

# 2017 Kyoto Global Conference for Rising Public Health Researchers

## “Interdisciplinary Approach and Collaboration for Health for All”

**December 6-7, 2017**

Yamauchi Hall, ShiranKaikan,  
Kyoto University



Top Global University Project / Japan Gateway Kyoto University Top Global Program  
No participation fee / English only  
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Kyoto University School of Public Health

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# Message from the Dean of Graduate School of Medicine Kyoto University

**Shinji Uemoto, MD, PhD**

**Dean, Graduate School of Medicine  
Professor, Department of Hepatobiliary  
Pancreatic Surgery and Transplantation  
Kyoto University**



Kyoto University Graduate School of Medicine takes pride in its ability to nurture a number of international prize winners, such as the Nobel Prize in Physiology or Medicine, and the Albert Lasker Award. We are constantly striving to encourage “theory to application” in advanced medical care and disease prevention, such as fundamental principle of life phenomena, biomedical mechanisms, and risk factors of diseases. While pushing forward to expand such world top-level research, Kyoto University Graduate School of Medicine also endeavors in developing human resource with high ethical standards and rich international mindset, not only with deep knowledge in a specific area but with a broad transdisciplinary scope covering basic biology, clinical medicine, and social medicine.

To further strengthen such social mission, the Graduate School of Medicine participates in the "Kyoto University Japan Gateway Initiative (JGP)" as the Human Bioscience Subunit since 2014, while actively promoting efforts to the development of international joint education and degree programs targeting world-class research institutions such as McGill University, Imperial College London, Pasteur Institute, Bordeaux University, and others. Through these efforts, by encouraging active exchanges with overseas researchers and students, and fostering a friendly but competitive environment with the world's top researchers, we aim to cultivate talent with international competitiveness, who can contribute to the development of innovative pharmaceuticals, medical equipment, and regenerative medicine products in Japan, and so aiming to further enhance the international reputation of the university.

The host of this conference, the Kyoto University School of Public Health, as the first and to date the largest School of Public Health in Japan since its founding in 2000, has been boasting remarkable achievements representing our country, such as up to

1900 peer-reviewed papers and the acquisition of 17 billion yen in competitive funds. Their efforts in making their education and degree programs international as well as interdisciplinary, with enthusiastic participation in university-wide cross-disciplinary education programs, i.e. the introduction of international double degree programs with multiple overseas universities, are highly appreciated by the university. Furthermore, to promote student and faculty mobility with overseas universities, Kyoto University School of Public Health is also actively engaging in joint research and education (super global course), organizing scientific short course series, and new degree programs in public health field since entering the JGP in 2015.

This international conference is part of such efforts, bringing together rising public health researchers from premium universities overseas. I must congratulate the School of Public Health for their success on the third KGC this year. The theme of this year is “Interdisciplinary Approach and Collaboration for Health for All” . Health problems are becoming more and more complex and require a holistic and systematic approach from diverse stakeholders and expertise. It is therefore important, as this conference allows us to gather here today, to share and exchange experience in our quest for the best interdisciplinary and collaborative approach to tackle health problems to promote health for all, while also learning from each other, encouraging knowledge transfers from developed and developing countries. The associated programs, such as poster session between students from Kyoto University and invited universities, as well as the exchanges between researchers and students, will also be a very important opportunity to foster future researchers with international competitiveness.

Finally, I am very much confident that this event will not only create a global network for public health researchers, but also develop a platform for long-term research cooperation and development of joint research projects.

# Message from the Dean of Kyoto University School of Public Health

**Takeo Nakayama, MD, PhD**

**Dean, Kyoto University School of Public Health  
Professor, Department of Health Informatics**



On behalf of Kyoto University School of Public Health, I would like to welcome you all to the “2017 Kyoto Global Conference for Rising Public Health Researchers (KGC)” . Every year, the KGC brings together elites in public/global health from leading academic institutions around the world, particularly underscoring the participation of early career researchers and students. As reflected by its name, this conference’ s main aim is to nurture and empower early career researchers and students by serving as a platform for the exchange and sharing of ideas, experience, and solutions to the increasingly challenging health problems of the 21th century. KGC is supported by the Japan Gateway Kyoto University Top Global Program (JGP) sponsored by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) Japan, which aims to enhance international competitiveness of Kyoto University by promoting international collaborative research projects and globalization of educational programs.

Today we are hosting our third KGC, focusing on “Interdisciplinary Approach and Collaboration for Health for All” , an important topic, globally challenging for both developed and developing countries in their own different context.

Current health and medical issues are becoming far more complex and difficult than ever. To tackle them, it is essential

that people from various disciplines come together, to synchronize, complement, and maximize each other’ s potential. Collaboration encourages brainstorming, constructive problem solving, and to “think outside of the box” , to successfully pursue these goals. However, when people from different backgrounds come together, collaboration is not always easy and requires sincere efforts for mutual understanding and respect among the team. For this reason, collaboration could be motivating, enabling researchers to expand their perspectives and explore new possibilities in their specialties. This KGC aims to offer a valuable opportunity for participants to reconsider the significance of interdisciplinary approach and collaboration for health for all.

Health is a human right. We, Kyoto University School of Public Health, along with other global actors, would like to contribute to the improvement of the health and well-being for all, in believing that this KGC will be a platform to promote the exchange of research, experience, challenges, and hope for the future.

Along with the dialogue of these crucial public/global health concerns, I would like all participants to enjoy their stay in Kyoto, a city that features both classic and innovative components of Japanese culture and surely will be a place for you to enjoy and to be inspired.

# Schedule

## December 6 (Wednesday)

Opening Session – Welcome addresses	
9:30 - 9:40	Dean, Graduate School of Medicine, Kyoto University Shinji Uemoto
9:40 - 9:50	Dean, Kyoto University School of Public Health Takeo Nakayama
Keynote Speech	
9:50 - 10:35	Global health in the context of population ageing: A research agenda Director, WHO Centre for Health Development, Kobe Dr. Sarah Louise Barber
- Break -	
Session 1 – Health system and care	
Session chairs: Noriko Sasaki (Kyoto University) and Shou-Hsia Cheng (National Taiwan University)	
10:50 - 11:20	Service-level selection: Strategic risk selection in Medicare advantage in response to risk adjustmen Sungchul Park: Kyoto University and University of Washington
11:20 - 11:50	Standard of the Thai traditional medicine service in health promoting hospitals in northern part of Thailand Sasikorn Songkumchum: Mahidol University
11:50 - 12:20	Changes to Geographic Distribution and Patterns of Inpatient Care in Small Hospitals in Taiwan: 2004-2013 Raymond Nien-Chen Kuo: National Taiwan University
12:20 - 12:50	Can patients get providers to deliver better care? Evidence from a field experiment in Senegal Roxanne J. Kovacs: London School of Hygiene & Tropical Medicine
- Lunch break -	

# “Interdisciplinary Approach and Collaboration for Health for All”

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Session 2 – Detection and prevention of diseases and their societal context	
Session chairs: Teeranee Techasrivichien (Kyoto University) and Steven Cummins (London School of Hygiene & Tropical Medicine)	
14:00 - 14:30	Socio-cultural and contextual factors related to vaccine hesitancy issues on childhood immunization programs: A Malaysian parents' experience Nur Hazreen Binti Mohd Hasni: Kyoto University
14:30 - 15:00	Performance of verbal autopsy methods in estimating HIV-associated mortality among adults in South Africa Aaron Karat: London School of Hygiene & Tropical Medicine
15:00 - 15:30	What is the need for Primary Eye Care in the Rwandan Population? Tess Bright: London School of Hygiene & Tropical Medicine
15:30 - 16:00	An integrative study on genetic and environmental determinants of chronic kidney disease in the North Central Region of Sri Lanka Shanika Nanayakkara: University of Sydney and Kyoto University Alumnus
Session 3 – Poster presentation	
16:00 - 17:00	Poster presentation
Session 4 – Industrial activities and health	
Session chairs: Hsiao-Yu Yang (National Taiwan University) and Kanchana Rungsihirunrat (Chulalongkorn University)	
17:00 - 17:30	Serum metabolomics study of residents living near a petrochemical complex in Taiwan Chi-Hsin Sally Chen: National Taiwan University
17:30 - 18:00	Assessment of exposure to carcinogens among the work community in manufacturing sector - A Malaysian study Jaseema Begum: University of Malaya
18:00 - 18:30	Optimum plantation area of Thai tapioca industry for food versus fuel productions based on sustainable development approach Thanakrit Neamhom: Mahidol University
19:00~	Dinner Reception at Restaurant "La Tour", Clock Tower, Kyoto University

# Schedule

## December 7 (Thursday)

Session 5 – Environmental safety: water and air	
Session chairs: Koji Harada (Kyoto University) and Mathuros Tipayamongkhogul (Mahidol University)	
9:30 - 10:00	Using Google Maps to assess endemic fluoride areas in Lamphun province, Thailand Nonthaphat Theerawasttanasiri: Chulalongkorn University
10:00 - 10:30	Disaster drinking water treatment unit: Case study in Nepal Bunyarit Panyapinyopol: Mahidol University
10:30 - 11:00	Modeling temporal and spatial variability of traffic-related air pollution in Taipei metropolis, Taiwan: Hourly land use regression models for PM 2.5 Jui-huan Lee: National Taiwan University
Session 6 – Poster presentation	
11:00 - 12:00	Poster presentation Voting for “Best Poster Presentation” award closes at 14.00
- Lunch break -	
Session 7 – Health and Quality Of Life	
Session chairs: Norio Watanabe (Kyoto University) and Suneetha Kadiyala (London School of Hygiene & Tropical Medicine)	
13:00 - 13:30	Related factors of quality of life among Indonesian elderly in nursing homes Bayu Anggileo Pramesona: Chulalongkorn University
13:30 - 14:00	Effect of posttraumatic stress disorder on sleep quality and quality of life among urban firefighters, Thailand Chinchuta Khumtong: Chulalongkorn University
14:00 - 14:30	The PEACE Initiative – Addressing elder abuse and neglect using an interdisciplinary approach Raudah Mohd Yunus: University of Malaya
14:30 - 15:00	Knowledge translation: Connecting knowledge creators to the world Muhd Zulfadli Hafiz Ismail: University of Malaya

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Closing	
15:00 - 16:00	Round table discussion “Interdisciplinary approach and collaboration for public health research and education” Joined by all Deans and Vice Deans of Participating Universities Moderated by Masahiro Kihara (Kyoto University) and Maznah Dahlui (University of Malaya)
16:00 - 16:30	Best poster presentation award ceremony and closing Moderated by Takeo Nakayama (Kyoto University)

Satellite session	
17:00 - 17:30	Evaluation of the impact of a 10 pence levy on sugar-sweetened beverages on sales of non-alcoholic beverages within a national chain of restaurants in the UK: interrupted time series analysis of a natural experiment Steven Cummins (London School of Hygiene & Tropical Medicine)
17:30 - 18:00	Current understanding of agriculture-food systems in low and middle income countries and research needs Suneetha Kadiyala (London School of Hygiene & Tropical Medicine)
18:00 - 18:30	Innovation in conducting policy relevant population health research learning from cross-national comparisons: The Health Systems and New Models of Care Core (HSMCC), The Singapore Population Health Improvement Centre (SPHERiC) Helena Legido-Quigley (National University of Singapore Saw Swee Hock School of Public Health)



# Global health in the context of population ageing: A research agenda



**Sarah Louise Barber**

Director  
World Health Organization Centre for Health Development  
(WHO Kobe Centre) / Japan

Dr Sarah Louise Barber is a health economist and policy specialist, and holds doctorate and post-doctorate qualifications from the University of California, Berkeley, USA, focusing on economic evaluation. Before becoming Director of the WHO Kobe Centre, she worked on strategic policy issues with the World Health Organization, including as Senior Health Policy Advisor in the Office of the Regional Director for Africa, WHO Representative to South Africa, Team Leader for Health Systems Development in China, and Health Policy Advisor in Indonesia and Cambodia. Prior to working with WHO in China, she was managing evaluation research at the University of California Berkeley's Institute of Business and Economic Research, and the National Institute of Public Health in Mexico. In South Africa, China, Indonesia, and Mexico, she developed programs of technical cooperation and research to advance reforms to achieve universal health coverage. Over the past 25 years, she has published widely on diverse topics in health economics and policy analysis, including the role of the private health care sector, conditional cash transfers, human resources, insurance and provider payment reforms, quality of care assessments, policies for essential medicines, monitoring and evaluation, migration, and fiscal policies. A native English speaker, she enjoys learning languages and has studied Spanish, Khmer, Thai, and Indonesian.

## ABSTRACT

The global health landscape is undergoing great change. Successes in public health have resulted in increasing life expectancy and rapidly ageing populations. The Asia Pacific region is ageing more rapidly than many other parts of the world. The implications will be profound for every sector of society, requiring policy makers to reframe their thinking about the design of health systems to enable older populations to thrive. With increasing demand for more and different kinds of services, an imperative is shifting resources towards primary care for the prevention and comprehensive care of people with chronic conditions. Major innovations are underway that accelerate progress in attaining universal health coverage for older populations. The renewed

commitments under the Sustainable Development Goals offer a unique opportunity to invest in the foundations for healthy communities and societies.

# Service-level selection: Strategic risk selection in Medicare advantage in response to risk adjustment



**Sungchul Park**

PhD candidate  
Department of Health Services  
University of Washington / USA

Sungchul is a PhD candidate in the Department of Health Services at the University of Washington. He obtained his dual bachelor degrees in Economics and Financial Engineering from Korea University, South Korea and completed his master degree in Public Health (Healthcare Economics and Quality Management) at Kyoto University. His research sits at the intersection of microeconomics, statistics, and health policy. Within the field of health policy, he is researching care delivery innovations and payment reforms, incentive-based policies, and policy evaluation. Methodologically, his research focuses on predictive modelling with machine learning, modelling healthcare expenditures, and big data analytics. His dissertation focuses on understanding the impact of risk-selection behaviors on access to care as well as developing better anti-selection policies, known as risk adjustment, in Medicare managed care plans, known as Medicare Advantage (MA) plans.

## ABSTRACT

The Centers for Medicare and Medicaid Services (CMS) has phased in the Hierarchical Condition Categories (HCC) risk adjustment model during 2004-2006 to more accurately estimate capitated payments to Medicare Advantage (MA) plans to reflect each beneficiary's health status. However, it is debatable whether the CMS-HCC model has led to strategic evolutions of risk selection. We examine the competing claim on the effectiveness of the CMS-HCC model to comprehensively understand strategic risk selection behaviors of MA plans. We find that the CMS-HCC model reduced the phenomenon that MA plans avoid high-cost beneficiaries in traditional Medicare plans, whereas it led to increased disenrollment of high-cost beneficiaries, conditional on illness severity, from MA plans. We explain this phenomenon in relation to service-level selection. First, we show that MA plans have incentives to effectuate risk selection via service-level selection, by lowering coverage levels for

services that are more likely to be used by beneficiaries who could be unprofitable under the CMS-HCC model. Then, we empirically test our theoretical prediction that compared to the pre-implementation period (2001-2003), MA plans have raised copayments disproportionately more for services needed by unprofitable beneficiaries than for other services in the post-implementation period (2007-2009), thereby inducing unprofitable beneficiaries to voluntarily disenroll from their MA plans. Further evidence supporting this selection mechanism is that those dissatisfied with out-of-pocket costs were more likely to disenroll from MA plans. We estimate that such strategic behavior led MA plans to save costs of \$5.2 billion in 2007-2009. To counter service-level selection, it may be of value to develop a better risk adjustment model that not only conditions on each beneficiary's health status but also reflects each beneficiary's service-level propensity of service use.

# Standard of the Thai Traditional Medicine Service in Health Promoting Hospitals in Northern part of Thailand



Sasikorn Songkumchum

Master of Public Health Candidate  
Faculty of Public Health  
Mahidol University / Thailand

Ms Sasikorn Songkumchum is a student in the Master Program of Public Health, Mahidol University. She is a pharmacist and started working at the Department of Consumer Protection and Public Health Pharmacy, Mae Hong Son Provincial Health Office, soon after she got her bachelor's degree from Chiang Mai University in 2014. Her current research is focused on Thai traditional medicine service in health promoting hospital.

## ABSTRACT

Thai traditional medicine (TTM) is a part of the healthcare system in Thailand. As the primary care unit in Thailand, Health Promoting Hospital (HPH) has been promoting TTM service to treat common illnesses and to reduce burden of secondary care unit. This cross-sectional study aim to explore the coverage of TTM service and assess standard of Thai traditional medicine services in the HPHs according to the Thai traditional medicine and integrative medicine promoting hospital standard (TIPhS) which consisted of five parts: place, providers, performance, quality control, and services. The overall percentage was classified into five levels: excellent (>90%), very good (80-89%), good (70-79%), basic (60-69%), and non-standardized (<60%). The questionnaire was mailed to 395 representative of the HPHs in northern region of Thailand and 168 HPHs were responded (response rate 46.8%). The representatives were HPHs personnel who conduct TTM in the HPHs. The results found that 162 HPHs (96.4%) provide TTM services. 45.7% met the criteria of TIPhS guideline as the standardized HPH: 12.3%

excellent, 10.5% very good, 14.2% good, and 8.6% basic. Considering, the contributing factors to TTM services in HPHs were as that significantly associated with a standard of TTM services of HPHs were as follows: Every HPH that had the health staff with bachelor degree in TTM field passed TIPhS. Also, having herbal medicines more than 10 items (OR 3.90, 95% CI 1.87 – 8.14), the responsible person with TTM services experience (OR 3.42, 95% CI 1.70 – 6.88), and the administration in provincial level (OR 3.25, 95% CI 1.62 – 6.52). The study findings led to the recommendations that TTM board in regional health level should set a policy and transfer to provincial level to support herbal medicine prescription in HPHs including enhance health provider capability in TTM services i.e., the training programs for TTM assistants to improve massage skill, training of registered nurses to be able to diagnose and prescribe herbal medicine to treat primary illnesses while monitoring and evaluation continuously for sustainability.

# Changes in Geographic Distribution and Patterns of Inpatient Care in Small Hospitals in Taiwan: 2004-2013



Raymond Nien-Chen Kuo

Assistant Professor,  
Institute of Health Policy and Management, College of Public Health  
National Taiwan University / Taiwan

Raymond N. Kuo is Assistant Professor at Institute of Health Policy and Management, National Taiwan University. Dr. Kuo received his B.S. in Public Health and M.S., Ph.D. in Healthcare Organization Administration from National Taiwan University, Taiwan. His major research interests include risk adjustment methodology for quality and cost in healthcare, comparative effectiveness research (comparing the effectiveness, benefits, and harms of different treatment option or policy interventions for a specific group of people), and the reform of health insurance systems and its impact on quality and delivery of healthcare. Dr. Kuo's current research projects focus on the impact of National Health Insurance on the efficiency of the healthcare system.

## ABSTRACT

**Introduction:** The number of small community hospitals has gradually dropped since the implementation of National Health Insurance in 1995. Most hospitals have been adopting strategies aimed at expanding capacity; due to the fact the existing payment schemes favor large hospitals, competition within the market, and consumer preferences. Numerous small community hospitals have closed due to poor management or factors pertaining to economies of scale. Previous researchers have reported on the general expansion of hospitals over time; few studies have explored the geographic distribution or patterns in inpatient care in small community hospitals operating in this environment.

**Methods:** In this study, we employed the National Health Insurance Database to explore secular trends and geographic distribution of inpatient care in small community hospitals between 2004 and 2013. Geographic distribution was measured according to the urbanization (high, medium, and low) of sub-medical regions in which hospitals are located. Patterns of inpatient care were examined from two dimensions: 1) number of diagnosis-related-groups (DRGs) among inpatient claims reflecting the complexity of cases; and 2) case-mix index (CMI) of inpatient cases reflecting the severity of diseases and intensity of health care services.

**Results:** The number of small community hospitals in Taiwan dropped from 458 in 2004

to 368 in 2013. Areas of low urbanization presented the highest percentage of hospitals that were forced to close (27% compared to the number of hospitals in 2005). We also observed a gradual decrease in the number of DRGs. In 2013, the inpatient cases in small community hospitals included only a small number of DRGs: high-urbanization areas (average of 76.6 DRGs) and low-urbanization areas (139.9 DRGs), compared to medical centers (634.5 DRGs) and regional hospitals (472.0 DRGs). During the study period, the CMI of small community hospitals increased from 0.988-1.022 (2004) to 1.128 -1.212 (2013), whereas the increase in CMI in medical centers and regional hospitals was less than 7% during the same period.

**Conclusions:** This study revealed a dramatic decrease in the number of small community hospitals in Taiwan between 2004 and 2013. The number of DRGs claimed by small community hospitals also decreased over time; however, the average scores on CMI presented a gradual increase. These findings indicate that small community hospitals are becoming increasingly specialized, particularly in areas of high urbanization. This raises concerns as to whether the closure and transformation of small community hospitals will exacerbate inefficiencies in the delivery of healthcare in Taiwan.

# Can patients get providers to deliver better care? Evidence from a field experiment in Senegal



Roxanne Kovacs

Research Assistant  
Department of Global Health and Development  
London School of Hygiene & Tropical Medicine / UK

Roxanne Kovacs is a research assistant at the London School of Hygiene and Tropical Medicine. She holds a Bachelors in Philosophy, Politics and Economics from the University of York and a Masters in International Development from Sciences Po Paris. She is currently pursuing a PhD in Health Economics as a member of staff. Roxanne currently works on issues related to health worker performance and quality of care in low and middle-income countries. She is interested in the behaviours and preferences of health care providers, as well as how these behaviours and preferences affect patients and health outcomes.

## ABSTRACT

**Background:** The quality of medical care being provided in low and middle-income countries (LMICs) is worryingly poor. Most recent interventions aimed at improving the quality of care in LMICs focus on health providers. Some try to improve provider's clinical knowledge through further education or the provision of guidelines. Others attempt to improve their working environment by providing supervision and feedback. Yet another set of interventions attempt to improve provider performance through financial incentives.

Unlike much of the research that is currently being conducted in LMICs, this paper focuses neither on health facilities nor on health providers. It instead explores how quality of care could be improved by involving patients in medical consultations. This study investigates patient's potential to improve the quality of treatments they receive. We test whether patients who provide more relevant information at the start of their consultation receive higher quality care.

**Methods:** Our study was conducted in 134 randomly selected primary health facilities in rural Senegal. We design a simple field experiment where we train standardised (fake) patients to systematically vary the amount of information volunteered to providers at the beginning of the consultation. The patients

portray a classic case of tuberculosis (TB).

In the experiment, for any given visit, patients had to use one of two opening statements to describe their chief complaint, a detailed statement ("I have been coughing for 2 weeks now. Sometimes when I cough, I see traces of blood. I have also lost weight.") or a generic one ("I have been coughing for 2 weeks now and I don't feel good."). The statements were randomised at the patient level.

**Results:** Our results indicate that treatment quality increases by 20% when patients volunteer the key characteristic symptoms of TB, when asked about their chief complaint at the beginning of the consultation. This suggests that if patients were to communicate relevant symptoms to their provider, this could substantially improve treatment quality in LMICs. Policymakers might therefore want to consider designing public awareness campaigns that not only encourage patients to seek care when they notice specific danger signs, but also encourage patients to tell their provider that they are having these symptoms.

# Socio-cultural and contextual factors related to vaccine hesitancy issues on childhood immunization programs: A Malaysian parents' experience



Nur Hazreen Binti Mohd Hasni

Master of Public Health Candidate  
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Dr. Nur Hazreen received her M.D. degree from Padjadjaran University, Bandung, Indonesia and completed her clinical internship training at Hospital Tengku Ampuan Afzan, Pahang, Malaysia. She worked as general physician at government healthcare facilities including tertiary hospital, district hospital, and primary health clinic. Her basic research interests were mainly on neurovascular and cardiovascular imaging in collaboration with biomedical engineering expert. In addition, she was also involved in a district and state health's survey on child morbidity and mortality. She has a strong research network with public university academics under Ministry of Education, Malaysia and public hospital clinicians under Ministry of Health, Malaysia.

Currently, she is pursuing a Master of Public Health Degree at the Department of Global Health and Socio-epidemiology, School of Public Health, Graduate School of Medicine, Kyoto University, Japan since April 2016. Her current research interest includes global health, infectious disease epidemiology, and specifically focused on vaccine hesitancy issues towards childhood immunization.

## ABSTRACT

**Introduction:** Globally, 1.5 million children die every year because of diseases which can be prevented by the existing vaccines. The increased number of parents with children aged below two years refusing vaccination in Malaysia is worrisome. Vaccine hesitancy is a threat in combating vaccine-preventable disease which had been studied extensively in western countries, but lesser in south-east Asia country. Hence, this study aims to assess the socio-cultural and contextual factors related to vaccine hesitancy in Malaysia. We hope our study assists the government, private agencies, and health-related institutions towards improving supports and services for the parents in order for the wellbeing of children.

**Methodology:** In-depth interviews were conducted among pregnant woman from Kuantan District, Pahang aged above 18 years, through convenience and purposive sampling method. Interviews were preceded by an informed consent, demographic information questionnaire, and Vaccine Confidence Index (VCI) questionnaire. All interviews were audio recorded and conducted among number of participants until reaching data saturation. Thematic analysis was applied to generate codes and themes, with investigator triangulation for consensus to ensure data validity.

**Results:** a) Demographic results - Twenty seven pregnant women (24 Malays, 2 Chinese, 1 Indian) were interviewed with the average age of  $31.4 \pm 4.2$  years. The majority of participants

had high school as the highest educational level (55.6%), and 51.9% were employed for wages, majority of participants had lower income per month (66.7%). Majority 48.1% of household vaccination decision making were done by both parents. Majority 55% of the parent has vaccine hesitancy, 20% of accept vaccine parent has moderate confidence (VCI score 2) and 20% of parent with high confidence has delay and refuse vaccination for their children. b) Qualitative results - The emerging themes were summarized into four main categories namely, i) Confidence ii) Complacency; iii) Convenience. Of these, we identified factors promoting vaccine hesitancy was due to political affiliation, poor perceived vaccine hesitancy, paternalistic influence, halal status, and negative information. We found that factors inhibits vaccine hesitancy includes government clinic are convenience, social media increased awareness, high trust and good relationship with medical personnel. The alternatives for vaccination are vary and mostly had religious influence. The socio-cultural and contextual factors effects on childhood vaccination are in equal, which might give an impact to future generations.

**Conclusion:** Parents shared similar backgrounds of beliefs and cultures tend to have similar thoughts about childhood vaccination. Self-reported parental vaccine hesitancy remains a problem in Malaysia which can give an impact for health outcomes among children.



# Performance of verbal autopsy methods in estimating HIV-associated mortality among adults in South Africa



Aaron Karat

Clinical Research Fellow  
London School of Hygiene & Tropical Medicine / UK

Aaron Karat is a clinical research fellow at the London School of Hygiene & Tropical Medicine. He is a physician with an MSc in Tropical Medicine & International Health and has just completed a PhD in Public Health at LSHTM. He has worked in South Africa since 2012, mostly under Prof Alison Grant, on projects relating to the diagnosis and treatment of TB in HIV-positive people; his PhD focused on methods used to estimate causes of death in HIV-positive adults in low- and middle-income countries. His research interests include TB diagnostics, clinical algorithms, pragmatic studies, and health systems interventions.

## ABSTRACT

**Background:** HIV-associated mortality is difficult to measure; greater access to antiretroviral therapy (ART) is changing disease and mortality patterns. Verbal autopsy (VA) is to be integrated into civil registration systems, but has not undergone robust validation for HIV-associated causes of death. This study assessed the sensitivity and specificity of VA questions in detecting HIV status and ART initiation and compared HIV-associated mortality fractions assigned by four VA interpretation methods.

**Methods:** In three provinces of South Africa, adults ( $\geq 18$  years) were included who died either after enrolment to one of three tuberculosis studies (HIV-positive) or in public hospitals (HIV-negative). HIV status was confirmed on rapid or enzyme-linked immunosorbent assay testing; all HIV-negative individuals tested negative less than 12 months prior to death. The 2012 World Health Organization VA instrument was used with questions added around ART; causes of death were assigned using physician-certified (PCVA) and computer-coded (CCVA) methods (InterVA-4.03 and SmartVA-Analyze versions 1.1.1 and 1.2.1). Specificity of VA questions was estimated compared with HIV or ART status and individual- and population-level agreement estimated between PCVA and CCVA methods.

**Results:** Four hundred and fifty-nine adults were included: 356 (77.6%) HIV-positive and 103 (22.4%) HIV-negative; 240 (52.3%) decedents were female and the median age was 41.5 (interquartile range [IQR] 34–52) years. Median time from death to VA was 218.5 (IQR 106–325) days; among HIV-negative individuals, median time from negative HIV test to death was 14 (IQR 5–59) days. Sensitivity of VA

questions in detecting HIV status and ART initiation was 84.3% (95% confidence interval [CI] 80–88) and 91.0% (95% CI 86–95), respectively; 283/356 (79.5%) HIV-positive adults were assigned an HIV-associated cause of death by PCVA, 166 (46.6%) by InterVA-4, and 80 (22.5%) and 289 (81.2%) by SmartVA-Analyze versions 1.1.1 and 1.2.1, respectively (Figure 1). Individual- and population-level agreement between PCVA and InterVA-4 and PCVA and SmartVA-Analyze v1.1.1 were poor (chance-corrected concordance [CCC]  $-0.03$  and  $-0.52$  and cause-specific mortality fraction [CSMF] accuracy 56% and 28%, respectively). Agreement was better between PCVA and SmartVA-Analyze v1.2.1 (CCC 0.75; CSMF accuracy 96%). All VA methods were highly specific in assigning an HIV-associated cause of death (specificity 89%–96%).

**Conclusions:** InterVA-4 and SmartVA-Analyze v1.1.1 markedly underestimated the HIV-associated mortality fraction. SmartVA-Analyze v1.2.1 estimates were closer to PCVA than v1.1.1, but the reasons for differences in assigned mortality fractions are not clear. Undercounting HIV-associated deaths may have serious implications for funding allocation and a negative impact on efforts to reduce early mortality in resource-limited settings. To track progress towards targets for reducing mortality in the context of a rapidly evolving epidemic, changes to VA methods and classification systems are needed that allow enumeration of all deaths among HIV-positive individuals.

# What is the need for Primary Eye Care in the Rwandan population?



Tess Bright

Research Assistant and PhD Candidate  
London School of Hygiene & Tropical Medicine/ UK

Tess Bright is a Research Assistant and PhD candidate based in the International Centre for Evidence in Disability at London School of Hygiene & Tropical Medicine. Tess has an MSc Public Health from London School of Hygiene & Tropical Medicine and a Masters of Clinical Audiology from University of Melbourne, Australia. Her main research interests are in disability in low and middle income countries, with a particular interest in how to improve access to hearing and vision services. She has previously worked in Vietnam and East Timor conducting clinical training in audiology. Tess is currently working on two research projects: a feasibility study in Malawi aiming to improve uptake of ear and hearing services for children using a low-cost intervention; and a population-based survey in Rwanda that aims to understand the population need for, and evaluate the impact of, primary eye care.

## ABSTRACT

**Background:** Universal access to Primary Eye Care (PEC) is a key global initiative to reduce and prevent avoidable causes of visual impairment (VI). PEC can address minor eye conditions and simple forms of uncorrected refractive error (URE) at the community level, and create a referral pathway for specialist eye care. PEC offers a potential solution to a lack of eye health specialists in low-and middle-income countries. There is little information on the population potential to benefit from PEC, including prevalence of URE in all ages in Sub-Saharan Africa. In Rwanda, PEC at health-centre level has recently been introduced through a public-private partnership between the Non-Governmental Organisation, Vision for A Nation (VFAN), and the Rwandan Ministry of Health (RMOH).

**Methods:** A national survey was conducted of people aged  $\geq 7$  years, using a 2-stage probability-proportional-to-size sampling and compact segment sampling process. Need for PEC was defined using the Rwandan PEC curriculum as participants with: URE, presbyopia with good distance vision, VI requiring referral, or minor eye symptoms. VI was assessed using the tablet-based application, Portable Eye Examination Kit; URE was detected using pinhole. Presbyopia was assessed using a local near vision reading test. We collected information on sociodemographics and

minor eye symptoms using validated questionnaires. Prevalence estimates were age and sex standardised to the Rwandan population. Associations between age, sex, socio-economic status and the key outcomes were examined using logistic regression. **Results:** 4618 participants were examined and interviewed (86% response rate). The adjusted prevalence of VI was 3.7% (95%CI=3.0-4.5%), URE was 2.2% (95%CI=1.7-2.8%). The overall adjusted need for PEC was 34% (95%CI=31.8-36.4%). Women and older people were more likely to need PEC. The need for PEC was driven mainly by presbyopia and symptoms.

**Conclusions:** Nearly one third of the population in Rwanda has the potential to benefit from PEC, with greater need identified in older people and women. Health insurance coverage was high and not associated with PEC need, suggesting that financial barriers on the supply-side may not be an issue for accessing PEC in Rwanda. Attitudes towards eye care suggest older people may not seek eye-care or accept treatment despite poor eyesight. Thus, further community-level education is necessary. Universal access to PEC can address the unmet eye health needs found in this population. VFAN and RMOH should ensure equitable access to PEC for those groups with greater need.

## An integrative study on genetic and environmental determinants of chronic kidney disease in the North Central Region of Sri Lanka



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Dr Shanika Nanayakkara is a researcher and academic at the Faculty of Dentistry, The University of Sydney. She graduated with a Bachelor of Medicine, Bachelor of Surgery from the University of Peradeniya, Sri Lanka in 2006 and received her PhD in the field of public health from Graduate School of Medicine, Kyoto University as a JSPS research fellow. Her research focuses on understanding the pathological process and contributory factors of chronic kidney disease of unknown aetiology (CKDu) in Sri Lanka which is a major non-communicable disease in the country. Dr Nanayakkara joined The University of Sydney as a postdoctoral researcher supported by the Bela Schwartz Foundation in 2013. She took the initiative and established the first Dental Biobank at Westmead which functions as a part of the Westmead Precinct Biobanking Consortium. Currently, she is a teacher and a study unit coordinator at The University of Sydney. She is also involved in continuing professional development (CPD) courses to dental professionals.

### ABSTRACT

**Background:** Chronic kidney disease of uncertain aetiology (CKDu) in areas in and around North Central Province in Sri Lanka has been identified as a major non-communicable disease due to the high prevalence, morbidity and mortality incurring a substantial burden on the public health system. Controversial evidence on aetiology and risk factors of CKDu has created much debate over last two decades. The aim of this study was to systematically investigate the possible effects of genetic and environmental factors on pathogenesis of CKDu.

**Methods:** Blood and urine samples with relevant demographic and clinical data were collected from 311 case-series male patients and 504 apparently healthy male controls from Girandurukotte (GD) and Medawachchiya (MW), two areas with high disease prevalence. A genome-wide association study (GWAS) was conducted to determine the genetic contributors (n=597; 311 cases, 286 controls). Urine (n=101; 47 cases, 54 controls), drinking water (n=31), rice (n=53; 37 from affected areas, 16 from non-affected areas) and hair samples (n=92; 20 cases and 76 controls) were analysed to assess the possible heavy metal and fluoride exposures. Histopathological (n=64) and electronic microscopic analysis (n=5) of renal biopsies from CKDu patients was performed to further evaluate the pathological process. Collected serum samples were further analysed for immunoglobulin-G (IgG) antibodies for hanta viruses and urine samples (n=41; 31 cases 10 controls) for aflatoxins, ochratoxins and fumonisins.

**Results and Discussion:** Histopathological analyses provided evidence on tubulointerstitial damage as

the major pathological lesion in CKDu. This study did not find evidence of a founder mutation involved in pathogenesis of CKDu. The GWAS yielded a genome-wide significant association with CKDu for a single nucleotide polymorphism (SNP; rs6066043;  $p=5.23 \times 10^{-9}$ ) in quantitative trait locus analysis;  $p=3.73 \times 10^{-9}$  in dichotomous analysis) in SLC13A3 (sodium-dependent dicarboxylate transporter member 3). The population attributable fraction and odds ratio for this SNP were 50% and 2.13. Indirect Immunofluorescence antibody Assay demonstrated higher seropositivity among CKDu cases than controls with adjusted (for age, occupation, smoking and alcohol consumption) odds ratio of 2.29. Heavy metal concentration in rice and drinking water samples were within recommended values. Urine and Environmental and biological sample analysis did not provide evidence on involvement of heavy metals and mycotoxins in pathogenesis of CKDu. It is noteworthy that 43% of apparently healthy males recruited as the controls for the study were excluded due to evidence of undiagnosed hypertension, diabetes or renal function impairment.

Overall, the observations of this comprehensive study discard the hypotheses of involvement of heavy metals and mycotoxins in pathogenesis of CKDu. The study identified genetic predisposition and hanta virus infection as attributable factors. Further, this evidence strongly recommends a systematic approach for prevention and early detection of non-communicable diseases such as hypertension, diabetes and CKD in this region.

## Serum metabolomics study of residents living near a petrochemical complex in Taiwan



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### ABSTRACT

**Background/Aim:** Our previous study identified urine metabolic changes that could associate multiple air toxics exposure with oxidative stress in residents living near a petrochemical complex in Taiwan. This study aims to establish a more comprehensive metabolite profile by analyzing serum samples using two mass spectrometry platforms, and identify additional metabolic changes that could link exposures to early health effects.

**Methods:** We selected study subjects from a prospective cohort of residents that have lived for more than 5 years near the complex. We classified study subjects as high (n=111) or low exposure group (n=141) by the distance from their homes to the complex. Study subjects' external exposure levels of heavy metals and polycyclic aromatic hydrocarbons (PAHs) were estimated using dispersion and kriging models, respectively. Individual's internal exposures include urine and serum heavy metals, and urine PAHs exposure biomarker 1-hydroxypyrene (1-OHP). Individual's early health effects will be determined by urine oxidative stress biomarker, and serum sphingolipids, phosphatidylcholines, and acetyl carnitines. Serum metabolomics will be analysed using GCxGC-TOFMS and UPLC-qTOFMS, and we will apply "meet-in-the-middle" approach to find potential metabolites that could serve as putative intermediate biomarkers linking exposures with

early health effects through plausible exposure-related pathways.

**Results:** Internal exposure results showed that compared to low exposure group, high exposure group had significantly elevated ambient levels of vanadium, pyrene, fluoranthene, and dibenzo[a,h]anthracene at home addresses, and increased urine concentrations of 1-OHP, vanadium, nickel, copper, arsenic, strontium, cadmium, mercury, and thallium. We used PLS-DA and ANCOVA to analyze preliminary targeted serum metabolomics results from UPLC-qTOFMS in order to identify exposure-related metabolites. Results showed clear separation between high and low exposure groups in children but not in elderly study subjects. Potential metabolites responsible for this separation are also involved in exposure-related pathways identified in our urine metabolomics study such as alanine, aspartate, and glutamate metabolism, and oxidative stress-related pathways such as anti-oxidant glutathione metabolism.

**Conclusions:** Due to the significant contrast of exposure levels between high and low exposure groups, we expect our serum metabolomics results to show clear separation of metabolite profiles between the two groups. The metabolites responsible for this separation may be used to identify potential exposure-affected biological pathways that could be linked to early health effects.

# Assessment of Exposure to Carcinogens among the Work Community in Manufacturing Sector - A Malaysian Study



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## ABSTRACT

**Background:** It is predicted that the burden of occupational cancer in middle-income countries will show an estimated increase of 78% by 2030, as compared to cases recorded for 2008. The problem of occupational cancer can be better managed or prevented through proper estimation and understanding of carcinogens exposure within workplace settings. Manufacturing sector in Malaysia is the largest in terms of economic contribution and employment rate, as compared to other work sectors. The situation on exposure of manufacturing employees in the country to carcinogens however, is a much lesser known issue. The aim of this study is to investigate the prevalence of occupational exposure to carcinogens and its associated factors among manufacturing employees in Malaysia.

**Methods:** A total of 1291 manufacturing employees who have participated in the Health Screening Programme of the Social Security Organization (SOCISO) were included in this cross-sectional study. Advance letters were posted to respondents. They were then called to participate in Computer Assisted Telephone Interview (CATI) and assessed using the Malaysian version of web-based automated expert assessment method (OccIDEAS). Respondents were asked about their specific job tasks and exposure assessment to carcinogens was carried out through predefined

algorithms within OccIDEAS. The findings were analysed for 501 eligible respondents, resulting in an overall response fraction of 51.3%.

**Result:** The study estimated that 78.8% of respondents were occupationally exposed to at least one carcinogenic agent. High risk of exposure prevalence was recorded for 51.9% of respondents. Risk of exposure was the highest for toluene (33.1%), diesel exhaust (31.5%) Environmental Tobacco Smoke (30.1%), graveyard shift work (11.6%) and other solvents (2.8-9.6%). Prevalence of exposure to at least one carcinogenic agent was found to be associated with the male gender (OR 1.62, 95% CI 1.05-2.49), Malay ethnicity (OR 2.49, 95% CI 1.39-4.44) and duration of working for more than 30 years (OR 2.46, 95% CI 1.03-5.89).

**Conclusion:** Findings of this study indicate that high prevalence of exposure to occupational carcinogens among manufacturing employees in Malaysia is of concern. The data is an important addition to the scientific literature and suitable to substantiate relevant occupational health policy planning. Further research is also required on targeted preventive or intervention measures, aimed to reduce occupational exposure to carcinogens among manufacturing employees, and subsequent risk of occupational cancer.

# Optimum plantation area of Thai tapioca industry for food versus fuel productions based on sustainable development approach



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Dr. Neamhom is a lecturer in the Department of Environmental Health Sciences, Mahidol University, Thailand. He obtained a Bachelor of Public Health with second class honors in the major of environmental health and completed a Ph.D. in Environmental Technology at Mahidol University, Thailand. In 2014, he received a research financial support from the Office of Energy Policy and Planning, Thailand Ministry of Energy to conduct research about carbon movement in renewable energy productions from sugarcane and tapioca using the concept of a Carbon-Balanced Model. With the research experiences, he conducted various research in public health, environmental health, and environmental sciences for Thailand Ministry of Energy and others. His areas of interest include sustainable development program, cleaner production, energy efficiency campaign, and others. He has publications in topics such as cleaner production programs of carbon emission reduction for Thai sugarcane industry. Moreover, he has been doing the research about environmental science for pollution controls within the topic related to phosphorus flows to Thai estuaries in the inner gulf of Thailand.

## ABSTRACT

Tapioca is used by humans as a food source and also as a fuel for machine operation. The objectives of this study are to find the optimum land area of tapioca cultivation for food (starch and pellets) and fuel (bioethanol) based on Carbon Equivalences (CE) and Net Energy Values (NEV). Employing the concept of a Carbon-Balanced Model (CBM) for Thailand, the net carbon emissions are found to be +189.6, +135.2, and -596.4 kg CE/ha-1y-1 for starch, pellets, and bioethanol productions, respectively. The positive sign reveals that the production process emits carbon to the atmosphere; whereas, the negative sign indicates potential carbon emission reduction to help in climate change mitigation. In the agricultural phase, the highest carbon emission is attributed to the application of chemical fertilizers which accounts for 76% of total emissions. Consumption of diesel fuel and electrical energy results in major emissions in the industrial phase. In term of NEV, all production chains were found to gain energy in the amount of +8.8, +4.9, and +1.4 GJ per ton harvest for starch, pellets, and bioethanol, respectively. A cost performance

analysis demonstrates starch production to exhibit the highest profit earning; whereas, bioethanol production was found to offer the lowest unit cost of carbon emission. Results of zero-emission simulation on tapioca's product-oriented cultivation areas suggest that shares of fresh roots harvested for food and fuel productions be adjusted to 78 and 22%, respectively. This will increase the quantity of bioethanol produced from a current 223.0 ML.y-1 to 754.8 ML.y-1, thus contributing to climate change mitigation by reducing 1.32 Mt CO2.y-1 of carbon dioxide emissions.

### Highlights

- NEV and CE values in starch, pellets, and bioethanol productions were evaluated.
- Tapioca-based bioethanol helps offset carbon emissions of 596.4 kg CE/ha-y to the atmosphere.
- Optimum land area for food and fuel productions is computed based on zero emission.



# Using Google Maps to Assess Endemic Fluoride Areas in Lamphun province, Thailand



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He is currently working as a Professional public health technical officer of Health Promotion Center Region1 Chiang Mai, Department of Health, Ministry of Public Health. His research focuses on Public Health, Environmental & Occupational Health, and Occupational Health & Safety.

## ABSTRACT

**Background:** Although fluoride is good for oral health, excessive fluoride intake could risk to fluorosis. Currently, researchers confirm that fluoride can cross placenta and exposure to high fluoride during pregnancy could result on premature birth (PTB) and low birth weight (LBW) baby. Lamphun was one of six provinces in Thailand where was found natural water fluoride (WF) >10.0mg/L, and >50% of households used unsafe drinking water with high fluoride. Moreover, PTB and LBW were increasing from 10.98% to 11.27% (2013 to 2014), and the highest of Upper North in 2015. However, lacking WF geographical information system (GIS) of water supply to identify endemic fluoride area.

**Objective:** To measure fluoride of water supply, identify endemic fluoride areas by GIS and present in Google Maps.

**Methods:** This cross-sectional research was part of a pregnancy-birth cohort study on fluoride effect. The survey was conducted from July 2016 to January 2017. Purposive random sampling was used to select Mueang Lamphun, Pasang and Ban Thi districts where WF has found >10.0mg/L. Water samples were collected with geolocation of water plants measure by Smart System Info program for mobile phone. Ion selective electrode instrument was used to analyze fluoride level following Total Ionic Strength

Adjustment Buffer. WF level >0.70mg/L was used to identify unsafe drinking water and endemic fluoride area. Descriptive statistical analysis used to describe the finding. MS-excel used to create GIS database and analysis fluoride situation. The boundary data of Lamphun province, districts, and sub-districts were allowed from Global Administrative Areas (GADM.org). Google Earth used to create the geo-visual maps. All GIS data were displayed in Google Maps

**Results:** WF ranged 0.10-13.60mg/L. 44% (N=439) of samples were unsafe drinking water. 54% (N=303) of villages and 46% (N=79,807) of households used unsafe drinking water. 50% (N=26) of sub-districts were endemics fluoride areas. Five sub-districts where every village, were endemic areas, and two of those where every village were endemic fluoride areas, and every household used unsafe drinking water. The GIS data are available at <https://drive.google.com/open?id=1mi4Pvomf5xHZ1MQjK44pdp2xXfw&usp=sharing>

**Conclusions:** More than half of villages were endemic fluoride areas, and almost half of households used unsafe drinking water with high fluoride. These results would be used to inform local governments, relevant agencies and the public to collaborate on problem-solving. In addition, to educate people in endemic areas to prevent and reduce fluoride exposure in drinking water.

# Disaster Drinking Water Treatment Unit: Case study in Nepal



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## ABSTRACT

On 25th April 2015, an earthquake struck Nepal, staff from Faculty of Public Health, Mahidol University participated in the second team of Thailand Medical Emergency Response Team (MERT), Ministry of Public Health which deployed to Sipaghat village, Sindhupalchock from 7-16 May 2015.

In supporting the situation, Faculty of Public Health developed the prototype of portable drinking water treatment unit, which can treat water from several natural sources. Moreover, this unit was decided to operate by hand pump (no need electricity). The system composted of 3 columns made from stainless steel consists of 6 filtration steps i.e. 5 micron polypropylene filter, activated carbon cartridge filter, ceramic filter (0.3 micron), Ultra filtration membrane (0.1 micron), granular activated carbon, and spiral-wound reverse osmosis membrane(0.0001 micron). Entirely, both drinking water and water supply treatment capacity from this unit was about 300 liters per hour. Disaster Drinking Water Treatment unit was operated in the

disaster area (Sipaghat village, about 70 kilometers from Kathmandu, Nepal) located in the valley and close to the Indrawati River. People in this community consumes tap water supply from the mountain. In this situation, water treatment unit used water from tap water supply as raw water for Disaster Drinking Water Treatment unit which supplied water and drinking water for Thailand MERT team. The result of examining of mountain tap water quality by portable equipment showed low total dissolved solid (TDS) between 40-60 mg/L and after passed through the treatment unit TDS was 0 mg/L. Beyond doubt, tap water supply from the mountain was collected and analyzed in laboratory (Faculty of Public Health, Mahidol University) afterwards which confirmed that the water quality of mountain tap water contain low dissolved minerals and pass the drinking water standard, accordingly people in the community can drink this water safely but still need boiling as a practical disinfection before drink.



## Modeling temporal and spatial variability of traffic-related air pollution in Taipei metropolis, Taiwan: Hourly land use regression models for PM<sub>2.5</sub>



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### ABSTRACT

Land use regression (LUR) models are widely used to determine exposure to air pollutants in epidemiological studies. In previous study, LUR models of traffic-related air pollution have established in Taipei metropolis. However, these LUR models focus on estimating annual average concentration of air pollutants and lack fine scale temporal resolution for predicting acute exposure. With the rise of low-cost, user-friendly and very compact air pollution platform enable observations at high spatial resolution in near-real-time. This provides new opportunities to simultaneously enhance existing monitoring systems and implements LUR models characterize short-term variability of air pollution. In this study, hourly PM<sub>2.5</sub> as well as temperature and humidity were measured with Micro Environmental Sensors (Airbox) of the Smart Environmental Sensing Network which operated by local governments, educational institutions, enterprises, and individuals at 453 locations in Taipei and New Taipei city, Taiwan. Potential

predictor variables were derived from Geographic Information System(GIS) datasets. Digital road networks, land use data, population and household density data, and altitude data were used. We will develop and examine separate LUR models by time-of-day, weekday-weekend, seasons, and method of spatial and temporal smoothing of the time-series data. Model performance will evaluate by adjusted R<sup>2</sup> and bias. Predictor variables included in models will discuss to investigate the association of emission sources. We expect LUR model-R<sup>2</sup> will improved as a large model-building data set and short-term model will capture the features of temporal variability of PM<sub>2.5</sub>. Results of this study has potential usefulness for exposure assessment, especially for medium or short term exposure, in health studies.

## Related factors of quality of life among Indonesian elderly in nursing homes



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He earned his bachelor degree in nursing and master degree in hospital management at Muhammadiyah University of Yogyakarta, Indonesia. He served as government officer at Ryacudu Government Hospital Kotabumi, North Lampung, Indonesia since 2009. He received a scholarship from Indonesia Endowment Fund for Education (LPDP Scholarship), Ministry of Finance, Republic of Indonesia to pursue his doctoral degree in public health at Chulalongkorn University, in Bangkok Thailand. He was awarded the JASSO grant to attend the Harvard/Oxford Special Session short courses at Teikyo University, Japan. He was also awarded as one of the promising researchers in the 49th Asia-Pacific Consortium for Public Health (APACPH) Conference at Yonsei University, Korea. He is currently working on his dissertation project which focuses on depression and quality of life among elderly nursing home residents in Indonesia.

### ABSTRACT

**Background:** Indonesia has become the 8th largest elderly population globally. However, the concern pertaining to the quality of life (QoL) and its related factors among elderly nursing home (NH) residents was still lack. This study was aimed to determine the QoL and its related factors among elderly NH residents in Indonesia.

**Methods:** A cross sectional design was used to assess 181 elderly aged ≥60 years at three NHs in three districts in Yogyakarta province, Indonesia. Socio-demographics data, health-related characteristics and social support were collected by using a modified questionnaire through face-to-face interviews. World Health Organization Quality of Life BREF (WHOQOL-BREF) Bahasa Indonesia version questionnaire was used to assess the QoL of respondents. Multivariate linier regression was performed to determine the related factors of QoL among elderly.

**Results:** The QoL mean score of respondents was 47.72±6.61.

Majority (64.1%, n=116) had fair level of QoL. However, 16.6% of elderly nursing home residents still had poor level of QoL. About 65.7% were females, 84.4% reported had no or low of education background and 86.7% lived in nursing home due to a compulsion. Following univariate analysis, QoL was significantly low among those who live in NH due to a compulsion, with no social support resources, not received any kind of support, having ≥3 chronic diseases, perceived inadequacy of care (p<0.05). Multivariate analysis revealed perceived adequacy of care and reason for living in NH were associated with QoL (p<0.001).

**Conclusions:** Perceived adequacy of care and reason for living in NH were highlighted as predictors of QoL among elderly NH residents in Indonesia. Improving the adequate healthcare services and developing the treatment strategies to enforce the adaptation process are extremely required in order to maintain the QoL in elderly NH residents.

# Effect of Posttraumatic Stress Disorder on Sleep Quality and Quality of Life among Urban Firefighters, Thailand



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## ABSTRACT

Firefighter is the most strenuous and dangerous occupation. Physical and psychological hazards including posttraumatic stress disorder (PTSD) have been linked to firefighters' health. The PTSD is showed a significant association with poor sleep quality and low quality of life. However, there is a little known of effect on trauma events linked to sleep quality and quality of life in urban firefighters. Therefore, this study aimed to determine whether posttraumatic stress disorder (PTSD) effects on sleep quality and quality of life among firefighters in Bangkok, Thailand or not. A cross-sectional study was conducted among all active male firefighters under Bangkok Metropolitan Administration (BMA). All participants completed the Posttraumatic Stress Disorder Checklist – Civilian Version (PCL-C-THAI), Pittsburgh Sleep Quality Index – Thai version (PSQI-THAI) and the World Health Organization Quality of Life (WHOQOL-BREF-THAI) Questionnaires. Multivariable logistic regression models were performed to estimate adjust odds ratio (AOR) and 95% confidence intervals (95% CI). The total of 1215

firefighters, 302 (24.9%) were met the suggested PCL cut-point criteria for civilian (PCL Scores  $\geq 30$ ). The 596 (49.1%) of them had poor sleep quality (PSQI  $> 5$ ). After adjustments, PTSD firefighters had increased odds of poorer sleep quality (AOR=5.24, 95% CI 3.88-7.08), longer sleep latency ( $\geq 30$  min) (AOR=2.38, 95% CI 1.82-3.10) and lower sleep efficiency ( $\leq 85\%$ ) (AOR=1.85, 95% CI 1.41-2.42) than non-PTSD firefighters. The 572 (47.08%) of them had poor quality of life classified by WHO criteria. After adjustments, PTSD firefighters had increased odds of lower overall quality of life (AOR=5.10, 95% CI 3.80-6.84), poorer psychological health (AOR=4.60, 95% CI 3.48-6.07) and poorer social relationship (AOR=3.58, 95% CI 2.66-4.82) than non-PTSD firefighters. The urban firefighters with posttraumatic stress disorder significantly lower quality of life and poorer sleep quality. The results of this study suggested that a further intervention and recommended policy related psychological health among firefighters may need to be considered for enhancing firefighters' health.

# The PEACE Initiative – Addressing Elder Abuse and Neglect Using an Interdisciplinary Approach



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Raudah Mohd Yunus is a Doctor of Public Health (DrPH) candidate at the University of Malaya. She obtained an MBBS from Alexandria University, Egypt in 2008 and a Master of Public Health (MPH) from the University of Malaya in 2015. Her doctorate research currently focuses on the health impacts of elder abuse and neglect (EAN) among rural Malaysian elders. Raudah's other areas of interest include epidemiology, longitudinal study design, family violence, ageing studies, gerontology, health equity and refugees' health. Apart from research and academic activities, she is actively involved in humanitarian aid and community development efforts for the refugees in Malaysia. Raudah has published a number of scientific articles on EAN in the Malaysian context. Her books, 'Tales of Mothers' and 'Displaced and Forgotten' are two creative writing pieces aimed at raising awareness on various contemporary and health-related issues using arts and literature.

## ABSTRACT

The rapid demographic transition worldwide indicates that elder abuse and neglect (EAN) – a current global health concern – is bound to escalate. In Malaysia, the older population will comprise 15% of total population by 2030. On-going urbanization and changes in social structures, along with inadequate social security systems have predisposed older adults to poverty, isolation and exploitation. Local studies reported a lifetime EAN prevalence of 8% to 10%, with financial abuse being the most common subtype.

In response to this dilemma, the Prevent Elder Abuse and neglect initiative (PEACE) was initiated in early 2014, in line with the vision of the National Health Policy for Older Persons (2008) and National Policy for Older Persons (2011). PEACE is a five-package program which aims at: 1) advancing EAN research and services through a coordinated and multi-step approach, and; 2) safeguarding the physical and mental well-being of elders. A multi-sectoral partnership was formed, involving: 1) academics and clinicians from the public health, family medicine, geriatrics and law disciplines; 2) the State Health Department; 3) Department of Social Welfare; 4) various community-based organizations, and; 5) media outlets. Negeri Sembilan, one of the thirteen states in Malaysia was chosen for the pilot

phase, and programs are gradually expanded to other states.

Community engagement is one of the main strategies employed. PEACE provides training programs for institutional caregivers, workshops for healthcare providers, awareness campaigns and public forums. In the academic sphere, PEACE has an established network of post-graduate students and researchers who actively conduct studies, design modules and guidelines on EAN intervention, publish in scientific journals and disseminate local findings through conferences, seminars and the mass media. Addressing the legal aspect of EAN is a current focus in which PEACE epidemiologists and clinicians are working closely with legislators, the Department of Social Welfare and the Ministry of Women, Family and Community Development to push for the formulation of a newer and more specific act to protect elders from all types of abuse and exploitation.

In conclusion, the PEACE initiative is an example of how 'health for all' and the social justice agenda can be advanced through trans-disciplinary collaborations and strong leadership. The challenges posed by the 'greying phenomenon' can only be addressed effectively with adequate preparations and resources. In contrast to being a mere burden, this trend can be seen as a 'window of opportunity'.

# Knowledge Translation: Connecting Knowledge Creators to the World



**Muhd Zulfadli Hafiz Ismail**

Doctoral Candidate  
University of Malaya / Malaysia

Dr. Fadli Ismail was granted a medical degree from Barts and the London, Queen Mary University of London in 2010. After 4 years of working experience in clinical service in the Malaysian hospital setting, he then joined Institute for Health Systems Research under the National Institute for Health (NIH), which is the research arm of Ministry of Health Malaysia. Apart from participating in various nationwide studies on health systems and public health, he was heavily involved as part of the core team in developing the Centre of Evidence Based Medicine for NIH. His main interest is in knowledge translation (KT), for which he underwent training in Bangor University under the Implementation Research Programme- Implementing Evidence in 2016. Subsequently, he furthered his study in the field of Public Health in 2016 and recently graduated with a Master of Public Health (MPH) in 2017. Currently, he is embarking his journey in Doctorate of Public Health (DrPH) in University of Malaya, Malaysia. His current study for his DrPH focuses on adolescent health using the integrated KT approach.

## ABSTRACT

This presentation serves as a platform for the presenter to emphasise the concept of Knowledge Translation (KT) and how KT helps to improve health for all. Knowledge Translation is defined as a “dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve people’s health, provide more effective health services and products and strengthen the health care system”. The KT process, which requires strong interdisciplinary participation enhances the interaction between the knowledge ‘creators’ such as researchers and experts, with the knowledge ‘users’ including policy makers and the general public. As such, the research results are easily translated into practice, widely disseminated and applied. There are several frameworks on KT, and one that is widely used is the Knowledge-to-Action framework. Two case studies that successfully implemented KT approach, particularly using the Knowledge-to-Action framework in the research processes will be presented, highlighting the practicality of KT in research. The first case study is a research project entitled “Patient’s Unvoiced Needs”, aimed to identify the extent of unvoiced needs during the patient-health care provider consultation in the outpatient setting, followed by the development of an intervention measure that facilitates patients to voice their needs and eventually assessing the intervention outcome. Using

the integrated KT approach based on the Knowledge to Action framework, both knowledge ‘creator’ (researchers) and knowledge ‘users’ (stakeholders) worked together in identifying the research questions, constructing the methodology, assisting in data collection and tool development, interpreting the results, highlighting key messages, moving the results into practice, as well as disseminating and applying the knowledge. The second case study will focus on one of the most important stage in the KT approach, which is developing the research question and identifying problems that are relevant to both stakeholders and researchers, prior to embarking on a research journey. For this, the presenter aims to highlight another study, entitled “Achieving Digital Citizenship; Digital Security Practice among Malaysian Parents and Its Influence on Internet Mediation Techniques”. The objective of the study is to identify association between parents’ own digital security practice and their children’s online mediation techniques. The process in developing the research objective involved engagement of the investigator with identified stakeholders from government, NGOs and the public. Sharing these experiences highlights the importance of KT, through strong interdisciplinary participation in ensuring the translation of knowledge into practice, which will eventually help improve the delivery and health for the people.

## Satellite Session

# Evaluation of the impact of a 10 pence levy on sugar-sweetened beverages on sales of non-alcoholic beverages within a national chain of restaurants in the UK: interrupted time series analysis of a natural experiment



**Steven Cummins**

Professor of Population Health  
London School of Hygiene & Tropical Medicine / UK

Steven Cummins is Professor of Population Health and Director of the Healthy Environments Research Programme at LSHTM. He originally trained in geography before switching to epidemiology and public health and his research interests lie at the intersection of these disciplines. He is interested in how the built environment affects health and the design and evaluation of the health impacts of social and environmental interventions. His team is currently working on a range of projects focused on environmental effects on diet and physical activity. This includes evaluations of the introduction of taxes and levies on sugar sweetened beverages locally (Jamie’s Italian restaurants) and nationally (in the UK Treasury Tax on Sugar), the health effects of public transport infrastructure interventions and active urban design on active travel and the role of food banks in the welfare system. He has a particular interest in exploiting and evaluating natural experiments to produce evidence to inform public health policy.

He is a member of the NIHR School for Public Health Research, Associate Editor of the Journal of Epidemiology & Community Health, Member of the Cancer Research UK Prevention Panel, the NIHR Doctoral Research Fellowships Funding Panel and the NordForsk Scientific Advisory Board for Health & Welfare. He is also a Member of the Global Advisory Committee for Health at The Movember Foundation.

## ABSTRACT

Exposure to a poor quality food environment is now widely recognised as an important risk factor for diet and diet-related chronic disease. Research in this area has grown exponentially over the past twenty years, expanding from aetiological work focused on identifying the environmental correlates of diet to the development and evaluation of environmental interventions, including natural experiment studies. In recent years, there has been a particular interest in the use of fiscal measures as instruments to reduce the consumption of sugar-sweetened beverages (SSBs) as part of wider population-based strategies to prevent non-communicable disease. However, there is limited primary evidence on the effectiveness of fiscal measures on either the sale or consumption of SSBs. Research in this area mainly comprises of modelling studies, laboratory experiments and small field studies in cafeterias in schools and workplaces. On the 1st September 2015, Jamie’s Italian, a national chain of UK restaurants,

added a £ 0.10 levy to the price of non-alcoholic SSBs sold within them. This offered an opportunity to take advantage of this ‘natural experiment’ to assess whether the implementation of the levy in combination with non-price activities (such as menu redesign and signposting) is associated with changes in sales of SSBs and other non-alcoholic beverages. We use an interrupted time-series (ITS) design to compare the number of SSBs, and other non-alcoholic beverages, sold per customer before implementation of the intervention with sales at 12 weeks and 6 months after. We use itemised electronic point-of-sale (EPOS) data and investigate the effect of the intervention across all restaurants and whether this effect varies by tertiles of baseline restaurant SSB sales per customer. We find that the introduction of a £ 0.10 levy on SSBs alongside complementary activities is associated with declines in SSB sales per customer in the short and medium term, particularly in restaurants with higher baseline sales of SSBs.



## Current understanding of agriculture-food systems in low and middle income countries and research needs



**Suneetha Kadiyala**

Associate Professor in Nutrition-Sensitive Development  
London School of Hygiene & Tropical Medicine / UK

Suneetha is an Associate Professor in Nutrition-Sensitive Development at the London School of Hygiene and Tropical Medicine, London. She is a core faculty member of the Leverhulme Centre for Integrative Research on Agriculture and Health (LCIRAH). Suneetha is a nutritionist with research interests focusing on the intersection between agriculture/food systems and food security, gender, health (HIV) and nutrition. Her expertise spans program design, operations research and theory-based complex programme impact evaluations; and innovative methods and metrics in agriculture-nutrition research. Suneetha is the Principal Investigator of IMMANA (Innovative Methods and Metrics for Agriculture and Nutrition Actions), DFID's partnership to stimulate the development and application of scientifically sound methods and metrics in agriculture, health and nutrition research. She is the Principal Investigator of UPAVAN (Upscaling participatory action and videos for agriculture and nutrition), a four-arm cluster RCT integrating maternal and child nutrition objectives into a participatory low-cost video driven agriculture extension platform in India. She is also a co-investigator of LANSa (Leveraging Agriculture for Nutrition in South Asia) research consortium and SCAN (Surveillance of Climate Smart Agriculture for Nutrition). Suneetha leads the Agriculture, Nutrition and Health Academy.

### ABSTRACT

Agriculture-food systems are fundamental to poverty reduction. But pathways from agriculture-food systems to nutrition are complex, with multiple linkages. This talk will present the current understanding of these pathways in low and middle income countries, what we know about them and end with some thoughts on emerging research needs.

## Innovation in conducting policy relevant population health research learning from cross-national comparisons: The Health Systems and New Models of Care Core (HSMCC), The Singapore Population Health Improvement Centre (SPHERiC)



**Helena Legido-Quigley**

Associate Professor  
Saw Swee Hock School of Public Health  
National University of Singapore / Singapore

Helena Legido-Quigley is an associate professor at the Saw Swee Hock School of Public Health and has a parallel position with the London School of Hygiene and Tropical Medicine. She is also an Associate Fellow, Centre on Global Health Security, Chatham House, UK. She has conducted research on health policy and health systems in Europe, Sub-Saharan Africa and currently with a focus on Southeast Asia. Specific areas of expertise include health systems research on chronic conditions and integration of services, the use and implementation of clinical guidelines, implementation and development of health policy on quality of health care and ehealth, the effect of the financial crisis and austerity measures on health and health care systems, the future of the global health architecture particularly focusing on the AIDS response and South East Asia, health care experiences of migrant populations, and the future of health in Africa. Her work has been published in peer reviewed journals such as the Lancet, British Medical Journal, and PLOS Medicine. It has also been widely covered in International media including The Times, The Economist, the Financial Times and the Huffington Post.

### ABSTRACT

With an understanding of the current landscape and challenges facing Singapore, the Singapore Population Health Improvement Centre (SPHERiC) is conceptualized as a multidisciplinary research platform that will focus on developing solutions that can be implemented at the population and systems level that we so urgently need. The aim of the HSMCC core is to build a strong and robust evidence base through research and capacity-building initiatives to create health systems that are more resilient, people-centred, and innovative for improved health outcomes. The HSMC Core will facilitate better understanding of how health systems and health policies affect access, delivery and effectiveness of care and its

impact on health; current care models and their gaps; and the development of new care models. This core will also contribute towards developing local expertise in health systems and policy research, and generate innovative and effective solutions to enhance health systems through cross-national comparative research.



Poster Presentation

University	No.	Presenter Name	Poster Title
Kyoto University	01	Anita Ongosi & Miki Yoshizumi	Putting pastoralists on the health map
	02	Hiromi Segawa	Lifestyle related disease risk factors and their influence on Health and Happiness among Urban and Rural Dwellers in South parts of Bhutan
	03	Keiko Nakama	Construction of the Model of Teenagers' Autonomization of Dietary Habits
	04	Megumi Yoshigai	Cost-effectiveness of Second-Line Endocrine Therapies
	05	Nur Hazreen Binti Mohd Hasni	"Socio-cultural and contextual factors related to vaccine hesitancy issues on childhood immunization programs: A Malaysian parents' experience "
	06	Tomomi Funaki	Quantitative Text Analysis of the Questions Posted by Preschooler's Parents on the Q&A Site: Focusing on the Age of Children
	07	Verin Lertjanyakun	Cost-effectiveness of Second-Line Endocrine Therapies in Postmenopausal Hormone Receptor-positive and Human Epidermal Growth Factor Receptor 2-negative Metastatic Breast Cancer in Japan
	08	Xiuting Mo	An online social networks intervention to prevent excessive gestational weight gain in China: a protocol for a randomized controlled trial to evaluate the effectiveness of a weight management intervention in pregnancy
	09	Xiuting Mo	Projection of burden due to coronary heart disease and stroke averted by improved fruit and vegetable intake in Japan
Chulalongkorn University	10	Pisamai Natun	Baseline quality of life before tongue depressor exercise therapy among head and neck cancer patients in Khon Kaen Province, Thailand
	11	Bayu Anggileo Pramesona	Related factors of quality of life among Indonesian elderly in nursing homes
	12	Chinchuta Khumtong	Effect of posttraumatic stress disorder on sleep quality and quality of life among urban firefighters, Thailand
	13	Manasawee Thongsringkleee	Knowledge, Awareness, and Practice of Lead Exposure among Workers in Communication Radio-repair plant, Thailand: Pilot study
	14	Nonthaphat Theerawasttanasiri	Using Google Maps to assess endemic fluoride areas in Lamphun province, Thailand
	15	Parichat Ong-artborirak	Factors associated with health effects from occupational exposure to pesticide residues on vegetables among greengrocers in fresh market, Bangkok, Thailand
	16	Puangpaka Tankitjanon	A comparative study of court-type traditional Thai massage versus diclofenac gel on shoulder range of motion and pain intensity in patients with frozen shoulder: a randomized controlled trial
	17	Rapat Eknithiset	Exploring stress level towards junior nursing students and senior students in Government Nursing College in Bangkok, Thailand
	18	Sawitree Visanuyothin	Health Literacy, and Medication Non-Adherence of Poorly-controlled Hypertension in Urban Community, NakhonRatchasima, Thailand
	19	Sipapa Pummarak	Fear of falling and falls risk perception among the elderly people in rural area
	20	Sirinan Suwannaporn	Breast Self-Examination among Akha Women in Chiang Rai Province Thailand: A Situation Analysis
	21	Yada Thongthammarat	Relationship between the Quality of Life and Burden in family caregivers of Severe Mental Illness High Risk to Violence Patients (SMI-V)

“Interdisciplinary Approach and Collaboration for Health for All”

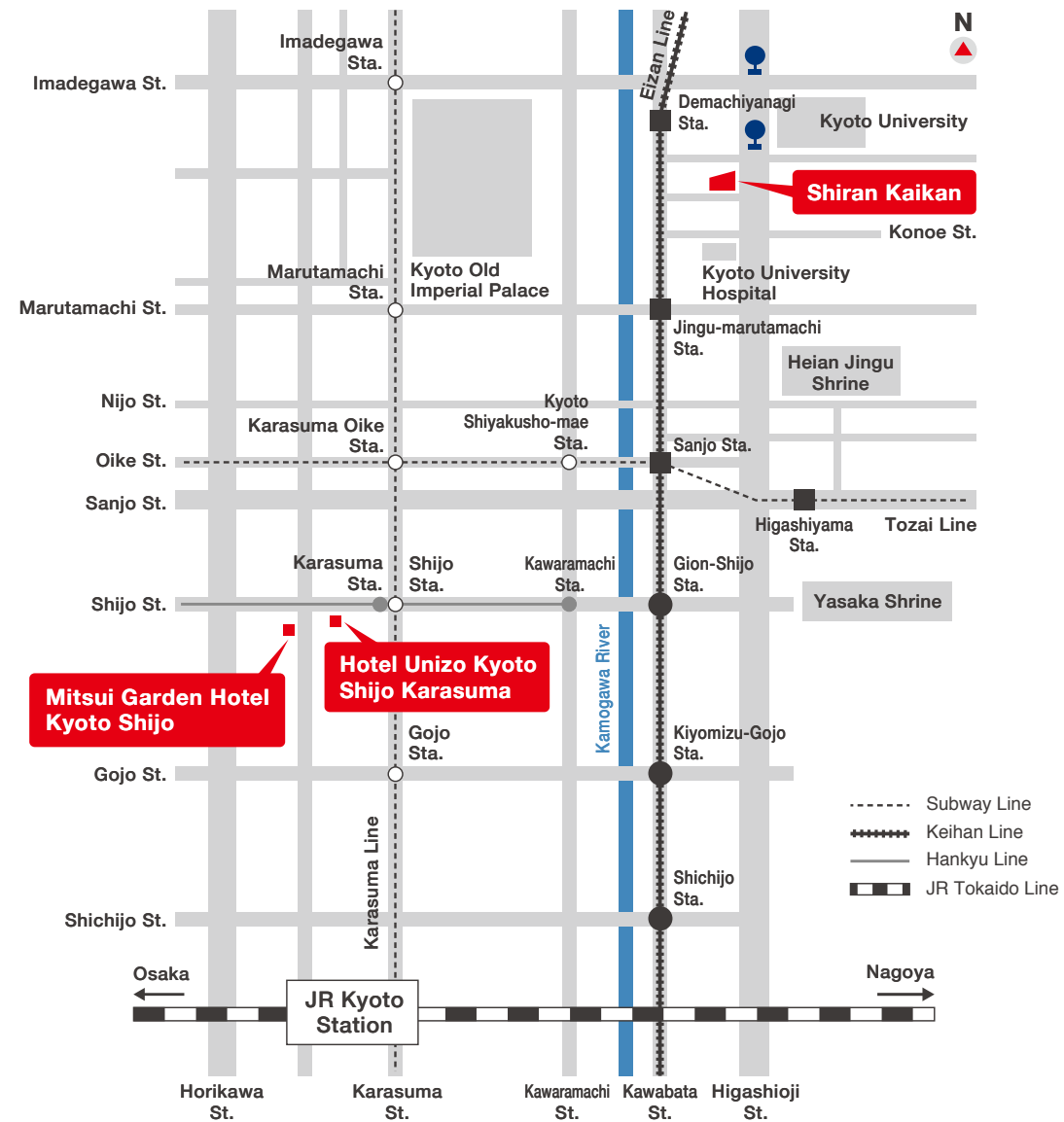
December 6-7, 2017

University	No.	Presenter Name	Poster Title
London School of Hygiene & Tropical Medicine	22	Aaron Karat	Performance of verbal autopsy methods in estimating HIV-associated mortality among adults in South Africa
	23	Roxanne Kovacs	Can patients get providers to deliver better care? Evidence from a field experiment in Senegal
	24	Tess Bright	What is the need for Primary Eye Care in the Rwandan Population?
Mahidol University	25	Bunyarit Panyapinyopol	Disaster drinking water treatment unit: Case study in Nepal
	26	Sasikorn Songkumchum	Standard of the Thai traditional medicine service in health promoting hospitals in northern part of Thailand
	27	Thanakrit Neamhom	Optimum plantation area of Thai tapioca industry for food versus fuel productions based on sustainable development approach
	28	Zayar Myat Thu	Assessment of food sanitation levels of street vended shops and coliform bacterial contamination of street vended food in Nay Pyi Taw City, Myanmar
National Taiwan University	29	Chi-Hsin Sally Chen	Serum metabolomics study of residents living near a petrochemical complex in Taiwan
	30	Jhuang Ming-Jie	Association between Heavy Metal Levels in Urine, Chronic Kidney Disease in Adults in the south of Changhua County
	31	Jui-Huan Lee	Modeling temporal and spatial variability of traffic-related air pollution in Taipei metropolis, Taiwan: Hourly land use regression models for PM 2.5
	32	Jun-Lin Chen	Association between Hepatic Fibrosis Index and Urinary Thiodiglycolic Acid in Residents of South Changhua near a Petrochemical Complex
	33	Raman Kumar	Evidence of deteriorating air quality in scenic state Himachal Pradesh, India
	34	Raymond Kuo	Changes to Geographic Distribution and Patterns of Inpatient Care in Small Hospitals in Taiwan: 2004-2013
	35	Yan-Da Chen	Pretreatment and PMF Results Evaluation for Insufficient Air Monitoring Data from Roadside Station in Taichung, Taiwan
University of Malaya	36	Jaseema Begum	Assessment of exposure to carcinogens among the work community in manufacturing sector - A Malaysian study
	37	Muhd Zulfadli Hafiz Ismail	Knowledge translation: Connecting knowledge creators to the world
	38	Raudah Yunus	The PEACE Initiative – Addressing elder abuse and neglect using an interdisciplinary approach
The University of Sydney	39	Shanika Nanayakkara	An integrative study on genetic and environmental determinants of chronic kidney disease in the North Central Region of Sri Lanka
University of Taipei	40	Pei-Ching Chen	Association Between Electronic Cigarette Use and Quit Attempts Among Youth in Taiwan
University of Washington	41	Sungchul Park	Service-level selection: Strategic risk selection in Medicare advantage in response to risk adjustment

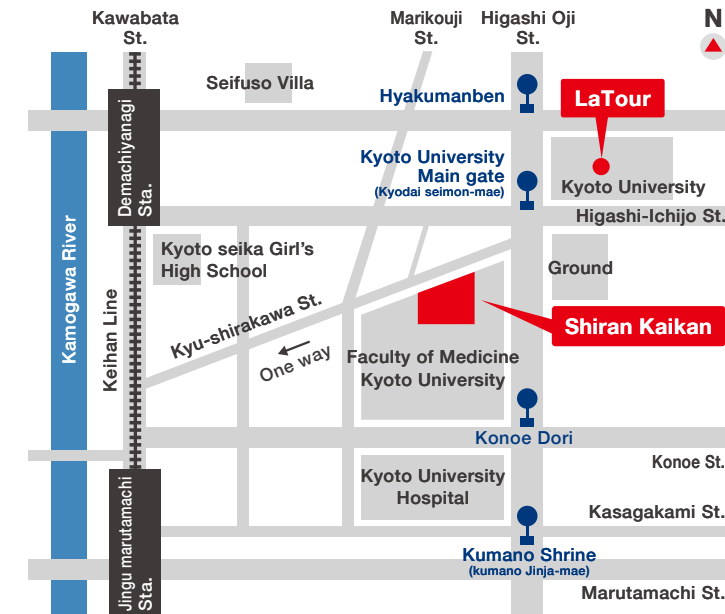
## MEMO

## MEMO

## Kyoto City Map



## Local Map



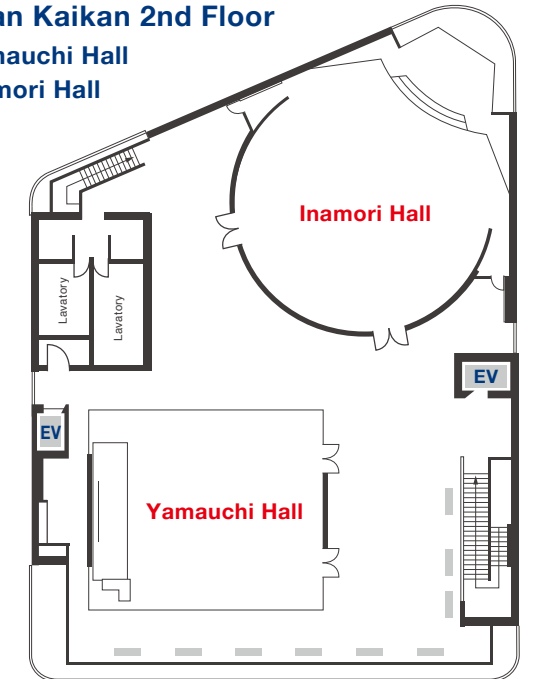
## Access

Main Railway station	Route	Terminal
Kyoto Station JR. Kintetsu Railway	City Bus #206 bound for Kitaoji bus terminal via Higashiyama St.	Kyodaiseimon-mae
Hankyu Railway Kawaramachi Station	City Bus #201 bound for Gion, Hyakumanben City Bus #31 bound for Kumano, Iwakura	Kyodaiseimon-mae
Karasuma Subway line Marutamachi Station	City Bus #202 bound for Kumano jinjya, Gion City Bus #204 bound for Higashi Tenno-cho, Kinrin Shako-mae	Kumano jinjya-mae (and change to above bus lines)
Keihan Railway Jingu-marutamachi Station	10 minutes walk north-east from No.5 exit	

## Floor Map

### Shiran Kaikan 2nd Floor

- Yamauchi Hall
- Inamori Hall



## Organizing Committee

### Kyoto University School of Public Health

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## Participating Institutions

Chiang Mai University

Chulalongkorn University

London School of Hygiene and Tropical Medicine

Mahidol University

National Taiwan University

National University of Singapore

University of Malaya

WHO Centre for Health Development, Kobe

