



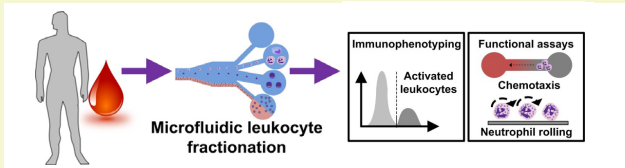
Adding years of healthy life

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ACCELERATING RESEARCH



Microfluidics Approaches to Diabetes Testing



A multidisciplinary team from NTU, LKCMedicine and TTSH is developing novel microfluidic strategies for multi-parametric leukocyte phenotypic and functional profiling in type 2 diabetes mellitus (T2DM) patients.

Click [here](#) to read more.

Channel NewsAsia Highlight of The Mind Matters Study on 6 October 2015



A nationwide study reveals critical need to increase recognition and understanding of mental illnesses in Singapore.

Click [here](#) to read more.

Snapshots of SHBC 2015



The Singapore Health & Biomedical Congress (SHBC) 2015 took place from 2-3 October in the Max Atria at the Singapore Expo. Themed Advancing Healthcare into the Future: Innovate, Improve, Integrate, the Congress saw some 3,000 international and local delegates in attendance.

Click [here](#) to read more.

Translating Knowledge, Optimising Outcomes

In this instalment of the “NHG’s Research Journey” series, NHG Pharmacy and Therapeutics (P&T) Office shares on its research initiatives in Health Technology Assessment (HTA).

Click [here](#) to read more.

RESEARCH NEWS

NHG Research Career Development Programmes
FY2016 Call for Application Opening on 18 January 2016

RESEARCHERS' FEATURE



Dr Ng Oon Tek
Consultant, TTSH



Dr Ngo Wei Kiong
Resident, NHGEI



Dr Ho New Fei
Research Fellow, IMH



Ms Amii M Hernandez
Data Manager

EDUCATION

My Research Experience during HMDP
Dr Chan Lai Gwen,
Consultant, TTSH

Plan your research training ahead!
January – June 2016 Research Training Events now available

Qualité

Award for Annals, Academy of Medicine Best Publication 2014

Every year, the Annals Editorial Board shortlists the best papers published within the previous year and votes for the top 3 papers based on clinical impact, study design and research methodology, data analysis and quality of data interpretation and balanced discussion. Adjunct Assistant Prof Mythily Subramaniam and her team* have received the Award for Annals, Academy of Medicine Best Publication 2014. She was the Co-Principal Investigator for the study and first author of this publication.

Award: Bronze Prize

Title of Publication:

Hoarding in an Asian Population: Prevalence, Correlates, Disability and Quality of Life

*Adj Asst Prof Mythily Subramaniam, Dr Edimansyah Abdin, Ms Janhavi Ajit Vaingankar, Ms Louisa Picco, Prof Chong Siow Ann



Adj Asst Prof Mythily Subramaniam receiving her award from Prof Lim Shih Hui, Master of the Academy of Medicine, Singapore, at the Academia @ SingHealth on 31 July 2015.

Channel NewsAsia Highlight of The Mind Matters Study on 6 October 2015

The Institute of Mental Health released the findings of a recent study called 'The Mind Matters: A Study of Mental Health Literacy' conducted amongst Singapore residents between the age of 18 to 65 years.

The study aimed at obtaining information on people's recognition and beliefs about five common mental disorders - Alcohol Abuse, Dementia, Major Depressive Disorder, OCD and Schizophrenia. People's attitudes towards help-seeking and stigma towards those with mental illness were also studied.

The findings of the study revealed the recognition level of the five disorders in the following order – **Dementia (66.3 per cent)**, **Alcohol Abuse (57.1 per cent)**, **Major Depressive Disorder (55.2 per cent)**, **OCD (28.7 per cent)** and **Schizophrenia (11.5 per cent)**.

It was also found that majority of the respondents endorsed that – "those with mental health issues could get better if they wanted to", "the problem is a sign of personal weakness" and "people with such disorders are unpredictable", indicating a considerable amount of personal stigma towards mental illness.

The researchers have suggested using well-planned and culturally relevant campaigns to create awareness and counter the stigma of mental illness.



(from left): Dr Edimansyah Abdin, A/Prof Kwok Kian Woon (Sociology Division, NTU), Ms Louisa Picco, Asst Prof Mythily Subramaniam, Prof Chong Siow Ann, Ms Saleha Shafie and Ms Shirlene Pang.

The study has been extensively covered in print, broadcast and online media platforms, and one such report can be viewed in Channel NewsAsia's webpage: <http://www.channelnewsasia.com/news/singapore/more-awareness-of-mental/2170996.html>

NHG RESEARCH CAREER DEVELOPMENT PROGRAMMES FY2016 Call For Applications Opening on 18 January 2016 (12pm)!

NHG-NTU CLINICIAN-SCIENTIST FELLOWSHIP (CSF)

CLINICIAN-SCIENTIST CAREER SCHEME (CSCS) (JUNIOR)

Closing Date: 14 March 2016 (Monday), 12pm*

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

Stay tuned to www.research.nhg.com.sg for the latest information!

Singapore Health & Biomedical Congress (SHBC) 2015 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 3,000 healthcare delegates from Singapore and the Asia Pacific, including Australia, Malaysia, Nepal, Saudi Arabia, and Thailand.

Signing of Memorandum Of Understanding (MOU)

NHG and NTU signed a memorandum of understanding (MOU) at the Opening Ceremony on 2 October 2015, to set up a joint programme to further the understanding of disease risk factors unique to Asian populations. The findings would help in the design of early intervention and prevention approaches. For more information, click [here](#).



NHG and NTU establish a new joint programme in predictive and preventive healthcare. From left : A/Prof Lim Tock Han (Dy Group CEO, Education & Research, NHG), Adj A/Prof Chong Phui-Nah (CEO, NHG Polyclinics), Prof Philip Choo (Group CEO, NHG), Mr Gan Kim Yong (Minister for Health), Prof Lionel Lee (Executive Vice-Dean, Administration, Lee Kong Chian School of Medicine, NTU), A/Prof Pang Wen Sun (Vice-Dean, Clinical Affairs and Lead for Professionalism, Lee Kong Chian School of Medicine, NTU).

The Primary Care Forum

National Healthcare Group Polyclinics (NHGP) held its annual Primary Care Forum (PCF) in conjunction with SHBC 2015. Aptly themed “Primary Care: Beyond 50 Years of Healing and Caring in the Community”, the Forum showcased how primary care is the cornerstone of an advanced healthcare system that can adapt and evolve to meet the changing needs of the population. Click [here](#) to learn more about the Forum.

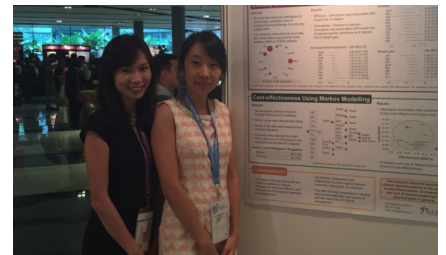


NHGP team with distinguished guests and overseas experts Third from left: Dr Wong Tien Hua (President, Singapore Medical Association), Prof Kurt Stange (Professor of Family Medicine and Community Health, Epidemiology & Biostatistics, Oncology and Sociology, Case Western Reserve University), Mrs Tan Ching Yee (Permanent Secretary (Health), Ministry of Health), A/Prof Roar Maagaard (Associate Professor, University of Aarhus).

Answering Questions on Clinical and Cost Effectiveness

The NHG Pharmacy and Therapeutics (P&T) Office presented their work on the efficacy, tolerability and cost-effectiveness of drugs spanning across various disciplines which include antidepressants, antifungals, antipsychotics, antivirals and statins. The team won the Best Poster Award (Gold) for Health Services Research.

At the Geriatric Medicine Track, Ms Lin Liang from P&T Office discussed about the potential and pitfalls of cost-effectiveness studies in the elderly and featured a cost-effectiveness study on novel oral anticoagulants conducted in collaboration with the Department of Geriatric Medicine, Tan Tock Seng Hospital (TTSH).

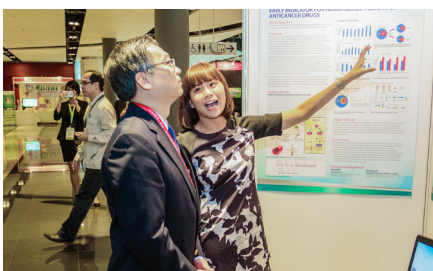


Ms Lin Liang (left) with Dr Zhao Ying Jiao.

Biomedical Research Symposium

The Biomedical Research Symposium returns in 2015 with a thematic showcase of collaborative projects between clinicians and scientists in 4 areas of research: Rehabilitation, Ageing, Infectious Diseases and Skin.

A poster exhibition was held in conjunction with the symposium and featured NHG's complete roadmap for clinician-scientists development, efforts in fostering collaborations with our research partners and latest innovations.



Ms Jillian Boon (IMH) sharing with the Guest-of-Honour, Mr Gan Kim Yong (Minister for Health) on RegnaTales, a mobile game app developed to equip children and youths with skills on anger management, problem solving and social skills through the use of interactive and gamification elements.



Prof Philip Ingham (Vice Dean, Research, LKCMedicine) presenting the Opening Address at the Biomedical Research Symposium.

Data Science and Decision Science (Health Services Research Track)

This year, the Health Services & Outcomes Research (HSOR) unit, National Healthcare Group (NHG) conducted two sessions under the Data Science and Decision Science track.

The first session on Big Data explored the changing data landscape and on mining unstructured data. This was followed by visualising large data and the use of clustering methods to suggest co-location of specialties.

The second session on Healthcare Models looked at ‘smaller data’ compared with the previous session. The focus was on decision models that have used optimisation, prediction and economic methods to inform policy, management and clinical decision making.



From left: Dr Meng Fanwen, Kelvin Teo, Palvannan RK, Dr Zhu Zhecheng, Alex You, Teow Kiok Liang.

SEE YOU NEXT YEAR AT SHBC 2016!

CONGRATULATIONS!
TO ALL SCIENTIFIC COMPETITION WINNERS!

[Click Here for the List of Winners!](#)

#SHBC2015 Share Your Happy Moments With Us!

Translating Knowledge, Optimising Outcomes: A Continuous Journey in P&T Office

In this instalment of the “NHG’s Research Journey” series, NHG Pharmacy and Therapeutics (P&T) Office shares on its research initiatives in Health Technology Assessment (HTA) with the aim to inform optimal use of health technology.

The NHG Pharmacy and Therapeutics (P&T) Office focuses on three key areas: Master Data Management (MDM), Clinical Decision Support (CDS) and Health Technology Assessment (HTA). P&T Office’s involvement in HTA dated back in 2010. Together with healthcare professionals from NHG institutions and National University Health System (NUHS), we implemented the Formulary Management Programme in 2011 to incorporate concepts of HTA to inform decisions in formulary management.

This valuable experience led us to embark on HTA research with the formal setup of a HTA team in 2014. The unit started with three HTA researchers and has expanded to its current five-member team. We are

thankful to Prof Chee Yam Cheng (former Group Chief Executive Officer, NHG), A/Prof Lim Tock Han (Deputy Group Chief Executive Officer (Education & Research), NHG) and Mr Linus Tham (Group Chief Corporate Development Officer & Group Chief Operating Officer for Regional Health, NHG) for their support leading to this exciting journey with NHG.

Our HTA team has been working with local and international collaborators addressing safe, appropriate and cost-effective use of health technologies at the bedside. We share our research findings at various local and international meetings, and have published 11 manuscripts in international peer-reviewed journals since inception.



P&T Office team at the NHG 15th Anniversary Dinner & Dance Celebration 2015.

Being part of NHG Strategic Healthcare Research and Analytic (N-STRAT), commissioned in 2015, we will continue to bridge research and decision-making for optimal use of health technology which includes pharmaceuticals, medical devices, diagnostics and procedures to support the achievement of an effective and sustainable healthcare system.

Article contributed by **NHG P&T Office**

Single-Molecule, Real-Time (SMRT) Sequencing Characterises a Novel New Delhi Metallo-Beta-Lactamase (NDM)-Positive Plasmid, pSg1-NDM, Associated with Rapid Inter-Institutional Spread in Singapore

In 1951, then United States (US) President Harry Truman declared victory in the war on bugs at the dedication for the US National Institutes of Health (NIH) Clinical Centre, one of the country’s leading sites of clinical research – “During the first half of the 20th century, it is safe to say that we successfully conquered the infectious diseases”. Ironically, 60 years later, this centre-of-excellence experienced a frightening outbreak of *Klebsiella Pneumoniae* Carbapenemase (KPC) positive *K.pneumoniae*, an antibiotic-resistant superbug – 11 of 18 affected patients died, with 6 (33%) deaths attributable to the deadly bug. With no credible drug options, the role of infection control to halt transmission was paramount – relying on cutting-edge technology to unravel the bug’s entire genetic code. Working together, bacterial geneticists and infection control experts uncovered hidden paths of transmission, guided interventions and ultimately the outbreak was controlled.

As in the NIH experience, we are currently using whole-genome sequencing to uncover the transmission and evolution of carbapenemase-

producing Gram-negative bacteria, mainly *Escherichia coli* and *Klebsiella pneumoniae*, in Singapore hospitals. The carbapenemase gene (of which KPC and New Delhi Metallo-Beta-Lactamase (NDM) are examples) produces an enzyme which hydrolyses (destroys) a last-line group of antibiotics called carbapenems which physicians have relied upon to treat multi-drug resistant Gram-negative infections, found especially among hospitalised patients. The number of these infections have been increasing in our local hospitals.

It has been known that carbapenemase genes in Gram-negative bacteria can transmit between bacteria on mobile genetic elements called plasmids. To further complicate the situation, carbapenemase genes can jump between plasmids. Working together with computational biology colleagues, we have analysed whole-genome sequences from our local Gram-negative superbugs to determine evolution and transmission. A key result from our work, which other groups internationally are highlighting as well, is **the important role of the plasmid as a vehicle for spread of resistance genes between**

Gram-negative bacteria. An initial example is the discovery of an NDM-positive plasmid, pSg1-NDM, which appears to be more readily transmissible between hospitals.

Finally, some take-home lessons on a personal note:

- (i) All work is part of a process - thank God for the opportunity to work with excellent collaborators and colleagues across the hospitals/ academic centres in Singapore;
- (ii) Seek and you will find; and
- (iii) Hasty pronouncements may return to haunt us in the hallways of history.



Dr Ng Oon Tek
Consultant

Department of Infectious Diseases
Tan Tock Seng Hospital

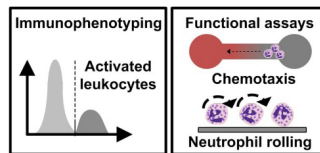
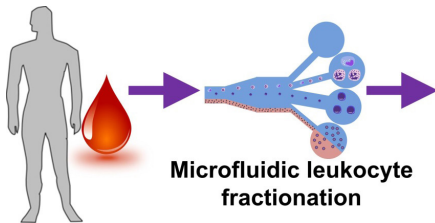
Microfluidics Approaches to Diabetes Testing

Diabetes Mellitus (DM) is a metabolic disorder characterised by chronic hyperglycaemia and is one of the top disease burdens in Singapore and globally. While leukocytes form an important defence mechanism in our body, the role of leukocytes in pathobiology of diabetes and its associated vascular complications remains poorly understood. Standard blood analysis relies on differential leukocyte count as part of the complete blood count. However, currently no specific measurements to assess patient's leukocyte functions are available, in particular technologies that links leukocytes as the body's defence system to endothelial dysfunction. This is mainly due to the lack of suitable isolation and assay methods to study cellular functions and is further aggravated by blood sample preparation difficulties typically requiring large blood volumes (~10 mL).

Our research goal is to develop novel microfluidic strategies for multi-parametric leukocyte phenotypic and functional profiling in type 2 diabetes mellitus (T2DM) patients. **Key features of our technologies include the use of small blood volumes (a single drop of finger-pricked blood), therefore suitable for point-of-care testing and leukocyte characterisation at single cell level to enable identification of rare leukocyte subpopulation with abnormal phenotypes.** If leukocyte phenotypes are associated with endothelial dysfunction, the assays can provide direct evidence for microvascular complications. **It can be further developed into point of care testing methods for endothelial function as part of routine monitoring to look at the sum effects of diabetes, hypertension and hyperlipidaemia on a prototypic pro-inflammatory phenotype.** Additionally, we can **potentially identify**

new intrinsic surrogate biomarkers for endothelial dysfunction or impaired blood perfusion to enable proper identification of high-risk patients follow up regimen of their chronic disease.

This proposed explorative study is an excellent example of multidisciplinary research involving engineering, clinical and experimental medicine. Our research team comprising of medical doctors, mechanical and biomedical engineers is uniquely positioned to achieve both clinical and technological goals. We are extremely excited in this pilot study as not only are we addressing an important clinical question in leukocyte-mediated diabetes and vascular pathobiology, but also the technology development of a miniaturised leukocyte fractionation tool will be of great interest to clinicians for routine testing.



Workflow for next generation microfluidic technologies for rapid leukocyte functional phenotyping using a single drop of blood.

Dr Hou Han Wei
Senior Research Fellow, LKCMedicine, NTU

Dr Rinkoo Dalan
Senior Consultant, Department of Endocrinology, TTSH

Assistant Professor Li King Ho Holden
Mechanical and Aerospace Engineering, NTU

Professor Bernhard Otto Boehm
LKCMedicine, NTU
Senior Consultant, Department of Endocrinology, TTSH

Colour Fundus Photo Features that Predict Structural Retina Abnormalities in Diabetic Retinopathy



Dr Ngo Wei Kiong presented his work at Singapore Health & Biomedical Congress (SHBC) 2015 and clinched the Gold Award for Singapore Young Investigator Award (YIA) - Clinical Research.

Diabetic retinopathy is a major blinding disease in developed nations. A third of diabetic patients have retinopathy and of these, up to 10% have sight threatening retinopathy, defined as diabetic macular edema or severe diabetic retinopathy. Early detection and management can prevent blindness and therefore screening is essential. Colour fundus photography is employed as the primary imaging modality in the many screening programmes. Colour fundus photographs are two-dimensional; therefore they do not reliably detect structural abnormalities of the retina

(macular edema), which constitutes criteria for treatment of diabetic macular edema. Using optical coherence tomography (OCT), three-dimensional transverse images of the retina can be reconstructed, revealing structural abnormalities which cannot be seen on fundus photography.

We aimed to correlate colour fundus photo features of diabetic maculopathy with OCT and identify colour fundus photograph features that predict retinal structural abnormalities requiring more urgent referral to tertiary eye centers for further management. In our prospective study, 115 diabetic patients underwent colour fundus photography and OCT. Each modality was graded separately by masked graders. Sensitivity and specificity of various colour fundus photograph features in identifying structural abnormalities on OCT were evaluated.

As a screening tool, colour fundus photography had a sensitivity of 100.0% and specificity of 83.8% in predicting OCT abnormalities. Hard exudates were strongly associated with the presence of OCT abnormalities and had specificity of 100.0%

and positive predictive value of 100.0%, especially if these were located within 1 disc diameter of the fovea. Eyes with cluster of micro-aneurysms were more likely to have abnormalities on OCT compared to those with only isolated micro-aneurysms, especially if the isolated micro-aneurysms were located beyond 1 disc diameter of the fovea. A sizable number of false positives (28.2%) exist with using colour fundus photographs as a screening strategy.

By identifying colour fundus photograph features of diabetic maculopathy that help predict macular edema detected on OCT, our study has the **potential to refine current diabetic screening programs to safely reduce unnecessary referrals and enhance the timeliness of referrals.** OCT may be a viable option to augment diabetic maculopathy screening in future.

Dr Ngo Wei Kiong
Resident
NHG Eye Institute @ Tan Tock Seng Hospital

Dr Colin Tan Siang Hui
Senior Consultant & Clinician Researcher
NHG Eye Institute @ Tan Tock Seng Hospital
Head
Fundus Image Reading Centre

Understanding Mental Illnesses to Improve Treatment for Sufferers



Dr Ho New Fei
Research Fellow
Department of Research
Institute of Mental Health

Dr Ho New Fei has been with the Research Division since December 2013.

Dr Ho's main interest in research is in understanding the brain structure and function underlying various mental illnesses, using live imaging tools such as magnetic resonance imaging (MRI) and neuropsychological assessments.

Her PhD was in Pharmacology, and for her thesis, she investigated the link between a growth protein and the boost in new brain cells caused by physical activity. She wanted to learn more about neuroimaging in the psychiatric populations and so for her postdoctoral training, she switched fields and did a four-year stint with the Massachusetts General Hospital / Harvard Medical School Psychiatric Neuroimaging and Schizophrenia Programmes.

Dr Ho has a keen interest in **investigating how the brain reshapes itself with various therapeutic interventions and is currently involved in several studies in Attention Deficit Hyperactivity Disorder (ADHD), bipolar disorder, schizophrenia and brief psychotic disorder.**

Mental illnesses cause distress and disruption to the lives of the afflicted and their loved ones. However till today, there is no complete cure and no definite biomarker for mental illnesses. Dr Ho hopes that her research work will be able to bring mental health professionals closer to understanding the fundamental causes. She works closely with the research team, using quantitative biological measures to clarify the common and different features across various mental disorders.

"Together with the Research team in IMH, I aspire to one day identify signature biomarkers that allow us to better diagnose, monitor our mental health, and increase chances of more successful treatment," said Dr Ho.

Delivering Quality Data

Data management for clinical research studies forms an integral part of the project and its success. Considering a research study's outcomes are based on analysis of collected data, the quality and accuracy of that data is extremely important, thus data management is one of the most crucial aspects of a clinical research project.

A common misconception is that data management is just the process of data cleaning at the end of data collection. On the contrary, data management concepts should be applied immediately during the start of the study design. This begins with Case Report Form (CRF) Design and Development, in association with Protocol Development, up to Data Dictionary Development which constitutes the CRF Database Design process. Each data point should be clearly defined in terms of functional definition and mode of collection, using simple programmes such as Microsoft Excel, Access or more sophisticated and highly

functional database tools like Oracle, MSSQL, or even paperless proprietary electronic data capture software. Data management also covers the complete Data Validation process until the database is ready to be locked and passed to Statistics for analysis and reports.

Common caveats involving clinical data management:

- **Collecting too much data.** It is unethical and a waste of resources to collect data that will never be used in analysis or is of such poor quality study results will be questioned.
- **No funds available for data management costs.** Data management takes time and should be budgeted for separately to general project management.
- **Data management specialists not engaged early.** Time and money can be saved by implementing data management procedures from the design phase of a study.

Ms Amii M Hernandez
Data Manager
Clinical Research & Innovation Office
Tan Tock Seng Hospital



To sum it up, the role of data management in clinical research equates to: Rubbish in = Rubbish out. This means that **any piece of data that was collected and entered 'unclean' into the clinical database will also produce 'unclean' results and inaccurate reports.** This highlights the importance of data handling and validation through appropriate data management processes.

Both time and money can be saved by implementing sound procedures throughout the data collection period, leading to high quality data being ready for analysis and research outcomes being published promptly.

Qualité

(Issue 21) – Education to Facilitate High Standards of Research Conduct

Screening Subjects Prior to Study Enrollment – Does This Require DSRB Approval?

~ Read more to understand the types of screening activities that require DSRB approval.

Informed Consent Fundamentals – Handling Subjects' Personal Information

~ A reminder to investigators to adhere to the terms of consent set out in the informed consent form, in particular, the handling of subjects' personal information.

Responsible Conduct of Research (RCR) – Collaborative Research

~ A case study is used to provide tips on how to have an effective collaboration between investigators.

Click [here](#) to read your full issue of *Qualité* (Issue 21) or visit www.research.nhg.com.sg.

My Research Experience During Health Manpower Development Plan (HMDP)



Dr Chan and her research team. From left: Dr Chan Lai Gwen, Ms Colleen Barry (Admin Assistant), Dr Kristoffer Romero (Post-doc Fellow), Dr Marie-Theaudin (Research Fellow from France), Dr Anthony Feinstein (Supervisor), Mr Jordon Ellis (Research Assistant).

My HMDP was a 6-month fellowship programme in Neuropsychiatry of Traumatic Brain Injury at Sunnybrook Health Sciences Centre of Toronto. At the Traumatic Brain Injury Clinic, all clinical data of the patients are entered into a database where the data can be extracted and used for research purposes. Under the mentorship of my supervisor, Dr Anthony Feinstein, I designed a study, extracted the data, performed the data analysis, wrote the manuscript, submitted it to a peer-reviewed journal, answered reviewers' comments and made manuscript

amendments, until it got accepted for publication eventually. I feel that I have learnt many valuable research lessons in the process.

Successful Clinician-Scientists protect their time for research work

Every part of the research process takes time and I was surprised by how much time it actually consumes! Time also needs to be protected for regular meetings with the research team and many ideas can actually be generated just from these face-to-face meetings too.

Knowledge of biostatistics is essential

My supervisor expected me to perform the statistics on my own and the consultation with the biostatistician was for the purpose of checking that I had done it correctly. I know I spent many weekends reading textbooks and trying out the statistical software to do my data analysis. Though it was tedious, I experienced an immense satisfaction at the end of it.

The title of the manuscript is critical

My supervisor taught me that the title of the manuscript must convey an important clinical point and the whole manuscript must therefore focus on that point. I learnt that writing the manuscript that way makes it more cohesive for the reader.

Do not be affected by reviewers' comments

When I first received the reviewers' comments, there were 3 pages devoted to comments on the introduction of the manuscript. My self-esteem took a beating but after licking my wounds and rewriting the manuscript to address their comments, I realized that I had learnt a lot more on how to write a good manuscript. The reviewers were very satisfied with the revised manuscript and my self-esteem recovered after they accepted the manuscript for publication.

Dr Chan Lai Gwen
Consultant

Department of Psychological Medicine
Tan Tock Seng Hospital

Dr Chan is an FY2011 Clinician Leadership in Research Programme awardee.

Research Training Events by NHG Research & Development Office

Date	Training Programme
Ongoing	Proper Conduct of Research Online – Basic I, II & III (PC101, PC102 & PC103) Workshop
Ongoing	Singapore Guideline for Good Clinical Practice (SGGCP) Course (Online)
18 – 19 Feb 2016	Singapore Guideline for Good Clinical Practice (SGGCP) Course (Classroom)
26 Apr 2016	Research Preparatory & Study Design Seminar
5 May 2016	Research Governance and Monitoring, Audits & Inspections Workshop
12 May 2016	Investigational Product Management Workshop
17 – 18 May 2016	Singapore Guideline for Good Clinical Practice Course (Classroom)
24 May 2016	Informed Consent and Documentation in a Clinical Trial Seminar

*Dates are subject to changes without prior notice

For registration and full details on courses by NHG Research & Development Office, please visit www.research.nhg.com.sg.

For enquiries, please write in to researchtraining@nhg.com.sg.

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