THE PARADIGM SHIFT

The 19th century witnessed the sanitation revolution which curtailed the burdensome infectious diseases plaguing societies and taking lives. Food and leisure soon became plentiful and readily accessible in the 20th century. Life expectancy grew. So too did the burden of chronic diseases. Initially a response to this newly emerging public health bugbear, the biomedical model—with its greater understanding of the pathophysiology of disease and focus on the individual—became the dominant paradigm for health.

The 21st century globalised society is characterised by rapid demographic, socioeconomic, political, technological, cultural, environmental changes. Unprecedented interconnectedness has made the world increasingly susceptible to the re-emerging threat of infectious diseases and complications. Public health problems and consequences are no longer just local, regional or national. They are global.

As the School takes a pit stop to celebrate successes achieved in the past year in its third year of founding, it is just as important to examine our approach towards managing increasingly complex and far-reaching public health challenges and better position ourselves for the future.

Pushing past our comfort zones to translational work across disciplines is the critical first step towards developing solutions that will reap maximum returns across the full spectrum of health, beyond merely disease and injury with medical care and behavioural modification. We must look beyond the status quo of a medical or risk-factor approach to one that involves input from non-medical disciplines and end-users to create solutions that will prevent disease and foster health.

It is, as former General Electric chairman and CEO Jack Welch, has said, “(we must) change before we have to”. And this change starts with the paradigm shift now.
ABOUT THE SCHOOL

Established on 1 October 2011, the National University of Singapore Saw Swee Hock School of Public Health (SSHSPH) builds upon 60 years of experience in research, training and practice as a Department of Epidemiology and Public Health.

The founding of the School signifies an important milestone in our public health journey to turn discovery into healthier communities for all. An interdisciplinary approach, augmented by rigorous training, applicable research and regional partnerships places SSHSPH at the forefront of public health knowledge discovery and practice in Asia.

SSHSPH is a member of the National University Health System (NUHS), alongside the National University Hospital (NUH), the NUS Yong Loo Lin School of Medicine, the NUS Faculty of Dentistry, the National University Cancer Institute, Singapore (NCIS) and the National University Heart Centre, Singapore (NUHCC).

In October 2014, the School will shift to its new premises at the Tahir Foundation Building.
Today’s public health landscape is fast-changing and ever dynamic. We face challenges such as the recent Ebola virus outbreak, multiple threats of respiratory syndromes such as MERS-CoV and H1N1, to an ever-growing burden of chronic diseases. Public health challenges—unobstructed by air, water and land—threaten both developing as well as the most developed nations with the most advanced health systems.

The solutions to today’s public health challenges not only require a depth in core public health disciplines, such as epidemiology, biostatistics, and etiological research but also demand that we look beyond and incorporate other disciplines relevant to population health as a whole.

Indeed, the challenges of this new phase of Public Health 3.0 are and will become more complex. At the NUS Saw Swee Hock School of Public Health (SSHSPH), we are dedicated to “Turning Discovery into Healthier Communities”. While understanding that translational work must rest upon a solid foundation of etiologic and core public health disciplinary research, we are likewise cognisant of the imperative to build strong collaborations and think out of the box if the School is to counter the challenges we face to make a real impact on the health of the communities we serve.

It has been three years from the School’s founding on 1 October 2011. And we have made significant strides since. Recognising that the public health issues confronting us today occur often as the result of complex and dynamic interplays between biological, behavioural, environmental, social and systems-level factors, we began deepening our capacity and partnerships to explore new and exciting areas including health systems and policy, health education and promotion, and the social and behavioural sciences.

An old adage says that you can only grow when you stretch outside of your comfort zone. In today’s world, we need a shift in awareness towards the idea of collaboration across disciplines that can help us reap the huge potential benefits of fostering solutions that will truly improve the health of populations around the world.

This is an outlook that we seek to cultivate in both our research and educational efforts. At the School, we believe it is critical to nurture a culture of collaboration, encourage faculty and staff to work alongside colleagues in different areas of expertise both within and outside of the school to facilitate the integration of our knowledge at the School with that of others to develop novel, innovative, and translation-focused solutions to local and regional public health challenges.

The School adopts the same approach in the development of its robust educational programmes designed to tap on the expertise and ingenuity of diverse fields of study to help prepare students become future generations of public health leaders who will recognise the importance of taking basic research knowledge across disciplines to practical applications, policies and programmes to enhance the health and well-being of populations.

I invite you to learn more about the work that we do and join us in this journey of “Turning Discovery into Healthier Communities” in our nation, our region and our world.

Professor Chia Kee Seng
Dean, NUS Saw Swee Hock School of Public Health
As of 1 August 2014, the Health Education and Promotion (HEP) and the Health Systems and Policy (HSP) domains have been combined to form the Health Systems and Behavioural Sciences (HSBS) domain.
# FACULTY MEMBERS

## Professors
- David KOH Soo Quee
- ONG Choon Nam
- SAW Seang Mei

## Associate Professors
- Mikael HARTMAN
- KOH Choon Huat, Gerald
- Adeline SEOW Ling Hui
- TAI Bee Choo
- Sri Chander s/o TIKAMDAS NEBHRAJ
- WONG Mee Lian

## Assistant Professors
- Mark CHEN I-Cheng
- CHOI Hyungwon
- Alex R COOK
- Zoe Jane Lara HILDON
- LIM Wei-Yen
- LUO Nan
- Falk MUELLER-RIEMENSCHNEIDER
- PAN An
- Clarence TAM Yung Sze Han
- TAN Chuen Seng
- Kavita VENKATARAMAN
- YOONG Su-Yin, Joanne

## Senior Lecturer
- SNG Gek Khim, Judy

## Lecturers
- Elizabeth Alderman JAHNCKE
- Salome Antonette REBELLO

## Other Faculty Members
- Leontine ALKEMA
  - Joint Assistant Professor
- Gregory CHAN Chung Tsing
  - Adjunct Assistant Professor
- Roy CHAN Kum Wah
  - Joint Adjunct Professor
- CHEAH Peh Yean
  - Joint Adjunct Associate Professor
- CHEW Ling
  - Adjunct Assistant Professor
- CHEW Suk Kei
  - Adjunct Associate Professor
- Audrey CHIA Wai Yin
  - Joint Associate Professor
- Angela CHOW Li Ping
  - Adjunct Assistant Professor
- Kenneth David CHUY Kwok Yin
  - Adjunct Assistant Professor
- Raymond CHUA Swee Boon
  - Adjunct Assistant Professor
- Jeffery Lawrence CUTTER
  - Adjunct Associate Professor
- Eric Andrew FINKELSTEIN
  - Joint Professor
- FONG Ngiang Phoon
  - Joint Adjunct Associate Professor
- GOH Kee Tai
  - Adjunct Professor
- Derrick HENG Mok Kwai
  - Adjunct Associate Professor
- Martin Lloyd HIBBERD
  - Adjunct Professor
- HSU Li Yang
  - Joint Adjunct Assistant Professor
- Satkunanatham s/o KANDIAH
  - Joint Professor
- KHR Chia Chuen
  - Joint Assistant Professor
- KOH Woon Puay
  - Joint Associate Professor
- KOH Yang Huang
  - Adjunct Assistant Professor
- LEE Chien Earn
  - Adjunct Associate Professor
- LEE Hock Siang
  - Adjunct Associate Professor
- Vernon LEE Jian Ming
  - Adjunct Associate Professor
- LEE See Muah
  - Adjunct Associate Professor
- LEO Yee Sin
  - Adjunct Professor
- LIU Jianjun
  - Adjunct Professor
- LOW Yen Ling
  - Adjunct Assistant Professor
- Stefan MA Sze Lok
  - Joint Adjunct Associate Professor
- Suganthi NARAYANASAMY
  - Adjunct Lecturer
- NG Oon Tek
  - Joint Assistant Professor
- NG Wee Tong
  - Adjunct Assistant Professor
- Marcus ONG Eng Hock
  - Joint Associate Professor
- OOI Eng Eong
  - Joint Associate Professor
- Brian SEE Cheong Yan
  - Adjunct Assistant Professor
- SHEN Han Ming
  - Joint Associate Professor
- Eugene SHUM Jin-Wen
  - Adjunct Assistant Professor
- Joe SIM Heng Joo
  - Joint Adjunct Associate Professor
- Mythily SUBRAMANIAM
  - Joint Adjunct Assistant Professor
- TAI E Shyong
  - Joint Associate Professor
- TAN Boon Huan
  - Adjunct Assistant Professor
- TAN Kia Tang
  - Joint Associate Professor
- TAN Min Han
  - Joint Adjunct Assistant Professor
- TAN Say Beng
  - Joint Adjunct Associate Professor
THE YEAR IN REVIEW

It’s been an eventful year for the School. Here’s a quick look back at some of the selected highlights from our calendar of events in 2013 and 2014:

### OCTOBER

1 October 2013
The School held its 2nd Anniversary Celebrations which kicked off with a fun Zumba workout, followed by a variety of carnival booths and games, exciting minute-to-win-it challenges and lucky draw for SSHSPH colleagues.

### NOVEMBER

25 November 2013
Together with the Singapore Eye Research Institute, the School hosted the inaugural Consortium for Refractive Error and Myopia (CREAM) conference, gathering ophthalmologists and researchers to present studies and future strategies to uncover genetic variants associated with myopia.

### DECEMBER

5 December 2013
SSHSPH signed a Memorandum of Understanding with Utrecht University, signifying a committed approach to work closely together in the exchange of academic information and potentially two-way exchange of students, faculty, researchers and administrators.

16 December 2013
Professor Dame Carol Black, Expert Advisor on Health and Work to the Department of Health, England, was the speaker for SSHSPH’s second Thought Leadership Series, speaking on the topic of Shifting the Paradigm: Integrating Workplace Health Protection and Health Promotion. She was joined by panellists Er Ho Siong Hin, Commissioner for Workplace Safety and Health, Mr Zee Yoong Kang, CEO of Health Promotion Board, and Prof Chia Kee Seng, Dean of SSHSPH.

### FEBRUARY

4 February 2014
The School hosted Permanent Secretary, Ministry of Health, Mrs Tan Ching Yee at our premises. She was joined by NUS President Prof Tan Chorh Chuan, NIHNS Chief Executive Prof John Wang and delegations from the Ministry of Health and the National University Health System.

14 February 2014
The School held its first Chinese New Year celebrations on the last day of the 15-day long Chinese New Year period which saw our colleagues gathered together to bid farewell and enjoy a sumptuous Chinese New Year lunch.

### MARCH

15 March 2014
Our faculty, staff and students were present at the School’s booth during this year’s NUS Open Day distributing fun giveaways and sharing with visitors about our educational programmes.

18 March 2014
Associate Professor Mikael Hartman and fellow breast cancer surgeon Associate Professor Philip Iau from the Yong Loo Lin School of Medicine officially set off on: The Long Ride 2014: Singapore to Sweden for Breast Cancer Research. (Read more on page 22)

### APRIL

17 April 2014
The inaugural Singapore Health Economics Association Conference 2014, co-chaired by Dr Joanne Yoong, saw around 240 academics, students and hospital administrators gather to tackle sessions in health economics, health care policy and policy research.

28 April 2014
Assistant Professor Ari Cook and Mrs Lim Hui Ping were awarded at the Stars@NUHS Awards Presentation Ceremony. (Read more on page 46)

### MAY

7 May 2014
Prof Chia Kee Seng speaks at the Workplace Safety and Health Conference 2014, held in conjunction with the launch of the National Workplace Safety and Health Campaign for 2014 at Suntec City, Singapore.

### JUNE

18 June 2014
After 3 long months on the road, Associate Professors Mikael Hartman and Philip Iau reach the finish line of The Long Ride at the Karolinska Institutet, Stockholm, Sweden.

### JULY

10 July 2014
Associate Professor Chia Sin Eng presented a paper at the ASEAN Diagnostic Criteria on Occupational Diseases Meeting in Thailand to develop diagnostic criteria for occupational diseases at the ASEAN level.

11 July 2014
The School held its SSHSPH Alumni Reunion Night 2014 which saw faculty, graduating students, their families and guests joined by SSHSPH alumni across different years all coming together for an enjoyable reunion. (Read more on page 24)

12 July 2014
42 Master of Public Health (MPH), Master of Science (MSc) and Doctor of Philosophy (PhD) students graduated at this year’s NUS Commencement Ceremony 2014. (Read more on page 24)

### AUGUST

05 August 2014
The School welcomed a new batch of 37 graduate students on board as they started their new journey in public health with us.
01
GIVING
A TRANSFORMATIONAL GIFT FROM PROFESSOR SAW SWEE HOCK

Professor Saw Swee Hock, an esteemed alumnus of the National University of Singapore (NUS), is a visionary philanthropist whose landmark $30 million gift has enabled the establishment of the NUS Saw Swee Hock School of Public Health on 1 October 2011. The purpose of the endowed gift, with government matching grant, is to assist the School to become a world-class leader in public health research, education and training. The School is intensifying its mission of preventing diseases and promoting health at the population-level, and also developing significant academic initiatives, international collaborations, and public health research capabilities and programmes that can have a beneficial impact on the health of the communities in Singapore and beyond.

Professor Saw has over the years provided philanthropic support to various charitable causes, particularly in the area of higher education. Many universities have benefited from his generosity in the form of gold medals, bursaries, scholarships, institutes, schools, and buildings. Recipients of his more important contributions include the London School of Economics (LSE), Xiamen University, University of Hong Kong (HKU), Nanyang Technological University (NTU), Singapore Management University (SMU), and Institute of Southeast Asian Studies (ISEAS). His two other landmark gifts are towards the establishment of the Saw Swee Hock Student Centre and the Saw Swee Hock Southeast Asia Centre, both at LSE.

Professor Saw, currently Professorial Fellow at ISEAS, has received numerous accolades for his distinguished academic and philanthropic contributions. He is an Honorary Professor in HKU and Xiamen University, and NUS President’s Honorary Professor of Statistics. He is an Honorary Fellow of LSE and an Honorary University Fellow of HKU. He is a recipient of Singapore President’s Award for Philanthropy and the Public Service Medal (PBM) in the 2013 Singapore National Day Award. He continues to serve as a member of NUS Board of Trustees. He has published some 45 books, 31 book chapters and more than 100 articles in learned journals.

The School’s scheduled move to a more spacious and up-to-date building M1 by end-2014 will lead to a significant expansion of the School’s capacity to accommodate a large increase in research facilities, students, faculty members, researchers, and supporting staff. The move also reflects Professor Saw’s vision “for the School to play a key role in helping to improve the standard of public healthcare in Singapore and the surrounding region in the years ahead” as the School strives to educate and nurture our local and foreign students to translate their education into meaningful public health careers that are of service to the community in their own country.

“Education is the main medium to uplift the financially challenged and provides the key to social mobility.”

PROFESSOR SAW SWEE HOCK
Distinguished Benefactor to the NUS Saw Swee Hock School of Public Health, Distinguished NUS Alumnus and member of the NUS Board of Trustees

MARIE’S STORY

After graduating from the National University of Singapore (NUS) with a Bachelor of Science in Biomedical Science, Marie worked as a Clinical Research Coordinator at the National Heart Centre, Singapore. Her role allowed her to envision a career in public health when she realised the importance of public health research in the improvement of health care practices and policies.

Marie is extremely honoured to have received Professor Saw Swee Hock’s generous gift through the Saw Swee Hock Master of Public Health (MPH) Scholarship. This timely scholarship enables her to focus on giving her best in exploring and discovering immense knowledge in the field of public health.

Marie’s public health training will prove to be invaluable in honing her skills to face public health challenges in pursuit of wellness for populations. The diversity of the coursework and network of public health practitioners has provided her with an in-depth understanding of the workings of public health. Her experience with the School has greatly inspired Marie to seek a professional career in public health research and practice when she graduates.

Your kind generosity, in the form of education support, will help provide deserving students like Marie and many others the opportunity to pursue their passion for public health and improve their communities. Make a contribution to the future of public health today.

“Marie’s public health training will prove to be invaluable in honing her skills to face public health challenges in pursuit of wellness for populations. The diversity of the coursework and network of public health practitioners has provided her with an in-depth understanding of the workings of public health.”

Ms Ng Xin Ru, Marie
MPH Student, Class of 2013/2014
Saw Swee Hock Master of Public Health Scholarship recipient

Congratulations Professor Saw Swee Hock!

This year, Professor Saw Swee Hock was listed as one of the 48 Heroes of Philanthropy by Forbes Asia. Currently in its eighth year running, the Heroes of Philanthropy honour roll lists notable philanthropists in the Asia-Pacific region, featuring individuals whose altruistic contributions have paved the way for new and innovative projects in a wide variety of fields. Prof Saw was recognised for his significant philanthropic contributions to the field of higher education across institutions in Singapore, China, Hong Kong and Britain, including his landmark donation of $30 million to enable the establishment of the NUS Saw Swee Hock School of Public Health and blaze the trail for the School to become Asia’s leader in public health education, training and research.

“Professor Saw Swee Hock’s generous gift as it gives me great confidence and motivation to boldly pursue a Master of Public Health in NUS.”

Ms Ng Xin Ru, Marie
MPH Student, Class of 2013/2014
Saw Swee Hock Master of Public Health Scholarship recipient
An innovative solution combining technological and public health expertise could soon alleviate the recovery process for stroke patients.

Patients recuperating from various disabling conditions can soon recover from the comfort of their own homes, thanks to a novel tele-rehabilitation system which allows them to perform rehabilitation exercises and receive therapist supervision remotely.

The system was designed by a team of researchers led by Associate Professor Gerald Koh from the NUS Saw Swee Hock School of Public Health to allow patients to overcome the numerous barriers faced in post-stroke rehabilitation and improve the quality of life post-stroke.

When using the tele-rehabilitation system, titled the Home Rehab iPad app, the patient carries out simple actions and exercises prescribed by their therapist in front of an iPad attached to an adjustable stand. Wireless lightweight motion sensors attached to the patient’s arms or legs capture the movements accordingly and provide immediate biofeedback, along with a recording of the exercise session, to the therapist for assessment.

With the tele-rehabilitation system in place, patients can now carry out their exercises on a daily basis or at their convenience without the need for a therapist to be physically present. Therapists can set varying targets for their patients, such as the angle of an arm raise, and the motion sensor will confirm if the patient has met the desired target. Therapists can also conduct video conference consultations with their patients via the iPad weekly to provide them with updates on their progress and advice on their recovery programme.

“We expect that with increased convenience to patients and caregivers, and real-time feedback to increase patient motivation, patients will adhere more closely to their prescribed rehabilitation and consequently improve the speed and extent of their stroke recovery,” says A/Prof Koh.

The system is currently being evaluated as a Randomised Controlled Trial on 34 acute stroke patients from the Singapore General Hospital (SGH) and the Ang Mo Kio Thye Hua Kwan Hospital (AMK-TKH). The team aims to have 100 patients before the trial is completed in mid-2016.

**POST-STROKE REHABILITATION NEEDS VISITED**

It all began when A/Prof Koh discovered, from his stroke cohort studies, that only one third of stroke patients discharged from local hospitals went on to continue with their rehabilitation sessions after discharge. This was a cause for concern as his research showed that the first three to six months post-stroke was a critical period during which patients must seek rehabilitation to ensure improvement in their functional mobility. During this time, all efforts of active rehabilitation will help maximise the opportunity for patients returning to an active and productive pre-stroke lifestyle.

Although most patients recognised the benefits of attending rehabilitation, there were a multitude of physical, social and financial constraints which prevented them from getting the continued and supervised support they needed. For starters, patients had to overcome the physical challenge of shuttling between their homes and designated day rehabilitation centres. They also had to seek help from caregivers, sometimes incoordinating their working family members, to accompany them to the rehabilitation centre.

An alternative to centre-based rehabilitation was to have a home visit by a therapist, but at 2.5 times the cost and coupled with an increasing shortage of therapists in Singapore, A/Prof Koh decided that there was a need to find a more cost-effective time-saving rehabilitation solution.

An opportunity came when Associate Professor Arthur Tay and Assistant Professor Yen Shih Cheng from the Department of Electrical and Computer Engineering (NUS ECE) at the Faculty of Engineering contacted A/Prof Koh to enquire if there was a clinical challenge which technology could potentially solve. After sharing with them his research findings and following several discussions, the team developed the idea of tele-medicine as one that could allow patients to perform rehabilitation exercises at home but remain supervised by therapists remotely.

After roping in rehabilitation physicians and therapists from NH, SGH and AMK-TKH, A/Prof Koh and the team from NUS ECE then developed a low-cost customisable patient and therapist-centric tele-rehabilitation system with broadband connections sponsored by MyRepublic.

With an increasingly complex society and demographic, the tele-rehabilitation system is an example of an innovation which can alleviate a situation brought about by an ageing population and fewer caregivers. As a result, our healthcare systems have been compelled to develop sustainable intermediate and long-term care services, care coordination agencies and regional health systems. Public health priorities have also consequently evolved from tackling mainly communicable diseases to chronic diseases, from mortality reduction to improving one’s quality of life.

“Single discipline solutions are no longer sufficient, and the path ahead is to work across disciplines, where relevant experts and stakeholders focus on the problem at hand, leverage on the strengths and knowledge of each other’s disciplines and derive innovative strategies to address the problem,” explains A/Prof Koh. He adds that in today’s day and age, with the specialisation of disciplines, advancement in technology and the improved education and training levels of our workforce, the good news is that the potential solutions to our current public health problems may well be available already.

It was with this in mind that the system was featured as the only tele-medicine project under the Smart Nation booth at the 2014 National Day Rally exhibition, alongside other new innovations which leverage on the benefits of communication technology in boosting Singapore’s future capabilities as a Smart Nation.

If the trial is successful, there are plans in the pipeline to expand and commercialise the system through a start-up company led by students and research engineers from NUS ECE, with A/Prof Koh and his colleagues playing an advisory role to ensure the system remains one that is affordable and accessible to Singaporeans.
02
HIGHLIGHTS

9th century witnessed a revolution in public health practice. The sanitation
reforms curbed burdensome infectious diseases that plagued societies and took
Food and leisure became plentiful and life expectancy soon grew, but so too did
the burden of chronic diseases. Over time, the biomedical model, with its greater
standing of the pathophysiology of disease and focus on the individual, became
the dominant paradigm for health and today’s 21st century. This age of
socioeconomic, political, technological, and social connectedness.
result in great human suffering, eco
**STOPPING THE DIABETES EPIDEMIC IN ASIA**

Diabetes is a rapidly emerging health concern among Asian populations, with the potential to overwhelm healthcare systems, undermine economic growth, and inflict unprecedented levels of disability in various sectors across the continent.

The Asian Diabetes Prevention Initiative (ADPI) is a joint collaboration between nutrition experts at the Harvard School of Public Health, Department of Nutrition and the NUS Saw Swee Hock School of Public Health which aims to counter the rising rates of diabetes among Asian populations.

The ADPI website, launched in March 2014, provides research-based evidence for policy makers and allows public health professionals, practitioners and the general public quick and easy access to information about the causes of Type 2 diabetes, its consequences, and what can and must be done to decrease the prevalence of diabetes in Asia.

For more information on the Asian Diabetes Prevention Initiative, please visit the ADPI website at [http://asiandiabetesprevention.org](http://asiandiabetesprevention.org)

---

**RIDING FOR BREAST CANCER AWARENESS**

In his first six months in Singapore, SSISPH faculty Associate Professor Mikael Hartman witnessed more advanced breast cancer cases in Asia than he did in his last 10 years in Sweden, prompting both A/Prof Hartman and fellow trauma and breast cancer surgeon Associate Professor Philip Iau from the Yong Loo Lin School of Medicine to find a way to bring this cause to the spotlight.


“We feel compelled to spotlight the barriers and help bring about policy changes, establish awareness programmes and improve access to care through our efforts.”

Associate Professor Mikael Hartman

---

**ASIA-PACIFIC REGIONAL CAPACITY BUILDING FOR HEALTH TECHNOLOGY ASSESSMENT (ARCH) INITIATIVE**

Led by the NUS Saw Swee Hock School of Public Health, the Asia-Pacific Regional Capacity-building for Health Technology Assessment (ARCH) Initiative is an international partnership with UK-based National Institute for Health and Clinical Excellence (NICE) International, and regional partners in Thailand (Health Interventions and Technology Assessment Programme, HITAP) and the Philippines (Department of Health, DOH/HTA Taskforce).

This consortium brings together existing high-value international expertise in areas such as topic selection and prioritisation of technologies for evaluation and adoption, evidence assessment, economic appraisal and the implementation of evidence-based public health policy and practice. Following two well-received jointly-organised international workshops in Manila and Bali with participants from 12 APEC economies, the ARCH Initiative will conclude its successful first year with a one-day conference this November, bringing a wide group of policy makers, global experts and other stakeholders together in Singapore.

For more information on the Initiative and access to ARCH workshop materials and HTA resources please visit the ARCH Initiative website at [http://arch.apec.org/](http://arch.apec.org/)

---

For more information on The Long Ride, please visit The Long Ride website at [http://longridess.com](http://longridess.com)
A NEW CLASS OF PUBLIC HEALTH GRADUATES

12 July 2014 marked a joyous and memorable day for the graduating class of 2014 from the NUS Saw Swee Hock School of Public Health as they celebrated their Commencement ceremony at the University Cultural Centre.

This year, 42 Master of Public Health (MPH), Master of Science (MSc) and Doctor of Philosophy (PhD) students received their graduate degrees, signifying an important milestone in their lives and embarking on a new chapter in their Public Health journeys.

Professor Chia Kee Seng, the School’s Dean, delivered his congratulatory message for the graduating batch, alongside Deans from the Faculty of Dentistry and Yong Loo Lin School of Medicine, before the graduating batch received their degrees from NUS President Professor Tan Chorh Chuan.

The Guest Speaker for the event, Professor Satkunanantham s/o Kandiah, Chairman of the Health Sciences Authority and former Director of Medical Services (DMS) at the Ministry of Health, reminded the graduating class to go forth, “shape the future of these fields of healthcare” and “always remain true to the ideals that brought you into your profession”.

Reconnecting and Reuniting Old and New

The Saw Swee Hock School of Public Health held its Alumni Reunion Night 2014 on 11 July 2014 at the Cluny, Daley and Evans Function Rooms, Kent Ridge Guild House.

It was an enjoyable 2-hour affair as faculty, graduating students and their loved ones were reunited with SSHSPH alumni across different years over a casual dinner of good food and drinks.

For the graduands and their loved ones, it was a time to celebrate the upcoming commencement ceremony and for our alumni, it was a treasured opportunity to meet new MPH graduates and reconnect with older batches, some for the first time in many years.

Dr Ivy Cloma-Rosales (Master of Public Health, 2013) shared with the room her life and work experiences since graduating with her MPH last year, including how her Public Health training provided her the knowledge and skills required in conducting medical relief efforts and in setting up her business.

Other highlights from the evening included the Public Health pledge signing by the graduating class as well as the awarding of the Dean’s List and Richard Gillis Book Prize recipients for their outstanding academic performances. (Read more on page 47)
03

EDUCATION
AN OVERVIEW OF THE EDUCATION OFFICE

The Education Office at the NUS Saw Swee Hock School of Public Health offers various undergraduate and postgraduate courses. It is also actively involved in undergraduate medical training at the Yong Loo Lin School of Medicine (YLLSoM):  

Medical Curriculum

The School anchors two longitudinal tracks, Medicine and Society and Information Literacy, which continue to support the Yong Loo Lin School of Medicine in teaching medical undergraduates. The course is taught in the first to fourth year of the five-year medical course.  

The curriculum offered by the School aims to impart an understanding of the influence and relevance of behavioural, social, cultural, environmental, occupational, and economic factors on health and illness, and apply this understanding to the promotion of health and management of illness. It also provides students with an insight into the various components in healthcare systems, such as resource allocation and barriers, and their effects on the population, individuals and patients, and equips students with skills to gather and critically evaluate information and effectively incorporate it into their knowledge base.  

This training will allow for medical students to understand and apply the concepts of preventive healthcare at the population and individual level, with emphasis on the epidemiology of common communicable and non-communicable diseases. Undergraduates will also be equipped to provide medical care that is holistic, patient-centred and multidisciplinary, with the skills to critically appraise evidence, prevent and manage disease, and promote health at the community level.  

Undergraduate medical students from YLLSoM will apply the skills to critically appraise evidence, prevent and manage that is holistic, patient-centred and multidisciplinary, with emphasis on the influence and relevance of behavioural, social, cultural, environmental, occupational, and economic factors on health and illness, and apply this understanding to the promotion of health and management of illness. It also provides students with an insight into the various components in healthcare systems, such as resource allocation and barriers, and their effects on the population, individuals and patients, and equips students with skills to gather and critically evaluate information and effectively incorporate it into their knowledge base.  

This training will allow for medical students to understand and apply the concepts of preventive healthcare at the population and individual level, with emphasis on the epidemiology of common communicable and non-communicable diseases. Undergraduates will also be equipped to provide medical care that is holistic, patient-centred and multidisciplinary, with the skills to critically appraise evidence, prevent and manage disease, and promote health at the community level.  

Undergraduate medical students from YLLSoM will apply coursework from these two tracks and their preceding four years of pre-clinical and clinical training in a capstone group work-based assignment, the Community Health Project (CHP), where groups of students will design and carry out research projects in the community under the supervision of SSHSPH faculty.  

Bachelor of Environmental Studies (ENV2103)

The School runs the ENV2103 Environmental and Public Health module, a core requirement for second-year students undertaking the Bachelor of Environmental Studies (BES) offered jointly by the Faculty of Science and Faculty of Arts and Social Sciences. There are currently 48 students taking this module for AY2013/2014.  

Undergraduate STUDIES

Minor in Public Health

The Minor in Public Health was launched in AY2013/2014 to introduce NUS undergraduates to public health and the approaches and methods to identify, prevent and control global and local human health issues at the population level. The Minor also aims to raise awareness among undergraduates of the translational aspect of public health and the need for a multi-disciplinary and team-based approach in dealing with public health issues. It also lays the foundation for future training in carrying out public health and clinical research.  

The Minor is designed to introduce students to the topics with relevant frameworks that will guide them in the application of these theories. Where applicable, external public health professionals are also invited to give lectures or get involved in panel discussions to provide a real-world practical experience. The essential and elective modules will also incorporate critical thinking and creativity, communication skills, ethical decision making, professionalism, systems thinking and team work.  

GRADUATE STUDIES: MASTER OF PUBLIC HEALTH (MPH) PROGRAMME

The Master of Public Health (MPH) is a professional degree that seeks to provide a rigorous and interdisciplinarity approach to learning, with emphasis on finding evidence-based and innovative solutions to Asia’s current and future public health challenges.  

Leveraging on the NUS system and our close links with the National University Hospital (NUH), Lee Kuan Yew School of Public Policy, NUS Business School, as well as the Faculties of Arts and Social Sciences and Engineering, our School ensures that research and teaching provided is both progressive and comprehensive.  

Our MPH graduates are equipped to address both traditional and emerging public health issues, assuming leadership and administrative positions in diverse public health disciplines in local as well as international settings.  

To date, the MPH has welcomed students from 21 countries around the world.  

“During my last semester at SSSHPH, I participated in an internship programme with Siem Reap Citizens for Health, Educational and Social Issues (Srichesh), a non-government organisation in Cambodia. My internship spanned three weeks and comprised of modules ranging from field observations to hands-on research in the areas of reproductive health, HIV/AIDS epidemic and alcohol abuse. As part of my field experience, I had the opportunity to observe a rural village outreach programme, visit the Khanta Bhopa paediatric hospital to understand the healthcare system and situation in Cambodia, and visit the Handicap Village which houses victims of landmine explosions. I also participated in hands-on data collection from beer-promotion girls at the Beer Gardens, and helped to organise health workshops for beer promoters.  

In addition to my varied field experiences, I also worked on a research project during my internship period, focusing on a longitudinal study of alcohol abuse, HIV/AIDS knowledge and workplace safety amongst a cohort of beer-promotion girls in Cambodia.  

My experiences and field practice have expanded my horizons and allowed me to experience firsthand the practical difficulties in applying my coursework material to a real life situation. For instance, it was definitely eye-opening to witness how knowledge on reproductive health was conveyed in a relatively conservative cultural setting. A conversation I had with a mother in the Handicap Village also brought me back to the basics of what public health is all about and reminded me of the importance of having access to clean water and adequate nutrition before we can discuss complex public health issues – something that most, if not all developed countries frequently take for granted.”  

Ms Tan Hui Shan  
Master of Public Health  
Class of 2014
GRADUATE STUDIES: GRADUATE RESEARCH PROGRAMMES

The Master of Science (MSc) and Doctor of Philosophy (PhD) programmes were launched in August 2012, and are research intensive programmes that emphasize both the mastery of research skills and acquisition of domain knowledge. Students will complete coursework and conduct independent research under the supervision of a faculty member, culminating in the submission of a thesis that demonstrates scholarship and original contribution to the knowledge in the field of research.

As of 31 July 2014, there are currently 41 students under the School's Graduate Research Programmes.

GRADUATE EDUCATION: PREVENTIVE MEDICINE RESIDENCY PROGRAMME

The Preventive Medicine Residency Programme offered by the National University Health System (NUHS) encompasses the previous public health and occupational medicine training programmes in Singapore. The programme is accredited by ACCME-I (Accreditation Council for Graduate Medical Education International) and provides residents with the full suite of skills to be future leaders in the field. It is designed to create a foundation for excellence in preventive medicine care upon which lifelong learning may take place.

The programme offers training and employment opportunities for residents at a diverse group of local institutions:
- Agency for Integrated Care
- Jurong Health Service
- Tan Tock Seng Hospital
- Eastern Health Alliance
- Health Promotion Board
- Health Sciences Authority
- Ministry of Health
- Ministry of Manpower (Occupational Safety and Health Division)
- National Healthcare Group HQ
- National Healthcare Group Polyclinics
- National University Hospital System
- Singapore Armed Forces
- Singapore General Hospital

There are at present 15 residents undergoing the programme.

"Are we still going to talk about sex?"

This is the question that I get from some of my participants at the sessions at the Department of Sexually Transmitted Infections (STIs) Control (DSC) clinic. My reply is always a definitive “Yes”. In fact, this is how we can empower youths to adopt positive sexual health behaviours.

My current graduate research involves doing a Randomised Controlled Trial (RCT) of a safer sex behavioural intervention among adolescents attending the DSC clinic. Participants attend educational sessions in the clinic, focus on STIs/HIV, condom use and ways to adopt safer sexual behaviours.

During the follow-up sessions, I get to interact with and learn a great deal from a group of passionate and dedicated healthcare workers who have worked really hard in providing primary care for these patients. From the clinical knowledge shared by the doctors and nurses to information on laboratory examinations, from the microbiologists to the tips and experiences from health advisors, all these experiences have greatly enhanced my journey in STIs/HIV prevention work.

In the course of this research, I am also humbled by how my efforts form a larger endeavour in promoting safer sexual behaviours, a cause shared by organisations such as Action for AIDS (AFA). Together with AFA, we conduct talks in tertiary institutions to heighten youths’ awareness about STIs/HIV and how they can protect themselves. I was also given the chance to observe other venturesome prevention efforts such as Safe Sex Shows in nightclubs led by AFA. This allows me to understand my target group and better connect with them.

So in addition to having many memorable experiences on a personal level, I profoundly believe it is a step closer to our bigger ambition in improving the sexual health of our youths.  

Ms Ng Yi Siu, Junice
Year 3 PhD student

"Clean water, good hygiene and sanitation, proper dental hygiene and feminine hygiene – these things come to us very naturally in Singapore, but in many less developed places in the world today exist not as realities but merely as concepts. Through non-governmental organisations (NGOs) and volunteer groups, we can find opportunities to help bring these necessities to other communities around the world.

With my travel bag and a week of annual leave secured, I headed to Lamongan, Indonesia to participate in the Singapore International Foundation’s (SIF) Water for Life project as a direct service volunteer in April 2014. As part of the project, we worked with local authorities to help install membrane filters in designated communal areas such as schools and town centres. These filters drain out sediments and microbes down to the scale of viruses, ensuring that filtered water is safe to drink. We also helped advise local leaders on proper maintenance of the filters.

Our trip also involved providing basic health education for the local community. Our team gave lessons on proper toothbrushing and handwashing techniques to primary school children in the local schools, and had plenty of fun in the process organising games to hold their attention. The female team members also held a session with the women and had plenty of fun in the process organising games to hold their attention. The female team members also held a session with the women and had plenty of fun in the process organising games to hold their attention.

In a local village, teaching them the importance of maintaining feminine hygiene - these things come to us very naturally in Singapore, but in many less developed places in the world today exist not as realities but merely as concepts. Through non-governmental organisations (NGOs) and volunteer groups, we can find opportunities to help bring these necessities to other communities around the world.

Seen through a public health lens, this trip gave me ground-level insights into global health issues, notably how innovative technology can help meet the challenge of providing clean water to communities, and the health promotion needs in developing communities.

Dr Hanley Ho
Senior Resident, Preventive Medicine Residency Programme (Public Health)

MPH Class of 2013"
### EPIDEMIOLOGY DOMAIN

Epidemiological research provides insight into the frequency and distribution of diseases in populations and the determinants of these diseases. This generates information that can be used to prioritise and design public health interventions.

Our research strengths include molecular, nutritional, clinical and translational epidemiology with a particular focus on breast cancer and ophthalmologic, cardio-metabolic, and infectious diseases. Over the past decades, several cohort studies have been developed in various age groups allowing us to study the determinants of diseases in major Asian ethnic groups, such as Indians, Malays, and Chinese, over the life course from birth to old age. In addition, the Singapore Population Health Studies (SPHS) are conducted yearly to monitor trends in disease risk factors in the Singapore population.

### HOW DO THE AMOUNT, TYPE AND SOURCES OF CARBOHYDRATES IN THE DIET AFFECT RISK OF HEART DISEASE?

**Associate Professor Rob van Dam, Dr Salome Antoinette Rebello**

Saw Swee Hock School of Public Health, National University of Singapore

The impact of dietary carbohydrates is highly relevant to Asian populations that generally have high-carbohydrate diets and are experiencing an increasing burden of heart disease. In this study, we examined whether intakes of total carbohydrates, different types of carbohydrates, and their food sources were associated with heart disease mortality in a Singapore Chinese population.

We used data from more than 50,000 participants of the Singapore Chinese Health Study cohort to examine carbohydrate intake in relation to coronary heart disease mortality. Over the course of 15 years, there were 1760 participants who died from heart disease. Total carbohydrate intake was not associated with risk of heart disease. However, when types of carbohydrates were analysed separately, higher starch intake was linked with a modestly higher risk of heart disease and higher fibre intake with lower risk of heart disease. We also found that higher consumption of fruits, vegetables and whole grains was linked with a lower risk of heart disease. In contrast, participants who frequently consumed noodle dishes had a higher risk of heart disease compared with those who chose rice instead.

These findings suggest that diets high in carbohydrates are linked with neither lower nor higher risk of heart disease mortality in Singapore Chinese adults. However, our results support the notion that the quality of carbohydrate foods affects heart health. The health effects of noodle dishes require more attention as these are not only high in refined carbohydrates and low in fibre, but also high in salt and saturated fat. These results also highlight that in addition to Western fast foods, unhealthy versions of popular local foods may contribute to higher heart disease risk in Asian populations. Our study thus suggests that emphasising diets high in fruit, vegetables, whole grains and improving the nutritional quality of noodle-based dishes may contribute to lowering heart disease mortality.


### BIOSTATISTICS DOMAIN

**Biostatistics** focuses on the generation of health statistics through data management and analysis, as well as areas such as public health genomics.

**Ongoing and future work include developing methods for mining large genomics and epidemiological data sets for complex diseases in humans, especially the genetics and genomics of infectious diseases, as well as information technology and database design and management for large-scale genomic and epidemiological studies.**

A team under the domain recently completed a study investigating the population genetics of Singapore Indians, the first deep whole-genome sequencing project of South Asian Indians in the world. The study revealed that Asian Indians possess greater genetic diversity compared to other Asian populations, even though broadly categorised as being genetically closer to Europeans. This study followed a recent deep whole-genome sequencing of Singapore Malays.

The domain is currently also working with the Infectious Disease (ID) Programme to establish a regional tuberculosis research programme. The Southeast Asia Tuberculosis (TB) Network was initiated to establish a centralised and curated database with both whole-genome sequence data for clinical mycobacterium. This study is jointly coordinated by Professor Richard Coker and AProf Teo Yk Ying.

### TOWARDS A BETTER HEALTHCARE THROUGH DATA SCIENCE AND ANALYTICS

**Dr. Chuen Song Tan, Dr. Hwee Lin Wee, Dr. Sue-Anne Toh, Dr. Eric Khoo, Dr. Shih Ling Kao, Associate Professor E-Shyong Tai**

Saw Swee Hock School of Public Health, National University of Singapore

Faculty of Science, National University of Singapore

Yong Loo Lin School of Medicine, National University of Singapore

We live in a data-rich era in healthcare, with the availability of electronic medical records (EMR) which allows for the capturing of real-time, voluminous and complex data. However, translating EMR data into useful information for improving healthcare through cross-disciplinary research can be challenging as it requires the integration of various disciplines such as medicine, epidemiology, biostatistics and informatics. One of the major roles that the Biostatistics domain is playing in this endeavour with like-minded colleagues from NUS and NUS is to develop methods to predict frequent admittees to hospitals and to evaluate inpatient diabetic care through the utilisation of EMR data. The overall aim of these two projects is to demonstrate the potential in alleviating healthcare problems which arise in the community with information derived from the EMR through data science and analytics.

For the research work on inpatient diabetic care, our team has demonstrated the feasibility in developing a principled and objective approach that translates real-time and voluminous data from EMR into useful clinical information. This information, both in its quantitative and visual form, can be used to empower the healthcare team in delivering and maintaining high quality patient care in hospital settings through quality surveillance. We applied statistical methods coupled with visualisation to daily blood glucose measurements to ascertain adherence to clinical protocol in the ward and hospital. Through real data and simulations, we then demonstrated that our approach is more informative and sensitive than the commonly used quantity.

For the research work on the issue of frequent admittors to hospitals, we are integrating and mining various data sources within the EMR, which include healthcare utilisation, medical and medication histories and previous laboratory test results. This will help identify these individuals and allow for early intervention, thereby minimising re-admissions and reducing the overall burden to the Singapore healthcare system. Our various research projects have shown that in order to harness the full potential of real-time EMR on a daily basis at the ward, or at the hospital-level, working across disciplines is a critical and important component.
HEALTH EDUCATION AND PROMOTION DOMAIN

Health promotion and its associated efforts put into education, community development, policy, legislation and regulation, are equally valid for the prevention of communicable diseases, injury and violence, and mental problems, as they are for the prevention of non-communicable diseases. As such, the role of health promotion and education is a responsibility which reaches beyond the health sector into lifestyles and ultimately into an individual’s well-being.

The Health Education and Promotion (HEP) domain at the Saw Swee Hock School of Public Health (SSSHPH) focuses its efforts on the design, implementation and evaluation of behaviour change interventions. The domain has been well known for its successful efforts in translating research findings into practice to reduce high levels of sexually transmitted diseases among brothel-based sex workers in Singapore.

The domain is also currently conducting research projects addressing lifestyle-related factors such as increasing physical activity and reducing sedentary behaviours, including studies to design intervention strategies promoting health behaviours among children, working adults and the general population.

Additionally, the domain has launched an initiative called the Prevention of Obesity and Diabetes (PODI), which conducts studies focusing on community-level behavioural interventions related to obesity and diabetes prevention. These efforts focus on enhancing the built environment to promote physical activities and reduce well-being, helping individuals form health promoting habits, activating social networks to encourage positive health behaviour in communities, and even incorporating mobile technology to promote healthy behaviour.

At the institution-level, there are ongoing efforts to launch the “Healthy Campus Initiative” (HCI), a project which aims to promote healthy behaviours among NUS students and staff, and establish NUS as an innovative health-promoting campus.

BIZ SCHOOL BE ACTIVE – SEDENTARY BEHAVIOUR IN BUSINESS SCHOOL EMPLOYEES (SSBBS) STUDY

Dr. Falk Muilner-Riemenschneider, Er Pei Ling Joyceylin, Anne Chu Hsin Yee, Associate Professor Audrey Chia, Associate Professor Lim Yee Wei

Saw Swee Hock School of Public Health, National University of Singapore

School of Business, National University of Singapore

Sedentary behaviour has recently been found to be detrimentally associated with several conditions, including obesity, Type 2 diabetes mellitus, cardiovascular disease, musculoskeletal disorders and mental well-being. It refers to time spent sitting, viewing TV or any activity with an intensity of less than 1.5 Mets (metabolic equivalents). Changing work environments have contributed substantially to an increase in sedentary activity. People aged 30–59 years in Singapore represent nearly 70% of the total resident population, and many are active in the labour force, with approximately 8 in 10 employed in sedentary occupations. Given that a large proportion of Singaporeans aged 30–59 years are employed, it is not surprising that frequently cited barriers to physical activity are work-related, such as “No time due to work or family commitments”, “Too tired” and “Too lazy”.

The proposed Biz School Be Active – Sedentary Behaviour in Business School Employees (SSBBS) Study is set to make the NUS School of Business among the first workplaces in Singapore and Asia to address this important public health problem of sedentary behaviours in working adults.

The project will see up to 140 able-bodied employees of the NUS School of Business from various departments enrolled. Participants will be given an accelerometer to wear for one week, and are expected to fill out a timesheet logging their daily physical activities. They will also need to fill in a short online survey, and eventually participate in a focus group discussion or individual interview.

After completion of the situational analysis, the research team will provide individualised feedback to study participants. The NUS School of Business will receive a summary report including findings, the report will include recommended strategies that could reduce the burden of sedentary behaviour among office workers at the NUS School of Business.

HEALTH SYSTEMS AND POLICY DOMAIN

The School’s Health Systems and Policy domain strives to examine the broad spectrum of Singapore’s healthcare system and our regional counterparts – from acute hospitals, community hospitals and intermediate and long-term care sector to primary care and home-based services. Health systems are complex and need different talents and perspectives to uncover health system challenges and develop solutions. Hence, we adopt a cross-disciplinary approach by leveraging on the expertise of various faculties within the National University of Singapore.

The domain has worked with the NUS School of Computing to develop smart algorithms to analyse qualitative text data within National University Hospital (NUH) databases to better understand patients’ hospitalisation process and identify those at high risk for avoidable re-admissions so that targeted community support can ensure safe and seamless transfer of care to home. This year, we have also worked with the Agency for Integrated Care (AIC) and the Department of Pharmacy at NUS Faculty of Science to predict the cost of transferring medication subsidies from polyclinics to home medical care. We also collaborated with the Department of Electrical and Computer Engineering at the NUS Faculty of Engineering to develop and evaluate tele-rehabilitation systems to provide remote exercise guidance and therapist supervision for patients recovering from various disabling conditions in their own homes.

On a regional level, the domain has provided leadership in the NUS Initiative to Improve Health in Asia (NIHA) and the Asia-Pacific Economic Cooperation (APEC) with our respective regional partners by organising regional workshops and conferences that foster cross-country fertilisation of ideas on how to improve health technology assessments and its translation to health policies.

*As of 1 August 2014, the Health Education and Promotion (HEP) and the Health Systems and Policy (HSP) domains have been combined to form the Health Systems and Behavioural Sciences (HSBBS) domain.

HOW MUCH DO YOU VALUE YOUR SIGHT?

Dr Lue Han

Saw Swee Hock School of Public Health, National University of Singapore

Visual impairment among our population is an important public health issue in Asia. In Southeast Asia alone, there are approximately 45 million people living with visual impairment, out of which 1.2 million are blind. With the ageing of the population in developed nations like Singapore, the burden of visual impairment is anticipated to increase. Previous studies have shown that visual impairment has an impact on one’s functioning and well-being. However, it is not known how the health burden associated with visual impairment compares with other chronic conditions in Singapore.

A research team led by Assistant Professor Luo Nan investigated the comparative health burden of visual impairment, obesity, hypertension, diabetes, and hyperlipidaemia in the local general population aged 40 years or above. Using the prevalence and health utility data collected from a large multi-ethnic cohort, the investigators found that the loss of quality-adjusted life years (QALYs) due to visual impairment was greater than any of the other four conditions for people who lived with these conditions. One explanation is that while chronic conditions can lead to life-threatening diseases without proper control and management, they are otherwise symptom-free. However, poor vision can affect the ability to conduct day-to-day tasks easily. The research team is now collecting data to estimate the economic burden of visual impairment in the local population.

INFECTIOUS DISEASES PROGRAMME

Infectious diseases research is a critical element in our defence against newly emerging and re-emerging microbial threats. The establishment of sustained infectious diseases research programmes and capabilities are especially paramount in enabling Singapore to be prepared for potential new epidemics in the future, and to play a key role in infectious diseases prevention and management in the region.

The Infectious Diseases (ID) Programme in SSHSPH was established with the objective to be a research-strong programme aiming to practice public health strategy of forward biodefence to address health-related issues raised by infectious diseases.

This year, the ID Programme has successfully secured grant funds and recruited research staff, which has allowed for the development of capacity in all three phases of ID research. This ranges from basic science discovery and evaluating what existing research findings mean for the local population, to developing the capability to perform rapid monitoring and surveillance, both through epidemiology, outbreak investigation and genomics, and finally to evaluating existing health systems and polices. Sub-themes spanning across these areas include understanding resource allocations and evaluating existing health systems for pandemic preparedness. Over the past year, the ID Programme has also established partnerships both at the national, regional and international levels.

Both China and Myanmar are classified as “high tuberculosis (TB) burden” countries in which supporting TB control is an acknowledged global public health priority, with an estimated million new cases of tuberculosis in China each year. Of these, an estimated 63,000 are multidrug-resistant tuberculosis (MDR-TB). In Myanmar, the World Health Organization estimates that 9,000 new multidrug-resistant tuberculosis (MDR-TB) cases occur each year, with the MDR-TB rate among new cases the highest in South-East Asia. Extensively Drug-Resistant TB (XDR-TB) is also a growing problem and pressing concern in both Myanmar and China.

The School is partnering with the London School of Hygiene and Tropical Medicine (LSHTM) to assist national TB programmes, donors and non-governmental organisations in the design and implementation of TB control measures in Myanmar and China. The project involves a three-pronged, inter-disciplinary programme with the following research components:

1. Economic analysis of costs and cost-effectiveness of scaling up an MDR-TB management programme
2. Epidemiological study of risk factors associated with developing drug-resistant TB
3. Mixed method analysis of the role of gender, incentives and barriers to accessing care on TB susceptibility, detection and outcomes

To initiate the project, situational assessments were conducted in both countries, and research capacity building training workshops have been run in Nay Pyi Taw, Myanmar and Kunming, China.

INTERLINKED PROJECTS ON MDR-TB IN MYANMAR AND YUNNAN

Professor Richard Coker, Dr Joanne Yoong, Dr Mishal Khan
Saw Swee Hock School of Public Health, National University of Singapore

EVALUATION OF THE SEASONAL INFLUENZA VACCINATION PROGRAMMES IN 2010-2013

On a per capita basis, Singapore has one of the largest seasonal influenza vaccination programmes in the world, with almost half of each birth cohort of 18 year-olds being vaccinated when they start National Service. This provides a good opportunity to assess the vaccine effectiveness, as well as to investigate the overall effect of the vaccination programme, in semi-closed populations like army camps.

Using a test negative, test positive design coupled with detailed virological testing of suspected cases, the research team found that seasonal influenza vaccines provided good protection against two common influenza strains (A/H1N1 pdm09 and B), but not for the third common, more severe strain (Influenza A/H3N2). This is possibly due to a vaccine mismatch during the study period. The study also found that the vaccination programme in the Singapore Armed Forces (SAF) has successfully reduced the burden of influenza, but that some servicemen will not be completely protected as there is a window of opportunity for the virus to spread after enlistment but before the protective effect of the vaccine takes hold. Hence, the team recommended that the mass influenza vaccination programme should continue but ideally within 14 days post-enlistment of new recruits in the SAF.

Influenza Cases by Subtype (A, B, C) and Weekly National Upper Respiratory Tract Infection (URTI) Cases vs. SAF Febrile Respiratory Illness (FRI) Cases (D). On panels A–C, national influenza cases are represented by lines, while SAF influenza cases are represented by bars (blue for unvaccinated, orange for those vaccinated c. 14 days prior to consultation and white for vaccinated >14 days prior). On panel D, weekly national URTI cases are represented by the black line, while the weekly FRI cases in military camps are represented by red bars. The scales for y axes used are different for B and D. The time is measured in calendar months on each panel, and the longer tick marks at each x-axis represent the start and end of each vaccination period. An additional time axis is presented at the foot, where period 1 refers to the period pre-vaccination; period 2 to the period new recruits were given monovalent vaccination; period 3 to the period new recruits were given trivalent vaccination; and period 4 to the period all SAF servicemen received trivalent vaccination.

Dr Alex Cook
Saw Swee Hock School of Public Health, National University of Singapore

Mr. Zhao Xiaohong and Dr Alex Cook analysing the effect of the SAF influenza vaccination programme.
RESEARCH CENTRES

CENTRE FOR ENVIRONMENTAL AND OCCUPATIONAL HEALTH RESEARCH (CEOHR)

CEOHR conducts research in areas concerning chemical safety, environmental and occupational health, through close collaborations with the NUS Environmental Research Institute (NERI), Duke-NUS, SMART, and various institutions in the US and China. The Centre is led by Professor Ong Choon Nam and A/P Chia Sin Eng.

Current research activities include the detection and control of environmental and occupational diseases, carcinogenesis and chemoprevention, oxidative stress and antioxidants, and the identification of biomarkers for Environmental and Occupational Health Studies.

POPULATION HEALTH METRICS AND ANALYTICS (PHMA)

PHMA is a cutting-edge health information system that monitors and integrates high volumes of data to help researchers understand health and diseases.

PHMA will contribute significantly to research and policy work, allowing researchers unprecedented access to high-quality demographic, behavioural, clinical, biological and health systems data which can be analysed to generate new scientific understandings of health and diseases. The PHMA’s modelling, simulation and decision support tools will greatly help policymakers to evaluate the realistic long-term outcomes of proposed policies and interventions.

WORLD HEALTH ORGANIZATION (WHO) COLLABORATING CENTRE IN OCCUPATIONAL HEALTH

The School has been designated a Collaborating Centre in Occupational Health by the World Health Organization (WHO), and will play an important role in supporting WHO in the strengthening of resources such as information, services, research and training, in Singapore and beyond. The Centre is headed by A/P Chia Sin Eng and on 22 June 2014, received its re-designation status for another four years.

CENTRE FOR INFECTIOUS DISEASE EPIDEMIOLOGY AND RESEARCH (CIDER)

Jointly established by the School and Ministry of Defence (MINDEF) in 2012, CIDER is developing epidemiologic capabilities in disease surveillance, consultation and research to detect and prevent infectious disease outbreaks of public health concern. With a team of infectious disease experts and researchers, CIDER aims to spearhead capabilities in spatial-temporal surveillance systems, syndromic predictive modelling and risk assessment of infectious diseases of global concern. The Centre is also collaborating with local and overseas partners to lead and support activities that will improve and shape our public health system.

LIST OF ONGOING PROJECTS

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>PRINCIPAL INVESTIGATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robust approach for empirical research in biomedical sciences</td>
<td>Tan Chuen Seng</td>
</tr>
<tr>
<td>A Peer-Driven Smartphone Intervention to Prevent Type 2 Diabetes in Mothers with a History of Gestational Diabetes</td>
<td>Yoong Su-Yin, Joanne</td>
</tr>
<tr>
<td>Regional Collaboration for Health Technology Assessment: Developing HTA Capacity in Non-Communicable Disease Management</td>
<td>Yoong Su-Yin, Joanne</td>
</tr>
<tr>
<td>Risk factors and control of hand, foot and mouth disease in childcare centres in Singapore</td>
<td>Alex Cook</td>
</tr>
<tr>
<td>Evaluation of the healthier hawker programme, a multi-level intervention to increase the availability of healthier foods at hawker centers in Singapore</td>
<td>Rob van Dam</td>
</tr>
<tr>
<td>Efficacy of a Health Promotion and STI Prevention Programme for Entertainment Establishments in Singapore</td>
<td>Wong Mee Lian</td>
</tr>
<tr>
<td>Impact and Cost-Effectiveness of Respiratory Disease Pandemic Interventions in Singapore</td>
<td>Alex Cook</td>
</tr>
<tr>
<td>Exploring the Health Systems capacity for response to infectious disease surges in urban settings: the case of Singapore</td>
<td>Zoe Hildon</td>
</tr>
<tr>
<td>The Singapore Social, Lifestyle and Infection Networks Groups (Singapore SLING): Establishing an Inter-disciplinary consortium for social network analysis</td>
<td>Clarence Tam</td>
</tr>
<tr>
<td>The effectiveness of strength and balance training in patients with diabetic peripheral neuropathy on quality of life and functional status: a randomised controlled trial with cost-utility analysis</td>
<td>Kavita Venkataraman</td>
</tr>
<tr>
<td>Phytoestrogens and risk of incident diabetes in Singapore Chinese</td>
<td>Pan-An</td>
</tr>
<tr>
<td>Validation of a new comprehensive food frequency questionnaire (FFQ) and a short-FFQ (sFFQ) for the assessment of dietary intakes in Singapore population</td>
<td>Rob van Dam</td>
</tr>
<tr>
<td>A cross-sectional study to quantify central structural and functional neurological deficits in individuals with diabetic peripheral neuropathy</td>
<td>Kavita Venkataraman</td>
</tr>
<tr>
<td>Development of computational pipeline for mass spectrometry data analysis: with applications to proteomics and metabolomics</td>
<td>Choi Hyungwon</td>
</tr>
</tbody>
</table>

List of ongoing projects from August 2013 to July 2014.
The School aims to take results from research to people’s lives to improve their health and well-being. Find out more about our publications which have received media coverage this past year:

1. Retinal imaging may help assess pregnancy outcomes
   Read more here

2. Married women also at risk of HIV/AIDS
   Read more here

3. Coffee consumption can reduce mortality risk from liver cirrhosis
   Read more here

4. Regular vegetables, fruit and soy consumption can lower hip fracture
   Read more here

5. Omega-3 fatty acids from fish and nuts reduces cardiovascular mortality
   Read more here

Publication:

6. Impact of eye problems, at a glance
   Read more here

Publication:

7. Incense smoke poses health hazard
   Read more here

Publication:

Publications in the news from October 2013 – September 2014

The following news coverage showcases the School’s continued efforts of promoting healthier communities and raising public health awareness.

1. Diabetes should get sex education too
   TODAY, 14 October 2013
   VeriMSN News, 14 October 2013

2. From Singapore to Sweden for Breast Cancer Awareness
   Making a Difference Radio Interview by 938 Live, 31 December 2013
   The Straits Times, 17 October 2013
   Channel NewsAsia, 17 October 2013
   Channel NewsAsia, 20 October 2013

3. Pandemics have huge impact on economy: experts
   The Straits Times, 28 Oct 2013

4. Air pollution causes cancer, public health expert calls for action
   Medical Tribune, November 2013

5. Need to ‘invamp’ healthcare delivery with financing framework
   TODAY, 15 November 2013

6. 25 local delicacies contain more salt than fast food
   Lianhe Zaobao, 5 December 2013

7. Rounding up major healthcare issues of 2013
   PowerFM FM, 30 December 2013

8. Are Singaporeans living healthily?
   On the Red Dot, Channel S, 5 February 2014

9. Pandemics may be the future weapons of terrorism
   AsiaOne.com, 3 March 2014

10. New diabetes prevention website launched to stop growing diabetes
    Channel NewsAsia, 12 March 2014

11. Incense smoke poses health hazard
    Read more here

Publication:

12. Anti-malaria drug may help ease asthma
    The Straits Times, 27 June 2014
    TODAYonline, 27 June 2014

13. Do monetary incentives really help people lose weight?
    TODAY, 4 April 2014

14. How can you stay safe and healthy at the workplace?
    TODAY, 1 April 2014

15. What does it mean for Singaporeans and healthcare providers?
    TODAY, 1 April 2014

16. Professor Saw Seang Mei makes the list of 100 most influential people in public health
    The Straits Times, 2 May 2014

17. Can you stay safe and healthy at the workplace?
    TODAY, 1 April 2014

18. Do monetary incentives really help people lose weight?
    TODAY, 4 April 2014

19. Anti-malaria drug may help ease asthma
    The Straits Times, 27 June 2014
    TODAYonline, 27 June 2014

20. Professor Saw Seang Mei named one of Forbes Asia’s Heroes of Philanthropy
    The Straits Times, 27 June 2014
    TODAYonline, 27 June 2014

21. Anti-malaria drug may help ease asthma
    TODAYonline, 1 August 2014, Friday
    The Straits Times, 1 August 2014, Friday
    MUS Press Releases, 1 August 2014, Friday

22. Screen exposure among young children
    The Straits Times, 7 August 2014

23. Anti-malaria drug may help ease asthma
    Todayonline, 1 August 2014, Friday
    The Straits Times, 1 August 2014, Friday
    MUS Press Releases, 1 August 2014, Friday

24. All suited up to take on Ebola
    Channel News Asia, 9 August 2014, Saturday
    Todayonline, 9 August 2014, Saturday

25. Tele-rehab for a Smart Nation
    Channel News Asia, 24 August 2014, Sunday
    Todayonline, 16 August 2014, Monday
    MUS News, 18 August 2014, Monday
AWARDS & ACHIEVEMENTS
AWARDS & ACHIEVEMENTS

STUDENT AWARDS & ACHIEVEMENTS

During this year’s Alumni Reunion Night 2014, Dr Chen Wei Kai, Dr Ganesh Anbalagan, Ms Imelda Halim, Ms Ng Xin Ru Marie, Dr Chen Min Kai, Ms Ong Peck Hoon, Ms Imelda Halim, Ms Ong Suam Ee, Dr Joseph Lim Suam Seng, and Dr Ganesh Anbalagan were awarded the Dean’s List for their excellent academic performance.

Dr Joseph Lim Suan Seng (MPH graduate, Class of 2014) also received the Richard Gillis Book Prize for being the graduate specialising in Occupational and Environmental Health who topped the MPH Industrial Hygiene module.

Ms Imelda Halim (MPH graduate, Class of 2014) received the Tye Cho Yook Gold Medal during the SSHSPH Commencement Ceremony 2014, which is awarded to the top Master of Public Health graduate.

Mr Wang Pei (PhD graduate, Class of 2014) won the Singapore Medical Association Public Health Research Award during the Yong Loo Lin School of Medicine (YLLSoM) 4th Annual Graduate Scientific Congress 2014 on 11 March 2014.

Assistant Professor Hsu Li Yang was awarded the Monteiro Lectureship by the Chapter of Infectious Diseases, College of Physicians, Singapore for his breakthrough work on antibiotic resistance bacteria.

Professor Satkunananthan Kandiah was honoured with the Meritorious Service Medal at the National Day Awards 2014 for his service and contributions as the former Director of Medical Services at the Ministry of Health.

Assistant Professor Hsu Li Yang was awarded the Monteiro Lectureship by the Chapter of Infectious Diseases, College of Physicians, Singapore for his breakthrough work on antibiotic resistance bacteria.

Professor Satkunananthan Kandiah was honoured with the Meritorious Service Medal at the National Day Awards 2014 for his service and contributions as the former Director of Medical Services at the Ministry of Health.

Professor Saw Seang Mei
was named one of the world’s 100 most influential people in ophthalmology for her extensive work in myopia research. She is one of three Singapore eye doctors and one of only 13 women to make the list.

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).

Assistant Professor Alex Cook received the NUS Faculty Teaching Excellence Award (FTEA) AY2012/2013 at the Stars@NUS Awards Presentation Ceremony in recognition of his many contributions and commitment to teaching excellence at the School in the last academic year, while Ms Lim Hui Ping received the Values-in-Action (VIA) Award (Top 6 – Individual) for having demonstrated the NUS TRICE Values (Teamwork, Respect, Integrity, Compassion and Excellence).