

SPHERiC NEWSLETTER

Singapore Population Health Improvement Centre

August 2018

Moving Forward

DEAR COLLEAGUES

In this second issue, we invite you to take a look at SPHERiC's latest projects and findings.

A year into the journey, the SPHERiC Steering Committee members came together on 8 August 2018 to review the Centre's performance, and provide valuable strategic guidance to drive the Centre's growth and development.



From left (clockwise): Prof Lee Hin Peng (Chairperson), A/Prof Yeoh Khay Guan, A/Prof Vernon Lee, Prof Kara Hanson, Prof Doris Young

In its first year, SPHERiC made good progress and contributed towards developing capabilities in population health research. This is evident through multi-disciplinary research, national and international collaborations, training, and the launch of its first Seed Funding Programme aimed at supporting tenets of the Centre's research themes.

Moving forward, the Centre will increase its focus towards developing resilient health systems for prosperity and solidarity. The Centre also seeks to leverage its strengths in advancing population health through supporting rapid and pragmatic studies in three strategic focus areas, namely Ageing and Frailty, Primary Care, and Technology. Subsequent seed funding opportunities will target budding researchers, to provide support and to generate preliminary data in the mentioned strategic focus areas.

Finally, to train leaders in population health, several population health-related courses and workshops as well as mentorship will be offered through the Centre.

We look forward to delivering greater value to the population and establishing a larger, more effective presence within Singapore's population health sector in the year ahead.

The following pages offer a glimpse of the work done to forward this agenda.

IN THIS ISSUE

1. Moving Forward

2. Population Health Analytics Core

- GEOPISSH Project

3. Health Systems and Models of Care Core

- Assessing the Influence of Health Systems on Type 2 Diabetes Mellitus Awareness, Treatment, Adherence, and Control: A Systematic Review

4. Implementation Science Core

- Self-Care for Older Persons (SCOPE) Project
- International Conference on Integrated Care (ICIC) 2018: Reduction in Specialist Outpatient Clinic Visits with an Integrated Care Programme for Frequent Admitters in Singapore

5. Enhancing Capabilities in Population Health

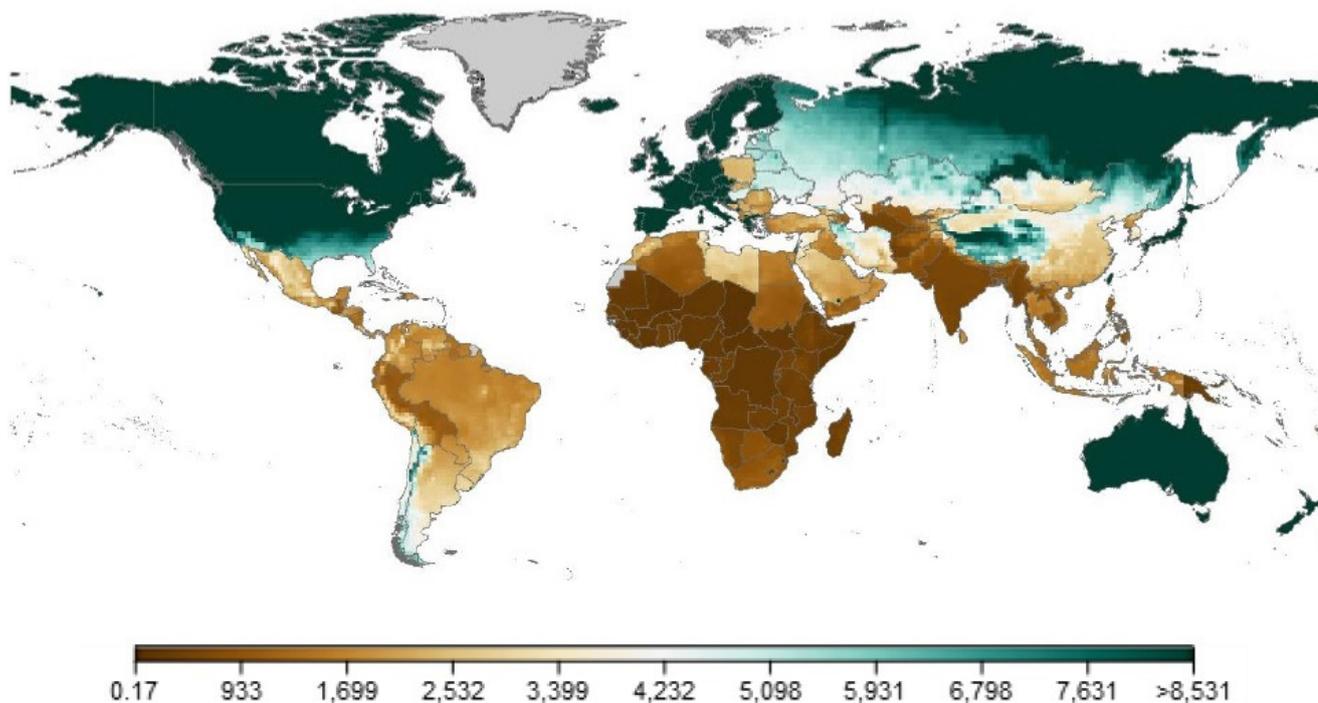
- Seed Funding Programme
- Learning from International Experts
- Nursing Now Campaign
- Sharing Knowledge

6. Contact Us

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.

Global mapping of cost-effectiveness of interventions for lower respiratory tract infections



Estimated Cost per DALY for treatment

Lower respiratory illnesses (LRIs) are a leading cause of illness and death in men and women of all ages with more than 2.74 million deaths worldwide per year, making it the fifth leading cause of death, and the leading cause of death in children younger than five years old. Global efforts have reduced this burden with treatment and preventive strategies, but many cost-effective areas which should be targeted are neglected.

Three key issues in estimating cost-effectiveness include (i) the lack of interventions in countries with high burdens (ii) the lack of studies in countries utilising interventions and (iii) the lack of transfer of knowledge from the latter to the former.

On a global scale, cost-effectiveness analysis can be a critical tool in identifying neglected opportunities to reduce disease burdens, as well as health funding gaps. Our study collected cost-effectiveness estimations from literature and identified cost per disability-adjusted life year (DALY) estimations for practised interventions.

We found atmospheric nitrogen oxide concentration, particulate matter and estimated burdens from the Global Disease Burden study to be good predictors of the cost per DALY for the estimates collected.

When we estimated the cost per DALY at a five-kilometer global scale, we found that Moscow, Seoul, Beijing and Mexico were most costly for treatment, at a range of USD 17,000-130,000. We identified a belt from Central to South and Southeast Asia as a key area of good cost-effectiveness with emerging concerns for high income countries such as Singapore. Future work will extend the analysis to other diseases and may be useful for prioritising global health funding.



This is part of a bigger project to use geographic data to understand the cost-effectiveness of interventions for a variety of lung diseases

Associate Professor Alex Cook - SSHSPH, National University Singapore



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.

Assessing the Influence of Health Systems on Type 2 Diabetes Mellitus Awareness, Treatment, Adherence, and Control: A Systematic Review

Type 2 Diabetes Mellitus (T2DM) is currently reported to affect 1 in 11 adults worldwide, with over 80% of T2DM patients residing in low to middle income countries. Health systems play an integral role in responding to this increasing global prevalence, and are key to ensuring effective diabetes management. Despite this, there was no review that synthesised the evidence appraising the impact of health systems on T2DM management and outcomes.

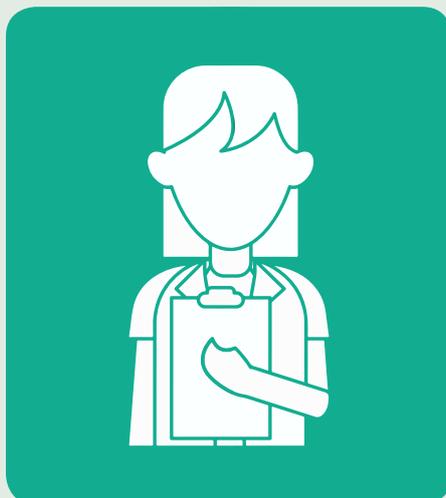
Published on Public Library of Science (PLOS One) journal on 29 March 2018, a systematic review examined the health system-level factors that influence T2DM awareness, treatment, adherence, and control.

We found that financial constraints faced by the patient and limited access to health services and medication were important health system barriers to effective T2DM care and management. Financial constraints were either self-reported or implied by the presence of co-payments for medication, while access limitations were primarily reported in qualitative studies.

The review also found three health system factors that facilitated effective T2DM care and management:



Use of innovative care models



Increased pharmacist involvement in care delivery



Education programmes led by healthcare professionals



This systematic review's findings raise several important questions as we work towards a better understanding of how health systems influence T2DM outcomes. To what extent and how can we reduce financial barriers associated with T2DM care? What is the right mix of integrated care components needed to deliver the best and most impactful care for T2DM patients? How can we better support and enable the increased involvement of other healthcare professionals like pharmacists in care delivery for T2DM?

Suan Ee Ong - SSHSPH, National University Singapore



This review's findings point to the potential impact of reducing, or possibly eliminating, out-of-pocket costs for T2DM medication and self-monitoring supplies on outcomes. It also highlights the promise of adopting more innovative and integrated models of care, and the value of task-sharing of care with pharmacists. However, as most evidence from this review arose from studies conducted in North America, it is integral that more research be conducted in diverse settings, in particular Asia and Africa, to inform contextually-relevant programmatic and policy decision-making on T2DM.

For more information: <https://doi.org/10.1371/journal.pone.0195086>



Implementation Science Core

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

Self-Care for Older Persons (SCOPE) Project

Singapore has one of the fastest ageing populations in the world. Social and behavioural norms are also changing, including changes to the family structure and social support for the elderly. In response to these changes, the Tsao Foundation developed the Self-Care for Older Persons (SCOPE) programme to address issues of chronic disease awareness and self-management amongst older adults in Singapore.

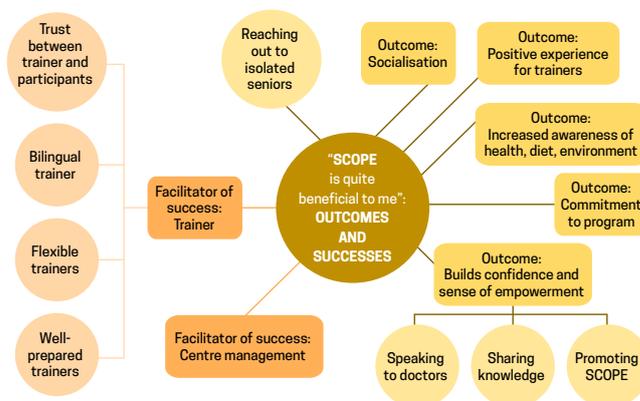
The Centre for Health Services and Policy Research (CHSPR), in collaboration with the Tsao Foundation and SPHERiC, undertook a review of the SCOPE programme. The mixed-methods review included quantitative surveys, as well as focus group discussions, key informant interviews, and observations of SCOPE sessions in the community.

Although there are areas that can be enhanced and improved, the SCOPE programme was deemed to be a success from both the perspective of the participants and the volunteer 'trainers' who led the sessions in the community. Community partners (Senior Activity Centre, Community Centre and Residents' Committee managers) were also pleased with the programme.

A key outcome for the participants was building self-confidence and a greater sense of empowerment.

“ In the past, we dare not ask the doctor questions such as 'Why the need to take this medication?', 'What is my problem?' and 'What are the effects if I take less medication?' Now, we feel more confident asking such questions and knowing our options.

past participant



Theme of 'Scope is quite beneficial to me': Outcomes and Successes

Another key outcome of the SCOPE programme was the improvement in socialisation among past participants:

“ SCOPE provides a platform for participants to interact with each other and builds a community where they can share their cares and concerns.

key informant

Overall, SCOPE is a successful, well-received programme, but it may not be achieving its full potential. It does have significant strengths, particularly in the areas of socialisation, self-confidence and communication. It is hoped that SCOPE can be further strengthened using the suggestions provided by CHSPR, scaled up and rolled out on a national level.

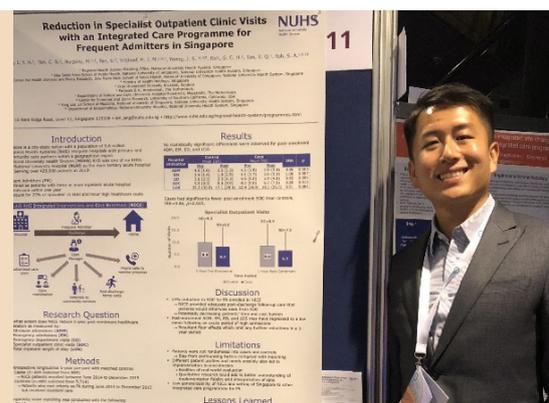
International Conference on Integrated Care (ICIC) 2018: Reduction in Specialist Outpatient Clinic Visits with an Integrated Care Programme for Frequent Admitters in Singapore

NUHS Senior Research Fellow Ian Ang attended the International Conference on Integrated Care 2018 in Utrecht, Netherlands, from 23 to 25 May 2018. The conference, themed "Value for People and Populations: Investing in Integrated Care", was co-hosted by Vilans and the National Institute of Public Health and the Environment (RIVM) of The Netherlands.

At the conference, Dr Ang presented a poster titled "Reflection in specialist outpatient visits, with an integrated care programme for frequent admitters in Singapore". The poster covered findings from the evaluation of the impact of NUHS-RHS Integrated Interventions and Care Extension (NICE) on hospital utilisation of frequent admitters. The

evaluation found that NICE significantly reduced the number of specialist outpatient clinic visits post-enrolment compared to the matched control group.

The conference featured many strong speakers that covered topics such as co-creation of "health" (involvement of patients in healthcare planning and policy development beyond just being patient-centred), and positive health (focusing on all aspects and capabilities in a patient's life, and not just diseases or disabilities and what is lacking). A recurring take-home message was a call for healthcare providers to rethink the concept and definition of health, and to recognise health as a dynamic instead of a static state - a person cannot be



Dr Ian Ang at the International Conference on Integrated Care

perfectly free of disease, especially with increased assessment and health awareness - thus it is important to equip patients with the tools and skills to manage their health dynamically.

Enhancing Capabilities In Population Health

SPHERiC Seed Funding Programme

The inaugural SPHERiC Seed Funding Programme grant results were announced in April 2018 with a total of 7 proposals awarded, each exploring the different themes and challenges of population health in Singapore. SPHERiC would like to congratulate all our awardees.



Healthy ageing and population mental health
- predicting mental health and hospitalisation cost of future elderly in Singapore
A/Prof Chen Huijun, Cynthia, NUS

A community-based holistic preventive healthcare model for children of low-income families in Singapore:
A pilot study
Dr Chong Shang Chee, NUH

Obesity in young adults and the digital food marketing environment
Dr Salome A. Rebello, NUS

The Singapore National Steps Challenge - where are we now and where do we go from here
Dr Tan Chuen Seng, NUS

Epidemiology of birth anthropometry among 3 major ethnic groups of Singapore infants over a 20-year period
A/Prof Lee Jiun, NUH

Predictors of syndemic risks among a young gay and bisexual male cohort:
A prospective cohort study
A/Prof Mark Chen I-Cheng, NUS

Transmission dynamics of carbapenemase-producing Enterobacteriaceae in Singapore long-term care facilities (CaPES-LT C): A feasibility study
Prof Dale Fisher, NUH

Learning from International Experts



Dr Pablo Perel (seated second from right) with the SPHERiC team

Dr Pablo Perel, Associate Professor and Director of Centre for Global Non Communicable Diseases at London School of Hygiene & Tropical Medicine, was in Singapore from 5 to 7 February 2018. During his visit, Dr Perel met with NUHS senior management from SPHERiC to share his knowledge and expertise in health system and chronic conditions.

As scientific advisor to SPHERiC, Dr Perel provided valuable inputs on SPHERiC's current research direction and future strategic focuses. In addition to the current research focuses in nutrition, physical activity, primary care, chronic disease management, and infectious diseases, Dr Perel also discussed the increasing importance of mental health in helping to address local population health challenges. Lastly, Dr Perel has welcomed future research collaboration with SPHERiC and the wider NUHS community.

Nursing Now Campaign: Community Nursing

Nursing Now is a campaign launched on 27 February 2018 with a vision to improve health globally by raising the profile and status of nurses worldwide. As part of building its global movement to support nurses to learn and lead, Nursing Now is currently following a number of case studies from different countries including Singapore, aligned with the campaign's aim, over the next three years by recording and sharing the progress and lessons learned.

SPHERiC and NUS will work on a study together to conduct a global systematic literature review and case study, with the aim of understanding the impact of nurses in managing community nursing services. These services provide care for those with chronic diseases outside the traditional hospital setting and within their homes and communities. The study will also learn from the experiences of other countries' community nursing efforts and their impact.



A/Prof Chong Yap Seng at the launch of Nursing Now campaign in London, launched by HRH the Duchess of Cambridge (bottom left) with nurses and health leaders across the world including Elizabeth Iro, WHO's Chief Nursing Officer (top left) and Lord Nigel Crisp (bottom right) Co-Chair of the Nursing Now

FOR MORE INFORMATION PLEASE VISIT:



<http://nuhs-portal/departments/nuhs-corporate-office/rhs-for-the-western-region/spheric.html>



FIND OUT MORE ON NURSING NOW WEBSITE:

<http://www.nursingnow.org/>

Sharing Knowledge

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



A/Prof Joanne Yoong and A/Prof Gerald Koh conducting a Programme Evaluation Workshop at Ng Teng Fong General Hospital for cross-cluster knowledge learning and sharing. Participants were introduced to the different types of evaluation and logic models, with hands-on group and coaching session using existing programmes.

SPHERiC Core Principal Investigators speaking at the Inaugural Singapore Population Health Conversation and Workshop jointly organised by SingHealth, National Healthcare Group and National University Health System. More than 650 participants came together to learn more and discuss population health challenges in Singapore, and ways in which the Regional Health Systems could cooperate to improve the health and well-being of Singaporeans.



A/Prof Alex Cook and NUS Research Fellow Dr Borame Sue Lee Dickens presenting at a workshop on Recent Developments and Impact Assessment of Sterile and Incompatible Insect Techniques for Mosquito Control co-organised by NEA's Environmental Health Institute (a WHO Collaborating Centre), IAEA and MOH, supported by ASEAN and MOH on 'Looking to the future: Cost-effectiveness of a nationwide Singapore Wolbachia project'



A/Prof Alex Cook conducting the R Language Workshop with participants from the research community, social and government agencies. The 1-day hands-on workshop covered the Basics of R, hypothesis testing, regression and reproducible research with R.

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06 | SPHERiC

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