

SPHERiC NEWSLETTER

Singapore Population Health Improvement Centre

August 2019

SPHERiC Fellowship Programme

CONGRATULATIONS

Launched in April 2019, the SPHERiC Fellowship Programme aims to support the development of research talent in career and thought leadership in population health. It is designed to provide funding opportunities and guidance for early career researchers and post-graduate students who require support for publication and/or conference travel as well as broaden their network in population health research. The outcome was announced in July 2019 and SPHERiC would like to congratulate our 4 successful fellows.



DR ANDRE MATTHIAS MULLER *Research Fellow, NUS-SSHSPH*

Andre is a lecturer in Public Health, at the National University of Singapore. He investigates physical activity and sedentary behaviour in Asian populations and aims to develop technology-based interventions. Andre also teaches healthy lifestyles-related courses focusing on physical activity. So far, Andre published 19 scientific papers, 2 book chapters and contributed to several successful grant applications. Andre currently co-chairs the e- & mHealth Special Interest Group affiliated to the International Society of Behavioural Nutrition and Physical Activity, and guest lectures at the University of Malaya, Malaysia. He aims to improve behavioural health in South-East Asia through teaching and research.

TAN KAY JIN, RAYNER *PhD Candidate, NUS-SSHSPH*

Rayner Kay Jin Tan is a Ph.D. candidate of Public Health at the Saw Swee Hock School of Public Health, National University of Singapore. Rayner has a background in Sociology and has trained in qualitative research and social epidemiological methods. He is a recipient of the Courage Fund PhD (Infectious Disease) scholarship and is currently the pro-tem treasurer of the Society of Behavioural Health, Singapore. His research interests revolve about the social determinants of health, stigma, HIV/AIDS, sexually transmitted infections and substance use. As a SPHERiC fellow, he hopes to utilize this platform to further improve the sexual and mental health of vulnerable and at-risk populations in Singapore.



DR SIA CHING HUI *Senior Resident, NUHC*

Dr Sia is a third year Cardiology Senior Resident at the National University Heart Centre Singapore, and with a concurrent appointment as a Lecturer at the Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore on the Junior Academic Faculty Scheme. His research interests include cardiovascular disease, with a focus on epidemiology, ischaemic heart disease, valvular heart disease, cardiomyopathies and stroke-heart interactions. He will be embarking on a Master of Clinical Investigation. He aspires to be a good cardiologist to help patients help patients achieve better outcomes.



BETSY SEAH *PhD Student, NUS Alice Lee Centre for Nursing Studies*

Betsy is a final year PhD student at the Alice Lee Centre for Nursing Studies. Her career goal is to develop a comprehensive understanding of health-oriented approaches to foster healthy meaningful lives, particularly among older adults. This extends beyond existing health promotion efforts on disease prevention through risk factors, promoting holistic well-being of individuals. Salutogenesis is an orientation to human health that examines health-promoting factors in face of adverse conditions. In her PhD work, she explored key concepts of this stress-resource coping theory on sense of coherence and resources, identifying health-promoting strategies and aging assets among well but vulnerable older community-dwellers.



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Population Health Analytics Core

TO FACILITATE COLLECTION AND ANALYTICS OF DATA ON HEALTH, SOCIAL AND BEHAVIOUR THROUGH DEVELOPING CAPABILITIES TO POLL A READY PANEL TO OBTAIN REPRESENTATIVE DATA, AND PERFORM AND VISUALISE POPULATION LEVEL ANALYTICS LAYERED WITH DETERMINANTS OF HEALTH.

Size estimation of the key populations for HIV in Singapore

Although the prevalence of HIV/AIDS in Singapore is very low, the epidemic is said to be concentrated within certain subpopulations, specifically among heterosexual men and men who have sex with men. Other populations identified as being at high risk for HIV in Singapore are female sex workers and intravenous drug users. A key step towards better HIV surveillance requires knowing the sizes of these most-at-risk populations but at present, few robust size estimates exist.

In this project, we collaborated with the Health Promotion Board to estimate the size of these high-risk populations. We developed a Bayesian model using the network scale-up approach, an avant-garde method ideal for estimating the size of hidden or hard-to-reach populations. From our model, we estimated that there are 56 000 (95% CI: 43 000-70 000) male clients of female sex workers, 140 000 (95% CI: 100 000-190 000) men who have sex with men, 8 400 (95% CI: 3 700-16 000) female sex workers and 11 000 (95% CI: 6 600-16 000) intravenous drug users. These numbers were based on the responses of 200 survey participants recruited from the Singapore Population Health Studies.

Given that our estimates have very wide confidence intervals, we have recruited a larger number of participants and are working to generate more precise estimates. In this larger study, we also assessed HIV knowledge and the level of stigma towards key populations for HIV and people living with HIV among the general Singapore population.



Our initial estimates were attached to very wide confidence intervals. As such, we have recruited over 3000 respondents for a larger and more representative study sample and are currently working to provide more precise estimates.

Associate Professor Alex Cook - SSHSPH, National University of Singapore



Transmission Modes of HIV

HIV CAN BE TRANSMITTED THROUGH

- sharing syringes/needles with others when injecting drugs
- getting tattoos and piercings
- sexual intercourse (anal or vaginal) and oral sex
- having unprotected sex and with more than one partner

HIV CANNOT BE TRANSMITTED THROUGH

- shaking hands with an infected person
- being in a swimming pool with an infected person
- coughing or sneezing
- sharing food/drinks with an infected person
- mosquito bites
- sharing toilets with an infected person
- deep kissing an infected partner

BUSTING MYTHS ABOUT HIV TRANSMISSION

- A woman **CAN** get HIV if she has sex regardless of whether she is on her period or not
- Showering/washing one's genitals after sex **DOES NOT** prevent a person from getting HIV
- Pulling out the penis before a man ejaculates **DOES NOT** prevent a woman from getting HIV during sex
- A woman who has HIV **CAN** pass it on her newborn child through breastfeeding

One of the HIV education infographics we designed and published regarding HIV transmission routes. We assessed HIV knowledge among the general population in the scale-up study. The infographic was published on our Facebook research page.



Health Systems And Models Of Care Core

ENABLES BETTER UNDERSTANDING OF CURRENT CARE MODELS AND THEIR GAPS, HOW HEALTH SYSTEMS AFFECT ACCESS, DELIVERY AND EFFECTIVENESS OF CARE AND ITS IMPACT ON HEALTH, AS WELL AS FACILITATES THE TRANSLATION OF THIS UNDERSTANDING TO DESIGNING, IMPLEMENTING AND EVALUATING INNOVATIVE CARE MODELS, WITH A FOCUS ON CARE INTEGRATION AND COMMUNITY CARE.

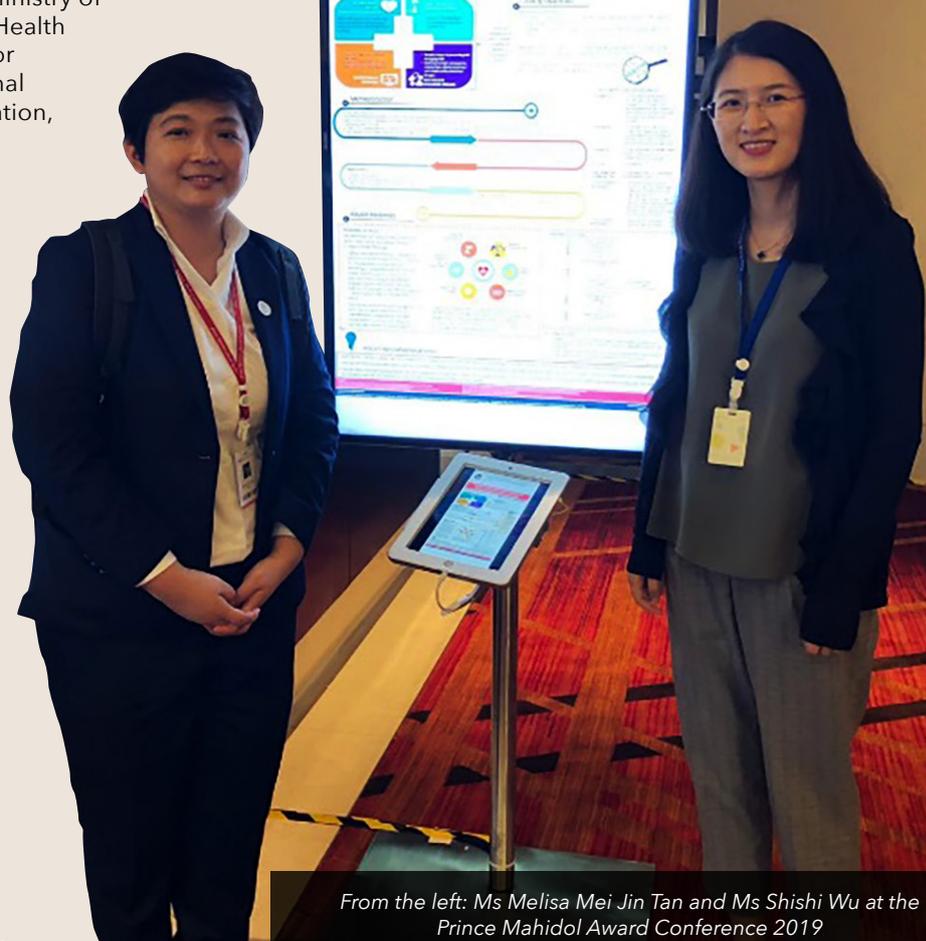
Prince Mahidol Award Conference 2019

Saw Swee Hock School of Public Health, NUS PhD students Ms Shishi Wu and Ms Melisa Mei Jin Tan attended the Prince Mahidol Award Conference (PMAC) 2019 in Bangkok, Thailand, from 29 January to 3 February 2019. The conference, themed “The Political Economy of NCDs: A Whole of Society Approach” was co-hosted by the Prince Mahidol Award Foundation, the Thai Ministry of Public Health, Mahidol University, the World Health Organization, The World Bank, U.S. Agency for International Development, Japan International Cooperation Agency, The Rockefeller Foundation, with support from other key related partners.

Our team presented a poster titled “Conceptualizing governance of non-communicable diseases”. The poster covered findings from a systematic review of existing literature on policy discourses and the governance of non-communicable diseases (NCDs). The study developed a framing for NCDs organized in six frames (“Origins and Development of NCDs”, “Causes and Consequences”, “Health Security”, “Health Systems Sustainability”, “NCDs in One Health”, and “Individual Choices or Collective Responsibility”). Each frame is siloed, yet these frames are interdependent in shaping the governance of NCDs. This study further emphasised the need for increasing political commitment and strengthening multisectoral coordination and collaboration among the key actors at the global and national levels.

The conference brought together speakers and audience including policymakers, senior officers, and staff from institutions such as national agencies, civil society, international organisations, universities, and industries. The main take-home message was a call for a global commitment on NCDs

to address root causes such as commercial and social determinants of NCDs. Further, governance and leadership are vital for an effective and efficient multisectoral coordination mechanism to ensure a whole-of-government and whole-of-society approach.



From the left: Ms Melisa Mei Jin Tan and Ms Shishi Wu at the Prince Mahidol Award Conference 2019



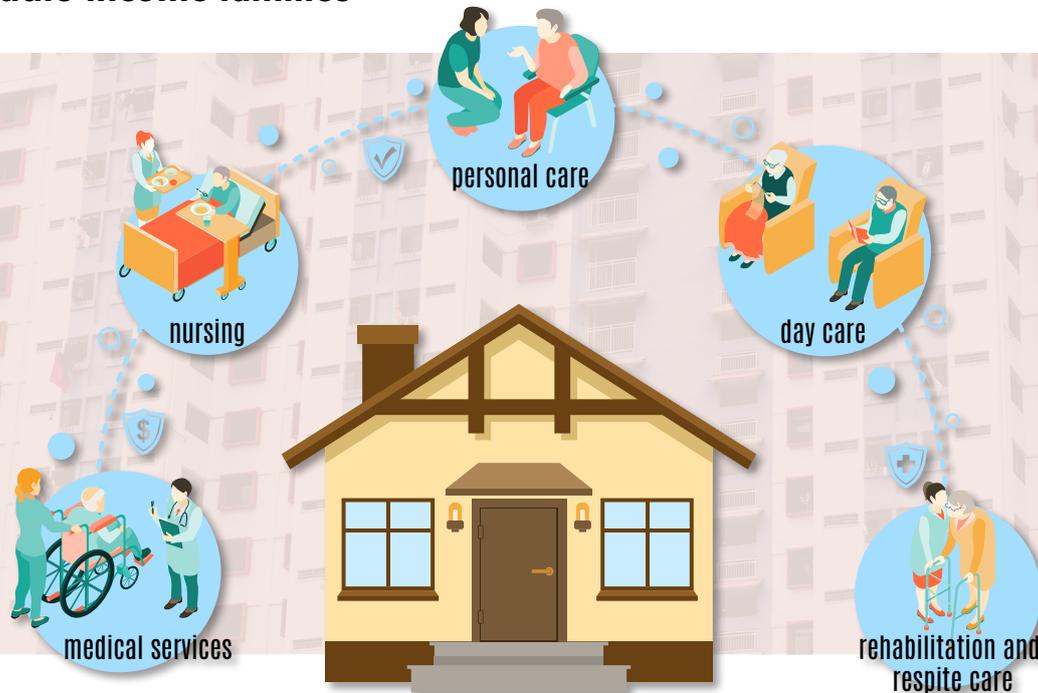
Our team is incredibly grateful to SPHERiC's, Health Systems and Models of Care Core (HSMCC) for supporting our team's work on NCDs and the opportunity to share our work with PMAC audience. Our conference experience at PMAC 2019 was inspiring and memorable, particularly the chance to learn from experts in the field of NCDs. PMAC 2019 has been a platform that fostered our knowledge sharing and dialogues among a wide-ranging audience from different sectors. Our team hopes to utilize our conference learning and contribute to future NCDs projects under SPHERiC.



Implementation Science Core

PROVIDES A MULTI-DISCIPLINARY APPROACH TO TEST NEW APPROACHES TO IMPROVE HEALTH PROGRAMMING; INVESTIGATES AND ADDRESSES MAJOR BARRIERS THAT IMPEDE EFFECTIVE IMPLEMENTATION. EVALUATIONS WILL ALSO EMPHASISE A MIXED METHODS PERSPECTIVE, INTEGRATING QUALITATIVE RESEARCH, ECONOMIC EVALUATION AND DECISION ANALYSIS, TO PROVIDE INSIGHT AND DEPTH OF UNDERSTANDING.

Explaining the low take-up rate of Intermediate and Long-Term Care (ILTC) services among middle-income families



The Agency for Integrated Care (AIC) has observed that while the take-up of Intermediate and Long-Term Care (ILTC) services which include home medical services, home nursing, home personal care, day care, rehabilitation and respite care, has been rising, middle-income households have not been using them as much as lower-income ones. This raises the concern that middle-income households may have unmet social needs as they do not qualify for subsidised services.

To better understand how middle-income families decide to take up ILTC services, the Centre for Health Services and Policy Research (CHSPR) conducted an in-depth qualitative study for the AIC, in collaboration with SPHERiC, with key informants such as patients, caregivers and other health system stakeholders.

While middle-income families are generally wealthier, they are also more concerned with the value-for-money for the services they pay for. Hence, services that are regarded as affordable by them may not be taken up if they do not perceive them to be “value-added”. Some value-added services include

personalisation of home care services that are tailored to suit the patients’ needs and lifestyles as well as professional care services that they need but could not be provided by themselves.

Many middle-class families are also concerned about the long-term sustainability of taking up ILTC services rather than short-term affordability. These families would consider both the burden of financing a service over time as well as the ability to adapt the take-up of care into their regular lifestyle.

Middle-income families are also affected by the relative availability and acceptability of substitutes for formal home and day care services such as family caregiving and hiring of Foreign Domestic Workers (FDWs).

The study found that choice is both an asset and a liability for middle-income families. Most middle-income families are financially in a position to be selective about the types and quality of care they receive. However, they look for “value-for-money”. They are able to look beyond the fulfilment of basic medical needs to other aspects of care quality such as social engagement. Most are able to supplement or replace traditional family caregivers with FDWs in addition to taking up home or centre-based services.

However, some middle-income households are cost-constrained despite being nominally better off than others. These households may have higher needs or may be penalised by the subsidy rules. Others face challenging family situations or medical conditions such as dementia for which existing services are simply not adequate, regardless of cost.



Dementia Day Care for my mom at \$90 a week with no transportation was expensive and not value-for-money. There was only 10 minutes actual contact time the therapist had with my mom...very little professional contact time...

A middle-income caregiver who withdrew his mother from Dementia Day Care



Enhancing Capabilities In Population Health

SPHERiC Seed Funding Programme

The second SPHERiC Seed Funding Programme grant results were announced in April & May 2019 with a total of 6 proposals awarded, each exploring the different themes and challenges of population health in Singapore. SPHERiC would like to congratulate all our awardees.

Validation of 3-Minute Nutrition Screening (3-MinNS) tool in community dwelling individuals living in Singapore as well as development of novel approaches to improve the nutritional status of community dwelling individuals at nutrition risk and evaluation of its effectiveness.

DR TAN KIM FONG, NUH

The Perspectives of Patients with Diabetes toward Care and Support Planning (CSP) consultations in PACE-D: A Qualitative Study

DR VICTOR LOH, NUHS

Global Awareness of Mental health (GLAM): Understanding the actors, roles and challenges in Global Health Governance of Mental Health in Asia.

DR FARAH SHIRAZ, NUS

Estimating the spread and planning for the potential emergence of Yellow Fever in Singapore

DR BORAME SUE LEE DICKENS, NUS

Development of Automatic Speech and Swallowing Evaluations Algorithms in Singapore

DR EMILY GUO, NUH

Nurses as coaches for diabetic patients to engage with their general practitioners using digital health interventions to improve glycaemic control.

DR GOH LAY HOON, NUS

Advancing Women in Science, Medicine, and Global Health

THE LANCET: CHANGES IN GENDER AND ETHNIC DIVERSITY AT TOP U.S. AND U.K. UNIVERSITIES FAIL TO MATCH PROMISES

Published in February 2019, The Lancet dedicated a special issue to highlight and tackle the disadvantages faced by women working in science, medicine and global health institutions. Professor Helena Legido-Quigley together with nine other authors from different ethnic backgrounds working in universities in Singapore, Spain, Thailand, Canada and the UK, contributed to the issue by publishing a mixed method analysis of gender and ethnicity-related differences in career progression at 15 leading public health universities in the U.S. and U.K. The publication and its findings were also commissioned by the World Economic Forum and featured in The Times, UK.

Several key findings of the publication include clear gender and ethnic disparities at the most senior academic positions. In all universities, representation of women declined between the middle to more senior academic positions despite women outnumbering men at the junior position. Ethnic-minority women are further disadvantage as they are lower in proportion at the junior level cohort and declines in progression to senior positions. On how institutions should move forward in improving diversity, based on the data collected on strategies and action plans, universities should focus more on the recruitment, retention and development of a diverse faculty and less on raising awareness of the policies in place to address gender and equality issues.



Richard Horton Editor in Chief, The Lancet



From left to right: Montserrat Gea-Sanchez, Mishal Khan, Jocalyn Clark, Helena Legido-Quigley and Liz Zuccala



Empowering women within our universities will not be easy. It will require addressing pervasive, systemic issues such as implicit bias, deep-rooted attitudes and unfair social and cultural norms. To achieve gender equality in our universities by 2030, we, academics have to ensure that everyone is involved and that both women and men have a role to play in making universities more diverse, equitable and inclusive institutions.

Associate Professor Helena Legido-Quigley- SSHSPH, National University of Singapore



Primary Technology-Enhanced Care in Hypertension (PTEC)

EVALUATION OF CLINICAL PATHWAYS FOR PATIENTS WITH HYPERTENSION ON FOLLOW-UP IN THE POLYCLINICS

The MOH Office for Healthcare Transformation (MOHT) and the National Healthcare Group Polyclinics (NHGP) are collaborating on a series of Primary Tech-Enhanced Care (PTEC) initiatives that provide care support and simple-to-use technologies that enable patients with chronic diseases to self-manage their condition and improve their health. A hypertension management tele-health pilot study was started at Ang Mo Kio Polyclinic which involved the use of a blue-tooth enabled home blood pressure monitor which transmits weekly readings to a polyclinic care team and if a patient's blood pressure is elevated, the care team can titrate medication over the phone and provide follow up tele-consultation and necessary treatment. Amongst a sample of 240 hypertensive patients in primary care, half of the patients received the blood pressure monitor for home monitoring, while the other half received usual care at the polyclinic. The aim of PTEC hypertension was to enhance primary care management of hypertension by improving patient outcomes and reducing health costs.

The interim evaluation analysis of the tele-health pilot which was partly supported by SPHERiC showed that while the 38 patients who had their usual care did not see any change in their blood pressure (BP) readings, the 54 patients who were in PTEC care had improved their mean BP readings. Significantly, PTEC patients with poorly controlled hypertension at the start of the pilot saw the highest benefit; systolic BP measurements improved by at least 10mmHg in 42% of these patients at the end of six months while diastolic BP improved by a similar degree in 32% of these patients. 87% of the patients in the pilot found it was convenient for them to use the monitoring device at home and saved them time from visiting the polyclinic. 88% of them were satisfied with the quality of tele-consultation. This gave them confidence to better manage their chronic conditions.

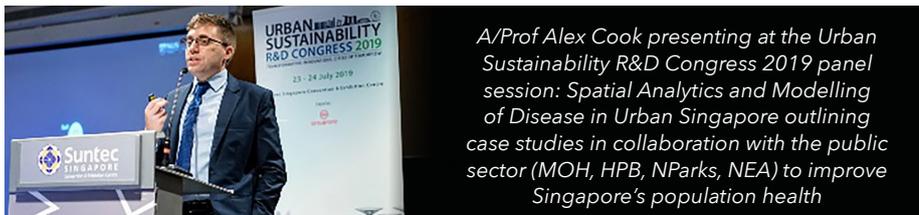
This is a stepping stone for collaborations in the future between MOHT and SPHERiC in delivering consistent cost effective, high quality care with PTEC initiatives extending to polyclinics across all 3 healthcare clusters.

Sharing Knowledge

SPHERiC RESEARCH CORE PRINCIPAL INVESTIGATORS SHARED THEIR KNOWLEDGE AND EXPERTISE WITH THE RESEARCH COMMUNITY AND THE PUBLIC THROUGH VARIOUS PLATFORMS.



Dr Sue-Anne Toh sharing at the 2nd Singapore Population Health Conversation and Workshop annual event jointly organised by SingHealth, National Healthcare Group and National University Health System, graced by Guest-of-Honour, Mr Chan Heng Kee, Permanent Secretary for Health. More than 700 participants came together at the event themed "Life Stages in Population Health" to learn and share on population health improvements



A/Prof Alex Cook presenting at the Urban Sustainability R&D Congress 2019 panel session: Spatial Analytics and Modelling of Disease in Urban Singapore outlining case studies in collaboration with the public sector (MOH, HPB, NParks, NEA) to improve Singapore's population health

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BP home monitoring device (on the left) which the patients use to monitor their blood pressure, with their readings automatically shared with their care team via the clinician dashboard (on the right)



From left to right: Ms Ng Ling Ling, Director (Community Engagement) & Head (Future Primary Care) of MOHT, Prof Gerald Koh, Clinical Director of MOHT, SPHERiC ISC Core-PI, Professor Tan Chorh Chuan, Executive Director of MOHT, Associate Professor Chong Phui-Nah, Chief Executive Officer of NHGP and Primary Care and Dr Valerie Teo, Family Physician Consultant & Deputy Head of AMKP, NHGP at the media conference on MOHT NHGP PTEC Pilot.

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