The Public Health Effect
The NUS Saw Swee Hock School Of Public Health (SSHSPH)

ABOUT

As Singapore’s first and only full-fledged public health tertiary education institution, the Saw Swee Hock School of Public Health, National University of Singapore, builds upon more than 60 years of experience in research, training and practice to continually foster healthier communities in Singapore and the region through its translational cross-disciplinary research work on cohort studies and lifecourse epidemiology, infectious disease research, health technology assessments, health promotion, workplace health and safety, health systems evaluation and health services research, to impact public health programmes and policies.

The School is also a member of the National University Health System (NUHS), the first academic medical centre in Singapore. As part of NUHS, we work closely with the National University Hospital in hospital-based health services and primary care research.

MISSION

Turning Discovery into Healthier Communities

VISION 2020

The School will be recognised for integrating knowledge across disciplines to develop solutions that will improve the health of populations in Singapore and beyond.

VALUES

Altruism • Innovation • Mentorship

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As Singapore’s first and only full-fledged public health tertiary education institution, the Saw Swee Hock School of Public Health, National University of Singapore, builds upon more than 60 years of experience in research, training and practice to continually foster healthier communities in Singapore and the region through its translational cross-disciplinary research work on cohort studies and lifecourse epidemiology, infectious disease research, health technology assessments, health promotion, workplace health and safety, health systems evaluation and health services research, to impact public health programmes and policies.

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It is defined in the Merriam-Webster dictionary as “change that results when something is done or happens: an event, condition, or state of affairs that is produced by a cause.” At the Saw Swee Hock School of Public Health, we believe in producing practical, positive effects on population health. This annual report details examples of the range and diversity of such effects over the past five years.

One such example would be the School’s work in diabetes prevention. Using data generated from the School’s Population Health Metrics and Analytics (PHMA), we shed new light on the reality of the future burden of Type 2 diabetes mellitus on Singapore. Since 2012, this simulation model has been utilising individuals’ information, incorporating the rising trend in obesity rates in recent years, to forecast the number of diabetics to hit one million by 2050—more than double the previous projection. This discovery played a pivotal role in motivating the Ministry of Health (MOH) to declare an unprecedented national “war on diabetes” in April, emphasising the urgency to boost the capacity of the country’s health systems as well as move prevention efforts further upstream to prevent the onset of diabetes. Until now, no other country in the world has formally announced in parliament such a resolve to launch an all-out offensive on diabetes.

Since 2014, the foundation for the Total Workplace Safety and Health (TWSH) initiative has been put in place with its launch collectively by the Ministries of Health and Manpower. Prior to that, traditional occupational safety and health protection programmes have concentrated efforts primarily on work safety. The School’s research has been integral to conceptualising TWSH as a holistic health and safety management system to address both workplace health protection and workplace health promotion. TWSH has since been implemented across several institutions and workplaces in Singapore, enhancing our ongoing efforts in understanding the interdependent relationship between work on health as well as health on work.
In July 2015, local media broke the news of an outbreak of severe Group B streptococcus (GBS) infections that was linked to the consumption of raw freshwater fish. Retrospective review of all GBS culture from hospitals, by the School, concluded that the outbreak could have been detected earlier and played a key role in highlighting the need for a more active surveillance programme in place to detect future infectious disease outbreaks.

An expansion of Singapore’s network of partner institutions over the last few years comes as a recognition of the School’s commitment to strengthening efforts in regional and international engagement as well as capacity building. Building on our experiences running courses in Myanmar and Vietnam, the School started a Leadership Training Programme in collaboration with the University of Philippines (College of Public Health), as well as the Department of Health. We continue to bolster relationships and build friendships to improve the health of communities in the region.

As the Founding Dean, I know our goals are not easy to achieve. We have and will continue to contend with numerous challenges along the way. I am particularly proud of and grateful for the many administrative and non-academic staff who have been working tirelessly behind the scenes to facilitate the School’s smooth transition from a department to a full-fledged national School of Public Health in 2011. Along with the expansion came increasing work demands and the need for new hires. It heartens me to personally witness longtime departmental staff pushing past their comfort zones to exercise internal mentorship, guiding and integrating new colleagues into the School. As Henry Ford once said, “If everyone is moving forward together, then success takes care of itself.”

Naturally, a transition as such brings with it stressful and disruptive organisational changes. Sharing the same premises at the Tahir Foundation Building does help facilitate face-to-face discussions and meaningful connections. But more crucial than the infrastructure or hardware is the “heartware” or collective altruistic mission of turning discovery into healthier communities. And it clearly emanates from ongoing research agendas and collaborations amongst faculty members of varied research expertise, where knowledge is shared and future directions envisioned. Although faced with the constant pressure to succeed in an academic setting, faculty have collectively looked beyond the mere visibility of one’s research paper in journals to also assess the translational and “greater good effect” of their research projects on population health policies and programmes.

Over the last five years, we have witnessed the fruits of the School’s evidence-based research impact on national health promotion and disease prevention efforts. As a result, we are also engaging more stakeholders who understand and share the School’s mission, who have a stake in the School’s commitment to producing sustainable solutions to some of the most complex public health problems.

The challenge for us as a School is how to harness these evidence and momentum to turn it into improved outcomes for communities now and future generations. We must continue to maximise our collective expertise in translational research to focus on the value of primary prevention and health promotion. For this purpose, our Public Health Translational Team (PHTT) serves to drive the School’s research enterprise beyond impact factors, towards providing practical, sustainable solutions as well as evaluating existing and potential public health solutions. The PHTT will also help identify existing gaps in the healthcare system, which the School could fill in with the generation of evidence-based research, as in the case of MOH’s ongoing consultations with the School on the “War on Diabetes”.

As Singapore’s healthcare system evolves from a hospital-centric model to one which is both patient- and population-centric, the School will play an increasingly important role in contributing its population and systems perspective to a changing healthcare system. It is both my hope and conviction that successive Deans will lead us forward, constantly seeking out new and better ways to tackle the challenges that lie ahead.

Professor Chia Kee Seng
Dean
NUS Saw Swee Hock School of Public Health
Senior Management

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Falk Mueller-Riemenschneider
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Judy Sing Gek Khim

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Cynthia Chen Huijun

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Tan Min Han
Joint Adjunct Assistant Professor
Tan Say Beng
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Terri Loll Young
Joint Adjunct Professor
Professor Saw Swee Hock: Making Public Health History

Professor Saw Swee Hock, an illustrious alumnus of the National University of Singapore (NUS), is a distinguished philanthropist in the area of higher education whose landmark $30 million gift enabled the establishment of the first public health school in Singapore, the NUS Saw Swee Hock School of Public Health on 1 October 2011.

His generosity has paved the way for the School to reach greater heights of public health excellence through the development of translational cross-disciplinary research and world-class educational programmes, professorships and scholarships to train future public health leaders in Singapore and the region.

As an academic, Prof Saw is currently Professorial Fellow at the Institute of Southeast Asian Studies (ISEAS) and holds honorary positions at the University of Hong Kong, Xiamen University, London School of Economics and NUS, among others. Prof Saw has published some 49 books, 31 book chapters and more than 110 articles in learned journals, and was formerly on the NUS Board of Trustees.

His philanthropic contributions extend to numerous higher education institutions both locally and globally. He has supported medals, bursaries, scholarships, institutes, schools and buildings, including setting up an endowed bursary fund for final-year needy students in NUS and contributing towards developing the Saw Swee Hock Student Centre at the London School of Economics.

In 2013, Prof Saw received the Singapore President’s Award for Philanthropy and the Public Service Medal (PBM) at the 2013 Singapore National Day Awards, in honour of the excellence benchmarks set in encouraging the spirit of giving in Singapore.

Last year, he was conferred the NUS Honorary Degree of Doctor of Letters during the NUS Commencement Ceremony, in recognition of his contributions in the fields of statistics and demography, as well as for his extensive philanthropic work.

Joyce’s classmates surprising her with a birthday celebration.

Joyce’s (centre) classmates surprising her with a birthday celebration.

EDUCATION MADE POSSIBLE BY GIVING: JOYCE’S STORY

Joyce Tan Yi Siang, MPH Student, Class of 2015/2016
Saw Swee Hock Master of Public Health Scholarship recipient

In October 2015, the School received a generous contribution of $872,500 from The Courage Fund Ltd to establish The Courage Fund PhD (Infectious Disease) Scholarship. The Scholarship will be available for both full-time and part-time PhD candidates in AY2016/2017, and will also allow full-time PhD candidates an attachment with the London School of Hygiene & Tropical Medicine.

Established in 2003, The Courage Fund was jointly organised by the National Healthcare Group (NHG), Singapore Health Services (SingHealth), Singapore Medical Association (SMA), Singapore Nurses’ Association (SNA) and Singapore Press Holdings (SPH) to provide relief to SARS victims and healthcare workers.

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“...”
public health in...
Public Health in the War on Diabetes

422 million adults, or 8.5% of the world’s population, live with diabetes. This number has quadrupled since 1980, a testament to the dramatic global rise of risk factors such as obesity. In addition to large-scale impacts on the health of millions, the chronic and progressive nature of this disease also gives rise to challenges for governments in policy implementation, health service and local communities. In recognising this, the World Health Organization (WHO) has announced its goal to “Beat Diabetes”, its theme for this year’s World Health Day 2016.

Closer to home, Singapore is home to more than 400,000 diabetics today. If nothing is done to reverse the trend, Singapore is set to have 1 million diabetics by 2050, according to research done at the NUS Saw Swee Hock School of Public Health.

In 2012, one of the School’s Population Health Metrics and Analytics (PHMA) projects, DEMOS, led by Associate Professor Alex Cook, developed a simulation model utilising individuals’ information. Using individual-based microsimulations incorporating demographic, ethnicity and genetic factors as well as rising obesity rates, the study was able to replicate a virtual population of the country which when aged, predicted the alarming figure of 1 million diabetics by 2050.

Secondly, while Singapore’s ageing population accounts for the current rise in diabetes prevalence, a more alarming trend detected was the rising numbers of overweight and obese young adults, particularly males, which is one of the major factors contributing to the projected diabetes burden.

The nationwide fight against diabetes will involve a multi-pronged approach – Minister Gan identified five fronts on which this war would be fought: prevention, screening, control, education and stakeholders’ engagement. Also in the works is a comprehensive long-term Diabetes Action Plan targeted on lowering the incidence of diabetes and its complications.

The Ministry’s formal call to escalate action against diabetes also signifies a welcome paradigm shift towards an emphasis on prevention, which will target important risk factors such as an unhealthy diet and inadequate exercise.

With the war on diabetes set in motion, the School will play an integral role in informing the formulation and implementation of the Diabetes Action Plan through diabetes research studies in the coming months and years. These include understanding the rapid increase in obesity rates among young adult males in Singapore, exploring health promotion in workplaces, and the impact of current lifestyle habits of pre-school children.

Singapore’s diabetes burden was projected to reach 1 million by 2050, reiterating the need to both expand the capacity of healthcare systems to meet future needs and focus on prevention efforts to impede the increase of diabetes rates.

The impact of diabetes in society ranges beyond physical health and quality of life. The School’s projections translate to 1 in 3 Singaporeans becoming diabetic in their lifetime, with younger Singaporeans in the workforce at an increased risk of developing the disease. Indeed, of the 350,000 diagnosed diabetics in Singapore in 2010, 180,000 were part of the country’s working population, and cost the economy $1 billion in losses, stemming from healthcare costs of diabetic employees, loss of productivity and absenteeism.

FACTS & FIGURES

1. Singapore is currently home to 400,000 diabetics, of which 1 in 3 are not aware they have diabetes

2. Projections done by the School show that diabetics will affect 1 million Singaporeans by 2050 if no actions are taken

3. Diabetics in the working population form a significant portion of Singapore’s total number of diabetics. In 2010, 180,000 diabetics in the working population cost Singapore $1 billion in economic losses.

4. 1 in 3 young adults aged 24 to 35 will be susceptible to diabetes by the age of 65

Left undetected, untreated or poorly managed, diabetes can lead to heart disease, stroke, kidney failure, blindness and amputations... Therefore, I am declaring war on diabetes. We want to help Singaporeans live life free from diabetes, and for those with the disease, to help them control their condition to prevent deterioration.”

– Health Minister Gan Kim Yong, declaring a “war on diabetes”, in parliament and announcing the establishment of a Diabetes Prevention and Care Taskforce on 13 April 2016
Public Health in the Workplace

EMBRACING HEALTH PROMOTION IN THE WORKPLACE

The nature of workforces and workplace environments in the 21st century are evolving drastically due to factors such as ageing workforce demographics, lifestyle choices of employers and employees, and an increasingly digitised and mechanised work scope. Organisations now face new challenges impacting the health, safety and wellbeing of employees in workplaces.

While the main objective of occupational safety and health protection programmes has primarily been to ensure the adherence of work safety procedures, workplaces must now consider new paradigms and approaches which embrace health promotion, especially with the objective to advance the health of younger workers. Hence, health promotion must be positioned as an aspect which is equally integral as workplace safety.

Total Workplace Safety and Health (TWSH) introduces an approach that integrates concepts of workplace safety, occupational health and health promotion to manage safety and health concurrently in the workplace. This includes proactive, broad and integrated assessments of all risks in the workplace, safety, occupational health and employee wellbeing.

TWSH allows for the management of both health and safety aspects of work together, with the aim of ensuring employees can live and work healthily and safely, reducing sickness through absence and ill health, and improve work productivity.

As part of the ongoing TWSH efforts, the School has designed several tools for assessing total workplace safety and health services.

The Workplace Safety and Health Services Questionnaire (WSHQ) seeks to ascertain an organisation’s structure and health, safety and wellness (HSW) goals to form a baseline report of the organisation’s status. A relevant programme can then be tailored to assist the company in improving their safety, health and wellbeing standards.

The Basic Health Survey (BHS) is a detailed assessment tool to determine the current status of employees’ health, safety and wellbeing. It covers areas of assessment on physical activity, diet, and specific body aches and pains, if any, and is meant to complement the WSHQ.

With data from tools such as the WSHQ and BHS, the School’s TWSH team can craft out personalised strategies for organisations to build upon current strengths in health, safety and wellbeing, and also provide opportunities for improvements in gaps identified.

DEVELOPING ASSESSMENT TOOLS FOR TWSH

Public Health in Monitoring Outbreaks

TRACKING THE GROUP B STREPTOCOCCUS OUTBREAK IN SINGAPORE

Streptococcus agalactiae (GBS) is a Group B - hemolytic streptococcus that colonises the digestive and urinary tracts of up to one-third of the human population. In 2015, Singapore experienced an outbreak of severe invasive ST283 GBS infections in non-pregnant adults, which was linked to the consumption of Asian bighead carp and Snakehead fish in the Chinese-style raw fish dish “yusheng”. The outbreak subsided after local health authorities advised retailers to stop the sale of raw fish dishes using the two implicated species. However, the approximate date of onset and scale of the outbreak was not evident in view of the fact that GBS is a relatively common cause of infections in Singapore, with fluctuating case counts over time.

Working as part of a larger team of investigators, Ms Cindy Lim and A/Prof Alex Cook from the School undertook time series analysis on weekly microbiology laboratory non-duplicate GBS data recorded between 1 January 2011 and 29 August 2015 to estimate the onset and scale of the outbreak. Data was contributed by five public sector hospitals which accounted for approximately 70% of acute care hospital beds in Singapore. The cases were also broadly split into “bacteremia” (blood culture) and “non-bacteremia” categories. Additionally they provided statistical support for the retrospective cohort GBS bacteremia study.

The analyses concluded that the outbreak began in the week of 25 January 2015. Prior to the outbreak, there were on average 2.8 bacteremias per week, which increased to 36.3 per week at the peak of the outbreak during the week of 5 July 2015. However, non-bacteremic GBS infections did not increase throughout this period. The results further support the hypothesis that ST283 – the strain of GBS identified in the outbreak – causes primarily severe invasive human disease, affecting people who were younger and healthier relative to other common GBS strains.

Weekly counts of non-duplicate Streptococcus agalactiae infections based on laboratory records of five public sector hospitals in Singapore, January 2014 to August 2015. (A) Blood culture results. (B) All non-blood culture results.
In the event of an influenza pandemic or similar emerging infectious disease outbreaks, the government and other institutions introduce interventions to mitigate the impact of the outbreak. These interventions not only impact the epidemic, but can have a substantial impact on society as well. For instance, enforcing school closure can reduce the number of contacts among children and from children to their families, but at the same time it interferes with schooling schedules and may have other consequences such as requiring family members to take time off work to provide care.

A research team led by A/Prof Alex Cook has developed a computer simulation model to represent the Singapore population in unprecedented realism, in which the impact of school closure, vaccination, and other interventions can be trialed in silico to quantify the effects of such interventions. Their findings suggest that school closure has little benefit to justify its negative impacts, and that selected school closure is as effective in slowing down an outbreak, though not influencing its size, as mass school closure across the country.

Preparing for a data collection exercise using radio-frequency identification (RFID) tags to model influenza spread. How we navigate our surroundings and immediate environment influences who we come into contact with, when, and for how long. This, in turn, determines our risk of transmission of social diseases, such as influenza or the cold, and our risk of exposure to infections with a strong environmental component, such as dengue. Our movement patterns are being recorded in ever more detail by our phones, physical activity devices such as fitbits or mi bands, and by the chips in cards such as ez-link cards or access cards. As well as facilitating cashless transport, boosting physical exercise and allowing calls and messages to be directed to us, these data can also tell us something about how diseases spread and how we may be able to stop them.

A research team led by A/Prof Alex Cook is working on several methods to track movement and contact. Using custom designed RFID chips, they can track movement around a contained environment such as an office or school to identify contact points among people and how to reduce the spread of infections such as influenza. Working with the NUS School of Computing and Tan Tock Seng Hospital, the team is tracking geographic movement patterns around the country for patients with dengue to work out where they go and where cryptic infections may occur.

My Healthy Plate, a dietary recommendation provided by the Health Promotion Board. Although dietary recommendations in Singapore are evidence-based, little is known about whether following dietary recommendations can impact on the risk of chronic diseases such as coronary heart disease, which is among the principle causes of death in Singapore and is known to be affected by dietary exposure.

Using data from the Singapore Chinese Health Study, a research team led by A/Prof Rob van Dam conducted a nested case-control study of 751 cases of coronary heart disease to investigate the link between dietary recommendations consistent with those in Singapore and coronary heart disease. The results found that individuals with a higher dietary score, indicating adherence to dietary recommendations, had a 38% lower risk of coronary heart disease as compared to those who had a lower dietary score. These results support dietary recommendations provided in Singapore such as the ‘Healthy Plate’.

Eating for a healthy heart

Hawker centres are a frequent culinary destination for most Singaporeans, with 60% of Singaporeans dining at hawker centres at least four times a week. As such, the healthiness of food consumed in hawker centres could easily impact the chronic disease risk of Singaporeans.

A research team led by Dr Salome Antonette Rebello interviewed hawkers and consumers from various establishments to find out how they would take to the introduction of healthier food options in hawker centres. While stallholders welcomed government initiatives to introduce these healthier foods, they were concerned about the acceptance from customers. Consumers, on the other hand, expressed concerns about the cost and taste of healthier food options. Types of healthier alternatives were also perceived differently, with hawkers being most receptive to using healthier oils, whilst wholegrain-based options were regarded less favourably. The team’s findings highlighted the importance of government-led initiatives to provide monetary and marketing support to food vendors lacking resources to serve healthier foods in the face of uncertain consumer demand.
Public Health in Defence

Partnering with the SAF Biodefence Centre to conduct a study of movement patterns on Pulau Tekong

A military environment provides possible opportunities for diseases to spread. Soldiers live and work in close conditions. During the 2009 influenza pandemic, the Singapore Armed Forces (SAF) saw substantial attack rates, but this was reduced by interventions such as tamiflu prophylaxis, use of personal protective equipments, and social distancing. To maintain operational readiness, SAF actively tracks infectious diseases activity so that outbreaks can be identified and tackled early.

Together with the SAF Biodefence Centre, the School’s Centre for Infectious Disease Epidemiology and Research (CIDER) has been strengthening the surveillance programmes and developing more accurate algorithms to detect outbreaks rapidly. These programmes use advanced statistical algorithms to flag up outbreaks at an early stage so that an outbreak investigation can be launched and preventive measures can be implemented early to minimise operational impact to the SAF.

EVALUATING HPB’S HEALTHY DINING PROGRAMME

Researchers from the School collaborated with the NUS Office of Campus Amenities to design and roll out posters across selected eateries across the campus, encouraging students, staff and visitors alike to opt for healthier food choices.

The Health Promotion Board’s (HPB) Healthy Dining Programme was rolled out in 2016 to food courts, restaurants and caterers. The programme consists of food vendors selling lower caloric dishes, providing wholegrains and healthier oils, promoting low-sugar beverages and displaying point-of-purchase information.

Researchers led by A/Prof Rob van Dam and Dr Salome Antonette Rebello evaluated the effects of the Healthy Dining Programme across the National University of Singapore, tracking the diet changes of consumers over six months when the programme was introduced across the campus. While the study is still ongoing, the initial evaluation suggests that the Healthy Dining Programme can lead to a greater sale of meals with whole grains and healthier oils. However, greater efforts may be required to ensure the new preparation methods are sustained, perhaps through providing cooking demonstrations, videos or pictorial instructions that can be consulted over time.

PUBLIC HEALTH IN REGIONAL HEALTH SYSTEMS (RHS)

A CLOSER LOOK AT SINGAPORE’S REGIONAL HEALTH SYSTEMS (RHS)

In response to its current healthcare challenges, Singapore has implemented a healthcare system reform called the Regional Health Systems (RHS). A research team comprising A/Prof Helena Legido-Quigley, Ms Ong Suan Ee, Dr Shiipa Tyagi, and Ms Jane Lim embarked on a qualitative study to more closely examine the implementation of Singapore’s RHS. Integration, innovation and people-centredness were identified as central principles of the RHS. Participant interviews also indicated that the RHS has provided an opportunity to holistically care for individuals across the care continuum, addressing social determinants of health, developing new models of care, and working with social and community partners. Some challenges identified included the need for greater alignment of the goals, values and priorities of the multiple health systems actors, the need for better integration across the RHSs, varying capabilities and capacities across partners, the need to improve healthcare financing structures, and clearer structures for the evaluation and scaling-up of pilot programmes.

PUBLIC HEALTH IN ACTIVE LIFESTYLES

MOBILE TECHNOLOGY IN PHYSICAL ACTIVITY MONITORING

Physical inactivity is a key contributor towards the development of chronic diseases such as Type 2 diabetes and heart disease. In monitoring physical activity patterns among populations, motion sensors such as accelerometers and other wearable devices offer the opportunity to monitor activity patterns continuously and objectively.

To better understand health behaviours and activity patterns, researchers from the Physical Activity Team, led by Assistant Professor Falk Muller-Riemenschneider, use accelerometers, consumer-based fitness trackers, smartphones and other technologies to objectively assess activity behaviours and their contextual factors in diverse populations including children, adolescents, the general adult population, as well as working adults. These efforts aim to not only accurately describe activity patterns of Singaporeans, but also identify key determinants and consequences of these behaviours in developing more targeted preventive strategies.

Our current findings challenge existing beliefs about the activity levels of Singaporeans and highlight the substantial overestimation of physical activity levels in previous national population health surveys. These findings have important implications for health promotion and policy making in Singapore.
The Leadership Institute for Global Health Transformation (LIGHT) was launched by Professor Chia Kee Seng, Dean of the NUS Saw Swee Hock School of Public Health on 22 February 2016. Headed by Professor Lee Hin Peng, LIGHT serves as a progressive think-tank, encouraging the crystallisation of ideas and fostering active collaborations to build a leadership framework.

Highlighting ongoing global examples of outbreaks such as the dengue epidemic in Asia, MERS and the Zika virus, Prof Piot spoke on the need for a highly interconnected global support system of global and local leadership, as well as collaboration amongst governments, multilateral institutions and other stakeholders outside the healthcare setting, ending with his key takeaway on the subject of infectious disease pandemics: “No time to lose”.

Prof Piot's talk was followed by a discussion moderated by Associate Professor Hsu Li Yang, Programme Leader for the School's Antimicrobial Resistance Programme. The discussion panelists included Associate Professor Vernon Lee, Head of the Biodefence Centre at the Singapore Armed Forces, Professor Leo Yee Sin, Director of the Institute of Infectious Diseases and Epidemiology at Tan Tock Seng Hospital and Professor Paul Tambyah, Professor at the NUS Yong Loo Lin School of Medicine.

Professor John Ioannidis, C. F. Rehnborg Professor in Disease Prevention at Stanford University and Director of the Stanford Prevention Research Centre, spoke on Capturing the Value of Prevention on 18 May 2016.

Prof Ioannidis delivered his talk on the effectiveness and different challenges faced in observational studies, randomised trials, and meta-analyses in current prevention research studies. He also shared about the concept of ‘wellness’ in healthcare and the Wellness Living Laboratory (WELL) effort currently being developed at Stanford University and adopted in multiple countries.

Prof Ioannidis' talk was followed by a discussion moderated by Professor Lee Hin Peng of LIGHT. The discussion panelists included Professor James Best, Dean of the Lee Kong Chian School of Medicine, Nanyang Technological University, Dr Derrick Heng, Group Director of the Public Health Group at the Ministry of Health, Singapore and Associate Professor Rob van Dam, Domain Leader of the School’s Epidemiology domain.

Professor John Ioannidis is the C. F. Rehnborg Professor in Disease Prevention at Stanford University, where he is also Professor of Medicine, Health Research & Policy, and Director of the Stanford Prevention Research Center at the School of Medicine. An influential mathematician and statistician, his paper, “Why most published research findings are false”, is the most-accessed article in the history of PLOS. To date, he has published over 800 papers and remains one of the most-cited scientists worldwide.

The Leadership Training Programme will comprise of courses conducted locally and regionally, focusing on specific topical issues pertinent to leadership development in public health. A three-day programme on “Climate Change and Health – Disaster Preparedness” was held in Manila, the Philippines from 19 to 21 April 2016. The programme was jointly organised by the School and the Department of Health Philippines, in association with the Department of Environmental and Occupational Health, College of Public Health, University of the Philippines, Manila.
celebrating our public health community
62 Master of Public Health, Doctor of Philosophy and Master of Science graduates marked a significant milestone in both their lives and public health journeys at the NUS Commencement Ceremony on 10 July 2016.

Graduands, faculty and alumni alike cast their votes for the Best Dressed individual of the evening, which went to Dr Namrata Hange (MPH Class of 2016). Congratulations, Namrata!

In celebration of our alumni’s cultural diversity, guests were invited to don their national costumes or come dressed in a national costume of their choice.

During the dinner, Professor David Koh shared with the room “the importance of a purpose-driven life” in making an impact on the health of the communities. Prof Koh also shared with the graduands his personal, unexpected journey in public health and reminded them to enjoy their journeys in the years ahead, wherever it may take them.

Guest of Honour, Professor David Koh, Assistant Vice Chancellor and Vice-President (Research and Innovation) at the Universiti Brunei Darussalam addressed the public health and medical postgraduates during the ceremony. Quoting T. S. Eliot’s 1934 poem “the Rock”, Prof Koh reminded the graduating batch to bring their training “beyond just the hard sciences... constantly re-look at education in health care, and make changes which can lead to greater wisdom in practice”.

Congratulations to the Class of 2016, and welcome to the SSHSPH alumni family!

Faculty, graduating students and alumni came together for an evening of good food, drinks and happy reunions at the annual SSHSPH AlumNite 2016: It’s A Small World! on 8 July 2016.

In celebration of our alumni’s cultural diversity, guests were invited to don their national costumes or come dressed in a national costume of their choice.

During the dinner, Professor David Koh shared with the room “the importance of a purpose-driven life” in making an impact on the health of the communities. Prof Koh also shared with the graduands his personal, unexpected journey in public health and reminded them to enjoy their journeys in the years ahead, wherever it may take them.

Congratulations to the Class of 2016, and welcome to the SSHSPH alumni family!
Undergraduate Education

The Education Office at the NUS Saw Swee Hock School of Public Health offers various undergraduate and graduate courses.

Director, Undergraduate Medical Education: Associate Professor Gerald Koh

The School supports the NUS Yong Loo Lin School of Medicine in the teaching of medical undergraduates from the first to the fourth year of the five-year medical course. The School’s curriculum equips medical students with skills to critically appraise evidence, prevent and manage disease, and promote health at the community level crucial to the health of our population.

The undergraduate medical training culminates with the Community Health Project, which sees students carry out research projects in the community under supervision of the School’s faculty. This year, the School incorporated global health topics under the Medicine and Society track and co-taught health economics with the Centre for Biomedical Ethics.

In addition, several workshops were conducted for medical students to further their knowledge about design, monitoring and evaluation of community health programmes.

Programme Director: Vice Dean (Education), Associate Professor Jeannette Lee

The School offers a Minor in Public Health which is available to all NUS undergraduates.

Offering 14 modules across the academic year, the Minor introduces non-medical undergraduates to the translational aspects of public health and the need for a cross-disciplinary and team-based approach in tackling public health issues. It also lays the foundation for future training in carrying out public health and clinical research, and offers students a chance to intern with public health organisations.

Programme Director: Associate Professor Jeannette Lee

This year, the School offered a five-week summer school module with an overseas field trip, partnering with Christian Medical College (CMC), Vellore in India.

ENV2103 ENVIRONMENTAL & PUBLIC HEALTH MODULE (BACHELOR OF ENVIRONMENTAL STUDIES)

Module Coordinator: Dr Judy Sng

The ENV2103 Environmental and Public Health module is a core requirement for students undertaking the Bachelor of Environmental Studies offered jointly by the Faculty of Science and Faculty of Arts and Social Sciences.

Programme Director: Vice Dean (Education), Associate Professor Jeannette Lee

The School’s flagship graduate programme, the Master of Public Health (MPH), is chaired by Vice Dean (Education) Associate Professor Jeannette Lee and seeks to provide a rigorous and interdisciplinary approach to learning, with an emphasis on finding evidence-based and innovative solutions to Asia’s current and future public health challenges. The programme underwent a review in 2015 and the revised curriculum has been approved to be offered from AY2017/2018.

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

Programme Director: Associate Professor Rob van Dam

The School’s Master of Science (MSc) and Doctor of Philosophy (PhD) programmes are research-intensive programmes that emphasise both mastery of research skills and acquisition of domain knowledge. Students will complete coursework and conduct independent research under the supervision of a faculty member, leading up to the submission of a thesis demonstrating their scholarship and original contributions to the knowledge in their research fields.

Programme Director: Adjunct Associate Professor Fong Ngan Phoon

The Graduate Diploma in Applied Epidemiology (GDAE) was designed in response to a perceived national need for training in basic epidemiological principles, theory and practice. The GDAE is intended to provide candidates with both the theoretical concepts of disease control as well as the opportunity to readily apply these concepts to situations encountered in the health and healthcare setting.

Programme Director: Associate Professor Jason Yap

The Preventive Medicine Residency Programme is offered by the National University Health System (NUHS), combining the previous public health and occupational medicine training programmes in Singapore. The programme creates a foundation for excellence in preventive medicine care, as well as provides employment opportunities at a diverse group of local institutions.
SHORT COURSES

In addition to its undergraduate and graduate programmes, the School offers several educational short courses to external participants to enhance their public health skills and training.

Over the last year, the School has offered courses in:
1. Medical and Humanitarian Emergencies
2. Industrial Hygiene
3. Advanced Quantitative Methods
4. Design, Conduct and Analysis of Clinical Trials
5. Public Health Communication

NATIONAL SILVER ACADEMY

The School is pleased to support the National Silver Academy, an initiative by the Ministry of Health (MOH) to create more opportunities for seniors to pursue continuous learning.

Under this initiative, the School will offer two modules from the Minor in Public Health, Public Health in Action and Health in the Later Years, to eligible seniors to attend classes alongside undergraduates from August to November 2016.

Student Experiences

NURTING GLOBAL PERSPECTIVES ON BREAST CANCER

During my PhD studies, I spent six months from February to July 2016 in the Netherlands on an exchange programme at the University Medical Centre (UMC) Utrecht, studying the quality of life of breast cancer survivors in the post-treatment period.

Being integrated into a new research environment was a brilliant experience. UMC Utrecht was gracious enough to hold their bi-monthly oncology meetings and journal club meetings in English for the only non-Dutch speaker (me!).

During my exchange, I was exposed to the different types of cancers, new technologies for treatments UMC is researching on, and lifestyle interventions for cancer patients, which all went beyond the scope of my current research on the post-treatment period of breast cancer patients. Touring the research facilities at UMC also allowed me to experience a real-world visualisation of how patient treatments are carried out, inspiring me to explore future patient-centric research studies.

Under the expertise of my host supervisor Associate Professor Lenny Verkooijen, who oversees a cohort of breast cancer patients, we analysed our Singaporean breast cancer survivors’ workability associations with clinical determinants and patient reported outcomes, including functional and psychological well-being measured by the same set of questionnaires.

This exchange programme has encouraged me to focus my thoughts and ideas, and practice clear and concise writing skills. It was an enjoyable six months, learning more about oncology research and experiencing a different culture.

Ho Peh Joo
PhD student (Year 3)

BEYOND THE CLASSROOM LEARNING

Hungry for some experience in solving public health problems in a developing country, I headed to Negros Island in the Philippines from May to July 2016 for a field practice attachment at International Care Ministries (ICM), a Philippines-based non-governmental organisation, to collect data on tuberculosis (TB).

Through conducting interviews with healthcare staff in local government units and TB DOTS (Directly Observed Treatment Short course) facilities, as well as TB patients in the communities, I learned about the obstacles that healthcare workers and TB patients are facing, current promising best practices and improvements they would like to see in the future.

My experience has led me to appreciate the complexity of public health problems such as TB control in the Philippines, which goes beyond the health sector and is intertwined with social issues such as poverty, patient’s attitude and stigma. Even with highly effective and freely available medication, many patients still face basic obstacles such as lack of money to travel to hospitals to get tested, lack of food and fear of letting others find out about their diagnosis.

Nothing beats going beyond the classroom and being involved with real-world public health problems on the ground, and it has been a privilege to have had that opportunity. I’m thoroughly grateful for my experience and strongly encourage fellow and future public health students to embark on these learning opportunities which come their way!

Tan Junda, James
Master of Public Health student

A group photo with staff from the ICM Bacolod office; my supervisor, Dr Milton Amayun (third from the right) and the National Tuberculosis Control Programme Nursing Coordinator in Negros Occidental Provincial Health Office, Mrs Lorna Garde (second from the right).

Conducting interviews with the midwife and barangay (district) health worker at a barangay health station.

Five on a Habal-Habal (including the one taking the photo)! No problem! It’s more fun in the Philippines!
**EPIDEMIOLOGY**

Domain Leader: Associate Professor Rob van Dam

Building on its research strengths in molecular, nutritional and translational epidemiology, the Epidemiology domain focuses on a variety of diseases including breast cancer, obesity, type 2 diabetes, cardiovascular diseases, eye diseases, infectious diseases and healthy ageing. The Epidemiology team provides insights into the frequency and distribution of diseases in populations and its determinants, generating information to prioritise public health interventions and identifying appropriate targets for these interventions.

The domain conducts research spanning across the discovery of potential causes of ill health, to contributing to the evaluation of health promotion initiatives. The domain also leads several large-scale cohort studies, including the Singapore Chinese Health Study (SCHS), which successfully followed up on 17,000 participants at end-2015, and the Singapore Population Health Studies (SPHS), which achieved its recruitment of 50,000 participants. Findings from these cohorts will inform the design and development of public health interventions in Singapore and other Asian countries.

The Epidemiology domain has welcomed four new faculty members this year:

- **Associate Professor Sim Xueling**
  Dr Sim specialises in research and teaching in statistical genetics, pharmacogenomics and biostatistics.

- **Assistant Professor Huang Tao**
  Dr Huang contributes valuable research experience in nutrition epidemiology and molecular nutrition.

- **Assistant Professor Mary Chong**
  Dr Chong leads research on maternal and child nutrition in birth cohorts in Singapore. Her research on the impact of maternal nutrition on the health of offspring forms part of the research field on the developmental origins of adult health.

- **Assistant Professor Norbert Wagner**
  A/Prof Wagner brings with him more than 20 years of experience in occupational and environmental health, health management and occupational medicine.

**HEALTH SYSTEMS & BEHAVIOURAL SCIENCES**

Domain Leader: Professor Teo Yik Ying

The Health Systems & Behavioural Sciences (HSBS) domain focuses on skills development and teaching in the areas of health services, health systems, health economics and health promotion.

The domain is currently leading cross-disciplinary studies with multiple agencies to support nation-wide initiatives such as the Smart Nation Initiative and National Telehealth Implementation Strategy. The domain also examines the whole continuum of healthcare in Singapore that contributes to the development of integrated healthcare in Singapore’s Regional Health Systems.

Its health promotion research addresses the interactions between lifestyle behaviours and the physical and socio-cultural environment to prevent non-communicable and communicable diseases, contributing to the development and implementation of health-promoting policies.

This year, the HSBS domain welcomed four new faculty members:

- **Associate Professor Jason Yap**
  A/Prof Yap specialises in research and teaching in integrated care, health systems and healthcare management. He also oversees the Preventive Medicine Residency Programme offered by NCUH.

- **Associate Professor Helena Legido-Quigley**
  A/Prof Legido-Quigley has taught in the areas of health policy, healthcare and public health, and conducted research on the impact of austerity measures on healthcare, integration of services, patient trust in chronic diseases, and response of healthcare systems to AIDS and tuberculosis (TB).

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- **Associate Professor Gerald Koh**
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**BIOSTATISTICS & MODELLING**

Domain Leader: Professor Teo Yik Ying

The Biostatistics & Modelling domain focuses on the generation of health statistics through data management and analysis, disease burden modelling as well as in public health omics, which includes genomics, metabolomics and proteomics.

The domain has forged closer ties with the Ministry of Health, the National University Health System and other health agencies in Singapore, enabling us to expand our focus to include the modelling of chronic and communicable diseases, as well as healthcare data science and analytics.

We have also established close ties with our regional collaborators such as Malaysia, Indonesia and Vietnam to build up our research on infectious diseases such as dengue and tuberculosis.

This year, the Biostatistics & Modelling domain welcomed a new faculty member:

- **Associate Professor Jason Yap**
  A/Prof Yap specialises in research and teaching in statistical genetics, pharmacogenomics and biostatistics.
THOR is currently working with MOH Holdings to design and organise nationwide tele-rehabilitation quasi-experimental and tele-vital signs monitoring trials to assess the cost-effectiveness of both strategies. The programme has also expanded into advisory roles for the Institute of Technical Education, National University Health System, other NUS departments and private companies. In the coming year, other research areas to be explored include tele-speech therapy, tele-dysphagia therapy, home assessment and tele-post mastectomy care.

**Research Programmes**

Telephone Innovations Research (THOR) Programme

A recent time-motion study (TMS) on patients in St. Luke’s Hospital, Changi General Hospital and Lien’s Home for the Elderly found that with tele-rehabilitation, caregivers and patients saved an average of 45 minutes each per rehabilitation session compared to outpatient rehabilitation. A similar proof-of-concept (POC) pilot demonstrated that tele-rehabilitation can be successfully used:

1. In conjunction with outpatient and home rehabilitation to replace and reduce the number sessions per patient, and
2. In a nursing home setting.

**Tuberculosis Control in Cambodia Programme**

Despite a decrease in tuberculosis (TB) incidence owing to investments in TB control, Cambodia still has one of the highest incidence and prevalence rates in the region.

The Tuberculosis (TB) Control in Cambodia Programme is a cross-disciplinary, five-year research programme developed in collaboration with partners in Cambodia, and aims to develop a strong infectious disease capability, and establish strategic regional and global partnerships in public health. Together with the London School of Hygiene & Tropical Medicine, the School is also collaborating on epidemiological, modelling, and genomic studies with regional partners such as the National TB Control Programme and the University of Health Sciences in Phnom Penh, Cambodia.

A project office has already been established at the University of Health Sciences and jointly staffed by researchers both from the School and from Cambodia. Initial research studies – including a literature review, multi-site qualitative study on access to health services and quantitative analysis of active case finding – have been successfully conducted.

**Assistant Professor Mishal Khan**

Dr. Khan brings her experience in teaching and curriculum development on the TB epidemic and research on novel methods of TB diagnostics and management.

**Assistant Professor John Tayu Lee**

Dr. Lee has experience and expertise in national health care financing and cost-effectiveness of chronic disease prevention.
Progamme Leader: Associate Professor Mikhail Hartman

The Breast Cancer Prevention Programme (BCPP) is dedicated to research in the prevention of breast cancer through etiology and genetic understanding of the disease, by optimising screening, management, survival, long term quality of life and functional status of Asian breast cancer patients.

The programme comprises of research projects in etiology and secondary prevention. Etiologic research includes breast cancer etiology and genetic epidemiology, and exploration of biomarkers. Secondary prevention consists of disease presentation through initiatives such as BreastScreen Singapore, prostagnotic, precision medicine, quality of life and survivorship.

Our Breast Cancer Working Group is currently a member of the Breast Cancer Association Consortium, an international multidisciplinary consortium, a constituent of the Asia Breast Cancer Consortium and the initiator of the Singapore Malaysia Breast Cancer Working Group.

As of 31 March 2016, our Singapore Breast Cancer Cohort successfully recruited 6113 breast cancer patients, with 1000 bio specimen samples genotyped and 1500 sequenced as part of the Breast Cancer Association Consortium.

Programme Leader: Professor Teo Yik Ying

The School’s Public Health Genomics Programme comprises two sub-programmes in Pathogen Genomics and Regulatory Pharmacogenomics:

PATHOGEN GENOMICS

Pathogen Genomics utilises next-generation sequencing technologies to survey the genomic diversity of several infectious disease pathogens such as:

1. Dengue virus
2. Malaria P. falciparum parasite
3. Tuberculosis mTB
4. New Delhi metallo-beta-lactamase 1 bacteria
5. HIV virus

Pathogen Genomics aims to develop and apply statistical methodologies to measure intra-patient and inter-patient pathogen diversity, and contribute to national efforts in infectious disease control and surveillance. A flagship initiative under the sub-programme is the Southeast Asia Tuberculosis Network, which aims to establish a centralised and curated database with both whole-genome sequence data for clinical MTBC isolates from within Asia and their corresponding phenotypic data on drug susceptibility.

REGULATORY PHARMACOGENOMICS

Regulatory Pharmacogenomics targets the evaluation of public health implications to population-level differences at genetic variants that are functionally associated with adverse reactions and differential drug dosaging. We work closely with the Singapore drug regulatory agency, the Health Sciences Authority, under the Ministry of Health in areas of pharmacogenetics, pharmacovigilance and cost-benefit assessments of genetic screening.

Programme Leader: Associate Professor Hsu Li Yang

The Antimicrobial Resistance (AMR) Programme is still in its infancy, having had its concept and request for funding approved only in June 2016. This programme will focus on the public health aspects of AMR, leveraging on the School’s existing strengths in bioinformatics, health systems research, modelling, epidemiology, health economics, and public health networks, while playing a coordinating and participatory role in other aspects of AMR research and control in Singapore and the region.

The programme currently comprises a portfolio of pilot and exploratory research projects that will collect data for subsequent larger-scale research projects and interventions, including systematic reviews on the existing policies and programmes as well as global health architecture that address AMR, studies on the effectiveness of primary care interventions in reducing AMR, and simulation to detect clusters of hospital-acquired infections, the establishment of an integrated high-performance computing pathogen data management and bioinformatics analysis platform, and educational opportunities with public and policymakers in collaboration with LIGHT.

**Strategic Initiatives**

**CENTRE FOR INFECTIOUS DISEASE EPIDEMIOLOGY AND RESEARCH (CIDER)**

Director: Professor Teo Yik Ying

The Centre for Infectious Disease Epidemiology and Research (CIDER) was established in 2011 with the National University of Singapore (NUS) and the Ministry of Defence (MINDEF). CIDER aims to become the regional centre for infectious diseases surveillance and epidemiological research. The Centre integrates and develops epidemiological and technological capabilities for infectious disease surveillance for air-borne, food-borne, and vector-borne transmission - such as GeoVAST, which is the fruit of our collaboration with NUS School of Computing (SoC). CIDER performs research to develop evidence-based guidelines and processes to detect and control infectious disease outbreaks. CIDER also provides an educational platform for graduate and professional degree programmes and conferences so as to inspire and groom the next generations of leaders in public health and epidemiology locally and regionally.

**CENTRE FOR HEALTH SERVICES AND POLICY RESEARCH (CHSPR)**

Director: Associate Professor Joanne Yoong

The Centre for Health Services and Policy Research (CHSPR) develops and leads health policy modelling and simulation for Singapore, establishing the School as a regional leader in the areas of health technology assessment and behavioural economics. CHSPR also supports research focusing on cost-effectiveness evaluations of interventions and models of care in healthcare organisations in Singapore. The Centre also has plans to pursue regional research, expanding to low income countries such as Myanmar, China, Cambodia and Thailand.

**CENTRE FOR ENVIRONMENTAL AND OCCUPATIONAL HEALTH RESEARCH (CEOHR)**

Directors: Professor Ong Choon Nam
Associate Professor Chia Sin Eng

CEOHR conducts research in areas concerning chemical safety, environmental and occupational health through close collaborations including the NUS Environmental Research Institute (NERI), Duke-NUS Graduate Medical School, Singapore–MIT Alliance and Research Technology (SMART), China Center for Disease Control, Osaka University in Japan, Shanghai Jiaotong University, Fudan University and Wuhan University in China.

The Centre’s current research focus include the detection and control of environmental and occupational diseases, carcinogenesis and chemoprevention, metabolomics, oxidative stress and antioxidants, and the identification of biomarkers for the School’s Environmental and Occupational Health Studies.

This past year, we continued to collaborate with petrochemical industries and various research institutions, with 8 manuscripts published related to biomarkers and environmental exposure, while 3 manuscripts are currently under review.
excellence in public health
Professor Ong Choon Nam received the Public Administration Medal (Bronze) at the National Day Awards 2016 in recognition of his outstanding efficiency, competence and industry as a public officer, while Mdm Alice Chew received the Long Service Medal, awarded to individuals of irreproachable character who have completed at least 25 years of public service.

Assistant Professor John Tayu Lee was awarded the Alan Williams Fellowship from the Centre for Health Economics (CHE) at the University of York. Dr Lee will be visiting CHE as part of the Fellowship to produce a collaborative research publication on “Trends in Health System Performance and Universal Health Coverage among Six Low and Middle Income Countries”.

Ms Yang Chunxuan, Ms Moira Soh and Ms Poon Shi Xuan were awarded the NUHS Values-In-Action (VIA) Award for demonstrating the NUHS TRICE values of Teamwork, Respect, Integrity, Compassion and Excellence.

Ms Yang Chunxuan and Ms Moira Soh received the Service Achiever Award while Mr Eugene Chen Jinchang, Mr Chan Yong Siam and Mr Lim Poh Choo received the Service Advocate Award at the NUS Quality Service Award (QSA) 2016 in recognition of their outstanding and exemplary performance in delivering consistent and high quality administrative services.

The SSHSPH Long Service Awards were presented during the School’s Lunar New Year celebrations on 19 February 2016 to recognise staff who have served the School with dedication:

- 5 years of service: Mdm Ang Beng Choo, Assistant Professor Mark Chen I-Cheng, Ms Chen Po Jan, Assistant Professor Choi Hyungwon, Mdm Chong Guan Hong, Ms Crystal Chua, Associate Professor Rob van Dam, Mr Clement Kan, Dr Judy Sing Gek Khim, Assistant Professor Ravita Venkataraman and Ms Yeap Liew Moon
- 10 years of service: Mr Edmund Chan, Mr Mok Fook Chan, Associate Professor Luo Nan and Mr Tan Yih Chong
- 20 years of service: Ms Ng Ah Ching Vivian
- 25 years of service: Associate Professor Wong Mee Lian
- 30 years of service: Mdm Low Siew Hong
- 40 years of service: Mdm Lim Poh Choo and Ms Roma Soh

Congratulations to Associate Professor Gerald Koh on receiving the Outstanding Educator Award 2016 at the University Awards on 29 April 2016! The Outstanding Educator Award is the highest University-level award for teaching excellence recognising faculty who have excelled in engaging and inspiring students in their knowledge discovery.

As Academic Advisor to students involved in the Neighbourhood Health Service project, and having pioneered a university-wide module to equip students with knowledge on health, social services and policies for the elderly, A/Prof Koh is well-known for his passion in issues facing the elderly and the less fortunate. He is also Director for Undergraduate Medical Education and leads the School’s Continuing Professional Education programme to support the national strategy for lifelong learning.

"Teaching is not only a privilege and an honour but also a great responsibility. The success of a teacher pivots on the success of his students and this in turn moulds the future of nations," says A/Prof Koh.

Read more on A/Prof Koh’s achievements at the University Awards Honour Roll.
Dr Margaret Chan, (MSc Public Health and Occupational Medicine Class of 1985) Director-General of the World Health Organization (WHO) and one of the world's leading figures in public health, was featured as one of CNN's 19 Most Important Women in the History of Science. She joins other preeminent women such as Dame Jane Goodall and Marie Curie who have made significant and groundbreaking contributions in the field of science.

Dr Thu Hlaing Min Kyaw (MPH Class of 2013) was awarded the Hubert H. Humphrey Fellowship to further his studies in public health policy and management at the Rollins School of Public Health at Emory University. Dr Thu will spend a year of study, leadership development and professional collaboration with partners in the United States.