A NEWSLETTER FOR THE RESEARCH COMMUNITY IN SINGAPORE

catalyst

ACCELERATING **RESEARCH**

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National Healthcare Group
Adding years of healthy life

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EXCLUSIVE INTERVIEW **ASSOCIATE PROFESSOR CHONG SIOW ANN**

Dear Readers

We have put together an exciting edition of Catalyst just for you, thanks to NHG Research Editorial Workgroup and the contributors of the articles.

We are pleased to feature a seasoned researcher, Associate Professor Chong Siow Ann, Vice Chairman, Medical Board and Senior Consultant, Institute of Mental Health. A/Prof Chong is the Principal Investigator of the $25 million Translational and Clinical Research (TCR) Flagship Programme. He shares about his passion for his work and thoughts on collaborative research at his institution. A/Prof Chong is also a strong supporter of our programs and initiatives such as NHG Clinician Leadership in Research (CLR) and Small Innovative Grant (SIG). His invaluable experience and guidance has helped shape and contribute to the success of our programs and initiatives.

We also get to hear from our other researchers in the making, in particular, Dr Chong Mei Sian and Dr Rinkoo Dalan, both from Tan Tock Seng Hospital They are the recipients of the NHG Clinician Scientist Career Scheme (CSCS). You can also read more about our other CSCS awardees and their research in this edition. In October, the NHG Office of Human Research Protection Program (OHRPP) launched a new ethics review board, Domain F, to review population health research studies. Concurrently, our Research Online Administration and Management (ROAM) system, is now able to accept on-line application and review for studies coming through Domain F.

Recently, OHRPP has updated its minimum training requirement for principal investigators (PI) – by August 2014, all PIs conducting clinical trials must attend the Singapore Guideline for Good Clinical Practice (SGGCP) course in addition to Collaborative Institutional Training Initiative (CITI). This mandatory requirement shall ensure proper conduct of clinical trials, safety and well-being of research subjects.

NHG Research has always been a major player at the Singapore Health & Biomedical Congress. This year was no exception; do read about our tracks and exhibitions at the SHBC 2012.

As I was writing this, I realised how time flies and that we are almost at the end of 2012! That leaves me to wish you a Wonderful Christmas with those that matters most to you and a Fantastic 2013!

Till next time.

Yours Sincerely
Farah

National Healthcare Group
Adding years of healthy life

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We apologise for the error on page 6 of Catalyst Issue 12, the correct title should be "Healthcare and Wellness Kiosk at Woodlands Polyclinic"

YOUR NEWSLETTER, YOUR COMMENTS

Do you have... Research articles to share? Research topics that you want covered? Comments /Feedbacks on published contents of this newsletter? Comic strips / Cartoon Illustrations that is science / research-related that can bring smiles to your colleagues?

If you have answered "YES"to any of the above, we invite you to write in and share with us your throughts, feedback on published articles or cartoon clips (original materials, jpeg format please). And if your contribution is accepted for print, we will send you a token of appreciation with compliments from the Editorial Workgroup!

Do remember to add in your contact details, where applicable for our future communications with you.

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LEE KONG CHIAN SCHOOL OF MEDICINE WELCOMES NEW DEAN

On 1st August 2012, the Lee Kong Chian School of Medicine (LKCMedicine), a partnership between Nanyang Technological University (NTU) and Imperial College London (Imperial) welcomed its new Dean, Professor Dermot Kelleher.

Professor Kelleher combines his role as LKCMedicine Dean with his position as Principal of Imperial's Faculty of Medicine, with effect from 1st October 2012, and is set to lead the next phase of LKCMedicine's development to train more doctors to meet Singapore's future healthcare demands.

"It is a privilege to work with a dedicated team at LKCMedicine to set the direction for the School's research strategy and prepare to begin training a generation of outstanding doctors to serve Singapore," said Professor Kelleher who takes over the reins from the founding dean of LKCMedicine, Professor Stephen Smith.

With more than 30 years of experience in research, teaching and medical leadership, Professor Kelleher is an accomplished researcher and has held key appointments in various medical education institutions.

Graduating in medicine from Trinity College Dublin in 1978, Professor Kelleher completed specialist training in gastroenterology and subsequently received a Fogarty Scholarship in 1986 funding a research fellowship at University of California San Diego.

He returned to Trinity in 1989 as a Wellcome Senior Fellow in Clinical Science and was appointed to the Trinity College Chair in Clinical Medicine in 2001. In 2006, he was appointed Trinity's Head of the School of Medicine and Vice-Provost for Medical Affairs.

The author of over 200 publications and 14 patents, Professor Kelleher's research examines the immune response to many of the leading causes of gastrointestinal infectious disease worldwide, including organisms such as Helicobacter pylori and Clostridium difficile.

A key focus of his work was the use of tools derived from cell biology to analyse the function of the lymphocyte, a type of white blood cell, in the body's response to infectious agents and inflammatory diseases, such as inflammatory bowel disease.

Professor Kelleher was instrumental in the founding of the Dublin Molecular Medicine Centre in 2002, a joint venture between three major medical schools and their associated academic hospitals in Dublin, aimed at accelerating the translation of biomedical research into improved diagnostics and therapies for patients. Known as Molecular Medicine Ireland since 2008, this non-profit company has provided both a corporate and a physical infrastructure to support significant developments in medical biotechnology in Ireland.

He is also a founding member of Opsona Therapeutics, a spin-off company at Trinity College Dublin which identifies new ways to prevent and treat auto-immune/inflammatory conditions, cancer and infectious diseases.

Professor Kelleher has just completed his term as Chairman of the Eurolife Consortium of European Medical Schools, and has served as a member of the Board of the Health Research Board Ireland, the European Medical Research Council and the Wellcome Trust Clinical Interest Group.

A Fellow of the Academy of Medical Sciences, Royal College of Physicians of Ireland, Royal College of Physicians (London), Trinity College Dublin, and the American Gastroenterology Association, he was awarded the 2011 Conway Medal by the Royal Academy of Medicine in Ireland.

Professor Kelleher is excited about helming Singapore's newest medical school and looks forward to receiving its pioneer cohort in August 2013. He said, "They will be joining a School with ambitious aims to redefine medicine. Their experiences over the next five years will equip them to reach the highest professional standards in the care they give to patients. They will complete their studies as confident and competent medical practitioners, ready to transform healthcare to meet the needs of Singapore."

CONDUCTING RESEARCH SURVEYS IN THE COMMUNITY

Assistant Professor Mythily Subramaniam
Deputy Director, Research Division
Institute of Mental Health

The need for rational allocation of limited resources and informed decision-making in healthcare and social policies has increased the interest in conducting community surveys that provide results that are representative of the entire population.

Many community surveys are designed to measure the prevalence and impact of health conditions and understand the needs pertaining to these from the community's perspective. From a healthcare management perspective, these surveys can provide detailed information about specific problems affecting vulnerable sub-groups in the population, which helps in focusing resources and health promotion measures.

Community survey research is a scientific technique and requires that accepted practices be followed. Several considerations are necessary such as ethical requirements, sampling, field-testing of survey questionnaires and processes, validation, training and supervision and appropriate statistical analyses. While each survey will have its own considerations, there are few golden rules that help in planning and improving the survey outputs. At the foundation is having a crystal clear answer to why the survey is being conducted.

This helps in planning all the subsequent steps of the survey. At this stage, it is also necessary to get the buy-in and perspective from the various community leaders or groups that are being targeted in the survey. The scale of the survey then depends on the resources and time commitment for this effort. Ethical considerations are equally important for maintaining good survey practices and improving the response rate for the survey. Selection of survey populations and mode of data collection then needs to be considered.

Language issues often arise while surveying multi-ethnic and diverse target populations in the community and enough resources should be catered to address this. Training of surveyors or interviewers is important for standardised data collection and should be properly planned to be in line with the complexity of the survey.

Continual quality control, regular monitoring of survey progress and outcomes, close supervision and managing field related issues are also critical for an efficient survey process.

Following these steps will make conducting surveys a relatively smooth process for collecting required information from the community.

INTRODUCING THE NATIONAL HEALTHCARE GROUP (NHG) TECHNOLOGICAL TRANSFER OFFICE (TTO)

NHG and its partner institutions are moving into clinical research in a big way and this would potentially result in a number of new discoveries or inventions that need to be protected, and commercialised. In line with this new push, the Research & Development Office (RDO) of NHG has recently set up the Technological Transfer Office (TTO) to realise these objectives.

THE MAIN FUNCTIONS OF THE TTO ARE:

1) **To provide advice on Intellectual Property (IP) matters, strategies and management:**
The TTO provides IP advice and strategies such as what, when and how to protect the IP developed from the institutions. In addition, the TTO also performs due diligence such as prior art searches and business intelligence to aid the decision of investment in protecting the IP. Adding on, the TTO also helps manage IP and is in the process of setting up a management system to facilitate this initiative.

2) **To facilitate technology development and commercialisation of IP:**
The TTO has the expertise to help the institutions set out and negotiate business deals for licensing or collaboration. In addition, it can also facilitate the spinning off of companies by providing advice and strategies to the researchers who are interested in setting up companies using the IP developed from the institution. With regards to technology development, the TTO can provide information and links on grants/fundings from government agencies and private investors such as venture capitalists and angel funding.

3) **To aid in industry/academia collaboration and partnerships:**
With our strong links with the academia such as the universities, polytechnics and government research agencies, the TTO can help to "match-make" the institutions with the appropriate collaborators when there is a technology gap or request from individual researchers. We are also working with government agencies who have strong links to industries which are seeking for clinical research partners. These links empower the TTO with the ability to bridge the gap between clinical research and industry.

Apart from the above, the TTO has the expertise in drafting and negotiating agreements such as Clinical Trial Agreements, Research Collaboration Agreements, Non-Disclosure Agreements, Licensing Agreements as well as other agreements related to research and commercialisation. This would include providing legal advice to the institutions.

The TTO aims to be a one-stop centre for withal aspects of research-related IP and aims to play a big part in the emerging medical research landscape in Singapore. As medical research continues its growth as one of the new pillars of the economy, the TTO will strive to help shape NHG into a major force in the research arena, especially once the new Lee Kong Chian School of Medicine is up and running in the coming years.

For more information, please contact Mr Louis Ang, Assistant Director, Research & Development Office, National Healthcare Group. Email: Louis_bk_ang@nhg.com.sg

Research Coordinator, Project Management Unit
NHG Research & Development Office (RDO)

NHG (RDO) is looking for a suitable candidate to fill the position of Research Coordinator (RC). The RC will be required to facilitate clinical research in our NHG institutions through ensuring compliance with protocols and managing quality control. You will assist the principal investigator in preparation of study protocol, submission of ethics review, regulatory matters and other study-related documentation and preparing reports for organizations and agencies. You will also prepare study budgets; monitoring budget expenses and billing.

In addition, you will closely monitor enrolment goals and initiate strategies to promote enrolment and ensure participant compliance. You will coordinate and perform duties related to research participants including screening and recruiting subjects, scheduling visits, obtaining informed consent, answering subject enquiries, overseeing study visits, collecting tests samples, following up and acting as a liaison between participants and study-related parties. Furthermore, you will track and report adverse events and protocol deviations.

You may be required to perform other duties as directed by your supervisor, including work areas not mentioned above.

WE ARE HIRING

Requirements:

- Diploma in Nursing or Bachelor's Degree in a Health Science or related field preferably medical, paramedical or nursing
- Experience as research coordinator required
- Meticulous with excellent organizational, communication and human relations skills
- Able to work independently with minimal supervision as well as good teamwork skill
- Good knowledge of Singapore Good Clinical Practices and Institutional Review Board (IRB) regulations
- Knowledge of MS office applications

To apply for this position, please email **manjusha_sharma@nhg.com.sg**

INFLUENZA PCR DIAGNOSTICS

STAYING AHEAD OF THE CURVE WHILE RIDING THE RAPIDS

Dr Timothy Barkham
Senior Consultant, Laboratory Medicine, Tan Tock Seng Hospital
Adj Associate Professor, National University of Singapore

Routine molecular 'detection' tools were first deployed in Tan Tock Seng Hospital (TTSH) in response to Severe Acute Respiratory Syndrome (SARS) and the concurrent Dengue outbreak in 2003. At that time, a definitive diagnosis of dengue was welcome, as SARS was the main concern. This highlighted the benefits of Polymerase-Chain Reaction (PCR) and paved the way for our work on molecular assays. It also introduced the concept that making a definitive diagnosis was far more valuable than merely testing for the targeted organism. A negative SARS result did not exclude the disease but an accompanying positive dengue PCR was pretty reassuring!

During the 2003 outbreak, I met Dr Masafumi Inoue, a molecular biologist with Agency for Science, Technology and Research (A*STAR), then at Institute of Molecular and Cell Biology (IMCB) and now at Experimental Therapeutics Centre (ETC). We were introduced by Mrs Tay-Png Hong Lan, the IMCB Deputy Director (Admin) at that time, who was passionate and supportive and made things possible by guiding us over numerous hurdles; a blueprint for a good administrator! Our first project was an assay for SARS; this was a baptism by fire and the intense work forged a collaboration that is still productive after almost a decade.

H5N1 'Bird flu' was a key concern and in 2004, we planned a detection assay. Funding came from National Healthcare Group (NHG) Small Innovative Grant (SIG) and A*STAR support through Dr Inoue. Control material was, however, almost impossible to find. Nobody, including World Health Organisation (WHO) laboratories, would share H5N1 Ribonucleic Acid (RNA). It was with elation that I finally met an Australian scientist who was able and willing to help. It took several months of perseverance, special inspections and accreditation to get approval to import the H5N1 RNA. Official procedures can be like the Berlin wall; imposing, impervious and overwhelming. The breakthrough only came when I bumped into the 'right person' at a symposium on H5N1. I cornered him until he agreed to address our predicament. We were breaking new ground as H5N1 was the remit of Agri-Food & Veterinary Authority of Singapore (AVA) and they had not previously been asked to authorise the use of animal products in a hospital laboratory. Every step was impeded by the tangled threat of bio-safety and bio-terrorism.

Back at the coal face, H5N1 was on everyone's lips but awareness of and interest in seasonal flu was low. This was strange as the literature left no doubt about the annual burden of flu and the frequency of outbreaks in institutions, including healthcare facilities. We were tasked with buying H5N1 test kits but went against the tide and built an assay to detect all Influenza A and B. We ran our assay on a Luminex instrument, kindly loaned to us by Hitachi, as the technology would have allowed us to expand the assay into a 'grand multiplex' to identify the majority of respiratory viruses. Our decision to encompass all influenza paid off; the prototype was used on multiple occasions to debunk concern of a major outbreak, enabling the administration to relax when we determined that it was seasonal influenza, not SARS or H5N1, which was causing mischief; again, the ability to detect the actual pathogen was far more valuable than a negative report for the targeted organism.

In 2006, we were awarded a Health Sector Development Programme (HSDP) grant with our National University Hospital (NUH) colleagues, to pursue this area. Expensive assays that could detect up to twenty respiratory pathogens were evaluated; the yield in our adult inpatient population was negligible, apart from Influenza. We showed that up to 50% of respiratory samples were positive for Influenza; it was serendipitous that our survey had been done during the peak of the Influenza season. It was clear that in our adult inpatients Influenza was, by far, the predominant virus.

'Swine Influenza' appeared in 2009 and we thought we were well-prepared. However, when numerous staffs were rostered to deal with the torrent of samples we realised that our Luminex method was not robust in routine hands. We promptly changed to a pair of gel-based PCR methods previously designed by Li Jingguang, our HSDP scientist. The combined tests detected Influenza A and B and also gave specific signals for H5, H1, H3, N1 and N2. There were gels running on every spare patch of bench space; it was thrilling. The Ministry of Health (MOH) offered support and we brought in newer technology that allowed 'real time' PCR, which was a far more efficient process.

We planned a single step 5-plex assay that would detect Influenza A and B, and that would also specifically determine the presence of seasonal H1N1, H3N2 and pH1N1. The instruments had to be fitted with a special filter to enable us to run five dyes in parallel. It took weeks of frantic work, Dr Inoue building and we testing; then rejecting and trying again and again and again. All these while delivering a clinical service to crowds impatient for their results.

A final evaluation showed the assay equal to or more sensitive than singleplex competitors. We were contented. This was a luxury assay that delivered rapid Influenza A and B detection with subtype in one step, in one tube; sweet, lush. Again, our ability to detect the actual pathogen, rather than just the outbreak organism, enabled confident patient management decisions. A Rolls Royce in my book, perhaps a Toyota in Dr Inoue's! This real time assay, in various stages of development, has been in clinical use since the 2009 outbreak.

A*STAR licensed the assay to a local biotech firm and asked us not to publish, a casualty of patent and licence issues. Although our work has not been recorded in the literature, the clinical data our assay has generated has been the bedrock of multiple papers and presentations by clinical, epidemiological and public health colleagues. Our work fails when assessed by our publication output but stands tall if evaluated by counting the thousands of patients that have been tested with our assays, the numerous papers others have published, the staff we have trained, the contribution to the local biotech industry and the income Tan Tock Seng Hospital (TTSH) generates from running the assays. As the only home-manufactured assay Singapore markets internationally, we are proud to be flying the flag for the nation. Personal satisfaction is our reward, although it is not on the traditional list of recognised Key Performance Indicators (KPIs).

After several months, seasonal H1N1 disappeared so we removed it from the multiplex. Later on our routine quality assurance work showed us that our H5N1 singleplex was no longer performing to expectation; the virus had mutated! Similarly, the Influenza B component of our multiplex assay also became sub-optimal. Revamping took considerable work but after 6-12 months, and continued support from ETC, an evaluation in 2012 showed that our 4-plex detected up to 30% more true positives than commercial competitors. Our H5N1 singleplex can now detect all reported clades of H5N1; furthermore, should the need arise, we can simply add the H5N1 reagents to the 4-plex assay to make a 5-plex.

This quality outcome from research and service work that warrants the 'translational' label, is a testament to the power of collaboration between people sympathetic to and respectful of each other's needs and abilities, the dedicated work of laboratory staff at TTSH and ETC and the support of local grant bodies. From bench to bedside is a long and winding road; it needs assistance, funding, teamwork, hard labour and a little luck.

UPCOMING HURDLES

The natural history of Influenza promises variation in the genome that will demand that we continuously update the reagents. We have managed this for several years but the Health Sciences Authority (HSA) registration requirements now place financial and administrative hurdles in the way of commercial manufacturers updating assays in a timely fashion. Influenza is a moving target: it mutates and drifts out of reach so by the time HSA issues a certificate, an assay may already have become sub-optimal.

Once issued, the certificate will nevertheless allow continued marketing of the assay. The cost of re-submitting paperwork each time a change needs to be made to the reagents will deter manufacturers from doing so. This is a problem peculiar to devices aimed at an evolving target. In our case it is Influenza (this is happening right now with the 'variant H3N2') but we imagine the advent of 'personalised' medicine may herald the need for similarly flexible devices, adaptable to each patient's particular genetic or chemical profile. We hope that HSA is able to find a flexible solution to meet this need.

FINDING SUCCESS WITH THE RIGHT MENTORSHIP

Ms Janhavi Vaingankar
Manager, Research Division
Institute of Mental Health

I started my career in mental health research as a Research Assistant at the Institute of Mental Health (IMH) in the year 2004. My past research experience being in the field of applied biology and pharmaceutical research, it was not an easy transition. After eight years, a research scientist award, several publications, and two Best Poster awards (Gold and Silver in the same category) at the recent Singapore Health & Biomedical Congress 2012, I feel privileged to be recognised as a researcher in mental health services.

I am very fortunate to receive the guidance and trust of an experienced researcher, A/Prof Chong Siow Ann, Vice Chairman Medical Board for Research at IMH, who has been my mentor since the beginning of my career in mental health. One of the earlier studies that I worked with him on involved simple medical records abstraction and 'simple' as it was, it taught me the necessary principles of ethics, study design and data management. I then progressed to conduct qualitative studies that opened a new avenue for my education and curiosity. Never before had I realised the importance of qualitative designs in research and I continue to be amazed by the value that each qualitative study has added to my analysis and interpretations.

As a recipient of the National Medical Research Council (NMRC) Medical Research Scientist Award for the year 2007- 2010, I completed the Masters in Epidemiology from the coveted London School of Hygiene and Tropical Medicine. This training has been the core of all recent studies that I have undertaken along with my second mentor, Asst/Prof Mythily Subramaniam, Deputy Director, Research Division at IMH.

Together, we developed an instrument to assess positive mental health and provide a measure of the level of mental health. The Singapore Mental Health Study, a national mental health survey conducted in 2010, was another milestone in my training and achievement as a researcher. In the next phase of mental health surveys in Singapore, we are now engaged in investigating mental problems among the elderly residents here through the Well-being in the Singapore Elderly (WiSE) survey, where I am a Co-Investigator. What is interesting and a value-add to my career is the new study on assessment of cost of illnesses – giving me an opportunity to learn a new research and evaluation technique that will quantify the burden of illnesses among the elderly in Singapore.

IMH Research Division has provided me with a great platform to foster my abilities as a researcher. My motivation to research and innovate in this area is derived from the opportunities to learn more with each new study and contribute to the knowledge bank on mental well-being and illnesses in Singapore and globally.

Find out more about the WISE Survey on Page 13.

FRAILTY AND COGNITION IN COMMUNITY DWELLING OLDER ADULTS

Dr Chong Mei Sian
Senior Consultant, Department of Geriatric Medicine
Tan Tock Seng Hospital

Geriatric Medicine involves a holistic approach to managing an older person, combining medical, functional and social factors to plan the appropriate management plan. While there are intensive research in the accurate clinical characterisation and prediction of rapid disease progression in early cognitive impairment, the traditional "risk factors" and current prediction methods remain unreliable. Hence, this highlights the need for inclusion of other variables in risk prediction. Frailty, has been conceptualised as a physiologic syndrome characterised by decreased reserve and diminished resistance to stressors, resulting from cumulative decline across multiple physiologic systems during ageing.

"The influence of the frailty phenotype on fast-progressors amongst community-dwelling older persons with mild cognitive impairment and mild-moderate dementia" aims to look at one of the geriatric giants – impaired cognition. The objective of this project is to study: (1) how the frailty phenotype predicts fast-progressors in mild cognitive impairment (MCI) and mild-moderate Alzheimer's disease (AD), independent of "traditional risk factors"; (2) how the frailty phenotype enhances the robustness of predictive models for disease progression predicted on "traditional risk factors" for cognitive impairment; and (3) to explore if the effects of frailty phenotype on fast-progressors in MCI and mild-moderate AD are mediated via the pathways of sarcopenia and vitamin D deficiency. We aim to study this complex interacting relationship between frailty and the "traditional risk factors" in MCI and early AD subjects in a prospective manner, taking into account symptomatic dementia treatments and vascular risk factors management. The results would be especially relevant in the clinical practice, given the ageing demographics.

When my mentor, A/Prof Ding Yew Yoong, first shared that NHG

was considering launching the Clinician Scientist Career Scheme (CSCS) programme, it came at an opportune time when I was considering taking on research more seriously. However, there remains competing challenges of both clinical and departmental administrative duties. Protected time is vital for thinking and writing up research proposals, study implementation and publication of research findings. For research programs to be successful, there needs to be a supportive research environment, research talent, funding support and a core group of clinician-researchers. Some of these factors are inter/ co-dependent and are partly accounted for in the CSCS programme. This also came perfectly timed with the formation of the Institute of Geriatrics and Active Ageing (IGA) in NHG.

People do research for different reasons and also evolve at the different stages of their career. The development of both the junior and mid-level CSCS programme allows the clinician to decide either early on in their career or as in my case, a little later on. For me, the impetus to take this on occurred at the stage where, to make the 'leap' to better patient care, one may have to answer clinical diagnostic or management conundrum through research.

At the end of the day, this represents a big step forward with NHG's CSCS programme in terms of salary support for clinician researcher and funding support to help promote research and improve the research milieu in the cluster. I'm grateful for the opportunity that the CSCS programme has given to me.

Dr Chong Mei Sian is a Mid-level investigator under the NHG Clinician-Scientist Career Scheme (CSCS).

For more information on CSCS Programme, visit www.research.nhg.com.sg (Grants and Programmes -> NHG Intramural Support -> NHG Grant Programmes)

REFLECTIONS OF AN ASPIRING CLINICIAN-RESEARCHER
IS THIS REALLY A DUAL ROLE?

Dr Rinkoo Dalan
Consultant, Department of Endocrinology
Tan Tock Seng Hospital

My study aims to see whether there is an association of Vitamin D deficiency with endothelial function (a surrogate marker of cardiovascular function) in patients with Diabetes Mellitus and to see whether supplementation will result in an improvement.

The current practice of medicine presents daunting challenges to a middle-level clinician aspiring to be a researcher. Time and again I am faced with the question: after spending my youth training to be a clinician, is it worthwhile trying to take up a dual role at this point of my career?

I started my career in endocrinology wearing rose-tinted glasses. I thought being in a specialised field would allow me to solve all the complex clinical problems and puzzles. In my first year as a registrar, there was a confidence in the diagnosis and the management, but by my third year I had started to state the diagnosis as only 'most probably' and give management options based on current evidence and/or patient choice. I realised that most of the management options that we offered to our patients only served to improve their outcomes but we were not able to help make their life equivalent to that of a normal person. While some answers can be obtained through a thorough literature review, there is a stark realisation that most answers remained unknown.

What advantage do we, as clinicians, have over scientists who have had rigorous training to do this? Clinical medicine training has given us a first-hand awareness of unanswered questions of clinical importance. This training has taught us to be inquisitive, rigorous and persistent - qualities of exceptional importance to the investigative process. It has given us an opportunity to make reflective clinical observations. As active clinicians, through collaborative efforts with scientists, we can gain insights into diseases and help them translate their hard work from bench to bedside. We need to realise that seeking answers and solutions to clinical problems only serves to make us a better 'Clinician' and that the concept of a dual role is just a name-sake.

Embarking on clinical research is definitely not easy, even after a clinical question is identified, a hypothesis generated and a study designed, it takes immense perseverance and a belief in self to translate this into a grant application that can be approved in the current competitive environment. Upon approval of a grant, the journey just begins as one needs to go through a strict regulatory framework before actual recruitment, which itself presents another challenge. There is always this niggling thought that similar work may be done elsewhere and published before study completion. Even after completion, the journey never ends as it is sure to open up a new can of worms with a lot more questions. However, every drop in the ocean makes a difference and every single clinical question answered will make a difference in the long run.

So is the Vitamin D in sunshine going to be useful in diabetes patients? Hopefully I can give a probable answer in 2 years time…

Dr Rinkoo Dalan is a Mid-level investigator under the NHG Clinician-Scientist Career Scheme (CSCS).

For more information on CSCS Program, visit www.research.nhg.com.sg (Grants and Programmes -> NHG Intramural Support -> NHG Grant Programmes)

IMH RESEARCH UNIT OF THE DEPARTMENT OF CHILD & ADOLESCENT PSYCHIATRY (DCAP)

The Research Unit of the Department of Child & Adolescent Psychiatry (DCAP) in Child Guidance Clinic (CGC) was first initiated in 2008 through the award of the National Medical Research Council (NMRC) Clinician-Scientists Individual Research Grant (CS-IRG) to A/Prof Daniel Fung. Today, the unit consists of a multidisciplinary team of child psychiatrists, allied health specialists and research staff providing expert knowledge and support to numerous research studies within the department of child and adolescent psychiatry.

Clinical research in DCAP has always been guided by exploring approaches that might have the most impact on clinical practice. It is not enough to merely repeat a study just because it has never been done in Singapore; we ask questions that are worth the time, effort and money to answer. Guided by this principle, the research unit has secured many grants and awards totalling to nearly S$3.5 million since its inception (see Table 1 for selected grants) to conduct clinical trials and research studies across various populations.

Our scientist-practitioner model has also brought about new perspectives in clinical work within the department; a study assessing whether a nutritional approach (fish oil supplementation) coupled with social skills training might be effective in reducing aggression amongst children with disruptive behaviour disorder.

Recently, Dr Lim Choon Guan was awarded S$200,000 in April 2012 from the National Medical Research Council Exploratory Developmental Grant (NMRC EDG). His project will examine the underlying mechanism for behavioural and attentional improvement amongst children with Attention Deficit-Hyperactivity Disorder (ADHD) after undergoing an electroencephalogram (EEG)-based brain computer interface (BCI) treatment, BrainpalTM. A patent was filed successfully for BrainpalTM with IMH, A*Star and NUS as joint inventors. The BCI treatment interface is an excellent example of how empirical research can be a catalyst for exploring alternative treatment modalities in the ADHD population.

Separately, Dr Sharon Sung received 2 years funding (from 2012 – 2014) from the National Healthcare Group Small Innovative Grant (NHG SIG) to identify the patterns of psychiatric diagnosis and mental health issues in parents of Singaporean children referred for the treatment of mood and anxiety disorders. Clinically, the study will provide critical data regarding patterns of parental psychopathology, as well as genetic and epigenetic profiles, with the goal of informing future family-based assessment and intervention strategies.

To date, the research unit has also established working relationships with various renowned local and international institutions, including Nanyang Technological University, A*Star, DUKE-NUS Graduate Medical School, the National Institutes of Health (USA), the University of

Table 1: Selected grant awards (2010-2012)

Grant Title	Year	Recipient	Grant Amount	Focus Area(s)
National Healthcare Group Small Innovative Grant (NHG SIG)	2012	Dr Sharon Sung	S$100,000	Patterns of parental psychopathology for Mood and anxiety disorder
National Medical Research Council (NMRC) New Investigators Grant (NIG)	2012	Dr Lim Choon Guan	S$200,000	Neuro-imaging for ADHD
1st NTU – NHG Innovation Seed Grant	2011	A/Prof Daniel Fung, Dr Sung Min	S$91,616	Technology based interventions for SM & ASD
National Research Foundation Proof-of-Concept (POC) Grant	2011	A/Prof Daniel Fung	S$222,300	Web-based treatment for anger management
AXA Post-doctoral Fellowship	2011	Dr Andrea Glenn	€60,000 (~SGD$108,000)	Neuro-imaging in conduct disorder and ADHD
National Medical Research Council (NMRC) Clinician-Scientists Individual Research Grant (CS-IRG)	2010	Dr Steve Rozen, Dr Sung Min	S$1,500,000	Genetics influences in ASD children
Exploit Tech (A*Star) Sponsorship	2010	Dr Lim Choon Guan	S$100,000	Brain computer interface intervention for ADHD

**ADHD: Attention Deficit Hyperactivity Disorder; SM: Selective Mutism; ASD: Autism Spectrum Disorder*

Back row (left to right): Dr Lim Choon Guan, Ms Jolly Chua, Ms Chee Yu Yan
Front row: Ms Tan Yan Lin, Ms Nikki Lim, Ms Tor Hui Tian, Ms Lee Xin Yi, Ms Eunice Tay, Ms Poh Xue Wei

Pennsylvania (USA) and McGill University (Canada). Many of our partnerships forged with our collaborators happened almost incidentally during meetings and conferences, fuelled by an open mind to collaboration and the willingness to pool together available resources to investigate questions arising from common interests to serve the needs of the society.

Research collaboration when done in the right spirit, can be a catalyst for more reliable and powerful findings. The collaborative alliances that the research unit has with our partners have allowed for more streamlined and higher standards of research processes; such as cost saving measures and the exchange of know-how. This culminated to the publication and presentation of our findings in different academic platforms such as journals and conferences, both locally and worldwide. In the previous year, our departmental research findings were presented in eight conferences. Concurrently, we have approximately 10 manuscripts published in different journals (including peer reviewed journals) as well as another 10 in preparation for submission.

Aside from doing research, embarking on an experiment to test on which fizzy drink produces the best explosion with mentos and exploring the DIY candy sushi making are just some simple and interesting ways for the team to unwind themselves. On top of that, the team also produced a short recruitment film for the fish oil supplementation study, initiated a donation drive for Club Rainbow as well as assisted in organising a children's day party in the clinic. The DCAP Research Unit has positioned themselves away from being plain and boring. "I joined the team without any prior research background but being in the team for the past 2 years had definitely cultivated me into a "curious" Research Administrator.

Table 2: Selected publications (2010-2012)

Ooi, Y.P., Rescorla, L., Ang, R.P., Woo, B., & Fung, D.S.S. (2011). Identification of autism spectrum disorders using the Child Behaviour Checklist in Singapore. Journal of Autism and Developmental Disorders, 41, 1147-1156. (IF: 3.06)
Ooi, Y. P., Tan, Z. J., Lim, C. X., Goh, T. J., & Sung, M. (2011). Prevalence of behavioural and emotional problems in children with high-functioning autism. Australian and New Zealand Journal of Psychiatry, 45, 370-375. (IF: 2.25)
Gentile, D. A., Choo, H., Liau, A., Sim, T., Li, D., Fung, D. S. S., & Khoo, A. (2011). Pathological video game use among youths: A Two-Year Longitudinal Study. Pediatrics, 127, 319-329. [IF: 5.391 (2010)]
Lim, C. G., Lee, T. S., Guan, C., Fung, D. S. S., Cheung, Y. B., Teng, S. S. W., & Krishnan, R. R. (2010). Effectiveness of a Brain-Computer Interface Based Programme for the treatment of ADHD: A Pilot Study. Psychopharmacology Bulletin, 43(1), 73-82. [IF:1.431(2010)]

MOVING BEYOND BOUNDARIES, BREAKING NEW GROUND…

Insights of translational clinical research in occupational therapy practice

Dr Chan Mei Leng
Principal Occupational Therapist
Occupational Therapy
Tan Tock Seng Hospital

Historically, occupational therapy evolved as a profession from those caring for people with disabilities and mental health issues, with the aim of maximising participation in all aspects of daily life, for example from self care to work, that is consistent with levels of impairment. In recent times, it has positioned itself strongly as an applied science especially in Western countries (USA, Canada, Europe, Australia) with an impetus to encourage relevant research to deliver evidence-based practice, as well as to explore new frontiers that promote health and well-being for people, including those without disabilities.

A NEW PATHWAY: **Professionalism with Unexpected Support**

As a clinician, my journey into research was gradual and yet unexpected in many ways. However, it was primarily borne out of a reflective process on current clinical practice. With initial training and clinical practice in UK, I noted the cultural differences in occupational therapy practice in the Far East. In the early days, invitations as a speaker at conferences spurred me to update myself on relevant literature, albeit mostly from Western researchers. In 2005, I decided it would be interesting to share the Singaporean perspective on the clinical practice of facilitating return to work after a stroke, after receiving an invitation to speak on this topic for a conference in Malaysia. This led me to conduct a small retrospective study in my personal time, with collaboration from therapists in the community vocational centre (Bizlink). After the conference, I was surprised by the encouragement of Dr Shah, well known for his work on the Modified Barthel Index, to publish my findings.

Following the development of the new Driving Assessment and Rehabilitation Program (DARP) with another colleague, I had to familiarise myself with the relevant driving literature. Noting the gap in the literature on the predictive value of current Off Road screening tools for driving outcome, I undertook another retrospective study on our local data to explore this further, mostly again in my personal time. The contribution of the biostatistician from the Clinical Research Unit (CRU) at Tan Tock Seng Hospital (TTSH) was invaluable for the statistical analysis, especially for a busy clinician! The results helped us to identify the most relevant Off Road tool to screen for at-risk drivers. With the success of the Small Innovative Grant (SIG), I collaborated with a senior neurologist to investigate the recurrence of stroke and the lifestyle outcomes in drivers referred to the DARP service. Again, it occurred without much respite from clinical work despite good intentions.

In 2006, the DARP service was consulted and invited by the Land Transport Authority to conduct the driving assessment for older taxi drivers aged 70 years and above. At the World Federation of Occupational Therapy Congress in Sydney later that year, I was able to briefly share with the late Dr Kryss McKenna (University of Queensland, Australia) about how older taxi drivers in Singapore were similar to older Australian drivers in their reluctance to give up driving. That was a momentous encounter! I never anticipated an invitation by Dr McKenna to apply for a PhD scholarship to investigate on the Singaporean perspective. I was also taken aback by her generosity to share information to help me apply for relevant scholarship grants.

Upon receipt of the National Medical Research Council (NMRC) (Singapore) grant for tuition fees at the University of Queensland (UQ) and basic living allowance with no-pay leave from TTSH, I launched into the full time PhD program, under the supervision of Dr Gustafsson and Dr Liddle in 2008. This occurred after much consideration, in lieu of the financial losses without a salary and the lack of a clear post-PhD pathway for allied health professionals in the local context. Nonetheless, this new journey has been both exciting and challenging. Deep learning and the acquisition of a new set of research and academic skills was required. My topic was to conduct an exploratory, mixed methods research to understand the retirement experience and needs of older Singaporean taxi drivers and to develop a relevant intervention program to improve outcomes. It was a three phased research program integrating literature on ageing, retirement, adaptation strategy for successful ageing, masculinity issues and adult learning principles. The pilot study of the Driver Retirement Program (DRP) showed some positive benefits for retired drivers in terms of improving activity participation and well being. Combining the results with a separate longitudinal study on normal retirement transition for older taxi drivers informed us of an appropriate key time of need for the intervention of the DRP.

THE WAY AHEAD:

Whilst I am still doing some clinical work at DARP, I am also networking with relevant stakeholders to introduce relevant changes to improve successful ageing outcomes, not only for older taxi drivers but hopefully to the ageing population. Understanding cultural and gender barriers to participation is essential and finding innovative ways to reach out to the at-risk population is the challenge for delivering cost effective integrated services for Singaporeans at large. Exploring ways to maintain health and fitness of older workers for continued employment and facilitating timely retirement planning, inclusive of psychosocial aspects for improved life satisfaction within the Singaporean culture, would fit into NHG's vision of Adding Years of Healthy Life! Pending the outcome of another grant application, there is scope to further explore my PhD study in a larger experimental study. Meanwhile, I welcome any opportunities to work collaboratively with others to use my skills further, not only within my profession but with others in terms of interprofessional education and development.

WHAT IS DEMENTIA?

Dr Seng Kok Han
Consultant Psychiatrist
Acting Chief, Department of Geriatric Psychiatry
Institute of Mental Health

Dementia is a syndrome characterised by progressive, usually irreversible, global cognitive deficits. Symptoms include memory impairment, dysphasia, agnosia, apraxia, impaired executive function and personality changes. Common types of dementia are Alzheimer's dementia and vascular dementia. In Alzheimer's dementia, progressive loss of brain cells is related to formation of insoluble proteins in and around brain cells. Vascular dementia results from multiple stroke disease. The onset of Alzheimer's dementia is gradual and early detection of dementia may be missed. Symptoms of Alzheimer's dementia include poor short-term memory, repeatedly asking the same questions, difficulty with naming, misplacing things, personality changes and deterioration in functioning. As the illness progresses, patients may lose track of time and events, wander and get lost, become irritable and agitated or even develop psychotic symptoms. In severe dementia, they may not even recognise family members and become totally dependent on others for their activities of daily living. Some of the early symptoms of dementia are similar to presentation of depression, which compounds the complexity of diagnosis and treatment.

Given the rate of ageing population in Singapore, the prevalence of dementia and depression are bound to grow. There is much that we do not know about these problems among the elderly population here. To address this knowledge gap, the Institute of Mental Health (IMH) is collaborating with international and local research investigators to embark on a three-year nationwide epidemiological study - Well-being of the Singapore Elderly (WiSE). The multidisciplinary research team is led by A/Prof Chong Siow Ann (Vice Chairman Medical Board (Research) IMH), and Asst/Prof Mythily Subramaniam, (Deputy Director of Research, IMH) and comprises international and local research investigators from Changi General Hospital, Institute of Mental Health, King's College London, Ministry of Health, National University Hospital and Raffles Hospital. The WiSE survey, to be conducted between October 2012 and December 2013, will not only establish the prevalence of depression and dementia in the Singapore population aged 60 years and above, but also find out about arrangements available for the care and support of the elderly. The survey also aims to elucidate the burden and needs of family members of the elderly.

The contributor of this article is also a Co-Principal Investigator of the WiSE study.

GOOD REFERENCE BOOK FOR RESEARCH

APPLIED SURVEY DATA ANALYSIS

by Steven G. Heeringa, Brady T. West, Patricia A. Berglund

Dr Edimansyah Abdin
Research Fellow, Research Division
Institute of Mental Health

Applied Survey Data Analysis (ASDA) provides a survey of modern techniques for analysing complex survey data. When I first saw this book, I knew I could say one thing about it without even seeing it: this is a book we would want in the field of epidemiology. For those who are inspired by the design, implementation, and analysis of complex survey data, this is an excellent reference. You will find the book very helpful and instructive. Its website provides a good complement with additional resources. Readers will not be scared off by 'too many' formulas.

I found this book very useful because it covers comprehensive theory and practical issues in contemporary epidemiological study in a balanced and interesting manner. The book has been very useful to me while analysing data from our recently completed the Singapore Mental Health Study.

All chapters are informative. Besides sharing historical developments of an applied survey data analysis, Chapters 1, 2 and 4 demonstrate different types of designs such as stratification, clustering, and weighting that can be easily incorporated into the statistical methods for survey estimation and inference.

These chapters are also highly informative to young researchers as they provide easy-to-understand guidance on sampling methods, developing sampling weights and steps to perform complex sample data analyses. Later chapters summarise the latest developments in statistics such as the role of Bayesian models and methods that can be applied in the analysis of large survey datasets.

The book was very informative while I was planning the sampling strategy and sample weights for the Well-being of the Singapore Elderly (WiSE) survey. I will also be employing several statistical techniques from this book while analysing data from the survey. I strongly recommend this book to everyone who is interested in learning the basics and intricacies of epidemiological data analysis, and planning large surveys. ***Happy reading!***

HEALTHCARE LEADERSHIP FEATURE

KNOWING OUR HEALTHCARE LEADERS

ASSOCIATE PROFESSOR CHONG SIOW ANN

Associate Professor Chong Siow Ann is the Vice Chairman of Medical Board (Research) and Chairman of the Clinical Research Committee at the Institute of Mental Health (IMH) and oversees all the research activities in IMH. He is a Clinical Associate Professor and a Senior Consultant Psychiatrist, and his research interests are psychosis, psychiatric genetics, epidemiology, and health services research. He has won several research awards and has more than 170 publications in peer review journals as well as book chapters.

A/Prof Chong is currently the Principal Investigator of the prestigious 5-year S$25 million Translational and Clinical Research (TCR) Flagship Programme in Neuroscience and three-year S$4.4 million programme "Singapore Mental Health Study on the Elderly" (SMHS-E), funded by the Ministry of Health (MOH) and the Singapore Millennium Foundation; and recently spoke at the World Economic Forum, which was held at Tianjin, People's Republic of China.

What are your thoughts on the current state of collaborative research in your institution?

It is almost impossible to do any meaningful and impactful research without any form of collaboration. We are no longer in the age of the "gentleman scientists" who with their private means could pursue science as a hobby. It is not just because of funding but knowledge has expanded so much as have the various tools and technologies that we have become far more inter-dependent on each other as no single person or group would have all the knowledge and expertise to take a research question all the way. Almost all of our research in IMH involves collaborators from different disciplines and institutes and that is not only inevitable, but it is also right.

Is there a simple analogy that you would use to describe the "As is" and "To Be" state of your research in your institute?

Thinking of where we are right now, I'm reminded of what a historian once said of the almost improbability of the wide expanse of the British Empire stemming from the relatively tiny island of Britain, that it is an oak tree rooted in a plant pot; and of course he was right because the Empire over reached itself and disintegrated with time. IMH by itself and at present is like that plant pot, so if we want to grow a great oak tree, we need to expand that base by further enhancing our capacity and further developing our capability, and collaborating with others. We cannot afford to be insular.

What do you think are the qualities of your institution that allows it to catalyse collaborative research?

The IMH has tremendous potential as it has rather unique features: it is the largest provider of mental healthcare and the only tertiary mental health facility in Singapore with access to a large population of patients. We have the largest number of healthcare workers with a corresponding wide range of mental health sub-specialties, and there is a strong commitment towards research. We have also established a good infrastructure to enable us to recruit and retain research participants from the large patient population that we serve.

To a large extent, we have been successful in capitalising on these potentials and have built a strong capability to phenotype patients in depth in the clinical and neurocognitive domains.

At the risk of getting my metaphors mixed, I would say that IMH has been a sleeping

tiger which is just beginning to wake and stir. We have in a relatively short space of time established a creditable amount of research. In order to do more, we must have a strong sense of what we want and want to be. We should not be nor allow ourselves to be relegated to mere "tissue and data collectors" but we should want to be equal partners and be thought leaders as well.

We must learn, too, to be good and fair collaborators and behave in a reasonable manner. To that end, self knowledge, insight and honesty are necessary at an individual level and at an institutional level. The geneticist, Mary-Claire King, once said that people do science for 3 reasons: altruism, curiosity and ambition. We often do not want to acknowledge the last but it is there. I think all good researchers have that and it is a powerful driving force but if we don't discipline that, it can be destructive.

We are cognizant that we must be clear and honest with our terms, agenda and what we

can deliver whenever we enter into any sort of collaboration, and to articulate a formal agreement with our partners. While that may seem rather cold and business-like as compared to that pally-wally gentlemen's agreement, it is really better for fair, transparent, productive and long-term collaboration; and I like to think that we have been that sort of reliable partners and that we have been honourable in our dealings.

Most of our research requires the participation of people with mental illness who can be particularly vulnerable. Good quality research must first and foremost be ethical. I am proud of the very vigorous system that we have built in IMH with the mechanisms to review, monitor and audit studies within IMH which stresses on accountability and the safeguarding of the patients' rights, welfare and safety. That is something that is reassuring to our collaborators as well.

Could you share an example of a piece of collaborative research that you are involved in and how it has benefited the various stakeholders?

A good example is the recently completed Singapore Mental Health Study which asked questions like how many people in Singapore have mental illnesses? Who gets these illnesses? When do they develop these illnesses? How long does it take for them to seek help and who do they see? We also developed and validated an instrument to assess positive mental health in the population.

The answers to these questions would help policy makers to better formulate policies and develop programmes. In this instance, we have engaged policy makers in the Ministry of Health and the Board Members of the Singapore Millennium Foundation from the very start - both of whom subsequently funded this study. The policy makers and researchers from MOH were our collaborators. We have also engaged the representatives from various groups in the population including care providers and from the various ethnic groups in the conception of the study. It was important as we wanted the findings of the study to be useful and actionable for them as well.

In the subsequent design and implementation of the study, we collaborated with RAND Health, a non-profit research organisation based in the US. The collaboration with RAND was not just to ensure that the subsequent study is of the highest possible standard but also to enable the transfer of knowledge and technology to our local team and help building the local capability.

The findings that emerged from this 3-year study are now being used to plan for mental health services for the country.

What do you like to do in your spare time? Do you have any hobbies?

I like reading – both fiction and non-fiction and I certainly would like to be able to do more – read more slowly and carefully and to reread some books.

I also like to spend time with people who matter to me which I'm not currently, so I do feel bad about that.

I enjoyed running but rather unfortunately, I have worn down my knees, so I walk now. You have heard enough from people about how these two activities helped them think. That's also true for me but the opposite is also true, the rhythmic movements can have a hypnotic effect that makes me not think of anything and I do need that occasional thought-less respite.

Does your personality and love for your hobbies help in making decisions in your research work?

There's that somewhat tongue-in-cheek comment by Anton Chekhov, Medicine is my *lawful wife and literature my mistress*; when I get tired of one, I spend the night with the other. Chekhov was, of course, a great writer, and a physician who would have made a good psychiatrist.

Reading and writing are related – both make you think, give you insight and clarity of thought, and compels you to examine yourself. Both are an integral part of research.

Of course, I would like to write well and that is very hard but I take comfort from another of my favorite writers, the surgeon and author Atul Gawande, who once wrote that what you write need not achieve perfection. You should not underestimate the effect of your contribution, however modest. It is through the collation and accumulation of many modest contributions, that we have produced a store of collective know-how with far greater power than any individuals could have achieved - and that has been how science and medicine have progressed.

What do you like most about your job?

Freud said that we need two things: "work and love" and I'm grateful that I have both. I'm still very much a clinician at heart and I went into research because I wanted to change the way we treat our patients. Being a clinician and researcher are interlinked and one feeds and nurtures the other.

My work gives me meaning and an identity, and if I'm honest, it does gives me some status which is good for the ego, but that is the sort of thing that can disappear quite easily and at any time.

I like working with bright people who challenge me and keep me young and I'm grateful that in IMH we have bright people like Mythily, Sim Kang, Jimmy and Janhavi – all of whom I certainly think are way brighter than me and have done much to build up our research. It does gratify me quite a bit that I can help in some way to help them realise their potential and advance their research.

I like what I'm doing because I've learnt – and continue to learn – a good number of lessons about myself and others: about the misplaced hubris, discipline, commitment, passion and honesty, about the brilliance of other people, about the generosity and magnanimity of our patients in participating in research that they know may not benefit them.

Someone once said that at the end of the day, we are very minor blips in this whole universe and real greatness is achieved by the very few. For most of us, our hopes and dreams are minor in the scale of things. What might make a difference to us, I think, is whether in our tiny roles, in our brief time on this earth, we make a bit of difference and add more beauty than ugliness. There are just a few other things that do matter to me. One of which is doing a good useful piece of research such that I could experience it as a thing of beauty – for I think the best of our research even simple ones - contain truth, creativity, elegance, grace and surprise - and be of use to others.

SINGAPORE HEALTH & BIOMEDICAL CONGRESS (SHBC) 2012

The 3rd Singapore Health & Biomedical Congress (SHBC) was successfully held on 28 & 29 September 2012 at Max Atria at Singapore Expo. Organised by National Healthcare Group, the Congress had welcomed more than 2200 participants with the theme - "Reshaping Healthcare: Deepening the Foundation for Quality and Safety, Igniting the Engine for Education and Innovation". This aims to push the boundaries of radical transformation, strengthen the foundations of clinical quality and safety by improving current models through innovative ways.

OFFICE OF HUMAN RESEARCH PROTECTION PROGRAM (OHRPP) BOOTH

To complement the launch of the new Population Health Domain F and create awareness on Responsible Conduct of Research (RCR), the NHG Office of Human Research Protection Program (OHRPP) conducted a series of roadshows at NHG and its Partner Institutions between August and October 2012. As part of the outreach efforts, a dynamic booth was also set up at the Singapore Health and Biomedical Congress 2012.

These community-outreach efforts were tailored to introduce the new Population Health Domain and to educate the research community on the specific differences between Domain F and the other biomedical arms of NHG Domain Specific Review Board (DSRB), in order to channel population health studies to the new Domain. To achieve this, copies of the NHG Research Online Administration and Management (ROAM) Application Form Guidebook for Population Health and brochures were disseminated at the outreach events.

At the same time, Responsible Conduct of Research (RCR), which comprises a set of best practices for researchers in their conduct of research, is also propagated, with a strong emphasis on guiding researchers to make the right decisions especially when individual values and integrity are challenged. Through this, we hope to nurture research professionalism and research integrity within researchers, to reduce incidences of research non-compliance. At the outreach events, NHG OHRPP distributed an RCR notebook, which serves as a practical writing pad for researchers and a constant reminder of the 8 essential components of RCR.

With population health studies and community research on the rise, the Population Health Domain F has been targeted to be fully operational by the final quarter of 2012. Hence, in the interim period leading to the launch, the OHRPP has taken proactive initiatives to not only create awareness for this Domain, but also to educate researchers and administrators, in order to meet and satisfy the dynamic needs of the research community.

Contributed by Siti Zawiyah
Assistant IRB Analyst
Office of Human Research Protection Program
National Healthcare Group

OFFICE OF RESEARCH SUPPORT (ORS) BOOTH

National Healthcare Group Research & Development Office booths at SHBC 2012

The NHG Office of Research Support (ORS) plays a vital role in supporting research activities in NHG and facilitating collaborations amongst the institutions and partners. The units under ORS include Research Training & Development, Project Management, Grant Administration & Management and Research Informatics. The newest unit – Technology Transfer Office (TTO) was also introduced. Find out more about the TTO on Page 5. The Office supports the development of Clinician-Scientists by equipping them with the essential skills, knowledge and capabilities through:

i) educational platforms such as courses and forums,
ii) support in project management and provision of research support personnel such as account managers, research coordinators and biostatistics consultants,
iii) grant programs for research manpower development and research projects, catered for researchers in different phases of their research journey,
iv) information technology support including the management of the NHG research portal that facilitates ethics application and research-related matters as well as the Central Clinical Research Database (CCRD), and
v) provision of industry liaison and technology transfer.

Conference delegates had the opportunity to find out, and identify appropriate ones through information board, brochures, a video presentation and the recommendations of our friendly staff. They also received a copy of Catalyst and limited edition post-it notepads and pens.

For more information on the services provided by ORS, please visit www.research.nhg.com.sg.

RESEARCH ETHICS TRACK

NHG Office of Human Research Protection Program (OHRPP) was proud to champion the inaugural Research Ethics Track at the Singapore Health and Biomedical Congress (SHBC) held on 29 September 2012.

The Research Ethics Track was designed for researchers, research administrators and institutional review board (IRB) professionals and covered topics that ranged from informed consent, privacy and confidentiality, to IRB processes. The Research Ethics Track hosted 3 experienced IRB speakers, who shared their respective areas of expertise with delegates.

Firstly, Mr Chan Tuck Wai, Senior Associate Director/ Human Protections Administrator of NUS IRB shared about informed consent in tissue banking associated with clinical trials. This was followed by Ms Rebecca Chew, Partner, Rajah & Tann LLP, who updated delegates on new insights and perspectives regarding privacy and confidentiality, in relation to the proposed Personal Data Protection Bill. Finally, Dr Lee Soo Chin, Senior Consultant, Department of Haematology-Oncology, NUHS, rounded off the session by sharing practical tips on how to speed up an ethics application by de-mystifying the processes of NHG Domain Specific Review Board (DSRB).

Some examples of tips shared at the session:

- If in doubt, submit your study to the higher risk category;
- Exclude vulnerable populations unless they are crucial to your study;
- Use the DSRB template when preparing the Informed Consent Form; and
- Have an answer to all questions in the application form.

Contributed by Chen Siya
IRB Analyst
Office of Human Research Protection Program
National Healthcare Group

SHBC 2012 Research Ethics Track Speakers
From left, Ms Rebecca Chew, Mr Chan Tuck Wai and Dr Lee Soo Chin.

HEALTH SERVICES RESEARCH SYMPOSIUM

Teow Kiok Liang
Deputy Assistant Director
Health Services and Outcomes Research (HSOR)
National Healthcare Group

The Health Services Research Symposium was the 3rd Health Services Research symposium that Health Services & Outcomes Research (HSOR) had organised as part of the Singapore Health & Biomedical Congress (SHBC). Two different but interconnected sessions were featured.

The first session was titled "Population Health Management – Predicting and Measuring Outcomes". Dr Gary Ang started the track by sharing his study on factors that were predictive for higher risk of developing end-stage renal failure requiring kidney transplant or dialysis. The study aims to stratify patients into different risk groups for different interventions. Mr Pradeep Paul George, Ms Tan Woan Shin and Ms Anusha Govinda Rai highlighted the roles and values of evaluating programme outcomes for patients with chronic obstructive pulmonary disease (COPD), asthma and at end-of-life in nursing homes.

Using local programmes such as The Airway Programme (TAP), Singapore National Asthma Programme (SNAP) , and Care at the End of Life for Residents in Homes for the Elderly (Project CARE), methods and outcomes of the studies were presented to shed insights on the efficacy and cost- effectiveness of the programs. The second session was on "Modelling for Healthcare Decision Making". Dr Martin Utley from the University College London (UCL) demonstrated with his work on triage systems for use in a pandemic, how one could construct models that gave valuable insight into problems without a large requirement for data. Mr Palvannan R.K. shared his knowledge on using approximate techniques to plan capacity of a downstream and specialist facility which would provide sub-acute, active rehabilitation, intermediate slower stream rehabilitation and palliative care. Dr Sun Yan outlined her work that compared the cost and effectiveness of different Methicillin-resistant Staphylococcus aureus (MRSA) screening strategies, and whether a more targeted screening would be cost-effective. Finally, Mr Teow Kiok Liang shared his system dynamics model of Specialist Outpatient Clinics and highlighted the hidden feedback cycles in the system that might lead to unintended consequences.

RESEARCH – HOW NOT TO DO RESEARCH TRACK

Held on Day 2 of SHBC 2012, the series of talks educated participants on how to carry out research projects successfully in an interesting and unconventional manner through highlighting the things to avoid. The track was championed and chaired by Dr Leong Khai Pang (Asst Chairman, Medical Board (Research) and Senior Consultant at Tan Tock Seng Hospital) and co-chaired by A/Prof Chong Siow Ann (Vice Chairman Medical Board (Research) and Senior Consultant, Research at Institute of Mental Health).
Participants heard from a stellar line-up of practised researchers from Tan Tock Seng Hospital – Adj Asst Prof Mark Chen I-Cheng (Consultant, Dept of Infectious Disease) and Dr How Hwee Siew (Senior Consultant, Dept of Rheumatology, Allergy and Immunology), Duke-NUS GMS – Assoc Prof Arul Earnest (Assoc Professor, Centre for Quantitative Medicine, Office of Clinical Sciences), Institute of Mental Health – Dr Mythily Subramaniam (Deputy Director, Research), Khoo Teck Puat Hospital – Dr Goh Hsin Kai (Consultant, Dept of Acute and Emergency Care) and Nanyang Technological University – Dr Sierin Lim (Asst Professor, School of Chemical and Biomedical Engineering). The speakers shared their experiences and expertise on grant proposal writing, study design and analysis, designing of a disease registry, performing qualitative research, undergoing a clinical trial audit, and working with collaborators.

QUALITÉ

THE PROGRAM WITH A MISSION TO ENSURE AND ENFORCE THE RESPONSIBLE CONDUCT OF RESEARCH MEETING HIGH ETHICAL STANDARDS.

TAKING THE EXTRA MILE

BEST PRACTICES IN ENSURING QUALITY & REGULATORY COMPLIANCE

Article and photos contributed by Haematology-Oncology Research Group, NUHS
Edited by NHG Research Quality Management

INTRODUCTION TO THE HAEMATOLOGY-ONCOLOGY RESEARCH GROUP (NUHS)

The Haematology-Oncology Research Group (HORG) comprises of a team of leading haematologists, oncologists, clinical research coordinators, data managers, genetic consultants, internal auditors and administrators. HORG seeks to succeed as one of the top cancer research groups in Asia. The research team works together in synergy, from screening to monitoring to the final closing out of the study, to ensure that protocols are followed, and adhere to the Singapore Guideline for Good Clinical Practice. In this article, HORG shares their best practices with our readers.

Best Practice 1 - Ensuring Proper Handover of Duties Prior to Leave of Absence

To ensure the continuity of patient care at all times, it is HORG's practice that every research coordinator conduct a proper handover of their studies to a backup coordinator before taking any leave of absence. Thus, advance planning of annual leave is highly encouraged. In addition, Principal Investigators (PIs) have pre-assigned co-investigators to take over their responsibilities whenever they go on leave.

Best Practice 2 - Specialisation of Roles in the Research Team

To lessen the administrative burden imposed on research coordinators, department administrators are assigned the task of assisting the PIs in the submission of protocol and consent form amendments to Domain Specific Review Board (DSRB) and Health Sciences Authority (HSA).

The research coordinator is in charge of reminding the respective Principal Investigators to obtain the necessary DSRB and HSA approvals or renewals. The Principal Investigator then with the assistance of the administrators, completes the application to the applicable regulatory body. This allows research coordinators to focus on screening, enrolling, monitoring and following-up with study participants in accordance with study protocols, maintaining proper documentation and safety reporting in a timely manner.

Best Practice 3 - Utilising a Tracker to Monitor Expiry of Ethics/Regulatory Approvals for all Studies

To help ensure quality and regulatory compliance, HORG also instituted a departmental DSRB/HSA tracker for its research studies. This DSRB/HSA tracker is used to assist in monitoring ethics approvals, Clinical Trial Certificate (CTC) approvals and highlight expiry dates, for both in-house and pharma-sponsored studies. Information kept within the tracker includes:

1. DSRB approval
- 1.1. Protocol version and date
- 1.2. Informed Consent Form (ICF) version and date
- 1.3. DSRB expiry date

2. HSA approval
- 2.1. Protocol version and date
- 2.2. ICF version and date
- 2.3. CTC expiry date

3. Renewal status
- Pending or completed

Best Practice 4 – Conduct of In-House Audits

HORG regularly conducts in-house audits for all ongoing studies. The audits include a review of the investigator's file, case notes, case record forms, adverse event submissions, ethics and regulatory submissions, pharmacy and accountability logs.

Through these regular in-house audits, HORG aims to ensure the protection of subjects enrolled in the clinical trials, confirm the validity of data collected and verify compliance with all regulatory and ethical guidelines. The results of these in-house audits are presented and discussed at research team meetings every month. This also serves as a great learning experience for team members.

Best Practice 5 – Conduct of Regular Research Team Meetings

The entire research team including investigators, research coordinators and pharmacists gather every month to discuss all ongoing studies, monitor patient accruals, discuss all deviations and monitor toxicities and/or adverse events. Solutions are proposed to address challenges raised

during the meeting. To support research coordinators and ensure that they are given adequate support for their work, a monthly research coordinator's meeting is also held. During these meetings, useful lectures are given on relevant topics such as consent taking, eligibility, hand washing, *Methicillin-Resistant Staphylococcus Aureus* (MRSA) precautions, chemotherapy, targeted therapy, common side-effects, etc.

Best Practice 6 - Training to Equip and Empower the Research Team

Adequate and proper training is imperative to each and every personnel involved in the research team. Aside from the usual Collaborative Institutional Training Initiative (CITI) and Singapore Guideline for Good Clinical Practice (SGGCP) training, research coordinators also attend extra training for self-development such as Proactive Time and Stress Management and 7 Habits of Highly Effective People. Senior research coordinators may also apply for the International Certification offered by the Society of Clinical Research Associates (SoCRA).

PROTOCOL NON-COMPLIANCE

CONTINUOUS OVER-RECRUITMENT OF RESEARCH SUBJECTS

Background

A multicenter clinical trial had exceeded the approved maximum recruitment target due to an oversight by the Principal Investigator (PI) and his study team. The PI reported the over recruitment to the DSRB in a non-compliance report and informed that additional effort would be made to check on the recruitment status before enrolling new subjects in future.

However, the PI continued to over-recruit subjects. This over-recruitment was detected by the DSRB during the study's annual continuing review submission.

Findings & Implications

Because the PI had continued with an over recruitment of research subjects despite the initial reporting, DSRB deems this as a case of continuous non-compliance. As a result, a DSRB warning letter was issued to the PI. A temporary renewal was also issued under the condition that no subjects should be enrolled until the PI could provide a satisfactory response on the situation. Subjects who were recruited above the target number should also be re-consented.

Tips and Recommendations

a. If the Principal Investigator anticipates subject recruitment beyond the approved target, he/she should submit an amendment to the target number and must ensure that recruitment does not exceed the approved target until an approval is received from the DSRB.

b. It is the responsibility of the PI to ensure that communication is kept tight within the study team and that the study team is updated on the study status promptly. Team communications should include the recruitment strategy, recruitment timelines and plans to manage the study.

References from Singapore Guideline for Good Clinical Practice (SG GCP) and NHG – Proper Conduct of Research SOPs (PCR-SOPs):

[SGGCP 4.5.2] The investigator should not implement any deviation from, or changes of the protocol without agreement by the sponsor and prior review and documented approval/favourable opinion from the IRB/IEC of an amendment, except where necessary to eliminate an immediate hazard(s) to trial subjects, or when the change(s) involves only logistical or administrative aspects of the trial (e.g., change in monitor(s), change of telephone number(s)).

[PCR 501-B03 - Study Initiation] 9. Principal Investigator and the study team should discuss the recruitment strategy and recruitment timelines and plan to manage the study accordingly.

The NHG Proper Conduct of Research Standard Operating Procedures may be referenced at the following portal:

http://www.research.nhg.com.sg/wps/wcm/connect/romp/nhgromp/resources/research+sops

GCP TOPIC

INFORMED CONSENT

Informed consent is the process by which a subject voluntarily confirms his or her willingness to participate in a particular research project after being informed of all aspects of the research study that are relevant to the subject's decision to participate.

Informed consent needs to be documented by means of a written, signed, and dated informed consent document. This process is necessary to ensure that subjects are fully informed before deciding to volunteer as research subjects in research projects of any type. It is a good practice and responsible conduct of the researcher to apply the "reasonable man" criterion. The term "reasonable man" criterion includes the following:

- Sufficient time for a person at the appropriate literacy level to read and digest the consent,
- Sufficient time for the individual to ask the study staff questions and consult with a relative or friend,
- Sufficient time, if requested, to review and research some of the provisions in the informed consent form (i.e. alternative therapies), or
- Sufficient time to reflect on the decision.

As a general rule of thumb, if the proposed study, protocol, consent form and decision making process are complicated, a reasonable person would require additional time to think through the decision. For older adults, children, and cognitively impaired

persons, more time may also be necessary.

Other factors to take into consideration when obtaining informed consent from participants:

DOs:

- Participants should be approached in a conducive environment.
- Participants should be encouraged to discuss their participation with their care-giver(s) and/or family.
- Informed Consent discussion should take place face to face, in person.
- Informed Consent should be obtained before initiation of the study and before any procedures that are being performed solely for the research.
- Informed Consent must be presented in a language that is understandable to the subject.

DON'Ts:

- It would not be appropriate to approach a subject immediately before a procedure or surgery, while in labor, while under sedation or in any other situation where a participant might feel coerced.

- Avoid giving the appearance of being hurried and short-tempered during the consenting process as this may confuse and intimidate potential participants.
- The investigator should not mail the consent documents to participants with instructions to call back with questions, sign and mail back the informed consent document.
- Finally, consent to participation must be obtained from the participant. However, in cases where the legally acceptable representative is required to consent on behalf of the subject, approval needs to be sought from the ethics board who will assess the request based on the subject population being studied or any other special circumstances.

References:

Good Clinical Practice: A Question & Answer Reference Guide May 2011

SGGCP 4.8 Informed Consent of a Trial Subject

NHG PCR SOP 501-C01 - Informed Consent Document and Process

NHG RDO OHRPP UPDATES
NEW MINIMUM TRAINING REQUIREMENT FOR PRINCIPAL INVESTIGATOR

Minimum Training Requirements: Completion of the Singapore Guideline for Good Clinical Practice (SGGCP) course in addition to the Collaborative Institutional Training Initiative (CITI) program for Principal Investigators who are conducting Clinical Trials.

With effect from 1 August 2014, Principal Investigators (PI) who are submitting a new study application to conduct Clinical Trials will have to complete both the SGGCP course and the CITI Program. The purpose of this new training requirement is to ensure that the PI receives the minimum training required for good clinical practices prior to the initiation of the trial. This is needful as each PI is responsible for ensuring proper conduct of clinical trials and safety of the subjects by adhering to the relevant local regulations and guidelines.

PIs submitting a new study application will be required to produce proof of attendance or completion to the DSRB. Experienced researchers who had assumed the roles and responsibilities of PI for multiple clinical trials may apply for a waiver of this additional requirement. A request form for this waiver may be downloaded from the NHG Research Website.

B. POPULATION HEALTH RESEARCH

Minimum Training Requirements: Completion of at least 5 Social and Behavioural Research (SBR) elective modules in the CITI program for PI and Co-Investigators (Co-I) who are conducting population health research.

Elective modules in the CITI program are differentiated into biomedical research or SBR-focused. The ethical issues and principles discussed in the SBR elective modules (study designs involving surveys, interviews, observation and assessment of risks and benefits etc) are more relevant for population health research.

Hence, it will be more meaningful for the PI and Co-I of population health research to complete the SBR elective modules in order to fulfil the minimum ethics training requirement. The PI and Co-I should complete a minimum number of 5 SBR elective modules in the CITI program. The PI or Co-I has to produce proof of completion to the DSRB.

Removal of SGGCP course as a waiver to the Minimum Training Requirement for PI and Co-I who are conducting population health research.

The SGGCP course is intended for researchers conducting Clinical Trials (involving medicinal products or devices) and may not be relevant to researchers of population health studies. Therefore, completion of SGGCP course will not be accepted as completion of the minimum ethics training requirement for PI and Co-I conducting population health research.

Article and photos contributed by Haematology-Oncology Research Group, NUHS
Edited by NHG Research Quality Management

RESPONSIBLE CONDUCT OF RESEARCH (RCR)

DATA MANAGEMENT PRACTICES

We are now half way through the 8 components of Responsible Conduct of Research (RCR). Before we venture into Data Management Practices - the fourth RCR component, let us recap on the previous three components:

(i) Research Misconduct is defined as fabrication, falsification, plagiarism in proposing, performing or reviewing research, or in reporting research results.

(ii) The Nuremberg Code, the Declaration of Helsinki, the National Research Act and the Belmont Report all provide international standards for the protection of human subjects' safety in clinical research.

(iii) Conflicts of Interests & Commitment include financial conflicts of interests, conflicts of commitment and personal and intellectual conflicts.

Science as we know and practice today would not exist if not for the collection of validated data to support and provide evidence for research. Whether to affirm or nullify research hypothesis, identify new areas of investigation, develop new investigative techniques, validated data is required.

Therefore, before commencing with data collection, researchers should understand data management practices and the following pointers:

1. **Data Ownership –** Researchers cannot assume that they can take their research data with them if they move to another institution. This is because research support is usually given to research institutions and NOT the individual, thus institutions may claim ownership rights over data collected with the funds provided. Before collecting any data, a researcher should ask the following questions:

- "Who owns the data I am collecting?
- What rights do I have to publish the data?
- Does the collection of these data impose any obligations on me?"

2. **Understand the issues of data collection –**

- Appropriate methods: reliable data is vitally dependent on reliable methods such as collection, verification from source documents, analysis etc. Methods in data collection can be compromised by bias or sloppy techniques.

- Quality research requires attention to details. Experiments must be set up properly and results accurately recorded, interpreted and published. Sloppy research wastes funds and should be avoided.

- Authority to collect data: Researchers have a responsibility to know when permission is needed to collect or use specific data in their research.

- Maintain proper records: Researchers must maintain proper data records to document what was actually done and the results that were achieved. For example, hard-copy data should be recorded in a numbered notebook with the date the experiment was run, the order in which the data was collected, and the results achieved. Electronic evidence should be validated to ensure that it was actually recorded on a particular date and not changed at some later date.

3. **Data storage –**

- Responsible data protection will include storing laptops in a safe place, having computer files backed up and saving backup data in a secure place that is physically removed from the original data.

- Period of retention: Researchers should be familiar with institutional and regulatory requirements of how long research records should be retained. Retention can allow other researchers or audit agencies to verify results or to use the data for other purposes.

** Did you know: According to SGGCP, the essential documents for clinical trials should be retained for at least 2 years until after the last approval of a marketing application and until there are no pending or contemplated marketing applications; or at least 2 years after formal discontinuation of clinical development of the investigational product; or 6 years after the completion of the clinical trial. For other types of research, it is recommended that the minimum storage period is 3 years.*

4. **Data sharing -** Researchers are generally not expected to share preliminary data that is not validated or carefully checked. However, if the data presents strong preliminary indication of a major threat to health, researchers may have good reasons and the obligation to share this information with the public and other researchers before it is fully validated.

5. **Protection –** Researchers should understand privacy and confidentiality issues when collecting personal or sensitive information. Researchers will also need to be familiar with Institutional Review Boards (IRB) rules on protecting subject's privacy and confidentiality.

** Did you know: In the US, collection of personal health information is subject to Health Insurance Portability and Accountability Act (HIPPA), while education data is subject to Family Education Rights and Privacy Act (FERPA).*

6. **Understand the issues relating to publication & reporting –**

- Despite publication pressure from professional competition and job insecurity, researchers should be mindful to maintain data integrity and ensure that published results are accurate representations of the investigation.

- Issues relating to integrity in publication and reporting include:
  - misrepresentation of data;
  - fabrication or falsification of data;
  - reporting conclusions not supported by findings;
  - plagiarism; and
  - misattribution of authorship.

Contributed by Valerie Wee
Senior Executive
Research Quality Management
National Healthcare Group

DOMAIN SPECIFIC REVIEW BOARD (DSRB)
WE HAVE A NEW DOMAIN

Domain F – Population Health Research

In October 2012, the NHG Office of Human Research Protection Program (OHRPP) officially launched a new Ethics Review Board - DSRB Domain F - to review Population Health Research.

Population Health Research involves the study of health outcomes of a group of individuals, including the distribution (e.g. due to race, socioeconomic, gender) of the outcomes within the group.

With our ageing population and a focus shift towards public health, and catalyzed by the setting up of the Saw Swee Hock School of Public Health, OHRPP has seen an increasing number of study applications involving population health research in recent months. This propelled the creation of Domain F as the framework for reviewing Population Health research which is distinctively different from biomedical research. Research that meets the definition of population health can now be submitted to DSRB via NHG Research Online Administration and Management (ROAM) portal, using an Application Form specifically designed for Population Health studies.

Generally, population health studies are broad and extensive as the subjects involved in these studies are not confined to hospitalized patients or the patient pool from healthcare providers, but may also involve the general population from the community. The categories of studies which can be submitted to Domain F for review include Health Services and Outcomes Research, Education Research, Research on Prevention & Health Promotion Program, Social and Behavioral Research, Epidemiological Research and Community-based Participatory Research.

In addition, the risks in population health research are often not only confined to individuals, but extended to communities as well. Thus, informed consent from participants should not be restricted to individuals but should also include community consent as well. Often, unlike biomedical studies, the types of risks considered are inclined towards financial, mental and/or a psycho-social nature.

With the launch of Domain F, OHRPP seeks to provide effective ethics review of Population Health Research studies as part of continuous efforts to oversee the protection of human research subjects.

Contributed by Eling Ho
IRB Analyst
Office of Human Research Protection Program
National Healthcare Group

DSRB UPDATES
ONLINE REGISTRATION OF STANDING DATABASES / TISSUE BANKS WITH NHG DSRB (ROAM)

On 17 September 2012, NHG Office of Human Research Protection Program (OHRPP) Domain Specific Review Board (DSRB) launched the Standing Database / Tissue Bank module on the Research Online Administration and Management (ROAM) portal. Staff from NHG and partner institutions who intend to create standing databases or tissue banks as a potential source of data for future research may now register as Custodians with the DSRB via the ROAM portal.

With this online facility, DSRB has ceased to accept hardcopy application forms. Point to be noted here is that existing applications will not be migrated to ROAM and re-submission in ROAM is also not required.

About Standing Databases/Tissue Banks

- Standing databases and tissue banks function to store electronic data and tissue specimens respectively. Those that are created for the purposes of possible future research should be registered with DSRB. However, standing databases / tissue banks that are created for a specific research project should be submitted using the Online DSRB Ethics Application Form.
- The Custodian of a standing database / tissue bank is the overall person responsible for its registration, set up, maintenance and compliance with the NHG Good Practice Guidelines for Standing Databases and Tissue Banks for Research.
- The respective institutions own the standing databases / tissue banks set up by their staff members and online applications will be routed directly to the Head of Department (HOD)/ Chairman Medical Board (CMB) for endorsement upon submission.

Contributed by Chen Siya
IRB Analyst
Office of Human Research Protection Program
National Healthcare Group

Department(s) Involved	Institution(s) Involved	Endorsing Authority
One department	One institution	Custodian's HOD
More than one department	One institution	Custodian's CMB
More than one department	More than one institution	CMBs of all institutions involved

Custodians, HODs and CMBs can refer to the online guidebooks on the application and endorsement process. These guidebooks are available for download at NHG Research Website, under Resources (Research Online Guidebooks) http://www.research.nhg.com.sg/wps/wcm/connect/romp/nhgromp/resources/research+online+guidebooks

TTSH RESEARCH AWARD CEREMONY ON 31 AUGUST 2012

31 August 2012 was a memorable day for Tan Tock Seng Hospital (TTSH) as well as for the recipients of the inaugural NHG Clinician Scientist Career Scheme and TTSH 2nd Pitch-For-Fund. This was an event of pride and joy for TTSH. The event was graced by NHG Asst CEO (Education and Research), A/Prof Lim Tock Han. For the first time, a research award ceremony was conducted during the Hospital Conference to commemorate the outstanding achievements of the recipients in clinching the awards.

Our heartfelt congratulations to the 8 awardees for the 2nd Pitch-For-Fund

TTSH PITCH-FOR-FUND

Name	Instituition	Department	Designation	Project Title
Dr Laura Tay	TTSH	Geriatric Medicine	Associate Consultant	Impact of a Combined Cognitive Stimulation and Exercise Program (MINDVital) on Physical Performance and Frailty in Community-Dwelling Elders with Early Alzheimer's Disease
Dr Ling Li Min	TTSH	Infectious Disease	Consultant	Treatment of ventilator associated tracheobronchitis with aerosolized antibiotics and effect on ventilator associated pneumonia: a randomized double blind placebo controlled pilot study
Ms Leow Li Pyn	TTSH	Speech Therapy	Principal Speech Therapist	Use of Peak Cough Flow in Predicting Aspiration Risk in Acute Stroke
Dr Petrina Tan	TTSH	Ophthalmology	Registrar	Cytokine Analysis in Tear film of HIV patients (CATH study)
Dr Jason Lee	TTSH	Ophthalmology	Registrar	The Role of Choroidal Thickness using Enhanced Depth Imaging Optical Coherence Tomography (EDI-OCT) in the Diagnosis and Management of Posterior Uveitis
Dr Clarissa Cheng	TTSH	Ophthalmology	Registrar	The Prevalence of Idiopathic Polypoidal Choroidal Vasculopathy (IPCV) and Levels of serum Vitamin D in Singaporean Chinese patients – a Singapore Case-Control Study
Dr Colin Tan	TTSH	Ophthalmology	Consultant	Validating Photo-screening Criteria for Diabetic Macular Edema Using Optical Coherence Tomography in the Singapore integrated Diabetic Retinopathy Program
Dr Augustinus Laude	TTSH	Ophthalmology	Consultant	Assessment of Choroidal Thickness in Diabetic Patients Undergoing Cataract Surgery: An Enhanced Depth Imaging Study

RESULTS FOR FY2012 NHG CLINICIAN SCIENTIST CAREER SCHEME (CSCS)

The NHG Clinician Scientist Career Scheme (CSCS) was launched in April 2012 with the aim to develop research capabilities of our clinicians and enable them to compete successfully for NMRC's awards. In the longer term, NHG CSCS also aims to train clinician scientists who will contribute to excellence in research innovation, improvement in patient care, delivery and outcomes, as well as leading research in the Lee Kong Chian School of Medicine (LKCMedicine). The CSCS was divided into 2 categories – CSCS Junior and Mid-Level categories. All applicants were required to submit application forms and present their research proposals to the NHG Research Committee.

After a rigorous selection process, we are pleased to announce the following successful CSCS awardees for FY2012:

Project Code	Name	Institution	Department	Project Title
CSCS JUNIOR				
CSCS/12008	Dr Barnaby Young	TTSH	Communicable Disease Center	The Role of HLA-B* 5101 restricted Pol 283-8 cytotoxic T-lymphocytes (CTLs) for HIV-1 control in Singapore and Japan
CSCS MID-LEVEL				
CSCS/12002	Dr Chong Mei Sian	TTSH	Geriatric Medicine	The Influence of the Frailty Phenotype On Fast Progressors Amongst Community-dwelling Older Persons with Mild Cognitive Impairment and Mild-Moderate Dementia
CSCS/12003	Dr Rinkoo Dalan	TTSH	Endocrinology	Vitamin D Supplementation in Patients with Diabetes Mellitus Type 2 and low 25 (OH)D Concentrations: Does it Help to Improve Endothelial Function as Measured by the Endothelial Progenitor Cells- The DIMENSION Trial
CSCS/12004	Dr Tan Ern Yu	TTSH	General Surgery	Bringing Novel Biomarkers and Technologies Closer to Clinical Application
CSCS/12005	Dr Colin Tan Siang Hui	TTSH	Ophthalmology	Polypoidal Choroidal Vasculopathy Subtypes and its Relationship to Clinical Outcomes
CSCS/12006	Dr Augustinus Laude	TTSH	Ophthalmology	Computer-aided diabetic eye disease assessment: Understanding and exploiting retinal fundus features using online learning through evolutionary programming (CAMERA)

UPCOMING EXTRAMURAL GRANTS

NATIONAL MEDICAL RESEARCH COUNCIL (NMRC) GRANTS			www.nmrc.gov.sg
Grant Name	Grant Description	Funding Quantum	Launch Date
Clinician Scientist – Individual Research Grant (CS-IRG)	The CS-IRG is provided to Clinician Scientists to enable them to carry out medical research on a specifically defined topic. All CS-IRG applications will be evaluated through a two stage process with an international peer review stage followed by a Local Review Panel.	Maximum of S$1.5 million per project for 3 years with additional 20% indirect costs.	1st Nov 2012
Clinician Scientist – Individual Research Grant – New Investigator Grant (CS-IRG-NIG)	The CS-IRG-NIG is a subcategory of the CS-IRG to cater for new clinical investigators. The CS-IRG-NIG is a step for the new investigator to a first independent national level grant.	Maximum of S$200,000 per project for 2 years with additional 20% indirect costs.	1st Nov 2012
Cooperative Basic Research Grant (CBRG)	The CBRG is provided to non-clinical researchers to conduct research proposals in basic and translational clinical research. The CBRGs also aims to promote basic biomedical sciences (BMS) research collaborations across institutions in Singapore.	Maximum of S$1.5 million per project for 3 years with additional 20% indirect costs.	1st Nov 2012
Cooperative Basic Research Grant - New Investigators Grant (CBRG-NIG)	The CBRG-NIG Is a subcategory of the CBRG to cater for new non-clinical investigators. The CBRG-NIG is a step for the new investigator to a first independent national level grant.	Maximum of S$200,000 per project for 2 years with additional 20% indirect costs.	1st Nov 2012
Transition Award (TA)	The TA is provided to assist budding, young clinicians who have just returned from formal research training, to build up their capability in research. It includes funding support for mentored research project with salary and grant funding for up to three years.	Maximum of S$375,000 per award for 3 years with additional 20% indirect costs.	1st Nov 2012
Clinician Scientist Award (CSA)	The CSA aims to provide salary & funding support for selected outstanding clinician scientists, who possess a consistent record of excellence in research, to enable them to carry out internationally competitive translational and clinical research. There are 2 categories in CSA to allow flexibility in time commitment. The Investigator (INV) Category is for clinician scientists who have good track records of research work and demonstrated potential to become leaders in their field. The Senior Investigator (SI) Category is for clinician scientists who have demonstrated sustained, high levels of productivity & leadership in translational & clinical research. They are expected to mentor MBBS-PhD students & junior clinician scientists.	**Investigator Category:** Maximum of 3 years' salary support and grant support of up to S$675,000 for 3 years with additional 20% indirect costs. **Senior Investigator Category:** Maximum of 5 years' salary support and grant support of up to S$1.75 million for 3 years with additional 20% overhead costs.	1st Nov 2012
Singapore Translational Research (STaR) Investigator Award	The STaR is a prestigious award offered by the MOH to recognise and support internationally renowned and outstanding investigators in translational and clinical research.	Maximum of 5 years' salary support and grant support of up to S$5 million for 5 years with additional 20% indirect costs.	1st Nov 2012
Health Services Research - Competitive Research Grant – New Investigator Grant (HSR-CRG-NIG) ***NEW GRANT***	The HSR-CRG is a MOH research grant established in promote the conduct of HSR and enable the translation of HSR findings into policy and practice. The HSR-CRG-NIG is a subcategory of the HSR-CRG to cater for new investigators. The HSR-CRG-NIG is a step for the new investigator to a first independent national level grant.	Maximum of S$100,000 per project for 2 years with additional 20% indirect costs.	1st Nov 2012
Communicable Diseases Public Health Research Grant (CD-PHRG) ***NEW GRANT***	The CD-PHRG aims to encourage researchers to work on strategic research topics with major public health impact for Singapore, in the area of communicable diseases (prevention and control. It also supports research that is translational in nature to inform public health risk assessment, interventions and policy formulation for communicable diseases control.	Maximum of S$1 million per project for 3 years inclusive of 20% indirect costs.	1st Nov 2012

NATIONAL MEDICAL RESEARCH COUNCIL (NMRC) GRANTS			
Grant Name	Grant Description	Funding Quantum	Launch Date
Clinical Trial Grant ***UPCOMING NEW GRANT***	The new clinical trial grant aims to support innovative and high-impact clinical trials which look into developing novel healthcare therapies. The grant also seeks to foster new directions in translational biomedical research, and further encourage multidisciplinary and multi-institutional collaborations. Note: More details on the upcoming Clinical Trial grant will be available on the NMRC website once launched in December 2012.	**The Co-Development Scheme:** An industry partner is required for this scheme. NMRC will match a maximum of S$5million for 3 years with the amount put in by industry partner. **PI-Initiated Scheme** (Early Phase Trials): Maximum of S$5million for 3 years **PI-Initiated Scheme**(Late Phase Trials): Between S$500,000-S$2 million for 3 years.	The Co-Development Scheme: Will be opening throughout the year PI-Initiated Schemes: Will be opening in December and June

AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH (A*STAR) GRANT			www.nmrc.gov.sg
Grant Name	Grant Description	Funding Quantum	Launch Date
4th Biomedical Engineering Programme (BEP) Grant Call	The BEP is provided to foster Clinician-Engineer collaborations for development of medical devices and solutions to clinical problems. In particular, it supports collaborative research projects with emphasis on devices, procedures, diagnosis, and clinical systems to improve patient care and cost-efficiency of the healthcare system. There are 2 application categories; Proof-of-Concept & Proof of Value.	Proof-of-Concept Category: Between S$250,000 and S$500,000 for up to 1.5 years. Proof-of-Value Category: Between S$1 million and S$1.5 million for up to 2 years.	12th December 2012

THE NATIONAL KIDNEY FOUNDATION			www.nkfs.org
Grant Name	Grant Description	Funding Quantum	Launch Date
Venerable Yen Pei-National Kidney Foundation (NKF) Research Fund	The Venerable Yen Pei-National Kidney Foundation (NKF) Research Fund is started specifically to fund research in kidney diseases. The acceptable areas of research are basic science and clinical research that are of renal or renal related projects. If the research has relevance to NKF activities, the proposals would be considered as well.	Maximum of S$300,000 for up to 3 years.	January 2013

UPCOMING INTRAMURAL GRANTS			www.research.nhg.com.sg
Grant Name	Grant Description	Funding Quantum	Launch Date
Clinician Leadership in Research (CLR)	The CLR is a 2 year programme that consists of 3 components: Mentorship, Training and Assessment. Successful applicants will explore collaborative opportunities with their nominated mentors and receive seed funding and academic allowances to support these research projects.	Maximum of S$5,000 per year with additional S$500 academic allowance for up to 2 years.	1st Nov 2012
Small Innovative Grant (SIG)	The SIG aims to fund clinically relevant research projects that can contribute directly to improve patient care or to enhance clinical research capabilities in NHG. It is designed to support exploratory and innovative studies with the aim of preparing young investigators to initiate larger investigations and vie for competitive grants on a national level.	Maximum of S$50,000 per year for up to 2 years.	1st Nov 2012
NTU-NHG Innovation Collaboration Grant (ICG)	The NTU-NHG ICG is a joint grant call by Nanyang Technological University (NTU) and National Healthcare Group (NHG) to fund collaborative projects in medical innovation and improvement, in order to develop clinically relevant knowledge and theory which can contribute towards better care healthcare outcomes.	Maximum of S$50,000 per year for up to 2 years.	3rd December 2012

HEALTH PROGRAM EVALUATION

WHAT, WHY, WHEN, HOW

This is the first of a series on evaluation of health programs - the what, why and when.

Subsequent series will cover the 'how' of program evaluation

- Specifying a program theory and development of a logic model
- Gathering credible evidence 1: Study designs for determining effectiveness
- Gathering credible evidence 2: Economic analysis to determine if program costs outweighs benefits

HAVE A QUESTION REGARDING RESEARCH?
Drop us a note at the researchtraining@nhg.com.sg and we'll have it answered by experts in upcoming editions! Here's one from our readers.

WHAT IS PROGRAM EVALUATION?

Program Evaluation is "the ***systematic collection*** of information about the ***activities, characteristics, and results*** of programs to make judgments about the program, ***improve*** or further develop ***program effectiveness***, ***inform*** decisions about ***future program development***, and/or ***increase understanding***." – Patton, 2008

SYSTEMATIC:
Evaluation methods are systematic using rigorous quantitative and qualitative research methods.

FOCUS:
Evaluations focuses on studying processes, how it is implemented and on outcomes.

JUDGEMENT:
We compare program performance either with its goals or with patients who were not in the program.

PURPOSE:
Is it working as intended? Can it work better? Should we reallocate resources?

WHY EVALUATE PROGRAM?

In a NEW program

- Defines the need for a program
- Plans the objectives, activities and expectations
- Identify critical success factors

In a DEVELOPING program

- Monitors program progress
- Potential gaps and problems can be identified early leading to redesigning the program or adjusting expectations

In a STABLE program

- Highlight program successes and improvement areas
- To demonstrate the worth of the program and support further funding

WHEN SHOULD I PLAN FOR AN EVALUATION?

- Right from the beginning of the program planning.
- Leaving it to the end:
  - Will delay identifying gaps in the program design and implementation
  - Data required for determining effectiveness of the program may be limited or unavailable.

TYPES OF EVALUATION

PLAN → **IMPLEMENT** → **EVALUATE**

1. **Formative Evaluation -**
   Is the program being planned, developed and implemented as intended. Does it reach the target audience? Information is collected about the activities carried out in the program and its coverage.

2. **Summative Evaluation -**
   Focuses on program outcomes and determines whether a program has achieved its goals and objectives.

CASE STUDY

A case management program, Integrating Services and Interventions for Stroke (ISIS), was introduced in Tan Tock Seng Hospital (TTSH), National University Hospital (NUH), Alexandra Hospital (AH) and National Healthcare Group Polyclinics (NHGP) to coordinate post-discharge care for stroke patients.

Goal of ISIS

To ensure continuity of care for stroke patients through smooth and seamless coordination of care and services required at primary and tertiary settings.

Objectives of ISIS:

1. Ensure optimal control of risk factors: hypertension, hyperlipidemia and diabetes
2. To refer patients screened with poor function, cognitive impairment and falls risk referral to rehab, memory clinic and falls prevention counseling, respectively
3. Ensure continuity of care by reducing outpatient defaulter rate
4. Reduce stroke recurrence

FORMATIVE EVALUATION

ISIS activities included:

- Education: on stroke management including advising on control of risk factors.
- Screening: for depression, functional status, cognitive impairment and falls risk.
- Referral: to appropriate community services such as rehabilitation, dementia clinic.
- Tracking: patients' attendance for outpatient appointment and management.

Indicators for coverage:

- Proportion of stroke patients recruited into the program

Indicator for monitoring program implementation*

- Proportion of ISIS patients screened for depression, functional status, cognitive impairment and complications
- Proportion of patients who required and received referral to community services
- Proportion of patients successfully contacted by case managers to be rescheduled for their missed outpatient appointments

SUMMATIVE EVALUATION

The outcomes of stroke patients in ISIS were compared to those who did not participate in ISIS. The comparison is essential in determining whether or not the outcomes were due to the program.

Outcomes assessed:

1. Functional status using the modified Barthel Index
2. Control of risk factors (Blood pressure, LDLc, HbA1c readings)
3. Stroke recurrence at 1 year

How has the evaluation results helped to improve the program?

1. When comparing outcomes on control of risk factors, a large proportion of data from the patients in the specialist clinics was missing. This reflected clinical practice in which readings were not taken unless required by the physician. Without the data, case managers were unable to monitor patient's control of risk factors.
2. Barriers were identified that reduced the uptake of referrals for rehabilitation services. Reasons included financial constraints, lack of an accompanying person and not seeing the need for rehabilitation.

Reference

1. *Michael Quinn Patton. (2008) Utilization-Focused Evaluation. 4th ed. Sage Publications*
2. *Carol H. Weiss. (1997) Evaluation. 2nd ed. New Jersey: Pearson Prentice Hall*

** List of indicators presented is not comprehensive*

LKCMEDICINE LAUNCHES POSTDOCTORAL FELLOWSHIP

To nurture a cadre of talented biomedical and clinical research scientists at Lee Kong Chian School of Medicine (LKCMedicine), the School is launching the LKCMedicine Postdoctoral Fellowship this year.

LKCMedicine is a joint school between two of the world's premier institutions of higher education, Imperial College London and Nanyang Technological University.

Through the symbiosis of science, engineering and technology in the school's world-class academic and healthcare curriculum, the School strives to make new medical discoveries that will benefit society.

Through the pursuit of internationally competitive research, the School is committed to ensure that their research is translated into improved healthcare – and hence improving the lives for patients.

LKCMedicine has identified research areas it expects to achieve excellence in. They are: neuroscience and mental health, metabolic disease, infectious disease, bioengineering including structural biology, and health services outcome research. Details of the Fellowship are as follows:

Features	LKCMedicine Postdoctoral Fellowship
Eligibility	▪ New or recent PhD graduates who have received his/her PhD within three (3) years from a reputable university and possess a promising research record ▪ For recent PhD graduates, he/she should have strong research training with at least one (1) postdoctoral stint from a reputable University ▪ The research interests of the candidate should lie within the broad themes of LKCMedicine ▪ The Fellowship will preferably be awarded to Singaporeans and Singapore Permanent Residents
Research Grant	Up to S$300,000 over three (3) years
Duration	Three years (not renewable)
Salary	Competitive remuneration
Service Obligation	Outstanding recipient demonstrating excellent research aspirations to become the next generation research leader in his/her field; Upon completion of the Fellowship, he/she will be for a full-time faculty appointment at LKCMedicine

Schedule of Annual Call

The LKCMedicine invites applications for the LKCMedicine Postdoctoral Fellowship every April. A call for application will be made via the school's research office, with application details being publicised at the school and university's websites.

Interested candidates are to send a complete Curriculum Vitae and a proposed research plan together with the research lab he/she would like to be attached to at LKCMedicine, to the research office of LKCMedicine.

For further information on the Fellowship and selection processes , please contact the Directors of Research Program, LKCMedicine: Dr Ng Sean Pin: seanngsp@ntu.edu.sg and Dr Andrew Ang: andrewang@ntu.edu.sg.

NHG RESEARCH TRAINING CALENDAR

for December 2012 – February 2013

Date	Time	Training Programme	Course Module	Venue	No of Seats
Ongoing	00:00 - 23:59	Proper Conduct of Research Online - Basic I & III	PC101 & 103	http://www.elearning.nhg.edu.sg	100
		Proper Conduct of Research – Basic II^	PC102		
7 Dec 2012	1400 - 1700	Combined CRP-CRCS Forum		Bukit Merah Central Auditorium, Level 3	300
17 & 18 Jan 2013	09:15 – 18:00	Singapore Guideline for Good Clinical Practice	SG-GCP	Health Promotion Board Auditorium, Level 7	100
20 – 22 Feb 2013	09:00 – 18:00	Biostatistics Workshop (Basic & Intermediate)		TBC	30
22 Feb 2013	09:00-16:30	Proper Conduct of Research - Advanced II Workshop	PC302	TBC	30
25 Feb 2013	09:00-18:00	Biostatistics Workshop (Advanced)		TBC	30

For registration and full details, please visit www.research.nhg.com.sg (Training & Education > Search for a Course)

*Dates are subjected to changes without prior notice

^For more information, refer to (www.research.nhg.com.sg -> Training & Education -> Course Categories -> Proper Conduct of Research Courses)