Issue 28 Dec 2016-Jan 2017

A Newsletter For The Research Community In Singapore

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ACCELERATING RESEARCH

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SPECIAL FEATURE: RESEARCH ON ZIKA VIRUS (ZIKV)

The outbreak of Zika virus (ZIKV) had taken centre-stage in healthcare news all over the world earlier this year. It represents such a serious emerging threat to public health that the World Health Organisation (WHO) declared it a global emergency in February 2016. Singapore had also experienced a major ZIKV outbreak in 2016, which was of great concern to the local residents and international travellers.

With the pressing need to understand the virus for development of disease control and preventive measures against this fearsome threat, research on the virus went into full throttle.

ZIKV and the Eye

A mosquito-bourne arvovirus of the Flavivirus genus was first isolated from a rhesus monkey during a study of wild yellow fever in Uganda in 1947 and first reported in humans in 1952 (Uganda). **Due to its self-limiting nature and similar clinical presentation as Dengue and Chikungunya viruses, the detection of disease is usually underwhelming.** With the spread of ZIKV globally, it calls for higher surveillance to prevent potential outbreaks.

ZIKV is transmitted mainly by Aedes mosquitoes in both urban and wild areas. Aedes aegypti (typically found in the tropics and subtropics) and Aedes albopictus (native to Europe, particularly Mediterranean countries) are the most common vectors. Aside from humans, mice and monkeys have been proven to be non-human hosts of ZIKV. ZIKV shares similar traits and life cycle as Dengue Virus (DENV) in urban environments, utilising mosquitoes as vectors and humans as hosts for viral propagation. **With ZIKV proliferation, it is possible that other known mosquito-bourne diseases like yellow fever, chikungunya, dengue, epidemic polyarthritis and new viruses might rise in numbers.**

Non-vector dependent modes of transmission include sexual transmission, perinatal trans-placental transmission and animal bites. Other routes of transmission yet to be explored are blood transfusion, lactation and bodily-fluid contact. **Blood transfusion is a potential route of transmission as 2.8% of blood donors had asymptomatic acute ZIKV infection.** Although viral RNA is detected in breast milk, no infected cases have been reported yet. ZIKV can stay in seminal fluid up to 2 months, indicating the importance of protected sex during and post-illness.

What is worth-noting is the latest discovery that in patients with conjunctivitis, uveitis or neuroretinitis, ZIKV can be shed from lacrimal glands or cornea, evidenced by presence of ZIKV RNA in mice tears, making this another potential route of transmission. Experimental infection of Zika virus in mice causes panuveitis and the presence of ZIKV RNA was detected in the tears and it could be also possible in humans with Zika virus infection and the infected tears may play a role in spreading the disease further. But the presence of ZIKV RNA in human tears in patients with Zika virus infection was not reported so far.

ZIKV can spread across blood-brain and ocular barriers to cause ocular symptoms.

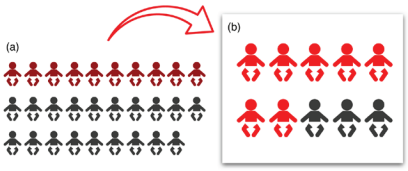
Ocular manifestations in adults

ZIKV can cause nonpurulent conjunctivitis in infected patients. Moreover, it may be linked to uveitis, unilateral acute idiopathic maculopathy and hypertensive iridocyclitis. In a patient with ZIKV RNA positive on reverse transcriptase - polymerase chain reaction (RT-PCR), bilateral nongranulomatous keratic precipitates and the cells in anterior chamber are seen. A patient with strongly-positive value on a serum plaque reduction neutralization technique (PRNT) experienced macular retinal pigment epithelium (RPE) changes with a grey annulus around the fovea on posterior segment examination and disruption of outer retinal and RPE integrity in the central macula evidenced on optical coherence tomography (OCT). Another case report discussed about a patient having bilateral hypertensive iridocyclitis after suspected ZIKV infection.

Ocular manifestations in newborns

Ocular manifestations of ZIKV are described in infants with mothers who experienced ZIKV symptoms during pregnancy. A case report from Brazil described 3 infants with presumable intrauterine ZIKV infection (evidenced by microcephaly and intracerebral calcifications) presenting with changes in the macula. All infants had gross macular pigment mottling and loss of foveal reflex, while one had a well-defined macular neuroretinal atrophy. No ocular presentations were noted in their mothers. Both mothers and children were only diagnosed clinically and no laboratory tests were performed to confirm ZIKV infection.

Another Brazilian study conducted in infants with microcephaly associated with suspected intrauterine ZIKV infection also showed similar results. Ocular findings were observed in 10 out of 29 infants (34.5%) and 7 in 10 had bilateral lesions. The abnormalities elaborated were posterior pole focal pigment mottling of the retina and chorioretinal atrophy in the macular area, optic nerve abnormalities such as optic nerve hypoplasia and severe optic disc cupping. One infant had iris coloboma and lens subluxation, though it is not clear if ZIKV was the cause. Out of 29 mothers, 23 (79.3%) had clinical signs and symptoms of ZIKV infection. The remaining 7 mothers might have asymptomatic ZIKV infection or have some other possible pathogenic agents for causing microcephaly and ocular lesions in infants. While reviewing potential congenital ZIKV cases, clinicians must bear in mind to rule out other differentials of chorioretinal lesions such as toxoplasmosis, cytomegalovirus, syphilis, rubella and herpes simplex virus.



Ocular findings were observed in 10 out of 29 infants (ref. a) (34.5%) and 7 in 10 had bilateral lesions (ref. b).

Ocular involvement is observed more in babies with mothers reporting infective symptoms in the first trimester and smaller cephalic diameter at birth. Latest interim guidance for evaluation and management of congenital ZIKV recommends performing an ophthalmology examination on infants with suspected congenital ZIKV infection within the first month of life. If the results are normal, a follow-up examination (with retinal assessment) should be done at 3 months of age. Any abnormalities will warrant an urgent referral to an ophthalmologist. Subsequent visits to the paediatrician should be accompanied by a visual screening.

It is imperative that in-utero ZIKV infection should be paid close attention to, as macular and chorioretinal disease in infants can have dire visual consequences, including blindness from chorioretinal scarring. As ZIKV is a relatively new disease trend, not many studies have been established. More clinical research studies should be carried out including proper serologic confirmation for ZIKV. It is likely that with more research, there will be more variations in ocular presentations. Ophthalmic screening of newborns in epidemic areas may be considered when more findings strengthen the correlation between congenital ZIKV infection and ophthalmic abnormalities.

Contributed By:
Asst Prof Rupesh Agrawal, National Healthcare Group Eye Institute, Tan Tock Seng Hospital and
Ms Hnin Hnin Oo, Yong Loo Lin School of Medicine, National University of Singapore

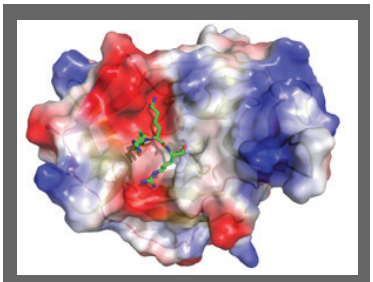
SPECIAL FEATURE: RESEARCH ON ZIKA VIRUS

Understanding ZIKV - A Promising Step to Therapeutics

With the growing threat to public health, both protective vaccines and antiviral drugs are therefore urgently needed in order to control the spread of the ZIKV. **In collaboration with Experimental Therapeutic Centre, A*STAR, Asst Prof Luo Dahai (Nanyang Assistant Professor and Principal Investigator, Molecular Mechanisms of Viral Infection & Host Defense Laboratory, LKCMedicine) and his team have studied the Zika protein and found that the viral NS2B-NS3 protease that processes viral polyprotein within the host cell constitutes prime drug target.** Precise 3D information of the protease in presence of inhibitors will not only provide better understanding of the virus pathogenesis but also aid structure based drug discovery. It is found that the molecular structure of the NS2B-NS3 protease greatly advance the current understanding of the ZIKV protease dynamics and should accelerate structure-based antiviral drug discovery against ZIKV. The viral enzyme was captured along with a peptide inhibitor which provides an attractive starting point for further development of antivirals, against ZIKV and related flaviviruses like dengue virus. **Asst Prof Luo believes that the next step is to identify a suitable drug candidate to prevent the virus from replicating.**

Click on the papers featured on Science and Nature Communications to find out more.

Contributed By **Nanyang Assistant Professor Luo Dahai,** LKCMedicine



Molecular structure of Zika virus NS2B-NS3 protease in complex with a peptide inhibitor (green sticks).

Outbreak Research Capabilities and Studies for ZIKV at the Institute of Infectious Diseases and Epidemiology, Tan Tock Seng Hospital

The Communicable Disease Centre (CDC) is an integrated part of the Institute of Infectious Diseases and Epidemiology (IIDE) and the research unit is one of its key departments. The unit has made a significant impact in conducting research during outbreaks and epidemics of emerging infectious diseases, such as the one caused by ZIKV in August to September 2016. The research unit is funded by a mix of NMRC Centre Grant and other grant funding, and comprises of the Infectious Diseases Research Office (IDRO), Infectious Diseases Research Clinic (IDRC) and Infectious Diseases Research Laboratory (IDRL), with data management and biostatistics support from staff at the Department of Clinical Epidemiology (DCE) and laboratory support from Tan Tock Seng Hospital's Department of Laboratory Medicine. The IIDE Research Unit is currently led by Asst Prof Mark Chen and supported by Dr Pang Junxiong Vincent, with guidance from Prof Leo Yee Sin, who is also the Principal Investigator of the CDC Centre Grant.

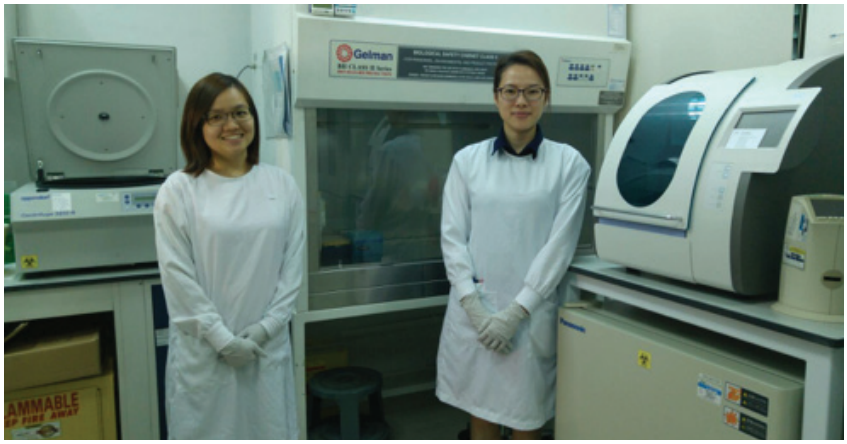
IIDE Research Unit (which houses IDRO and IDRL) at Block 812, Communicable Disease Centre 1.

Research Infrastructure

The Infectious Diseases Research Clinic was established in 2009 in response to a need to recruit patients from the Communicable Disease Centre for non-respiratory pathogen research studies such as dengue research. This research clinic has four well-furnished consultation rooms that provide full privacy for principal investigators to concurrently recruit and perform physical examination on eligible patients. It is also equipped with one phlebotomist room for blood draws as well as a cosy lounge for subjects who consented to research studies as they await research procedures during their follow-up visits.

The facilities in IDRC

The Infectious Diseases Research Laboratory (IDRL) @ IIDE is well-equipped with freezers, laboratory equipment and a biosafety cabinet for basic biological sample processing and storage in a safe and controlled environment. These samples are either transferred directly to collaborators for downstream scientific applications or stored at -80 degrees Celsius for future collaborations. The IDRL at IIDE is currently led by Dr Shawn Vasoo, and supported by Dr Pang Junxiong, Vincent, with guidance from Asst Prof Ng Oon Tek.



Staff at IDRL (From left): Miss Loh Xinyi and Ms Wong Lai Har

The facilities at IDRL

SPECIAL FEATURE: RESEARCH ON ZIKA VIRUS

Research Manpower & Development

Outbreak research is part of the portfolio of the Emerging and Viral Infectious Diseases cluster at IIDE. This is currently led by Asst Prof Yeo Tsin Wen, and supported by project manager Ms Linda Lee, with guidance from Prof Leo Yee Sin. **A mechanism has been put in place where the partnership between clinical and research staff enhances research recruitment, which is vital during outbreaks where we need to maximise recruitment of earlier subjects to facilitate early characterisation for a given infectious agent.** Research personnel in this research cluster are highly experienced and can respond within 24 hours for outbreak research (including after-office hours and weekends). They are also equipped to engage patients and explain the need for research in outbreak research studies. Most of them had a rich clinical or nursing background prior to joining IIDE, and that has helped them build a strong rapport with both the patients and clinicians in the Communicable Disease Centre to perform outbreak research.

All the research staff are also trained and updated in Good Clinical Practice, ethics as well as our internal outbreak research protocol: "A Multi-centered Prospective Study to Detect Novel Pathogens and Characterize Emerging Infections" ("PROTECT"). The aim of this protocol is to facilitate research of novel, previously undescribed pathogens and characterize associated clinical features. The protocol also enables us to prospectively characterize the transmission risk, clinical features, host and pathogen interactions and natural and treated history of emerging infectious disease pathogens, and allows for outbreak associated patients where a diagnosis has not yet been established, as may be the case in emerging infectious disease outbreaks. **The first ZIKV patient was recruited under this protocol before the diagnosis of Zika virus was confirmed after admission to TTSH.**

Research Staff involved in Zika Studies (From left): Dr Vincent Pang Junxiong, Mr Htet Lin Htun Danny, Miss Hsu Jung Pu, Ms Nadiah Bte A. Karim, Ms Linda K Lee and Miss Ling Wei Ping. Not in photo: Ms Tan Bee Har, Diana

The future of IIDE Research Unit

Moving forward to 2018, the IIDE Research Unit will also progressively transit into the new building at the National Centre for Infectious Diseases (NCID). NCID will be well-furnished with a Research Office with capacity for 60 staff with a full-fledged and integrated research clinic with five consultation rooms plus an in-house sample processing laboratory. In addition, there will be a multi-disciplinary research laboratory of net floor area 862m^2 co-sited at NCID with the Biosafety Level 3 (BSL-3) National Public Health Laboratory on the same floor, which will allow for better integration of laboratory-based research into emerging infectious disease pathogens. Lastly, there will be an inpatient Research Facility Phase 1 trial ward layout of about 20 beds. With these facilities, NCID aims to provide the necessary platforms to generate new knowledge and understanding of novel pathogens during outbreaks so as to guide decisions for prompt outbreak response and control.

Research Collaborations & Studies

By tapping onto the well-established network of collaborators we had previously built up through IIDE's Dengue Research Programme, we were able to rapidly initiate multiple collaborations with the aim to investigate the epidemiological, clinical, molecular and immunological characteristics of ZIKV infection.

Current collaborations with Prof Leo Yee Sin as site-PI include:

- The ZIKV patient cohort study with collaborators from KK Women's and Children's Hospital (A/Prof Chong Chia Yin), Singapore Immunology Network (SIgN) at A*STAR (A/Prof Lisa Ng) and TTSH Eye Department (Asst Prof Rupesh Agrawal);
- Collaboration with Health Science Authority to validate nucleic acid amplification techniques for blood bank testing;
- Collaboration with the Environmental Health Institute (A/Prof Ng Lee Ching) to validate commercial serology test kits;
- Collaboration with the Institute of Bioengineering and Technology at A*STAR (Dr William Sun and Prof Jackie Ying) to validate a Zika point-of-care test kit; and
- Study of risk factors and serological attack rate in the community with collaborators from Saw Swee Hock School of Public Health, NUS (Asst Prof Mark Chen)

Contributed By:
Dr Pang Junxiong Vincent, Ms Linda Lee, Asst Prof Mark Chen, Prof Leo Yee Sin, Institute of Infectious Diseases and Epidemiology, Tan Tock Seng Hospital

Congratulations on clinching the National Medical Research Council (NMRC) Research Training Fellowship (RTF) Award

Dr Barnaby Young
Consultant
Department of Infectious Diseases
Institute of Infectious Diseases and Epidemiology
Tan Tock Seng Hospital

Dr Young will be pursuing his PhD at the Lee Kong Chian School of Medicine, Nanyang Technologicial University, Singapore

Mr Li Ruijie
Senior Research Analyst
Health Services & Outcomes Research
National Healthcare Group

Mr Li will be pursuing his PhD at King's College, London

DID YOU KNOW?

Regular consumption of caffeinated coffee reduces your risk of melanoma by 25%!

Interested to know more? Ask our experts here!

Congratulations to Awardees of TTSH Pitch-for-Fund Program

The Tan Tock Seng Hospital Pitch-for-Fund Program was started in 2011 with the aim of providing funding to TTSH staff for small, short-term research projects and, through the public presentation of their research ideas, to promote awareness and interest in the Hospital.

This one-year program enables awardees to obtain preliminary data in order to obtain larger grants. These are our FY2017 awardees :

Title of Application	Name of PI, Department
International standardisation of ADAMTS13 antigen and activity assay	Dr Allison Tso, Haematology
Evaluating the effectiveness of adjuvant contrast-enhanced digital mammography (CEDM) in reducing the need for biopsy of suspicious (BIRADS 4) breast lesions	Dr Niketa Chotai, Diagnostic Radiology
Polyuria after spinal cord injury, a relative diabetes insipidus state - coincidence or correlation?	Dr Shaji Jose Vadassery, General Medicine
Distal Radius Investigations in Vehicle Expertise (DRIIVE)	Dr Mala Satkunanantham, Orthopaedic Surgery
Relationship between serum cytokines, retinal ischemia and disease severity in diabetic macular edema	Dr Colin Tan, Ophthalmology
Deep phenotyping of Age-related Macular Degeneration in an Asian population: the association between cytokine profiles and clinical presentations	Dr Clarissa Cheng, Ophthalmology
Use of non-verbal communication tools in mechanically ventilated patients in NICU to improve communication and reduce patient distress	Dr Wong Yu Lin, Anaesthesiology, Pain & Intensive Care
Transition to and adoption of 'Sepsis 3' criteria in acute care hepatobiliary surgery	Dr Shelat Vishalkumar, General Surgery

NHG RESEARCH CAREER DEVELOPMENT PROGRAMMES Results For FY2016 Call For Applications

Congratulations to the following Awardees!

NHG-NTU CLINICIAN-SCIENTIST FELLOWSHIP (CSF)

Name	Department	Institution
Dr Barnaby Young	Infectious Diseases	Tan Tock Seng Hospital

NHG CLINICIAN-SCIENTIST CAREER SCHEME (CSCS)

Name	Department	Institution
Dr Sapna P Sadarangani	Infectious Diseases	Tan Tock Seng Hospital
Dr Yew Yik Weng	Dermatology	National Skin Centre

For more information, please visit www.research.nhg.com.sg (Grants & Programmes > Research Career Development)

GOOD TO READ!

Assessment of Red Blood Cell Deformability in Type 2 Diabetes Mellitus and Diabetic Retinopathy by Dual Optical Tweezers Stretching Technique.

Click here to read now!

Primary Care Research Experts Visit NHG Polyclinics (NHGP)

Prof Jan De Maeseneer, Family Physician & Head, Department of Family Medicine & Primary Health Care at Ghent University, Belgium Chairman, European Forum for Primary Care, and Prof Kamlesh Khunti, Professor of Primary Care Diabetes & Vascular Medicine at University of Leicester, visited NHGP from 20 to 26 September 2016 under the NHGP Overseas Expert Programme. Besides meeting NHGP's Senior Management and speaking at the Primary Care Forum 2016, Prof De Maeseneer and Prof Khunti also met the NHGP Clinical Research Unit and researchers to discuss research in primary care.

Prof De Maeseneer shared about the current trends in primary care research in Belgium and Europe, and using large databases for research. He also provided helpful advice on building research capacity and capability in primary care, through including research in the undergraduate and postgraduate training curricula, and building primary care research networks.

Prof Khunti, who has been ranked as one of the most influential diabetes researchers in the UK and the world, gave several recommendations to improve ongoing diabetes research projects in NHGP. He also engaged in lively exchange with NHGP researchers on experiences and ideas of conducting diabetes research in primary care, and translating research findings into evidence-based practice.

Both sessions were well-received by NHGP attendees. Prof Jan De Maeseneer and Prof Kamlesh Khunti were impressed by NHGP's research efforts and were confident that the opportunities formed by NHGP have created the right conditions for NHGP researchers to do high-quality research. Their visits have provided further insights into primary care research, and the relationships built have opened doors to future collaborations in our journey to advance family medicine and primary care research in NHGP.

Prof Jan De Maeseneer (back row, 6th from left), with NHGP Clinical Research Unit and researchers

Contributed by **NHG Polyclinics**

The Strange Case of the Innocent Melanocyte

"If the facts don't fit the theory, change the facts…." Albert Einstein

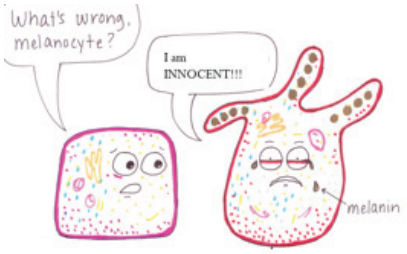
For many years now, we have always assumed that the main cause of facial pigmentation must be the melanocyte, the skin cell that produces colour. I was taught this "fact" when I was in medical school, held on to this "truth" all the way through my dermatology residency and till date as a practicing dermatologist. I suppose this is one of those facts of science that we embraced and never thought to challenge. As such, all therapeutic strategies to manage facial pigmentation are focused squarely on the melanocyte, with researchers designing new ways to stop the production and transfer of melanin from the melanocytes; often with only limited success. **Facial pigmentary disorders, specifically melasma, remains one of the most difficult condition to treat despite huge leaps in medical science.**

With that in mind, the pigment research team in National Skin Centre started our hyperpigmentary research program 3 years ago, with the single aim of **finding better ways to treat our patients who are suffering from recalcitrant facial pigmentation.** The first year saw us taking the same path undertaken by our predecessors; trying to discover new and better ways to slow down melanocyte function and failing.

The breakthrough came last year when we decided to challenge all assumptions/facts on pathogenesis of facial pigmentation and start looking at the problem with a "fresh" pair of eyes. Serendipitously, we were able to make use of a new technology known as laser microdissection from our collaborator A/Prof Andrew Tan from Nanyang Technological University (NTU). This new technology enables us to study the transcriptomics of the different cell types within one biopsy, something that was not possible in the past. Our result strongly suggests that, **contrary to conventional belief that melanocyte is the main culprit in melasma, it is the surrounding keratinocytes that is causing the melanocytes to hyperfunction and the melanocytes are just innocent bystanders responding to cues from keratinocytes and fibroblasts.**

The results of our study suggest a total paradigm shift in therapeutic strategy to adopt for facial pigmentation as addressing melanocytes alone is not universally effective and interventions on keratinocytes and fibroblasts functions would probably be more effective. **Currently, we are looking at the specific genes that are up/downregulated in the keratinocytes and fibroblasts so as to better understand the pathogenetic mechanisms involved.** From there, we are very hopeful that we can design a better therapeutic strategy to reduce these cues and solve the problem of the recalcitrant facial pigmentation for our patients.

We are thankful to Skin Research Institute of Singapore (SRIS) for funding this research and to our collaborators, A/Prof Andrew Tan (NTU) and Dr Loy Chong Jin (Johnson & Johnson). Without the funding and collaborative research, this work would not have been possible.



Contributed By:
Clinical A/Prof Steven Thng
Senior Consultant
National Skin Centre

Clinical A/Prof Thng received the Singapore Clinician Investigator Award for this work at the Singapore Health and Biomedical Congress (SHBC) 2016 Scientific Competition.

Inpatient Hypoglycemia Reduction Bundle

The relevance of diabetes mellitus has increased tremendously. With increasing treatment complexity, inpatient hypoglycemia has become a major clinical issue worldwide. In November 2014, a two-week hospital-wide audit we performed showed that there were 112 diabetics who had developed 183 episodes of hypoglycaemia during their hospitalisation. Amongst 49 inpatient wards, hypoglycaemia rates were the highest in our orthopaedic ward with an average rate of 11.9%.

A multidisciplinary team was involved in this project, included an endocrinologist, an advanced practice nurse, a pharmacist, a diabetes nurse educator, a dietitian, an engineer, ward nurses, kitchen staff, and housekeepers. Our aim was to **reduce the incidence of the first episode of hypoglycaemia in patients treated with oral hypoglycaemic agents/insulin admitted to orthopaedic ward 12D by 50% over 6 months.**

The following interventions were implemented:

1) Delaying dinner time by one hour to shorten overnight fasting hours and reduce nocturnal and pre-breakfast hypoglycaemia.

2) Using a visual reminder to help nurses identify meals intended for patients who were on insulin. This allowed the meal to be served within 30 minutes of the insulin injections.

3) Providing a late meal for post-operative or late admission patients.

4) Providing a bedtime snack if their 10pm capillary blood glucose level was less than 6 mmol/L.

5) Enhancing education to patients as well as healthcare providers. Education also encompassed the crafting of a diabetes flip-chart to standardise diabetes education for patients.

6) Implementing a protocol to deal with patients who needed to be fasted to ensure standardisation of care.

The results revealed a significant reduction in inpatient hypoglycaemic events. The percentage of patients with a first episode of hypoglycaemia dropped significantly from 11.9% (n=276) at baseline to 7.9% (n=581) post-intervention. The incidence of recurrent episodes of hypoglycaemia also declined from 4.7% to 3.3%.

The primary goal of this project was to reduce the risk of morbidity and mortality due to hypoglycaemia. **Reducing one episode of hypoglycemia also provides a financial benefit – it has been estimated to save a hospital S$75.60 per day. We estimate that the implementation of this bundle will bring about cost savings of S$1,275 per day for our hospital.**

Effective team work was essential for the success of the project. Through this project, we saw improvement in the levels of our team members' job satisfaction and patients' satisfaction. At the same time, we built good rapport amongst our team members. The project also increased hypoglycaemia awareness among healthcare providers, patients and caregivers.


Team members involved in the project.

Sister Joyce Lian Xia (in picture, on right) receiving an award at the NHG Quality Improvement Awards 2016 for the project under the 'Developing a Flexible & Sustainable Workforce' category.

Contributed by:
Ms Joyce Lian Xia
Advanced Practice Nurse,
Tan Tock Seng Hospital

LKCMedicine's First Clinician Scientist Award - Asst Prof Yeo Tsin Wen

While numbers of dengue cases did not hit the predicted 30,000 in 2016, it remains the most common and rapidly spreading mosquito-borne virus in Singapore, with more than 12,700 cases between January and now.

Recognising the scourge of dengue and its threat to public health, LKCMedicine's first recipient of the National Medical Research Council (NMRC) Clinician Scientist Award (CSA) – Investigator (INV) category, Asst Prof Yeo Tsin Wen, Assistant Professor of Infectious Disease (picture), intends to study the pathogenesis of dengue to find new targets to treat the life-threatening complications of severe dengue in collaboration with Tan Tock Seng Hospital Institute of Infectious Diseases & Epidemiology.

Asst Prof Yeo's research has the potential to be translated into clinical practice and provide the basis for new therapies to manage vascular leakage. He said, "While this won't treat the dengue virus itself, I am trying to treat the complication of the dengue virus and hopefully this will reduce mortality resulting from dengue in some ways."

Click here to read more about this exciting collaboration. This feature was first published in The LKCMedicine.

EDUCATION

From Dreams to Reality: My Learning Journey

Serendipity.

It represents how I started my research journey eight years ago.

Fresh out of graduate school, I applied for a position with the department of Child and Adolescent Psychiatry, Institute of Mental Health and was hired to be part of a newly funded randomised controlled trial (RCT) spearheaded by A/Prof Daniel Fung. **Before this, I never thought research was for me – I had plans to focus my professional development on becoming a chartered clinical psychologist. Very quickly, I learned that clinical practice is synonymous with research and that it does not make sense to do one without doing the other.** Research also afforded me a more varied portfolio; where I had the opportunity to brainstorm ideas with leading experts in various specialities, and attended conferences to learn about best evidence-based practices, from across the globe.

The NMRC Research Training Fellowship (RTF) is unique in many ways. The autonomy of proposing my own research interest as well as deciding where to pursue my training is valuable beyond measure. I embarked on my research training fellowship with the University College London (UCL) in the United Kingdom (UK), and completed a doctorate in clinical psychology. UCL has a pluralist approach and that means, amongst many other things, an equal but rigorous emphasis is placed on both clinical and research development, consistent with my ethos of a clinician-scientist. Of course, training had its ups-and-downs: but as the British put it – "keep calm and drink tea".

I am back in Singapore after three years, with several research questions in mind. For a start, **I plan to continue my interest in examining emotion regulation, from a developmental perspective, and to test out the feasibility of service-related research (i.e. involving patients in small scale research projects to inform service planning).**

For anyone who is aspiring to go down this route but may be hesitant, here is a short dialogue from Tangled, the movie, which may convince you:

"You okay?"
"I'm terrified."
"Why?"
"I've been looking out of a window for eighteen years, dreaming about what I might feel like when those lights rise in the sky. What if it's not everything I dreamed it would be?"
"It will be."
"And what if it is? What do I do then?"
"Well, that's the good part I guess. You get to go find a new dream."

For me, completing the fellowship training was bigger and more fulfilling than any dream I have ever had.

Class of 2016, Doctorate in Clinical Psychology, UCL

Dr Lim-Ashworth was awarded the NMRC Research Training Fellowship from 2013 to 2016.

Contributed by:
Dr Nikki Lim-Ashworth
Clinical Psychologist and Research Fellow
Department of Child and Adolescent Psychiatry
Institute of Mental Health (IMH)

Research Training Events

Date	Training Programme	Course Provider
Ongoing	Good Clinical Practice (Online)	NHG RDO
Ongoing	Proper Conduct of Research - Basic I, II and III (PC101, PC102 & PC103) Online	
9 Jan 2017	To Start a Research Project - How?	TTSH CRIO
16-17 Jan 2017	Good Clinical Practice (Classroom)	NHG RDO
24 Jan 2017	Proper Conduct of Research - Advanced I (PC301)	
21 Feb 2017	Proper Conduct of Research - Intermediate I (PC201)	
20 Mar 2017	Proper Conduct of Research – Advanced II (PC302)	

**Dates are subject to changes without prior notice.*

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

Qualité (Issue 25, Dec 2016)

Updates to the Regulatory Controls for Clinical Trials

From 1st November 2016, a revised regulatory framework for clinical trials has been implemented. Major changes pertain to the following areas:

- Application procedures to the Health Sciences Authority (HSA)
- Reporting requirements to HSA
- Informed consent
- Clinical research materials
- Labelling requirements for therapeutic products and medicinal products

Click here to find out more.