PublicHealth@Cambridge:
Showcase 2015
MONDAY JUNE 8, 2015
PublicHealth@Cambridge
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Director of Cambridge Institute of Public Health

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Veterinary Medicine

Dr Ron Zimmern
PHG Foundation

Dr Paula Frampton
Strategic Network Coordinator

Dr Gill Rands
Research Strategy Office

For further information and to join the Network, please visit: www.publichealth.cam.ac.uk
“The PublicHealth@Cambridge Strategic Network is a multidisciplinary community of researchers established in 2013.

Today’s Showcase highlights two of the key themes for the Network—sustainability and Big Data. By bringing together evidence from across Cambridge’s research domains, we seek to apply our combined expertise to address future research and policy needs in these and other areas critical to global public health.

Today we also highlight the work of a number of our vibrant early and mid-career researchers. The importance of developing our future research leaders is clear and working with them will be a key focus of our year ahead.”

Professor Carol Brayne,
Chair of the PublicHealth@Cambridge Steering Committee
PublicHealth@Cambridge: Showcase 2015
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9.45  Arrival and Registration

10.15  Introduction and Welcome – Carol Brayne, Network Chair

10.30  Sustainability – Turning ‘food for thought’ into ‘food for action’
Chair: David Pencheon, NHS Sustainability Unit
Gareth Hollands, Behaviour and Health Research Unit
Effects of portion, package and tableware size on selection and consumption of food, alcohol and tobacco: systematic review and policy implications
Bojana Bajzelj, Engineering
Environmental benefits of healthy diets

Pablo Monsivais, Centre for Diet and Activity Research/MRC Epidemiology Unit
The DASH diet: A carbon-friendly recipe for chronic disease prevention in the UK?

Bhaskar Vira, Geography
The role of forests in healthy diets and nutrition

12.00  Lunch and poster session

13.15  Introduction from the University Vice-Chancellor, Sir Leszek Borysiewicz

13.30  Keynote presentation – Professor Dame Anne Johnson, UCL
Health of the public in 2040

For further information and to join the Network, please visit: www.publichealth.cam.ac.uk
14.00 Lightning talks

Chair: Rob Doubleday, Centre for Science and Policy

Jean Adams, MRC Epidemiology Unit/CEDAR
Who has time to cook?

Yu-Tzu Wu, Public Health and Primary Care
Living environment and mental health in later life

Nick Jones, MRC Epidemiology Unit/CEDAR
Expanding our working definition of food security

Tammy Tong, MRC Epidemiology Unit
Mediterranean diet in the United Kingdom: Association with cardiovascular diseases and cost

Stephen Kissler, Applied Mathematics and Theoretical Physics
How to outrun a pandemic, in three easy steps

Oliver Mytton, MRC Epidemiology Unit/CEDAR
Can ‘prevention and public health’ save the NHS money?

14.45 Coffee

15.15 Big Data for public health research

Chair: David Spiegelhalter, Statistical Laboratory

Cecilia Mascolo, Computer Laboratory
Challenges and Opportunities for Public Health Studies with Mobile Phone Sensing

Sharath Srinivasan and Claudia Abreu Lopes, Centre for Governance and Human Rights
How do young Kenyans talk about contraception? Listening intelligently to conversations on digital platforms

Robert Haining, Geography
Geographical Health Information Systems

Anna Korhonen and Nigel Collier, Theoretical and Applied Linguistics
Knowledge Support for Protecting and Improving Health through Text-Data Mining

16.45 Closing statements – Carol Brayne

17.00 Coffee and light refreshments

17.30 Close
Increasingly it is recognised that features of the physical and social environments that surround us contribute greatly to health-harming behaviours, including the overconsumption of food. Correspondingly, altering these environments may be an important catalyst for changing population health behaviour.

Traditional approaches to changing health behaviour in populations focus on information provision and persuasion, targeting conscious processes and intentional routes to behaviour with, at best, modest effects. “Choice architecture” or “nudge” interventions (i.e. altering cues in the environment to change behaviour) have the potential to yield larger effects at a population level, as they capitalise on the non-conscious processes that shape much of our behaviour.

The size of portions and packages of food (as well as of alcohol and tobacco) represent potential targets for public health intervention, as people are repeatedly exposed to these modifiable properties of products in environments such as shops, restaurants, bars, or the home. In this talk I will present the findings of a Cochrane systematic review that aimed to assess the effects of portion, package and tableware size on selection or consumption of food, alcohol and tobacco products. I will then highlight some possible implications of this work for policy options to change dietary behaviours.
Bojana Bajzelj,
Engineering

*Environmental benefits of healthy diets*

Producing food, particularly of animal origin, requires large resources and is a significant contributor to global greenhouse gas emissions. The average 20% over-consumption of calories in western diets explains much of the global obesity epidemic, but also, if the production of these calories could be avoided, the use of land, fertiliser and agro-chemicals would significantly decrease. A reduction in consumption of red and processed meat particularly carries significant environmental benefits. Most diets typically considered to be healthy (e.g. Mediterranean, pescatarian) have better environmental profiles compared to the average diets. An increasing numbers of studies show that shifting diets to healthier is actually crucial for meeting climate change and sustainability goals.

Pablo Monsivais,
MRC Epidemiology Unit/ CEDAR

*The DASH diet: A carbon-friendly recipe for chronic disease prevention in the UK?*

The cultivation, processing and distribution of food contributes over one fifth of all greenhouse gases produced in the UK. Yet, government advice on healthy eating gives limited consideration to the environment or sustainability. Eating less meat can reduce the environmental impact of our diets, but low-meat diets aren’t necessarily healthy diets, nor are they easy ones for everyone to stick to. One diet pattern that might satisfy the goals of health, acceptability and sustainability is the Dietary Approaches to Stop Hypertension (DASH). In this talk, I will review what’s known about the DASH diet and present new findings on the climate impact and consumer costs associated with this diet pattern.
A total of 805 million people are undernourished worldwide, and malnutrition affects nearly every country on the planet. Despite impressive productivity increases, there is growing evidence that conventional agricultural strategies fall short of eliminating global hunger and result in unbalanced diets that lack nutritional diversity. This talk will discuss a recent report which documents the role that forests and tree-based systems play in supplementing agriculture by providing better and more nutritionally-balanced diets, and allow greater control over food consumption choices, particularly during lean seasons and periods of vulnerability – and, this is especially important for the poorest and most marginalized groups.
Keynote: Professor Dame Anne Johnson, University College London

Health of the Public in 2040

The world is changing, and the changes that we will face over the next twenty-five years – be they technological, demographic, social, political, environmental or economic – will inevitably present significant challenges and opportunities for the health of the population. Many of these challenges, such as potential pandemics, rising obesity and an ageing population, can only be fully addressed through measures to improve the health and wellbeing of the population as a whole, and by preventing disease before it reaches the clinic. The Academy of Medical Sciences ‘Health of the public in 2040’ working group project aims to help secure future wellbeing by better understanding the factors which will affect the public’s health and how they might be influenced to deliver the outcomes we desire.

Anne Johnson is Professor of Infectious Disease Epidemiology, Chair of the Population and Lifelong Health Domain and Vice Dean for external relations in the Faculty of Population Health Sciences at University College London. She is also a Governor of the Wellcome Trust. After training in medicine at the University of Cambridge and Newcastle University, she specialised in epidemiology and public health and has a clinical research career spanning over 30 years.
Jean Adams, MRC Epidemiology Unit/CEDAR

Who has time to cook?

Poor home-cooking skills and socio-economic differences in such skills have been proposed as an explanation for unhealthy diets, overweight and obesity, and inequalities in these. Measuring cooking skills is difficult. Possessing cooking skills may also be unrelated to everyday use of such skills. One alternative is to measure time spent cooking.

We documented the prevalence and socio-demographic correlates of time spent cooking by adults in the 2005 UK Time-Use Survey. Data from 4214 participants were included. 85% of women and 60% of men spent any time cooking. Amongst women: older age, not being in employment, lower social class, greater education, and living with other adults or children were positively associated with time cooking. Few differences in time spent cooking were seen in men.

Yu-Tzu Wu, Department of Public Health and Primary Care

Living environment and mental health in later life

Poor quality living environments, such as littered streets, graffiti and broken windows, have been related to crime and signs of social disorder with a potential impact on individual mental health. To assess these micro-scale environmental features in diverse settings and explore their relationships with mental health problems in later life, a measurement method of visual image audits was developed and applied to a population-based cohort of older people in the UK. The results show that poor micro-scale features were associated with increased odds of common mental disorders while the association for cognitive disorders differed across urban and rural settings. This indicates complicated interactions between ageing and place. Measures of living environment should be considered more strongly in future research and public health policy to create a supportive environment for healthy ageing.
Tammy Tong,  
MRC Epidemiology Unit

*Mediterranean diet in the United Kingdom: Association with cardiovascular diseases and cost*

The Mediterranean diet represents traditional diets of Mediterranean regions, and has been recognised as a healthy dietary pattern. It is currently the only dietary pattern with large-scale trial evidence of protection against cardiovascular diseases, albeit in a Mediterranean population. We aimed to assess potential cardiovascular health benefits of the Mediterranean diet and its affordability in the United Kingdom.

This talk will cover analyses using two large general population cohorts in the United Kingdom. First, we assessed whether and how adherence to the Mediterranean diet was associated with the development of new-onset cardiovascular diseases in the EPIC-Norfolk Study. Second, we estimated consumer food costs of participants in the contemporary Fenland cohort, with different levels of adherence to the Mediterranean diet.

Nick Jones,  
MRC Epidemiology Unit/CEedar

*Expanding our working definition of food security*

Food security is a term often associated with absolute food poverty and starvation, however the accepted definition of food security stipulates that individuals must have access to food which will ensure good health; an important element of access is the ability to afford such a diet. The high price of healthy foods affects most people, not just the poorest, and it has been observed that at all levels of income people purchase less healthy diets when faced with potential financial pressure. Using the concept of food security to understand the causes of major issues in dietary public health, such as obesity and diabetes, would hopefully result in policies which target the root causes of diet-related disease, looking to reshape the economic-nutrition environment rather than simply attempting to help people navigate it better.
How to outrun a pandemic

Pandemic influenza is one of the greatest known threats to human health. As such, it’s important to understand how it spreads. Pandemic flu spreads more easily than the seasonal variety, so, logically, an outbreak should take a strong initial hold in cities, and then disseminate rapidly via air and ground transportation. Right?

New data suggests that the 2009 influenza pandemic didn’t behave this way at all, at least in the US. Instead, the epidemic started in a rural portion of the American South and spread slowly outward, taking a full ten weeks to reach New York City – slowly enough, that is, for a person to theoretically outrun. In this talk, I will present recent progress in describing the outbreak mathematically, and offer some insights into how local age structure, climate, and transportation patterns might have caused the pandemic to behave as it did.

Can ‘prevention and public health’ save the NHS money?

NHS England believes that the sustainability of the NHS depends on people adopting healthier behaviours. They argue that the adoption of healthy behaviours reduces the incidence of disease (at any given age), which should reduce the disease burden. However it will also lead to more people living to an older age, when disease incidence is higher, tending to increase the disease burden.

We used a life table model to estimate the effect of changes in physical activity on disease burden, considering both these processes (reduced disease incidence and increased longevity). The work helps us understand the extent to which the adoption of healthy behaviours may affect the burden of different diseases. It also enables us to develop better tools to describe the likely effect and timing of public health interventions.
Cecilia Mascolo, Computer Laboratory

Challenges and Opportunities for Public Health Studies with Mobile Phone Sensing

Mobile phones and mobile phone apps have recently started to enable researchers to collected vast amount of information about users. This has been enabled by the large variety of sensors which modern phones embed (such as GPS, radios, accelerometers, gyroscope…) and our progress on techniques for spatio-temporal analysis of this fine grained data.

In this talk I will introduce the challenges which these devices and this technology pose as well as the opportunities which arise from their use. The talk will use examples from our work on mood sensing, smoking cessation, user mobility modelling through mobile phone sensing and geo-social data analysis.

Sharath Srinivasan and Claudia Abreu Lopes, Centre for Governance and Human Rights

How do young Kenyans talk about contraception? Listening intelligently to conversations on digital platforms.

Africa’s Voices, a registered charity, has spun-out of cutting-edge research at the University of Cambridge. We harness mobile technology and interactive media to spark inclusive discussions, analyse conversational data, and provide powerful insights to drive greater impact.

From 2014 to present, we have been working with an Emmy award-winning Kenyan media company, Well Told Story, to reveal insights into their programme’s impact on addressing contraception issues among youth. By analysing over 450,000 SMS messages, we identified a popular slang, which Well Told Story then incorporated into their media - boosting audience engagement in discussions about contraception.
Geographical Health Information Systems

Geographical Information Systems (GISs) have become useful for handling, analysing and displaying various types of geographically referenced health data. GHISs fall broadly into one or more of three categories: those of a (spatial) epidemiological nature (e.g. disease mapping and modelling), those concerned with population access to health care facilities and, more recently, those concerned with community engagement in defining health needs and meeting health challenges.

I will describe each category of GIS, the sorts of questions they are used to tackle and the techniques they employ.
Posters

- Helen Elizabeth Brown, MRC Epidemiology Unit/CEDAR
  Engaging families in physical activity research: A family-based focus group study

- Thomas Burgoine, MRC Epidemiology Unit/CEDAR
  Does neighbourhood exposure to takeaway food outlets amplify social inequalities in unhealthy diet and BMI?

- Adina Feldman, MRC Epidemiology Unit
  Lifestyle Behaviour Change and Diabetes

- James Jamison, Public Health and Primary Care
  Stroke survivors, caregivers and GPs attitudes to a polypill for secondary stroke prevention: a qualitative interview study

- Sarah Kelly, Institute of Public Health
  Barriers and facilitators to the uptake and maintenance of healthy behaviours by people at midlife: a systematic review

- Maxine Lamb, MRC Epidemiology Unit
  Prospective associations between sedentary time, physical activity, fitness and cardiometabolic risk factors in people with type 2 diabetes

- Sherly Li, MRC Epidemiology Unit
  Are we ready for personalised nutrition? Interaction between macronutrient intake and genetics on type 2 diabetes: a systematic review.

- Christos Lynteris, CRASSH
  Visual Representations of the Third Plague Pandemic

- Katie Morton, MRC Epidemiology Unit/CEDAR
  The school environment and adolescent physical activity and sedentary behaviour: A mixed studies systematic review

- Cristina Perez, Psychiatry
  Healthcare use, ill-health and mortality in adults with intellectual disabilities and mealtime support needs

- Olivia Remes, Public Health and Primary Care
  Review of reviews: the prevalence of anxiety disorders across the life course

- Simon Wheeler, MRC Epidemiology Unit
  The Measurement Toolkit: helpful methodological guidance and resources for assessment of diet, physical activity, body composition, smoking and alcohol intake

- Eiko Yoneki, Computer Laboratory
  Digital Epidemiology: Modelling of Epidemic Spread using Contact Data

- Anwen Zhang, Economics
  Religiosity and Mental Health in Adolescence
The PublicHealth@Cambridge Research Network generates fresh insight into the health and well-being of global populations via our multidisciplinary community of researchers. We support development of new research and coordinated activities in areas of importance to public health and facilitate translation of research, to the benefit of current and future populations.

For further information and to join the Network, please visit: www.publichealth.cam.ac.uk

For any questions, comments or discussion, please contact the Network coordinator, Dr Paula Frampton: coordinator@publichealth.cam.ac.uk