PublicHealth@Cambridge
Annual Showcase:
Global Public Health

8 May 2018
Fitzwilliam College
Cambridge
Programme

9.00 Registration, poster viewings and coffee

9.30 Welcome
by Professor Carol Brayne, Cambridge Institute of Public Health

Session 1 “Africa”
Dr Caroline Trotter - Department of Veterinary Medicine
“Controlling epidemic meningitis in Africa”

Dr Alice Reid- Department of Geography
“Pictures of Ageing in Uganda: a multi-disciplinary research project”

Dr Rosalind Parkes-Ratanshi- Cambridge Institute of Public Health and Infectious Diseases Institute, Uganda
“Testing and utilising new technologies in LMICs; opportunities and challenges from Uganda”

Dr Laurie Denyer-Willis- Centre of Governance and Human Rights
“Epidemics, Digital Media and Health Communications in Africa: An Evaluation of Africa’s Voices’ Methodologies and Research Innovations during Cape Verde’s Zika Crisis”

11.00 Coffee
11.40 Session 2 “Asia”
Chaired by Dr David Good, Co-chair of the Global Challenges SRI, Department of Psychology

Professor P John Clarkson FREng, Director, Cambridge Engineering Design Centre
“A systems approach to global healthcare redesign”

Dr Rajiv Chowdhury - Department of Public Health and Primary Care
“Cambridge Global Health partnership with less-developed countries: examples from South (East) Asia”

Dr Shailaja Fennell Department of Development Studies
"Health and Nutrition in Developing Countries"

12.55 Lunch and poster session - see last page for titles

14.00 Facilitated discussion on interdisciplinary global health research
Chaired by Professor Mike Kelly, Visiting Senior Research Fellow, CIPH
Facilitated by Dr Tennie Videler, coordinator Public Health@Cambridge Network

15.30 Tea
16.00 Session 3 “Caribbean and Latin America” & Lightning talks
Chair: Professor James Wood, Head of Department of Veterinary Medicine

Dr Nigel Unwin, MRC Epidemiology Unit and Global Diet and Activity Research Group and Network
“Co-creating a Research Programme for Global Public Health”

Dr María Moreno Parra- Department of Sociology
“Antiracist struggles, environmental suffering, and slow death. Perspectives from ancestral black territories in Ecuador”

Lightning talks:
- Dr Dora Pereira, Department of Pathology
  “Iron deficiency in rural Gambia and the IHAT-GUT trial”
- Dr Romola Davenport, Department of Geography
  “Water quality and gastrointestinal infections: the long view”
- Dr Shona Wilson, Department of Pathology
  “Severe childhood schistosomiasis in Lake Albert fishing communities: a multidisciplinary approach to ascertaining cause and optimal control”
- Dr Florence Nabwire, MRC Elsie Widdowson Laboratory
  “Option B-plus ART, pregnancy, lactation and bone health in Ugandan Women”
- Dr Dilrini De Silva, Cancer Research UK
  “Improving access to genomic technologies for developing world cancers”
- Sarah Dalzell MRC Elsie Widdowson Laboratory
  “The Gambia in transition: implications for nutrition and bone health”

Professor David Dunne, Director of Cambridge Africa, Director of the Wellcome Trust-Cambridge Centre for Global Health Research, Department of Pathology
“Cambridge Africa and the importance of capacity building”

17.50 Close
by Professor Carol Brayne, Cambridge Institute of Public Health
For over 100 years, epidemics of meningitis have occurred across the African meningitis belt. Until recently, the main cause of these epidemics was group A *Neisseria meningitidis* (NmA). In 2010, a new vaccine developed by the Meningitis Vaccine Project, offering protection against NmA was introduced. Today, over 280 million people across Africa have received the ‘MenAfriVac’ vaccine. Collaborating with the World Health Organisation and the African Meningococcal Carriage Consortium (MenAfriCar), I have researched the epidemiology of meningococcal infection and the impact of vaccination. In this talk I will describe some of this work, highlighting the tremendous public health success of MenAfriVac and challenges for the future.

Dr Caroline Trotter is a Senior Lecturer in Epidemiology in the Department of Veterinary Medicine. Her research examines the potential and actual impact of immunisation using a range of methods from classic epidemiology to mathematical modelling and health economics. Her work has been used to inform national and (as a consultant to the World Health Organisation) international vaccine policy. While much of her research is focussed on meningococcal disease and carriage in the UK and Africa, she also has current projects on group B streptococcus, pneumococcus, norovirus and rabies.
Dr Alice Reid - Department of Geography
“Pictures of Ageing in Uganda: a multi-disciplinary research project”

Ageing populations across the globe will increasingly present public health challenges. Global planning for ageing is an urgent priority but is complex and requires robust data. In sub-Saharan Africa, the demography, health concerns and self-perception of people in older populations are not well understood. Numbers of older people are generally less accurately collected than numbers of younger people, and age is most likely to be mis-reported among older people. Reported age may reflect health, appearance, or status, rather than actual age, and this complicates assessments of health and health needs by age. This presentation will report on the early stages of a pilot grant, funded under the AHRC-MRC GCRF Global Public Health Partnership scheme, which aims to further the understanding of ageing within demographic, social, medical and cultural contexts in Uganda. Our multi-disciplinary approach brings together academics, artists, non-governmental and governmental organisations in Uganda and UK, and a community of older people in Uganda.

Alice Reid is a demographer based in the Department of Geography, University of Cambridge, and the Cambridge Group for the History of Population and Social Structure. She mainly works on historical demography of the UK and has addressed a wide range of topics including the social and environmental influences on infant and child mortality, the under-registration of maternal mortality and the impact of changing midwifery practices, the changing meaning of causes of death among the elderly, and the geography of declining fertility. She leads the demography strand of the ‘Pictures of Ageing’ project with two demographers from the University of Makerere, Uganda.
Dr Rosalind Parkes-Ratanshi - Cambridge Institute of Public Health and Infectious Diseases Institute, Uganda
“Testing and utilising new technologies in LMICs; opportunities and challenges from Uganda”

Most recent global estimates suggest that only 37% of those in need of HIV drugs (anti-retroviral treatment – ART) are accessing it, so there is an urgent and increasing need to increase coverage of care. Despite huge progress in Uganda around 300,000 people are still not on ART. The public health approach to HIV treatment used in resource limited settings does not cater for individualized care. However, within those receiving and needing treatment some people living with HIV (PLHIV) require more intensive treatment and support to ensure they achieve and maintain an undetectable viral load and consequent good health, for example those who have just started treatment or with co-morbid conditions. Others require less intensive input; this has led to development of “differentiation of care” models within the public health approach. Our group based at the Infectious Diseases Institute in Kampala is using new technologies to aid differentiated care, thus trying to increase capacity of the health system to allow more people to access care for HIV and other conditions. This presentation will highlight ongoing projects we are undertaking in Uganda in this area.

Rosalind is a clinical academic with a research interest in sustaining HIV and STI care using innovation. She has over 13 years’ experience working in Uganda. She is head of the clinical services the Infectious Diseases Institute in Kampala. She has introduced new services such as a co-pay clinic, HIV-hepatitis services and elderly persons HIV clinic. She also headed a systems strengthening project for over 50,000 patients in government hospitals across Uganda. In 2015 she established the Ugandan Academy for Health Innovation and Impact of which she is the Director. Rosalind is also a Lecturer in Public Health at Cambridge Institute of Public Health, and holds an Honorary Contract at Cambridge University Foundation Hospital, the Chairperson of the Board of Directors, Aga Khan Health Services, Uganda and a Fellow of the Faculty of Public Health.
Health epidemics present challenges for rapidly gathering socio-cultural insights to better tailor and evaluate public health interventions. Without effective communications channels, public health advice quickly becomes unidirectional and interventions unilateral. This paper considers how radio programming, SMS and social media-based communications can be used to convene new ‘digital spaces’ in epidemics where citizens and public health workers can discuss emergent public health vulnerabilities. Drawing on a case study in Cape Verde and the 2015 Zika Virus, including a research method developed by a non-profit spinout from University of Cambridge research, Africa’s Voices Foundation, we evaluate the ability of new digital methodologies to reach ‘hard-to-reach’ populations. Based on 12 months of comparative research that tested qualitative methodologies (Focus group discussions and key-informant interviews) and Knowledge, Attitude and Practices (KAP) surveys, against and with radio and SMS-derived data, we suggest that two-way radio and SMS communication is an opportune mode of engagement, that relatively quickly and cost-effectively enables debate and critique that can provide crucial insights into the ways citizens go about their everyday life during an epidemic. Phase two of the project is currently underway in Somalia, working with national health authorities and UNICEF on cholera outbreaks.

Laurie Denyer Willis is a Research Fellow in Medical Anthropology in the Department of Global Health and Development at the London School of Hygiene and Tropical Medicine. Her research concerns the urban and political ecologies of health and disease in postcolonial landscapes, exploring animal-human relations (mostly mosquitoes and pigs), sensory forms of knowledge (mostly smell and touch), and religious forms of care and hope (mostly Pentecostal).
“Asia” session
Professor P John Clarkson FREng, Director, Cambridge Engineering Design Centre
“A systems approach to global healthcare redesign”

John will describe a unique project, based on an extended conversation within a forum of systems engineers, health and care professionals, quality improvement experts and patient representatives, to develop a new and integrated approach to guide service design and improvement in health and care. This project, led by the Royal Academy of Engineering, in collaboration with the Royal College of Physicians and the Academy of Medical Sciences, brought together ideas from engineering and health and care to define a new framework for improvement.

John Clarkson returned to the Department of Engineering, Cambridge, in 1995 following a seven-year spell with PA Consulting Group's Technology Division. He was appointed director of the Engineering Design Centre in 1997 and a University Professor in 2004. He is directly involved in the teaching of design at all levels of the undergraduate course.

His research interests are in the general area of engineering design, particularly the development of design methodologies to address specific design issues, for example, process management, change management, healthcare design and inclusive design. As well as publishing over 800 papers, he has written and edited a number of books on medical equipment design, inclusive design and process management.

John is currently leading a team with the Royal Academy of Engineering, the Royal College of Physicians and the Academy of Medical Sciences to develop a systems approach to healthcare redesign and improvement.
Dr Rajiv Chowdhury
“Cambridge Global Health partnership with less-developed countries: examples from South (east) Asia”

Dr Rajiv Chowdhury’s research interests are in evaluating individual and joint roles of environmental (such as environmental contaminants and diet), biological, and associated genetic factors that may influence the high risks of chronic non-communicable diseases specifically in low- and middle-income populations. Dr Chowdhury has established several large-scale, collaborative studies. He is the lead PI of the 16,000-participant BRAVE case-control study of acute MI in Bangladesh, the 100,000-participant population-based BELIEVE study in Bangladesh, the 10,000-participant population-based SHINES study in Sri Lanka, and more recently, the 5,000-participant MAVERIK case control study of acute MI in Malaysia (underpinned by a MRC/Newton Fund grant). These studies, among other aspects, are investigating potential roles of environmental factors and their health consequences.

Professionally, Rajiv is a qualified physician who also obtained an MPhil in Cardiovascular Epidemiology (as a Commonwealth scholar) and a PhD in Public Health (as a Gates scholar) from the University of Cambridge, UK. Rajiv has published extensively in areas related to NCDs and presently has over 80 peer-reviewed publications (including those in premier biomedical journals: Science, Nature, NEJM, Lancet, JAMA and BMJ). He was elected a Fellow of the European Society of Cardiology and a Fellow of the UK Royal Society for Public Health. In 2013, Rajiv received the Bill Gates Senior Award for contributions to global health.
Dr Shailaja Fennell, Department of Development Studies
"Health and Nutrition in Developing Countries"

This presentation will examine the focus on the importance of public health interventions that use gender gap data in the sphere of international health agendas. The presentation begins with a review of the range of gender health indicators from mortality, nutrition to well-being that provide a very insightful methodology to understand survival and resource inequalities within household. Focussing will be on the role of health indicators, this presentation will examine how gendered realities and intergenerational transmission have an impact of currently measured gender gaps in health. The related puzzles of the ‘missing women’ phenomenon, the greater percentage of malnourished children in South Asia than in sub-Saharan Africa and the rapid onset of adult diabetes in South Asia will be explored through tracking these measures. The presentation will move on to examines how some of these puzzles are being addressed through on the public health interventions being undertaken in relation to nutrition and gender empowerment in the GCRF funded TIGR2ESS programme (2018-2022) in India.

Shailaja is a co-I on TIGR2ESS, aiming to improve crop productivity and water use, identify appropriate crops and farming practices for sustainable rural development, with GCRF funding.
She previously led a collaborative research initiative with ARU, the Indian Institute of Technology-Madras and University of Punjab. The project focussed on understanding how bottlenecks that limit Internet access for rural agricultural production and community-based tourism can be removed.
She has been a consultant on inequality and rural development with Oxfam GB, on evidence based policy with the World Bank, and was the social science expert on agriculture and gender of the five person team that authored the European Report on Development on Fragility in Africa, 2008-09.
“Caribbean and Latin America” session

Dr Nigel Unwin, MRC Epidemiology Unit and Global Diet and Activity Research Group and Network

“Co-creating a Research Programme for Global Public Health”

Over 80% of the world’s population live in low and middle income countries (LMICs), where at least 1 in 6 adults will die prematurely (under 70 years) from largely preventable non-communicable diseases (NCDs). In some countries over 1 in 4 (e.g. South Africa) to over 1 in 3 (e.g. Guyana) adults currently die prematurely from NCDs. LMICs are undergoing rapid urbanisation and face the social, economic and health care challenges of escalating rates of NCDs related to increasingly unhealthy diets and physical inactivity. This talk will introduce a programme of work designed to provide evidence from and for LMICs to support sustainable, healthier, pathways to economic development. Key to the design of the research is ‘co-creation’: between researchers, policy makers and LMIC communities; across academic disciplines and sectors of society; and between the global south and north.

Nigel is Director of Research of Global Public Health at the MRC Epidemiology Unit, in the Institute of Public Health, where he leads the new Global Diet and Activity Research Group and programme. As a junior doctor he worked in Kingston, Jamaica, before returning to the UK to train in general medicine and Public Health. He spent a total of 15 years at Newcastle University, from lecturer to professor, with major interests and collaborations into the epidemiology and prevention of diabetes and related NCDs in low and middle income countries (especially in Africa). He worked for two years at the World Health Organization on diabetes and NCD prevention and control. Prior to coming to Cambridge in 2016 he spent 6 years at the University of the West Indies, helping to develop and run graduate public health training and to establish new research.
Dr María Moreno Parra - Department of Sociology
“Antiracist struggles, environmental suffering, and slow death. Perspectives from ancestral black territories in Ecuador”

In the Pacific region of northern Ecuador, manifestations of racism are not only expressed in forms of accumulation by dispossession of the ancestral afro-descendant territories but also in forms of environmental suffering. In this presentation, I explore these processes and argue that they have detrimental effects in the health and livelihoods of the local inhabitants, and could be understood as form of "slow death in territory". Situated in a wider local context of water pollution due to gold mining, the analysis of the land conflict between an Afro-descendant community and an oil palm company demonstrates the continuity of forms of "coloniality" that adversely affect Afro-descendant and indigenous populations in Latin America. Part of the antiracist struggle of the affected communities consists of remaining (in the territory) and appealing to the right of ancestral possession as black people and to the rights of Nature of the Ecuadorean Constitution.

María Moreno Parra is a postdoctoral research associate at the University of Cambridge on the project Latin American Anti-Racisms in a "Post-Racial" Age, LAPORA. She is in charge of research in Ecuador on the understandings of racism, anti-racism and racial inequality, as part of a research team that also works in Brazil, Colombia and Mexico.
“Capacity building”

Professor David Dunne - Director of Cambridge Africa, Department of Pathology

“Cambridge Africa and the importance of capacity building”

The Cambridge-Africa programme was initiated 10 years ago to help bridge the mentorship gap in Africa, which meant that new research leaders struggled to find the mentors they needed to develop in their home countries. It relies on real partnership and addresses, and helps to reverse, the continent’s brain drain.

Building these relationships with Africa has also very significantly enriched Cambridge’s own academic environment, benefiting both our students and academic researchers.

David Dunne is a Professor of Parasitology at the Department of Pathology. For 30 years, his research group carried out field-based research on human schistosomiasis and other human parasitic diseases in endemic rural areas in Africa. This research was conducted in long-term partnership with colleagues in Uganda, Kenya and Mali, and more recently through collaborations in Ghana, Gabon, and Tanzania. Professor Dunne is the Director of the Cambridge-Africa Programme (which he initiated in 2008). Through Professor Dunne’s leadership, the Programme is making the University of Cambridge’s globally-renowned expertise, resources and influence readily available to support and partner African research institutions towards international competitiveness and self-sustenance. Professor Dunne is also the Director of the Wellcome Trust-Cambridge Centre for Global Health Research (WT-CCGHR) - a Centre that has evolved out of the Cambridge-Africa Programme, with a focus on supporting African health research.
Abstracts lightning talks

Dr Dora Pereira, University of Cambridge and MRC Unit The Gambia at the London School of Hygiene and Tropical Medicine
“Iron deficiency in rural Gambia and the IHAT-GUT trial”
Iron deficiency anaemia is the largest nutritional deficiency disorder in the world, affecting over 1 billion people. Children and pre-menopausal women living in rural and resource-poor countries with high burden of infectious diseases are population groups most at risk. Despite considerable research efforts and investment over the last 25 years, we have been unable to significantly decrease the burden of this disease in sub-Saharan Africa. I will present the challenges we face in Africa to treat iron deficiency and explore the compromise between iron bioavailability to the human host and iron bio-accessibility to pathogens. I will briefly present the background and design of the IHAT-GUT trial I am conducting in rural Gambia in collaboration with the MRC Unit The Gambia at the LSHTM, where we are focused on understanding the risk-benefit balance of oral iron supplementation in terms of infection and the gut microbiome in young children.

Dr Romola Davenport, Department of Geography
“Water quality and gastrointestinal infections: the long view.”
Provision of clean water is widely regarded as a key element underpinning modern gains in life expectancy. However the empirical evidence regarding the effects of improved water sources on mortality and morbidity is often equivocal. Recent meta-analyses in contemporary populations have repeatedly revealed only modest effects of interventions to provide clean water sources (as opposed to point-of-use treatments), with very large differences between studies. This variation is observed in comparative historical studies as well. In the English case, although mortality from cholera, dysentery and typhoid was dramatically reduced by improvements in water supplies in the period c.1850-1900, infant diarrhoeal mortality failed to respond to water and sanitary interventions until the early twentieth century. We relate these patterns to the evolutionary biology of gastro-intestinal pathogens. Briefly, the most virulent gastro-intestinal pathogens were more reliant mainly on waterborne transmission, were lethal to all ages, and were most easily controlled by early and crude interventions to improve water and sanitation. Less virulent pathogens that caused diarrhoeal mortality in infants and the elderly were transmitted largely by non-water dependent pathways. Control of these pathogens required more complex interventions, including improvements in domestic hygiene, and possibly reductions in fly-borne transmission.
Dr Shona Wilson, Department of Pathology

“Severe childhood schistosomiasis in Lake Albert fishing communities: a multidisciplinary approach to ascertaining cause and optimal control.”

Severe schistosomiasis is a devastating neglected tropical disease. Without control and disease management strategies sufferers with the manifestation of periportal fibrosis of the liver can develop portal hypertension, which in its severest form can cause death through haematemesis.

Mass Drug Administration (MDA) programmes are the corner-stone of efforts to control schistosomiasis as a public health problem. Uganda was at the forefront of the treatment vanguard, first administering MDA in 2003. Amongst the communities first treated were those residing on the shores of Lake Albert, an area historically with high prevalence of periportal fibrosis. Our recent screens of school-children in these fishing communities show that despite concerted efforts and good reported community treatment coverage rates, infection intensities are very high and periportal fibrosis common place. There is a major need for alternative strategies for control in these hotspots of pathology.

FibroScHot is a newly formed consortium that encompasses field biology, host-pathogen interaction, parasite genetics and genomics, medical anthropology, transmission modeling and clinical trial expertise. The consortium was brought together to ascertain the causes of this resurgence in pathology, and the optimal MDA strategy for its control, through a Phase IV trial. The trial protocol, and how the planned exploratory outcomes complement this, will be discussed.

Dr Florence Nabwire, MRC Elsie Widdowson Laboratory

“Option B-plus ART, pregnancy, lactation and bone health in Ugandan Women”

Pregnancy and lactation are associated with physiological changes in bone mineral (BM), but most evidence shows that this is recovered after weaning. ART may disrupt the normal process of BM mobilisation in the mother, leading to bone loss that is not recovered. However, data are scanty on whether HIV-infected (HIV+) women on option-B+ ART experience greater reductions in BM during lactation compared to HIV-uninfected (HIV-). The object of this research was to investigate the effect of ART on maternal BM in the context of pregnancy and lactation.
Two groups of pregnant women, 95 HIV+ (on TDF-3TC-EFV, previously ART naïve) and 96 HIV- were recruited in Kampala, Uganda and followed prospectively. The primary outcome was the difference between the groups in % change (± SE) in maternal lumbar spine bone mineral density (BMD) 2 and 14 weeks after birth. The data show a significantly greater reduction in TH BMD in Ugandan HIV+ pp mothers on option-B+ ART compared to HIV- mothers in the first 3 mo of lactation, consistent with changes in BTM. It is important to determine if these are temporary or have long-term consequences bone health.

Dr Dilrini De Silva, Cancer Research UK
“Improving access to genomic technologies for developing world cancers”
Outcomes for cancers in the developing world are worse than in high income countries as patients are often diagnosed later and advanced methods of patient stratification and accurate characterisation of tumours are not widely available. Breast cancer is a leading in South Asia with the incidence of triple negative breast cancer (TNBC), an aggressive form of the disease with poor outcomes, as high as 35% in South Asian countries compared to 15% in the West. TNBC cannot be treated with commonly prescribed hormone therapies and anti-HER2 drugs. Improved prognosis with platinum-based therapy in BRCA1/2 mutated breast and ovarian cancers suggest an unmet need for low-cost genomic tests to determine BRCA status and therefore eligibility of TNBC patients for platinum-based therapy. Through the Borysiewicz Biomedical Sciences Fellowship I intend to improve access to low-cost genomic technologies to address unmet needs in patient stratification for developing world cancers.

Sarah Dalzell MRC Elsie Widdowson Laboratory
“The Gambia in transition: implications for nutrition and bone health”
Environment, diet, and lifestyle are important determinants of health, including bone health. In the last century, the world's population has experienced significant transition, including population ageing, urbanisation, and the associated nutrition transition. These transitions have been linked with the recent rise in osteoporotic fragility fracture, and its predicted increase in Africa and Asia. Similar to other countries in Africa, The Gambia is in demographic and nutritional transition. Rapid urbanisation, primarily occurring as a result of rural-to-urban migration means the majority of the population are now classified as urban. Migration from rural to urban areas is associated with many changes in diet and lifestyle, and due to the globalisation of food systems, the
availability of oil, sugar, and processed foods is increasing in both rural and urban areas.
While the livelihoods of rural communities are based on subsistence agriculture, with a predominantly plant-based diet, and physically active lifestyle; transition towards a more 'western' diet and sedentary lifestyle is implicated with a greater risk of non-communicable diseases, such as cardiovascular disease, diabetes, and osteoporosis. This presentation will consider aspects of transition, particularly the nutrition transition in the Gambian context, and discuss the potential implications for bone health.
Posters

Sophie H Allcock, Elizabeth H Young and Manjinder S Sandhu, Department of Medicine, University of Cambridge and Wellcome Sanger Institute, Wellcome Genome Campus, UK
“Sociodemographic patterns of health insurance in Namibia”

Dr Calum Mattock, Stef Buckner, Caroline Lee, Andy Cowan and Louise Lafortune- Cambridge Institute of Public Health
"Developing Age-Friendly Rural Communities: the contribution of local participatory planning processes"

Lauren Milden - Cambridge Institute of Public Health
“Public Health: Research into Policy”

Dr Isla Kuhn
Evidence

Sumantra Ray
NNEdPro Founding Chair & Executive Director

Hanyuying Wang, Prof Carol Brayne, the CC75C collaboration
“Longitudinal analysis of the impact of loneliness on cognitive function over a 20-year follow-up”
Cambridge Institute of Public Health

University of Cambridge School of Clinical Medicine
Forvie Site
Cambridge Biomedical Campus
Cambridge CB2 0SR

Visit:
www.publichealth.cam.ac.uk
Follow us at:
@CamPublicHealth

Tweet about the showcase with: #CamPublicHealth

Join the PublicHealth@Cambridge Network at:
www.publichealth.cam.ac.uk/join-the-network/register