The team is currently evaluating the interviewers' performance before they are certified to carry out field work.

A pilot phase of the survey had initiated in August 2016 to test all the systems of the survey. In preparation for the SMHS 2016, a random sample of 15,500 residents had been obtained from a national database, out of which 500 were approached for the pilot phase. **The main survey is scheduled to be launched in October 2016.**

Contributed by:
Institute of Mental Health



Singapore Mental Health Study (SMHS) training sessions

DID YOU KNOW?

IMH has an online Open Access Repository where you can read about research articles published by IMH.

Interested to know more? Click [here](#) to drop us your enquiry!

NHG Clinician-Scientist Preparatory Programme (CSPP)

FY2017 Call For Applications is Now Open!

Letter of Intent (LOI) Submission Deadline: 31 October 2016 (Monday), 12pm*
Closing Date: 21 November 2016 (Monday), 12pm*

*Please check with your respective institutions' Clinical Research Unit/ Innovation Office for the internal deadline set for your submission of application documents

Visit www.research.nhg.com.sg for the latest information!

NHG Research Database Platform

Translating Research into Highest Quality Patient Care

www.research.nhg.com.sg

Powered By **REDCap**
Research Electronic Data Capture

NHG Research & Development Office (RDO) is pleased to announce the launch of the NHG Research Database Platform (REDCap). Applications for new REDCap Projects are accepted from 1 September 2016 onwards.

REDCap is an easy-to-use web application designed to support electronic data capture for research studies. Researchers can quickly create web-based databases and data capture forms with special features like real-time data entry validation and easily export the collected data for analysis.

GOOD TO READ!

Qualitative Study of Singaporean Youths' Perception of Antismoking Campaigns: What Works and What Does Not.

Click [here](#) to read now!

Singapore Health & Biomedical Congress (SHBC) 2016 Highlights

Organised by the National Healthcare Group (NHG), the Singapore Health & Biomedical Congress (SHBC) is the largest healthcare & scientific congress in Singapore. This year, it attracted close to 2,500 delegates from Singapore and the Asia Pacific, including Australia, Japan, South Korea, Sri Lanka, Russia as well as the United Kingdom.

Signing of Memorandums of Understanding (MOUs) for the establishment of the Games for Health Innovation Centre (ALIVE) and the Centre for Primary Health Care Research and Innovation

ALIVE

In healthcare, serious games can motivate patients to take greater ownership and care of their health by making the process fun.

The ALIVE will assess and validate new games, and establish standards and best practices for the industry in Asia. It will also build a local talent pool of serious game developers and help establish Singapore as a hub for healthcare games, in addition to evaluating grant calls.

Centre for Primary Health Care Research and Innovation

This joint centre will look at introducing new technologies and creative ways of delivering quality family medicine and primary care for patients, and develop medical practitioners who are active in research, and deepen their awareness and knowledge of the latest healthcare developments.



Signatories and witnesses from NHG and NTU-LKCMedicine for the 2 MOUs signed during the Opening Ceremony of the SHBC 2016: From left to right – Adj Prof Eugene Fidelis Soh (CEO, TTSH); Assoc Prof Chong Phui-Nah (CEO, NHGP); Prof Philip Choo (GCEO, NHG); Minister Chee Hong Tat (Minister-of-State for Health); Prof Lionel Lee (Executive Vice Dean, Administration, LKCMedicine, NTU); Prof Helen Smith (Professor of Family Medicine and Primary Care, LKCMedicine, NTU) and Assoc Prof Naomi Low-Beer (Vice-Dean, Education, LKCMedicine, NTU).

Inaugural Health Innovation Technology (HIT) Challenge Finals 2016

The HIT Challenge was jointly organised by the Infocomm Media Development Authority of Singapore (IMDA), National Healthcare Group (NHG), and Serious Games Association Singapore (SGA). It creates a platform for healthcare professionals to harness technology for patients, caregivers and stakeholders. In addition to receiving cash prizes, the top 3 winners of the challenge had a chance to develop their prototypes further for testing.



Guest-of-Honour, Mr Gabriel Lim, Second Permanent Secretary for the Ministry of Communications and Information (6th from left), with the representatives from all 10 finalist teams. Everyone is a winner!



Mr Gabriel Lim trying out the Fun-Knee prototype that won the HIT Challenge.

Game-On (GO)-4-Health Conference 2016

The Game-On-4-Health Conference provides a platform for healthcare and technology experts to discuss problems and solutions to provide better care for the community. The conference covered broad themes of Innovation; Research & Education; and Regional Health. Both local and foreign experts shared their knowledge of tapping on serious games to improve processes, products and services, with the aim of harvesting potential applications for the public healthcare sector.



Prof Theng Ying Leng (Professor, Wee Kim Wee School of Communication & Information; Acting Executive Director, Ageing Research Institute for Society and Education (ARISE); NTU) speaking on engaging the community in active ageing with the use of exergames.

Research & Innovation Corridor



Dr Yew Yik Weng of National Skin Centre briefing Mr Gabriel Lim on 'Moving towards personalized care in patients with eczema through patient empowerment and self-monitoring.'

Congratulations to Awardees of the RRIS Rehabilitation Research Grant

The 1st call for the Rehabilitation Research Institute of Singapore (RRIS) Rehabilitation Research Grant (RRG) was jointly launched by A*STAR, NHG and NTU in April 2016.

RRIS RRG aims to promote collaborative rehabilitation research in order to generate new knowledge to improve rehabilitation clinical practices for the local and /or Asian population.

A total of 18 applications were received. After a rigorous review by the scientific reviewers and deliberation by the Rehabilitation Selection Panel, 7 applications were selected for funding. Congratulations to all successful awardees!

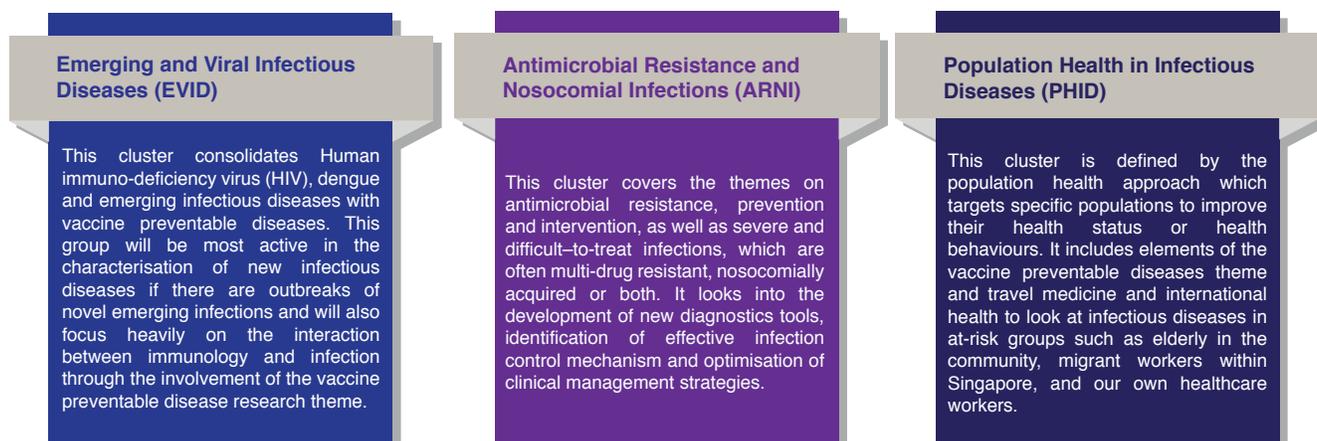
★ Project Title	★ Clinical Lead - PI	★ Technical Lead - PI
ACRES: An Autism Cognitive Rehabilitation Programme for Executive Functioning Skills	Ms Goh Tze Jui , Senior Psychologist Institute of Mental Health	A/Prof Cai Yiyu , Associate Professor Nanyang Technological University
Wristbot: A Novel Device for Assessment of Proprioceptive Deficits After Stroke	Dr Chua Sui Geok Karen , Senior Consultant Tan Tock Seng Hospital	Asst Prof Lorenzo Masia , Assistant Professor Nanyang Technological University
Exploring New Treatment of Spinal Cord Injury by Synergising Regenerative Medicine and Rehabilitation	Dr Adela May Tow Peh-Er , Senior Consultant Tan Tock Seng Hospital	A/Prof Chew Sing Yian , Associate Professor Nanyang Technological University
Automated Low Vision Rehabilitative System using real-time gAze aNalysis (ARIANA)	Dr Augustinus Laude , Senior Consultant Tan Tock Seng Hospital	Dr Wong Wing Kee Damon , Department Head Institute for Infocomm Research A*STAR
Feasibility Study of BCI-based Adaptive Sensing and Feedback Training for Chronic Pain Management	Ms Yang Su-Yin , Senior Psychologist Tan Tock Seng Hospital	Dr Zhang Haihong , Lab Head Scientist III Institute for Infocomm Research A*STAR
Multimodal Imaging of Neuroplasticity in Upper Limb (UL) Recovery with Early Increased UL Practice after Stroke	Ms Chin Lay Fong , Principal Physiotherapist Tan Tock Seng Hospital	Dr Huang Weimin , Senior Scientist Institute for Infocomm Research A*STAR
Mobile Robotic Assistive Balance Trainer	Dr Wee Seng Kwee , Principal Physiotherapist Tan Tock Seng Hospital	A/Prof Ang Wei Tech , Associate Professor Nanyang Technological University

Restructuring Our Research Focus and Strategies

In this instalment of 'NHG's Research Journey' series, the Institute of Infectious Diseases and Epidemiology (IIDE) shares on how cross-disciplinary research has contributed to its growth in research.

In 2013, the Communicable Disease Centre (CDC) received a Centre Grant (CG) of \$3 million over 4 years from National Medical Research Council (NMRC). The original plan proposed for the CG included 6 key research themes led by individual Principal Investigators (PIs) who would drive their own area of research while sharing research cores.

Following the Scientific Advisory Board (SAB) review in 2014, a recommendation was made by international experts to group our research themes into three research clusters:



The consolidation of 6 research themes into 3 research clusters will enable PIs with related interests to potentially provide cross-coverage and be led by an experienced clinician-scientist who is able to provide mentorship to more junior researchers. Most importantly, this new grouping allows each research cluster to have its own synergies and focus, and develops a unique branding for CDC as it transforms into the Institute of Infectious Diseases and Epidemiology (IIDE).

Contributed by:

Dr Mark Chen I-Cheng, Consultant | Dr Pang Junxiang Vincent, Senior Research Fellow | Ms Tan Mei Xuan, Executive
Institute of Infectious Diseases and Epidemiology, Tan Tock Seng Hospital

21st Century Doctor: A Clinician-Scientist?

Scientific research has become an integral part of modern healthcare where evidence-based medicine is heavily emphasised and practiced upon. As physicians, we have a duty to provide the best treatment for our patients backed by the most up-to-date, reliable evidence. In fact, our responsibility does not stop at using the available resources, but also extends to making a contribution to these resources ourselves. The resultant phenomenon is the move towards grooming doctors into clinician-scientists such that doctors can perform some form of clinical or basic scientific research. This requirement, be it implicit or explicit, aims to generate leading research that can, perhaps, save humanity.

However, it has come to the attention of many that our initial pure intention of improving healthcare through research has developed or can potentially lead to a selfish initiative of meeting our own desires. Research requirements have become prevalent in the medical field, be it for residency application, career advancement, reputation, or other personal reasons, and this has unknowingly resulted in a fierce competition rather than a friendly contribution where many have become obsessed over quantity rather than quality of research papers. Are we truly driven by passion and good faith in helping patients or are we simply churning out papers after papers for our own vested interest?

Indeed, intentions of doctors undertaking research may vary – be it passion to cultivate research skills, curiosities in certain medical fields, or self-serving aspirations for career advancements. It is now time for us to take a step back and reflect on our intentions and ensuring that the quality or ethics of research, safety of our patients, and of our duty as physicians have not been compromised in the process. Only then can we safely pride ourselves for the work that we have produced. Let us not forget who we are ultimately doing research for.

Contributed by:

Adj Asst Prof Rupesh Agrawal
Consultant, National Healthcare Group Eye Institute
Tan Tock Seng Hospital

Understanding Breathing Clearer

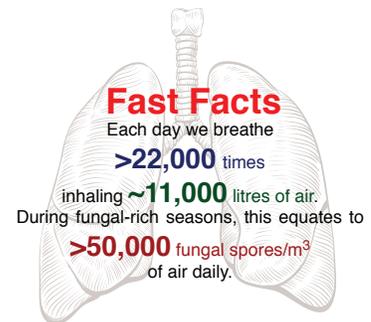
Fungal spore size (~2-50µm) permits access to the smallest airways where immune function is critical for its elimination, a factor perturbed in bronchiectasis; a key chronic irreversible dilatation of the airway affecting Singaporeans. **Asst Prof Sanjay Haresh Chotirmall** has recently been awarded the National Medical Research Council (NMRC) - Transition Award (TA) to study this phenomenon of Aspergillus-associated disease in patients with bronchiectasis with co-investigators from the Department of Respiratory and Critical Care Medicine at Tan Tock Seng Hospital (**A/Prof John Abisheganaden, A/Prof Albert Lim and Dr Akash Verma**).

Together with colleagues at A*STAR, Institute of Molecular and Cell Biology (IMCB) and Imperial College London, **the study team aims to determine the extent of the clinical burden for bronchiectasis patients in Singapore**. Utilising

immunophenotyping and metabolomics approaches, they will generate novel methods for diagnosis particularly in the earliest phase of disease. While the airway's bacterial microbiome is well-described in both health and disease, our understanding of the fungal mycobiome has lagged behind.

As part of this grant, Asst Prof Chotirmall and colleagues will investigate the airway mycobiome in patients with bronchiectasis using both targeted sequencing and shotgun metagenomics approaches. This information will then be linked to an individual's disease state and outcomes using a precision and personalised medicine approach.

It is hoped that the work will generate novel diagnostic markers for Aspergillus-associated airways disease and identify novel pathways amenable for therapeutic intervention for this important and understudied patient population.



Contributed By:

Asst Prof Sanjay Haresh Chotirmall
Principal Investigator,
Translational Respiratory Research Laboratory,
Lee Kong Chian School of Medicine,
Nanyang Technological University

Visualizing Blood Flow in the Eye Without Injections

Age-related macular degeneration (AMD) is a chronic, progressive disease of the retina and is a leading cause of blindness worldwide. **Polypoidal Choroidal Vasculopathy (PCV)**, characterised by an abnormal vascular network with terminal dilations, is a variant of AMD which is more commonly seen among Asians. The characteristics and clinical outcomes of PCV differ from typical AMD.

Optical Coherence Tomography Angiography (OCTA) is a novel, non-invasive investigation that produces high-resolution images of the normal and abnormal vasculature in the retina and choroid without the use of intravenous dye injection. If OCTA can detect PCV lesions reliably, it may potentially be a faster and cheaper alternative to more invasive investigations such as indocyanine green angiography (ICGA), which is the current gold standard for the diagnosis of PCV.

A 3-year prospective study titled "Non-invasive Optical Coherence Tomography Angiography for Deep Phenotyping and Diagnosis of Polypoidal

Choroidal Vasculopathy" funded by the **National Medical Research Council (NMRC) Transition Award (TA)** will investigate the sensitivity of OCTA in diagnosing PCV and differentiating PCV from typical AMD. The study will also perform detailed phenotyping of its abnormal vascular channels in order to differentiate PCV into separate subtypes. The OCTA characteristics will be correlated with the clinical outcomes of the patients.

The study team from the National Healthcare Group Eye Institute (NHGEI) comprising of **Dr Colin Tan** (Principal Investigator), **A Prof Lim Tock Han**, **Dr Louis Lim** and **Dr Ngo Wei Kiong** would collaborate with Professor Wong Tien Yin and Dr Gemmy Cheung from the Singapore National Eye Centre on this project.

Patients enrolled in the study will undergo detailed eye diagnostic investigations that include Confocal Scanning Laser Ophthalmoscopy Fluorescein Angiography (FA), ICGA, Optical Coherence Tomography (OCT) and OCTA.

It is hoped that this study will enhance the

understanding of the structure and clinical behaviour of PCV, and improve the clinical management of this important disease.



The Study team from NHGEI
Dr Colin Tan (seated), Dr Louis Lim (left) and
Dr Ngo Wei Kiong (right)

Contributed by:

Dr Colin Tan
Senior Consultant, Department of Ophthalmology,
National Healthcare Group Eye Institute
Tan Tock Seng Hospital

Investigating Retinal Microvascular Changes in Acute Dengue Infection

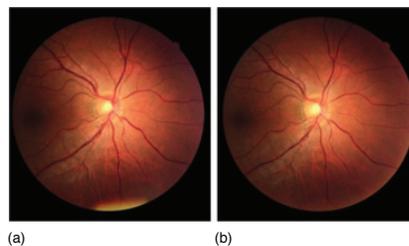
This collaborative work among the Institute of Infectious Diseases and Epidemiology (IIDE) at Tan Tock Seng Hospital (TTSH), National Healthcare Group Eye Institute (NHGEI), and Singapore National Eye Centre (SNEC) highlights **an innovative advancement in dengue research.**

The blood vessels in the eye have been found to exhibit different characteristics in patients suffering from dengue compared with uninfected individuals. This discovery was made by incorporating cutting-edge photography into sophisticated computer analysis and applying extensive knowledge of dengue.

Using a semi-automated computer-assisted programme and a special camera, photographs of the retina were taken and a range of retinal vascular parameters (such as vascular caliber, vascular tortuosity, fractal dimension and

branching angles) was measured. A total of 62 laboratory confirmed dengue patients and 127 age-gender-ethnicity matched healthy controls were recruited into this study from 2011 to 2012. A locally developed programme, Singapore I Vessel Assessment, was used for the measurement and analysis of the retina.

It was found that patients with acute dengue had significant differences in retinal vascular parameters (blood vessels were more crooked and of larger diameter) compared with matched healthy controls. This novel finding was recently published in Scientific Reports, a Nature research journal. Future studies could show whether retinal vasculature differs in patients with severe dengue versus mild dengue or how these changes evolve over the course of dengue illness.



Example of a dengue patient (a) at acute dengue infection stage, and (b) at convalescence stage. The retinal arteriolar caliber (127.0 vs. 138.8 μ m) and venular caliber (205.1 vs. 228.7 μ m) are decreased at convalescence stage.

Contributed By:

Prof Leo Yee Sin, Director I A/Prof David Lye, Senior Consultant I Ms Linda Kay Lee, Project Manager I Dr Hsu Jung Pu, Research Fellow
Institute of Infectious Diseases and Epidemiology, Tan Tock Seng Hospital

Strengthening Caregivers to Carry On

While I was caring for my father towards the end of his life, I was highly stressed trying to juggle caregiving with work. There were times when I felt that I have lost control of my life. This experience left me wondering **what could encourage and support caregivers to continue caregiving for their loved ones** and I was delighted when the NHG Research Support Scheme (RSS) provided me with the resources to embark on Project MACE (Mastery-centric Assessment of Caregivers of Hospitalised Frail Elderly).

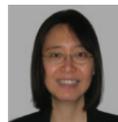
The two-phase study seeks to **define the determinants and impacts of mastery amongst family caregivers of the hospitalized frail elderly.** The findings will be used to guide the **development of interventions to enhance the mastery of**

caregivers so that they are able to better cope with the strains of caregiving.

I faced myriads of challenges in conducting Project MACE in a busy and fast-paced institution like Tan Tock Seng Hospital (TTSH). The help of many individuals, including my study team, my mentor and the nurses who helped with study recruitment and data collection, enabled me to persevere on. It is said that 'It takes a village to raise a child' and this cannot be truer for Project MACE. The abstracts on the preliminary findings have since been awarded the Silver award for the "Singapore Nursing Award" and the Gold award for the "Best Poster Award – Nursing" at the recent SHBC 2016 Scientific Competition.

My personal aspiration as a researcher is to generate research findings that would have a

direct impact on improving caregiver and patient outcomes. I hope our work could **assist family caregivers to continue caring for their elderly loved ones in the community for as long as possible without succumbing to the strains of caregiving.** I also hope my story will inspire younger nurses who are passionate about research to pursue the rarely trodden research path.



Contributed by:
Dr Chan Ee Yuee
Assistant Director of Nursing,
Tan Tock Seng Hospital
Adjunct Assistant Professor,
ALCNS, National University of Singapore

A Day in the Life of a Biostatistician

There was once when a medical student approached me for statistical advice for her study and said, "Thanks for the advice! ... No offence, but you don't look like what I imagine a typical biostatistician to be. I expected them to be nerdy and boring because they hide behind the computer, run analysis, and speak in a language that is difficult to understand." I laughed out loud.

That is indeed, the typical perception of a biostatistician. But she cannot be more wrong as analysis is not the only thing we do. **At every point of a research study, we play a part to make sure that the study is statistically sound and unbiased, from sample size calculation, statistical analysis planning to analysis and results interpretation.** This also

includes dealing with "dirty" data, communicating statistics to the multi-disciplinary study team in layman terms, countering the choice of statistical methods by the sponsor's statistician which may give benefit to the sponsor's drug.

With the healthcare sector undergoing Care Transformation, moving towards preventive care which uses new database technologies and advanced analytical methods to extract valuable insights to manage our population healthcare, **my role as a biostatistician is to use my data management and analytical knowledge to help the organization work towards building a strong preventive healthcare system in Singapore.**

With these challenges, a biostatistician's life can

never be boring and it is definitely much more than number crunching. **As Hal Varian, Google's chief economist said, "... the sexy job in the next 10 years will be statisticians. And I'm not kidding."**



Contributed by:
Ms Virlynn Tan
Biostatistician,
National Skin Centre

Optimising Pharmacotherapy through Health Technology Assessment

I was trained as a pharmacist and pursued a doctorate degree researching on the immunomodulatory effects of vitamin D. Both in their own ways paved the path to my current work at the Pharmacy and Therapeutic (P&T) Office - optimising pharmacotherapy through **health technology assessment (HTA)**.

This has been put under greater test in my recent projects where P&T Office embarked on value-based HTA. The paradigm shift is to **appraise the clinical benefits and cost-effectiveness of technologies or procedures currently in use - with the aim to inform of their optimal use and to deprescribe those which offer little benefits**. There remains challenges in this new endeavour but we have harnessed some encouraging results.

In collaboration with the Institute of Mental Health (IMH), the P&T Office **re-evaluated the use of neuroimaging in patients presenting with psychosis for the first time**. Though pivotal to the clinical management and outcome of the patient, studies have found that the diagnostic yield of magnetic resonance imaging and computed tomography scanning in first-episode psychosis was low. In another project, **we investigated the value of routine monitoring of serum valproate levels** since there has been poor relation between the serum level and therapeutic efficacy of valproate as a mood stabiliser.

In both instances, continual application of such tests to all patients generated costs whilst adding little benefits. Through a review of HTA resources and practice guidelines by major international

professional associations, recommendations were made not to routinely apply these tests but to selectively use them when appropriate. With that, we hope to work towards affordable and sustainable healthcare while ensuring optimal care for our patients which is a constant emphasis in the healthcare landscape today.

We can make use of value-based HTA to navigate the complex healthcare conduit in achieving the desired outcomes in an evidence-based and cost-effective manner.



Contributed by:
Dr Khoo Ai Leng
Principal Research Analyst, P&T Office,
Group Corporate Development, NHG

Broadening Horizons Through Postgraduate Education

My interest in public health grew as I worked on more clinical research projects at work and volunteered more regularly with voluntary welfare organisations. With a Bachelor's degree in Life Sciences, I wanted to understand how to use evidence-based approaches to identify healthcare-related gaps and improve the health of communities. After much thought and discussion with my bosses, I decided to embark on the rigorous **3-year part-time Master of Public Health (MPH) programme offered by the National University of Singapore's Saw Swee Hock School of Public Health** which I graduated from in June 2016.

The MPH programme has truly broadened my horizons of what public health really encompasses. **I was enthused by the multidisciplinary curriculum, which included epidemiology, health policy, health behaviours, and qualitative and quantitative research methods**. I always looked forward to attending lectures, participating in group discussions, synthesising and applying the knowledge first-hand to my job in the National Healthcare Group Polyclinics Clinical Research

Unit. There were **opportunities to hone my skills in critical thinking, problem-solving, evaluation, communication and scientific writing, through the assignments and Practicum project**. Teamwork and precious friendships were forged through learning alongside fellow coursemates of different backgrounds and professions. I would also like to express my appreciation to the approachable esteemed faculty and administrative staff of the School, and my fellow colleagues. Juggling between work and school was admittedly challenging, but it also improved my time management skills.

It has been a valuable journey, which will stand me in good stead as I become more involved in primary care and public health research. It feels rewarding to be able to connect the dots between theory and practice, some lecturers have also become collaborators at work. However, as Leonardo da Vinci puts it,

"Learning never exhausts the mind", and it is never-ending. **The MPH programme has inspired me to keep abreast of the latest**

trends and challenges in healthcare and research, to work effectively with healthcare professionals, to contribute more significantly to the dynamic and complex healthcare landscape of Singapore and beyond.



Contributed by:
Ms Teo Sok Huang
Senior Executive, Clinical Research Unit,
National Healthcare Group Polyclinics

Qualité (Issue 24, Sep 2016)

DSRB SOP Updates in Alignment to Human Biomedical Research Act (HBRA)

Find out more about the key changes to DSRB SOP that will be made effective in phases from 1 November 2016 onwards.

Click [here](#) to read the full article.

To access all past Qualité articles, please visit www.research.nhg.com.sg (Training and Education > Newsletters > Qualité)

Research Training Events		
Date	Training Programme	Course Provider
Ongoing	Singapore Guideline for Good Clinical Practice Online	NHG RDO
2 November 2016	Evidence-Based Medicine Core Skills for Protocol Development	NHG RDO
8 November 2016	Health-Related Quality of Life for Beginners	TTSH CRIO
17 November 2016	Intellectual Property	NHG RDO
18 November 2016	Proper Conduct of Research – Advanced II (PC302)	NHG RDO
5 December 2016	Advanced Health-Related Quality of Life	TTSH CRIO

*Dates are subject to changes without prior notice.

For registration and full details on courses by:
~ NHG Research & Development Office (RDO), please visit www.research.nhg.com.sg (Training & Education > Register for Courses and Other Events)
~ TTSH CRIO, please contact Ms Siti Aisha Binte Jaffar (Siti_Aisha_JAFFAR@ttsh.com.sg).