

NATIONAL CENTRE FOR EPIDEMIOLOGY & POPULATION HEALTH



ANNUAL REPORT 2006

ANU COLLEGE OF MEDICINE & HEALTH SCIENCES

NATIONAL CENTRE FOR EPIDEMIOLOGY & POPULATION HEALTH

ANNUAL REPORT 2006

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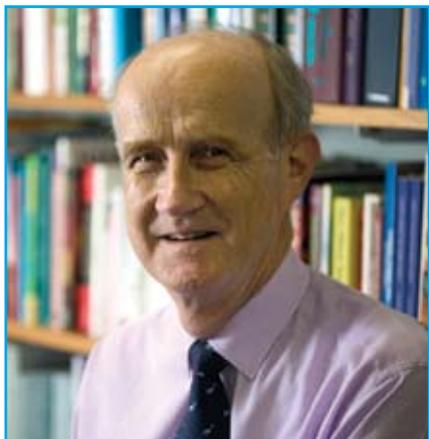
THE AUSTRALIAN NATIONAL UNIVERSITY

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DIRECTOR'S FOREWORD



The simplest thing to say about 2006 was that it followed 2005. And preceded 2007.

Beyond that, it was the year in which a new five-year cycle of Public Health Education and Research Program (PHERP) funding from the Australian Government was negotiated – for which much appreciation. It was the year in which we were subsumed within the new ANU College of Medicine and Health Sciences. It was the year in which one of our foundation disciplines, health economics, budded off as a free-standing, NHMRC-funded, centre: the Australian Centre for Economic Research on Health (ACERH). And it was the year in which a new Director of the Master of Applied Epidemiology (MAE) program arrived and, with MAE staff, carried out an energising review of the program.

In 2006 we undertook a substantial review and overhaul of our research program and its internal structuring.

NCEPH's core research interests remain focused on environmental influences on health, infectious disease transmission and issues of biosecurity, social and life-course influences on health outcomes and inequalities, public health nutrition, and social, cultural and demographic influences on health in the Asia-Pacific region and beyond. From 2007 onwards, we will also give higher profile to our work on advanced methods in population health research.

Mission statements can be ethereal or tedious. We wrestled with this challenge in 2006, and forged the following:

NCEPH conducts research, in conjunction with graduate training, to enhance the understanding of contemporary influences on patterns of health and disease in Australia and in the neighbouring region and beyond. The over-arching goal is to achieve effective health-promoting policies, social equity and environmental sustainability. Throughout, the Centre strives for relevance, excellence, innovative methods and positive social impact.

In 2006 we also farewelled two long-serving, much-loved, stalwarts: Kaye Devlin (finance officer, petty cash police-person and Melbourne Cup sweepstakes organiser) and Blanka Baric (tea-lady, general admin duties and ever-smiling support person). We also part-farewelled several other general staff who relocated to the new College Administrative Group – but we were glad to maintain subsequent professional and personal contacts with them.

My thanks to all who helped with the above kaleidoscope of activities and reformations. In 2007 the Research Quality Framework looms as the next major challenge. We live in interesting times.

Tony McMichael
Director

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Emeritus Fellow John Deeble

Tamara Blakemore, Australian Government
Department of Family and Community Services
9 June 2005 – 16 June 2006

Mary Beers-Deeble

1 March 2006 – 31 July 2006

Tony Capon, Division of Environmental & Life Sciences, Macquarie University

8 May 2006 – 7 November 2006

Rapeepan Dejpichai, Department of Disease Control, Ministry of Public Health, Thailand

ANU Tsunami Fellow May 2006

Richard M. Eckersley, BSc(Hons) ANU MScSoc NSW

1 January 2006 – 31 January 2007

Michael Flood, Australian Research Centre in Sex, Health & Society, La Trobe University

1 March 2006 – 28 March 2007

Glen Fulford, School of Mathematical Sciences, Queensland University of Technology

1 December 2006 – 28 February 2007

Charles Guest, ACT Health

1 January 2006 – 31 December 2006

Barbara Jefferis, Institute of Child Health, London

18 June 2006 – 1 July 2006

Faisar Jihadi, WHO Banda Aceh, Indonesia

ANU Tsunami Fellow April 2006

Tord E. Kjellstrom

1 January 2006 – 31 December 2006

David McDonald

30 June 2006 – 30 September 2006

Jonathan Mond, Neuropsychiatric Research Institute, Fargo, USA

6 March 2006 – 10 March 2006

Alice Roughley, Consultant, Canberra

1 November 2006 – 31 October 2007

Shilu Tong, Centre for Health Research, Queensland University of Technology

2 May 2006 – 1 September 2006

Centre Visitors

Ross Andrews, Centre for International Child Health, Royal Children's Hospital, Melbourne

Frank Ball, University of Nottingham

Cate Burns, School of Exercise and Nutrition, Deakin University

Somsak Chaiwal, Bureau of Disease Control & Veterinary Services, Thailand

Anni Dugdale, University of Canberra

29 November 2005 – 30 March 2006

Sukhan Jackson, Department of Economics, University of Queensland

Kamalini Lokuge, Medecins Sans Frontieres, Holland

Sam-ang Seubsman, Sukhothai Thammathirat Open University, Thailand.

July 2004 – July 2007

General Staff

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Lond

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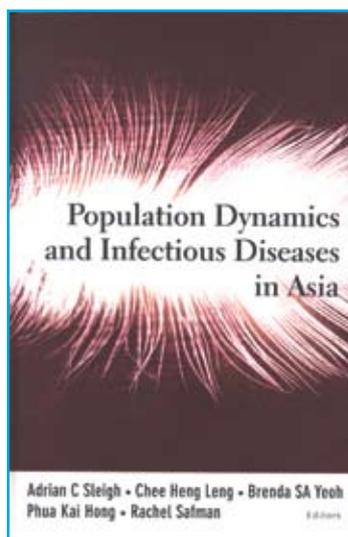
David McDonald*

Ruth Pitt*

* For part of the year only

BOOKS

Population Dynamics and Infectious Diseases in Asia



Edited by Adrian C Sleigh, Chee Heng Leng, Brenda SA Yeoh, Phua Kai Hong, Rachel Safman

First published in Singapore by World Scientific Co Pte Ltd. 2006

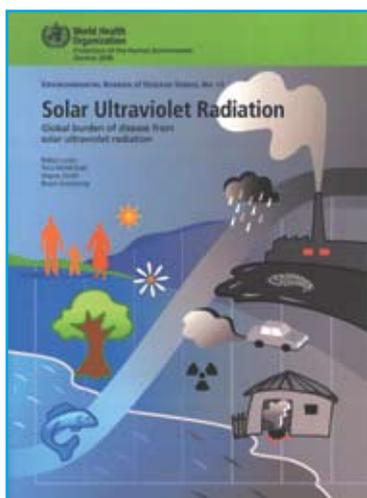
NCEPH's Professor Adrian Sleigh is co-editor and author of four chapters of this timely volume which considers the potentially lethal pattern of infectious disease emergence in Asia.

The book was prepared in partnership with the Asian MetaCentre for Population and Sustainable Development Analysis at the National University of Singapore (NUS) - one of the partner universities of ANU. The majority of chapter authors are Asian scholars drawn from universities, institutes and governments across the region. Initially stimulated by a scholarly workshop convened in Singapore in late 2004, and written over the subsequent 18 months, this volume considers the potentially lethal pattern of infectious disease emergence in Asia.

The book explores the causes and consequences of infectious agents in the region historically and examines such newly emergent natural biological threats as SARS, HIV/AIDS and avian influenza, as well as resurging problems such as tuberculosis. It employs multiple perspectives and places the issues of emerging infection in the context of population dynamics and development of the whole Asian region.

NCEPH Director and Professor, Tony McMichael and Niels Becker, Professor of Biostatistics at NCEPH, have also contributed, along with Dr Kathryn Glass and ANU demographer, Dr Zhongwei Zhao.

Global burden of disease from Solar Ultraviolet Radiation.



Robyn Lucas, Tony McMichael, Wayne Smith, Bruce Armstrong
Environmental Burden of Disease Series, No 13. WHO Geneva, 2006

The World Health Organization's (WHO) global burden of disease studies, undertaken since 1996, apportion the total global disease burden in disability adjusted life years (DALYs) to assessed diseases and injuries. Recent assessments of the relative burden due to specific environmental risk factors, in concert with an understanding of the nature of the risk factor, may guide resource allocation in risk factor management. This report presents the assessment of the global disease burden incurred by inappropriate UVR exposure.

Excessive UVR exposure is a minor, but readily preventable, contributor to the environmental disease burden (1.6 million DALYs, 0.1 per cent of the total global disease burden). Meanwhile, a substantial potential disease burden (3.3 billion DALYs) is also avoided by sufficient UVR exposure to avoid vitamin D deficiency bone diseases.

While sun protection messages are important to prevent diseases of excessive UVR exposure, in the absence of high dietary intake of vitamin D or vitamin D supplements some sun exposure is essential to avoid diseases of

RESEARCH

INTERNATIONAL ACTIVITIES

Global Environmental Change & Health



Professor Tony McMichael is co-chair of a new and ambitious international research initiative on the impacts on human health of global environmental changes. This research challenge, developed within the framework of the International Council of Science (ICSU), will substantially broaden the scope of 'environmental change' research beyond that already underway in the domain of climate change and health risks.

The scientific community is now, somewhat belatedly, recognising the need to understand the many and complex linkages between global environmental change (including climate change, stratospheric ozone depletion, land and sea use changes, biodiversity losses, freshwater depletion, global socio-economic changes, etc.) and human health. Among economists, an enlightened minority has recognised that the human economy is a wholly dependent subset of nature's economy. However, we have all been slower to appreciate fully that human health and survival is wholly dependent on the maintenance of the natural environment (both pristine and human-managed) and its ecological processes.

As yet, little systematic research has been undertaken on the many important aspects of this topic. Nor has there been any systematic attempt to establish an international community of researchers addressing these issues. The most advanced component, internationally, is the research that is now evolving on the regional and local health impacts of climate change.

During the 1990s, the International Council of Science (ICSU), via its four central research programs (to do with geosphere-biosphere, biodiversity, climate and water resources science), established the Earth System Science Partnership (ESSP). The ESSP is developing networked research activities into the characteristics and functions of, and the human impacts on, the global carbon cycle and climate, the global water system, and food systems (and their response to global environmental changes).

A fourth ESSP Joint Project on Global Environmental Change and Human Health (GECHH) was recently developed, and then formally launched at the ESSP Open Science Conference in Beijing, November 2006. This Project will provide a focus of convergence for the three abovementioned ongoing ESSP Joint Projects, each of which topic areas directly influence human wellbeing and health.

The GECHH Project Planning Team has identified a range of key types of global environmental change known or thought to affect human health. The Science Plan, currently undergoing further development and refinement, proposes priorities and settings for the future international study of these relationships – including how these relationships are modified by socioeconomic and cultural determinants of community vulnerability and responses.

This ESSP Joint Project is being developed in collaboration with the World Health Organization (WHO), Department of Protection of Environment and Health. The project has a strong orientation to research development and capacity building in low-income countries.

The main research objectives of the GECHH Project are to:

1. Identify and quantify health risks posed by Global Environmental Change, now and in the reasonably foreseeable (scenario) future.

2. Describe spatial (geographic, inter-population) and temporal differences in health risks, to better understand vulnerabilities and, therefore, intervention priorities.
3. Develop adaptation strategies to reduce health risks, assess their cost-effectiveness, and communicate results.
4. Foster research training, to boost networked international research capacity in Global Environmental Change and Human Health.

These research objectives will be achieved by developing collaborative research to elucidate the health impacts of the following aspects of Global Environmental Change:

1. Atmospheric composition changes and their health impacts
 - i. Climate change and health
 - ii. Stratospheric ozone depletion and health
2. Land Use/Land Cover changes and human health issues
3. Infectious disease and Global Environmental Changes
 - i. Land use/land cover change and vector/rodent-borne infectious diseases
 - ii. Changes in human-animal relationships and emergence/spread of zoonoses
 - iii. Food-borne, water-borne and other infectious diseases
4. Food-producing systems and health
5. Urbanisation and health
6. Vulnerability and adaptability: formal assessment of the situational and constitutional susceptibility of the at-risk community or population, and of the social and institutional resources available for reducing that susceptibility and coping with adverse health impacts.

Copies of the Science Plan and Implementation Strategy can be downloaded from the ESSP website, www.essp.org.

International Centre for Diarrheal Disease Research in Bangladesh – NCEPH Professor elected board chair



Following three years on the Board of the International Centre for Diarrheal Disease Research, Bangladesh, (ICDDR,B) Professor Terence Hull was elected to the position of Chair for the 2006-2007 period.

The ICDDR,B is one of the premier health and population research institutions in the world, and was honored with the first Gates Global Health Award in recognition for the work done over four decades in the treatment of diarrhea.

The development of Oral Rehydration Therapy is credited with saving millions of lives, largely in the developing world. In recent years the 2200 staff members have expanded their work into nutrition, infectious diseases, health systems, and gender analysis, and have succeeded in establishing world-class lab facilities to deal with emerging problems like avian influenza.

Under Hull's chairmanship the Board has reviewed the strategies of demographic surveillance systems, including Matlab, the oldest large sustained Demographic Surveillance System site in the developing world, and has successfully recruited a new Executive Director to replace the soon to retire Dr David Sack. In addition the Centre has embarked on policies that will ensure gender equity in all Centre activities, improve the quality of hospital services, and open the data sets to more international collaborative work.

Female Genital Mutilation & Childbirth

Emily Banks

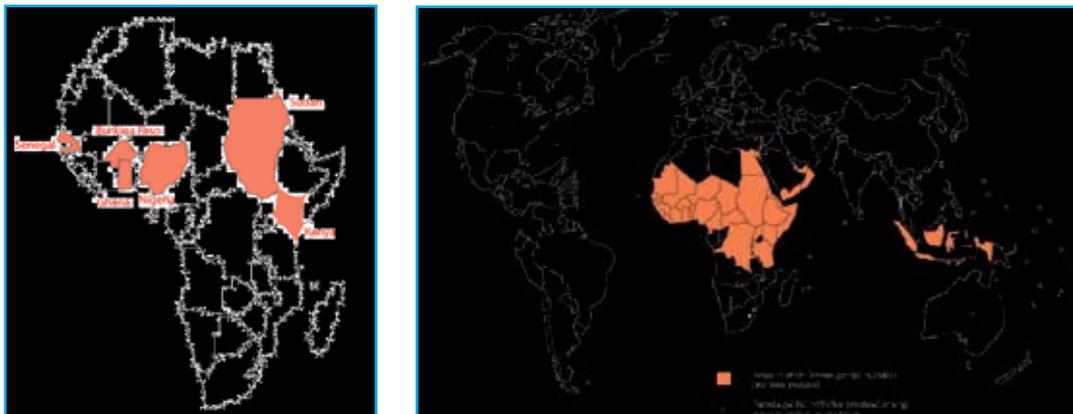
Female genital mutilation (FGM- also known as female circumcision) involves the partial or total removal of the clitoris, labia minora and/or labia majora, or other injury to the genitals, for cultural or other non-therapeutic reasons. It is common in several countries, mostly in Africa, and an estimated 100 million women and girls are estimated to have had FGM worldwide.

It has long been suspected that FGM might lead to difficulties in childbirth, but evidence has been too limited to reach firm conclusions. The WHO Study of FGM and Obstetric Outcome followed 28,393 women attending a variety of health care facilities in Burkina Faso, Ghana, Kenya, Nigeria, Senegal and Sudan for the delivery of a baby. I led the scientific aspects of the study, in collaboration with principal investigators in Africa and WHO staff. Women taking part in the study were interviewed about their health and other factors, were examined for whether or not they had had FGM and its extent and were then followed to see whether they or their infant experienced any complications during or immediately after delivery.

We found that women who had had FGM were significantly more likely to experience difficulties during childbirth and their babies were more likely to die as a result of the practice. Complications included the need to have a caesarean section, dangerously heavy bleeding after the birth of the baby and prolonged hospitalisation following the birth. The risk of complications increased with increasing severity of FGM. In the case of caesarean section, women who had the most severe form of FGM had on average 30 per cent more caesarian sections compared with those who had not had any FGM. There was a 70 per cent increase in numbers of women who suffered haemorrhage after birth in those with the most severe FGM compared to those women without FGM.

The study also showed that there was an increased need to resuscitate babies whose mother had had FGM, and the death rate among babies during and immediately after birth was also higher. In all, we estimated that in the African context an additional one to two babies die per 100 deliveries as a result of the practice.

FGM remains a pressing human rights issue. The WHO study provides the first reliable evidence regarding the effects of FGM on childbirth. It is already being used widely in affected countries as evidence to encourage abandonment of the practice.



FGM Sites

COMMUNICABLE DISEASES



With the arrival of Paul Kelly, the Communicable Diseases Research Group has added tuberculosis issues to its research activities. His interests range from molecular epidemiology and laboratory-based studies of drug resistance to clinical and health services research. Paul has active research projects in Timor-Leste and in Papua Province of Indonesia in collaborations with the University of New South Wales, The Menzies School of Health Research, the University da Paz (Dili) and the National Institute for Health Research and Development (Jakarta)

The infectious disease modelling group continued its work to help inform Australia's management plan for pandemic influenza. The direction of this work was guided by the wide set of objectives in our successful NHMRC Urgent Grants (Pandemic Influenza). The work of this eight-month project extended our previous results on border control strategies, the effect of closing schools and the role of health care workers in the transmission of infection. New features include the effect of the emergence of resistance to antiviral drugs on the effectiveness of strategies based on the use of antiviral drugs, the impact of pandemic influenza on general practice and estimation of the effect of social distancing during the 1918 influenza pandemic in Sydney. The modelling group also assessed the potential impact of introducing a schedule of vaccination against the human papilloma virus (HPV) on the future incidence of cervical cancer.

In our work on foodborne illness we looked for associations between hospitalisations for rotavirus diarrhoea in children under five years of age and climatic variables. We did find associations. For example, higher temperature and humidity in the previous week were associated with a decrease in rotavirus diarrhoeal admissions in three Australian cities. However, further work is required to explain why environmental variables affect the incidence of cases of severe rotavirus diarrhoea in children.

As always, our MAE scholars contribute significantly to our communicable disease research through their assessments of surveillance systems and their outbreak investigations. In 2006, this included work on second-generation surveillance for HIV in the Pacific, investigations of multi-state outbreaks of *Salmonella* sp., surveillance for infectious diseases outbreaks at the Melbourne Commonwealth Games and involvement in the national pandemic influenza simulation exercise, Operation Cumpston.

Some examples of staff research projects in 2006 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu/Research/Comm_Dis/projects.php

Facing up to the pandemic influenza threat



Niels Becker

Stimulated by funding from NHMRC Urgent Research (Pandemic Influenza) grants, the infectious disease modelling group extended its assessment of potential interventions to control transmission of pandemic influenza in several new directions. These include:

- looking at new interventions, such as quarantining all passengers of an arriving international flight if border screening detects one or more cases among passengers
- determining the likely change in the effectiveness of proposed strategies for the use of antiviral drugs if a virus strain that is resistant to antiviral drugs should emerge
- an assessment of the impact of pandemic influenza on general practice
- using data on the 1919 Sydney influenza epidemic to estimate the extent to which social distancing measures mitigated transmission
- designing studies that are able to assess the effectiveness of antiviral drugs, for treatment and prophylaxis, against the new strain.

On the surface, quarantining all passengers of an incoming flight seems an effective way to delay entry of the pandemic influenza virus. We used mathematical models to see if this is indeed the case. We found that, when such quarantining is triggered by detecting a case on the flight, such action is not particularly effective at delaying entry, and of questionable value given the disruption it involves.

The emergence of a virus strain that is resistant to antiviral drugs seems a serious threat to the effectiveness of using antiviral drugs in the event of a pandemic. Our modelling work indicates that the pessimism may be misplaced when the emerged virus strains confer immunity across strains. The resistant strain fails to compete with the antiviral sensitive strain if the former reproduces less rapidly if it does not emerge very early in the pandemic.

General practitioners as a group will tend to be exposed early, with the consequence that the 'epidemic' among them will peak earlier than the peak in the community epidemic. The earlier peak among GPs has consequences about the delivery of general health care and indicates the need for measures and interventions that protect general practitioners and their families.

The bimodal shape of the 1919 epidemic curve of influenza in Sydney reflected in both hospitalisation and mortality data, can be described by a model with a social distancing component during times when public health interventions were in place. This allowed us to assess by how much these interventions reduced the transmission of the infection and how infectious the so-called Spanish-flu was in Sydney. Whether the bimodal structure was due to public health policy, social distancing, or some other effect, it reduced the attack rate by approximately 40 per cent, saving at least 2,500 lives in Sydney alone.

One of the biggest concerns is that the antiviral drugs, known to be effective for treatment and prophylaxis against seasonal influenza, may not be equally effective against the emerged pandemic strain. It is therefore important to assess them during the early stages of the pandemic. This requires new study designs and methods of analysis because the efficacy depends on the time when the antiviral drugs are administered. We have started work on this important issue, with the aim of advising health care workers on the data that are needed to make this assessment.

This research was greatly enhanced by collaboration with researchers at the National Centre for Immunisation Research and Surveillance, University of Sydney, and the School of Public Health, University of Melbourne.

Tuberculosis in Timor Leste



Paul Kelly

I joined NCEPH as the Director of the Masters of Applied Epidemiology Program in February 2006 after nine years in the Northern Territory. During that time I developed a program of tuberculosis and health services research and strong relationships with health practitioners and public health authorities in Timor Leste.

Timor-Leste is the newest country in the world having gained its independence from Indonesia in 1999 following a period of intense and destructive civil unrest. It is ranked one hundred and forty second in relation to the United Nations Human Development Index and is considered to be the poorest country in the region. Life expectancy is estimated at 54.4 years for men and 56.6 for women. Communicable disease accounts for almost 60 per cent of deaths. Tuberculosis is a significant public health problem with incidence in 2005 estimated at 556 cases per 100,000, 100 times higher than Australian rates for this disease.

My work in Timor Leste began in 1999 when I was a consultant assisting the United Nations interim administration to set up a National Tuberculosis Control Program. Building upon the experience of a non-government organisation (Caritas Dili), and in association with Dr Nelson Martins who was the health director at the time, a truly national TB program was built within a few months. By the first year, over 4,000 patients had been treated and the program continues to function in all 13 districts of Timor Leste. The country has the highest notification rate in the Asia-Pacific Region, an indication of the scale of the problem but also to the well functioning TB Program and a testimony to the hard working health personnel of Timor Leste.

During the past four years, my role in Timor Leste has increasingly been as an operational researcher supporting the Ministry of Health and the TB Program. During that time, I have been privileged to supervise Dr Martins to become the first medical PhD graduate from Timor Leste. His PhD has used a transdisciplinary approach to the problem of TB in his country. Several inter-linking projects have examined the history of the TB program through times of conflict, a stakeholder analysis of the establishment of the National Program in 1999, an ethnographic study of barriers and enabling factors for TB treatment compliance and finally Timor Leste's first randomised control trial which examined food incentives for TB treatment compliance. Several peer-reviewed papers have been published from this work and several others have been submitted or are being finalised. In addition to this TB-specific work, Dr Martins and I, together with colleagues at the University of NSW (UNSW), the Menzies School of Health Research in Darwin and the Universidade da Paz (U) in Dili have recently completed an examination of the resilience of the health system during the renewed political crisis and civil disruption of the past year. We are co-investigators, together with Australian and Timorese colleagues at UNSW and U on a new AusAID-funded initiative to build health research capacity in Timor Leste in 2007.

Timor Leste faces many political, social, economic and health challenges in the future. Long term commitment to capacity strengthening and the gathering of evidence to support locally based health policy and practice are practical ways in which Australian researchers can assist in the development of one of our closest neighbours. NCEPH has a lot to offer in this endeavour and I am committed to continue this important work in the years ahead.



Nelson Martins and Paul Kelly at work in Timor Leste



Nelson Martins trains research assistants in Timor Leste

ENVIRONMENTAL HEALTH



The research and practice of 'environmental health' addresses the risks to human health posed by physical, chemical and microbiological hazards. The main focus has, understandably, been on local risks: urban air pollution, heavy metal contamination, coliforms in drinking water and ionizing radiation hazards are all familiar topics. Each entails local human-generated contamination of the environment. WHO estimates that one-quarter of the global burden of disease, including over one-third of the burden in children, is due to modifiable environmental factors in air, water, soil and food.

Today 'environmental health' must also encompass a new dimension – as, increasingly, the aggregate pressures exerted by human societies disrupt and deplete various large-scale natural environmental systems. This includes stratospheric ozone depletion, greenhouse gas accumulation and climate change, depletion of freshwater supplies, degradation of fertile land, depletion of ocean fisheries, loss of biodiversity (and the associated disruption of ecosystem functioning), and, via biophysical processes, the global dispersion of persistent organic pollutants.

Environmental exposures generally impinge on groups, communities or whole populations. Often, the most important research task is to explain geographic, seasonal or socioeconomic patterns in health outcomes, or changes in rates of disease over time. It is also important to understand which subgroups are particularly vulnerable to the effects of the exposures, and, via genetic epidemiological research, which families or individuals are particularly vulnerable (or resistant).

NCEPH currently conducts environmental health research in relation to many known or hypothesized exposures: urban air pollution, extremes of heat, ultraviolet radiation (especially a lack thereof), microbiological contamination of food, and various aspects of climate change. We have a strong program of research on environmental influences on immune and autoimmune disorders (multiple sclerosis and, impending, type 1 diabetes). We are working with CSIRO Marine and Atmospheric Research to better predict how impending episodes of extreme air pollution and/or heat will affect hospitalisations and deaths. Mathematical modelling is being conducted of the cancer risks, now and in future, due to both cigarette smoking and asbestos exposure.

On a wider disciplinary landscape, several of our 'environmental' epidemiologists are collaborating with NCEPH social scientists and CSIRO ecosystems analysts and modellers, to develop an innovative program of research on aspects of the urban environment, as ecosystem, and its influences on patterns of health-related behaviours and health outcomes. We will pay particular attention to food systems, nutrition, physical activity and relative weight.

Of special and topical importance, the issue of climate change and health has achieved a rapid gain in visibility and recognized importance over the past year. NCEPH is building a broader base of research capacity in this area, and, increasingly, is engaging with national and state governmental agencies in assessing health risks and in developing risk-lessening 'adaptive' strategies. We have begun to develop ideas and connections about a major program of research on how the prolonged drought and longer-term drying conditions affect patterns of rural health. This is likely to be a major, early, area of climate change impact on Australia's health. We are also much connected internationally, working with WHO Geneva, with the International Council of Science, and contributing to the ongoing work of the UN's Intergovernmental Panel on Climate Change.

Some examples of staff research projects in 2006 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu.au/Research/Env_Health/index.php

Climate change & gastroenteritis – state of play



Gillian Hall

Climate change is now with us and, as it progresses, is expected to have an impact on a number of diseases, including human enteric infections. While media attention usually focuses on the potential dramas of malaria reintroduction and the spread of dengue fever, closer to home is the prospect of a rise in simple food poisoning: gastroenteritis. Pathogens that cause gastroenteritis can be transmitted via food, water, animals, person-to-person or from the environment – each of these transmission routes may be affected by climate change.

The evidence for an expected rise in the number of human enteric infections in response to climate change comes from studies of the natural variability of infections. A year-long survey of gastroenteritis in Australia in 2001-2 is similar to studies elsewhere that show a raised incidence in summer. National surveillance of a number of specific pathogens shows that illnesses due to a number of pathogens demonstrate seasonal peaks and troughs. The timing of the peaks are pathogen specific and relate to the characteristics of the different micro-organisms, but the causal pathways linking climatic variability with human infections are not well understood. Salmonella incidence rises in late spring and into summer, peaking in early autumn (March). Campylobacter rises at the end of winter to peak in spring (October). In contrast, hospitalizations for rotavirus infections in young children peak in winter (June-August).

Studies at NCEPH and elsewhere in Australia have quantified the relationship between ambient temperature and some human infections. Salmonellosis increases after a short lag of one to four weeks by about 5 per cent for every degree Celsius rise in temperature (d'Souza, Bi, Tam). Studies from other parts of the globe have shown an association between diarrhea and more sustained increased temperatures due to changes in the southern oscillation index that causes El Nino (Checkley, Singh, Rodo). The seasonal spring peaks in Campylobacter infections have been found to occur earlier when following warmer winters in Europe (Kovats). Outbreaks of illness have been linked to extreme rainfall such as in severe storms (Rose) which have also been predicted to increase with climate change.

In collaboration with others we are currently focusing on identifying local spatio-temporal patterns of enteric illness in Australia and causal pathways. Understanding the causal pathway linking climate with these infections may provide information that can be used to break the cycle and prevent increase of illness due to climate change.

Vitamin D & immune disorders – new directions



Robyn Lucas

In sunny Australia we are very conscious of the health risks of too much sun. Health messages focus on sun protection using “slip, slop, slap and wrap”. But recent research shows that having some sun exposure is essential to health, to maintain levels of vitamin D. We know that this hormone is very important for healthy bones, but may also decrease the risk of a wide range of cancers and other diseases.

Since 2003 we have been running a major research study (the Ausimmune Study) to examine whether vitamin D and/or sun exposure might decrease the risk of developing multiple sclerosis (MS). In this disease the body's own immune system attacks the protective sheath around central nervous system nerves, causing recurrent and progressive nerve damage. By examining sun exposure and vitamin D levels in people who develop MS (cases) and people who do not (controls) we will be able to evaluate any extra risk that arises from low levels of these factors. That study will be completed in 2007, with results available later in the year and in 2008.

We are now extending that work to consider another immune disorder, type 1 diabetes. Here again, the body's immune system fails to recognise its own tissues, and attacks the insulin-producing cells of the pancreas. There is some evidence to suggest that having enough vitamin D, particularly in early life, might be an important protective factor to decrease risk of developing type 1 diabetes. Data from the National Diabetes Register are being analysed to see whether type 1 diabetes is less common in sunnier Australian climates. In addition, we are developing a large research study involving centres in Cairns, Brisbane, Sydney, and Hobart in Australia, and Auckland and Christchurch in New Zealand, to carefully investigate the role of insufficient sun exposure or vitamin D in the onset of type 1 diabetes.

It seems hard to believe that Australians could have low levels of vitamin D and that this could therefore contribute to any increased risk of these immune disorders. In the Ausimmune Study, the data on vitamin D levels in community controls aged 18–59 years will provide a snapshot of usual vitamin D levels of people in four locations down the eastern seaboard of Australia. Our study of type 1 diabetes, will extend this age range through 0–17 years. In addition, because we have extensive data on skin type, use of sun protection (sunscreen, clothing, hats, sunglasses) and time in the sun, we will be able to determine how these factors affect people's vitamin D levels.

There is growing support from research in Australia and overseas suggesting that vitamin D has an important role in decreasing risk of a variety of diseases, including these autoimmune diseases. Our large multicentre studies will provide a unique contribution to the body of research by including detailed past and current sun exposure information as well as data on skin type, diet and a wide range of other environmental exposures, across the wide latitudinal gradient available in Australia.

The Health Forecasting Project



Keith Dear

A team of epidemiologists and statisticians at NCEPH are working with CSIRO Marine and Atmospheric Research (CMAR) to set up the first Australia-wide forecasting system for human health. In collaboration with CMAR's mathematicians and meteorologists, and with data from the Queensland, Victoria and NSW State Health Authorities, we are building models to anticipate peaks in health service usage associated with adverse atmospheric conditions (air quality and temperature). In 2005 we built predictive models for Brisbane and Melbourne. With renewed funding awarded in 2006, we are now adding Sydney.

Our models show skill in predicting city-wide total hospital admissions up to seven days ahead. The principal output will be a service of value to health authorities for identifying local areas with particular health risks, and for hospital resource allocation: health authorities will have access to daily risk forecasts for diseases affected by environmental conditions, such as respiratory and cardiovascular ailments, which will permit them to respond to variations in demand due to atmospheric environmental conditions. The health forecasting system will also provide detailed advice to specific clients in the health sector, such as hospitals and general practitioners for resource scheduling, and to non-health organisations whose business involves health risks from extreme air quality conditions, eg sporting organisations. By developing methods to forecast high-risk conditions a few days ahead, we aim to enable individual people to minimise their own risk.

The project also has scientific value in allowing us to investigate the epidemiology of high-incidence acute medical conditions. We are focusing on the role of atmospheric conditions in causing peaks of hospital admissions for respiratory and cardiovascular disease, and using our models to find what particular combinations of weather, air pollution, locality and time cause abnormal health risks such as asthma attacks. We are developing novel statistical and computational methods for evaluating forecasting algorithms using historical data, and for identifying 'hotspots': city areas of high environmental susceptibility. Spin-offs include new methodology for modelling how each day's conditions affect health over the following several days, and for finding threshold conditions at which adverse health impacts begin to be felt.

This work is supported by CSIRO's Preventative Health Flagship.

POPULATION, HEALTH & DEVELOPMENT



In the midst of global inequalities in all aspects of human welfare, the most universally accepted concern is the inequality of health care opportunities and health outcomes. Health stands out as a key dimension of the Millennium Development Goals, and differential mortality is one of the primary divisions setting the rich in a position of greater privilege than the poor, both within and between societies. The Working Group on Population, Health and Development has focused on the many issues of health differentials as core concerns.

With funding from the Wellcome Trust a cross NCEPH team of researchers lead by Professor Adrian Sleigh have worked with Thai colleagues to design and implement a major cohort study to monitor the determinants of differential mortality in a setting of rapid social and economic change. The initial interviews with over 70,000 (check with Adrian) people associated with the huge Open University System have yielded important insights into the health and mortality transitions that have taken place in Thailand over the past five decades. Students sponsored under the project are working on theses analysing topics as diverse as the changing patterns of childbirth, transitions in transport systems and accompanying implications for mortality, the transformation of sexuality among young people, and the influence of changing health care systems on the economics of prevention and treatment of illness.

Dr Bruce Caldwell and Professor Terence Hull are collecting qualitative and quantitative data from Dhaka and Jakarta to gain insights into the reasons for different health care choices among poor parents with very young children. They are finding, in this ARC funded project, that poor families often fail to take advantage of modern medical systems, not so much because the official costs are higher, but because they have greater confidence in traditional healers, even though the long term costs may be just as high or even higher.

However, health differentials are not simply a matter of life and death. Welfare differentials can be a matter of disadvantage over a lifetime. Dr Iwu Utomo and Professor Hull are conducting a series of research projects with data collected in Asia and Africa to look at the connection between socially constructed gender disadvantages and the exposure to potentially harmful sexual practices. (see next page). Differential mortality is the most extreme outcome of these behaviours, but the noticeable impact of gender and class determinants of the use of vaginal practices, genital cutting, and various sex aids, is that individuals may suffer chronic disadvantage in a quest to achieve socially determined ideals for feminine and masculine sexual roles.

In both mortality and sexuality research personal choice among alternative behavioural options shapes survival prospects and lifetime welfare. Dr Gordon Carmichael's ARC funded project on family decision-making in Australia tackles many of the complex issues of setting and constraints on decisions that people make in the process of forming relationships and building families. Recent publications from the project are reshaping the way we understand childbearing choices in a time of below replacement fertility and insecure patterns of marriage and co-residence.

Some examples of staff research projects in 2006 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu.au/Research/Pop_Hlth_Devt/index.php

Vaginal Practices in Indonesia



Vagina practices are efforts to modify, cut, dry, cleanse, enhance, tighten, lubricate or loosen the vagina, labia, clitoris or hymen. Vaginal practices have been recorded in Indonesia for centuries and have become increasingly popular in recent times. Jamu (traditional herbal mixture) industries have sprung up with products that claim to enhance sexuality by making the vagina tighter and drier. These are multi-million dollar businesses. Beauty salons and spas promise vaginal services to deodorise, tighten, dry or clean. They are advertised in daily newspapers and mass circulation magazines. Large cities in Indonesia host private medical clinics offering female genital cosmetic surgery and hymen restoration. Specific vaginal products such as betel-leaf solutions, soaps and deodorants are available in shops, supermarkets and drug stores. Nevertheless the apparent widespread popularity of vaginal practices in Indonesia is largely unverified. Limited information is available regarding women's actual behavior or the motivations they might have for using the available products and services. There are also few studies addressing possible health risks. Professor Terence Hull and Dr Iwu Utomo conducted studies on vagina practices in South Africa, Mozambique, Thailand and Indonesia. In this article only results from the Indonesian study that covered both qualitative and quantitative research will be reported.

From the qualitative study, vaginal practices that is known and practiced by women in Yogyakarta included; washing the vagina with either traditional or modern betel leaf vagina solution; cleansing inside the vagina (gurah vagina); application of substances with jamu, medicated ointment or powder; insertion of substances into the vagina with Tongkat Madura (traditional calcium carbonate stick that can be reused); ingestion or drinking jamu; fogging the vagina over a charcoal fire to make the vagina fragrant (Ken Dedes or Vagina-spa); and surgical procedure for vagina cosmetic surgeries or hymen restoration. The 2006 Yogyakarta Vaginal Practices Survey covering women aged 18-59 (N=904) found that knowledge of washing and ingestion were universal, followed by surgical procedures. As might be expected knowledge exceeds ever-use, and ever-use exceeds current use in every category. Ever-use of washing the vagina with betel leaf solution and ingestion of various traditional herbal preparations is very often tried, but only currently used by over a third of women. All the other practices that we identified through the qualitative research turn out to be known only by a minority of women, and used by fewer than ten percent in every case. Other studies in Africa have indicated the health effect of vagina practices that can be harmful to woman's reproductive health condition. Nevertheless clinical studies in Indonesia on this issue are very limited, thus our study can not conclude whether the practice is harmful or benign. Nevertheless since washing and ingestions are very often practised by women, the Indonesian government should have a policy regarding this issue. For example, the Indonesian government has not formulated policies to regulate the industries promoting such practices, nor are there any public health messages to prevent women from engaging in practices that could pose harm for themselves or their partners.

SOCIAL DETERMINANTS OF HEALTH



Research questions under the broad rubric of the Social Determinants of Health require input from a range of disciplines, including psychology, anthropology, sociology, economics, epidemiology and statistics. Faculty and students with all these kinds of expertise are engaged in research, much of which involves interdisciplinary collaboration. Integrating different academic traditions entails additional demands on everyone involved, but complex problems require complex approaches, and we are committed to pursuing this kind of investigation.

Researchers at NCEPH are conducting a range of projects that parallel, at the local and national level, the policy and research directions established internationally by the WHO Commission on the Social Determinants of Health. We also continue to enjoy a direct link to the work of the Commission in the person of Dr Sharon Friel, who has a joint appointment with NCEPH and the Commission. An underlying theme of this work is concern about socioeconomic differentials in the distribution of health and illness, and an awareness that specific attention to improving health equity requires specific attention beyond that necessary to improve overall population health.

Our projects investigating the relationship between health and paid work have acquired particular currency in light of new Australian industrial relations legislation. The Work Choices Act is expected to bring about substantial changes in the conditions of employment of many Australian workers, which lends additional significance to independent scholarly research on this topic. We are analysing a variety of existing datasets to illuminate the ways a person's job conditions may influence their health and that of their family members.

Another broad program of research concerns the social forces underlying what is often called the contemporary obesity crisis. Although perhaps not usefully labelled a disease in its own right, obesity is strongly correlated with several chronic conditions that constitute significant elements in Australia's burden of disease: diabetes, cardiovascular disease and arthritis. A number of members of Faculty, and students are working on aspects of this health issue, with projects as diverse as changes in the international food production and distribution system, the relationship between urban design and body weight, and the role of time pressure and health-related behaviour. Like other aspects of health, healthy weight tends to be concentrated in those sectors of the population who enjoy social and economic advantage, so understanding and addressing obesity are important aspects of a concern with health equity.

Some examples of staff research projects in 2006 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu.au/Research/Social_Det/index.php

Obesity, convenience & functional foods

Jane Dixon

Australians are among the most overweight and obese populations in the developed world, and at relatively high risk of cardiovascular disease, type 2 diabetes, musculoskeletal problems and cancer, as well as negative psychological and social consequences. In 2003, the WHO/FAO released an expert consultation Diet, Nutrition and the Prevention of Chronic Diseases which reported that there was 'convincing evidence' that weight gain is associated with a high intake of energy-dense, micronutrient-poor foods. The experts also found 'probable evidence' linking weight gain to a) heavy marketing of energy-dense foods and fast food outlets, and b) high intake of sugar-sweetened soft drinks and fruit juices. There was further 'possible evidence' of weight gain being caused by a) large portion sizes, b) high proportion of food prepared outside the home, and c) rigid restraint/periodic disinhibition of eating.

Members of NCEPH's obesity research team (Jane Dixon, Cathy Banwell, Dorothy Broom, Anna Davies and Sarah Hinde) are using a cultural economy approach to examine the impact of the social trend 'convenience' on the rapid rise in obesity. Recently, they examined the literature to look at plausible links between obesity and convenience.

Convenience foods are the outcome of how we are socialised to appreciate the virtues of convenience. The concept of convenience itself has evolved from 'saving trouble' to saving time. Convenience foods allow people to be unencumbered by meal times, thus allowing time to be rescheduled and spent on other priorities. These foods are perceived to offer solutions to the organisation of everyday life.

However, today's consumer not only demands labour and time-saving options, they want products that improve their health. So one food sector trend involves mothers and housewives seeking out easy-to-prepare foods that are healthy. Healthy convenience foods reflect a commodified short-cut to health.

Within a context of consumer desire for healthy convenience, companies are investing large sums in research and development to introduce healthy convenience in the form of health promoting foods, or 'functional foods'. These foods 'claim to have a health effect over and above that expected from a normal balanced diet'.

Functional foods are the result of adding nutraceuticals or a bioactive ingredient to deliver health benefits. The earliest functional foods range from iodised salt to prevent thyroid conditions, to fluoridated water to prevent dental caries. More recently, folate has been added to cereals and bread to protect the unborn against spina bifida; and yoghurts enhanced to boost the immune system. As many of these foods are the joint output of pharmaceutical and food companies, some refer to them as 'phoods'. The impetus for 'phoods' is threefold:

- the developed world's obsession with the absence of disease, longevity and added performance
- the developing world's desire to curb diseases caused by micro-nutrient deficiencies
- food companies' drive for competitive advantage.

Consumers are now encouraged to buy a single 'phood' item to protect their health rather than seek out a diet rich in biodiversity.

With the escalation in obesity prevalence, food processing firms are partnering with universities and pharmaceutical companies to produce slimming foods and drinks. The companies believe that their products will help people surrounded by food abundance to lose weight. Market analysts have predicted substantial profits, because 'phoods' allow people to consume more in the present so that past and future acts of consumption are nullified or made risk-free.

For further details: Dixon J, Hinde S, Banwell C. Obesity, convenience and 'phood'. *British Food Journal*, 2006; 108(8): 634-645.

Work conditions & health



Rennie D'Souza

Nearly half of all Australian adults are employed, so any health effects of work will be relevant to substantial numbers of people. Like other developed economies, Australia has experienced a sustained period of economic growth, and unemployment is presently quite low. But the nature and organisation of work have changed as a result of rapid globalisation and competition between labour markets, leading to deregulation of work hours, organisational downsizing, work intensification and a striking growth in insecure employment. Casual employees now constitute 27 per cent of the Australian workforce, compared with 19 per cent a decade ago. That is, many employed people are in precarious jobs which may, when combined with industrial deregulation, pressure them to take or remain in jobs with poor working conditions.

We used data from adults in their 40s from the ACT Electoral roll to investigate the possibility of links between people's job quality and their health. In a collaboration between staff at NCEPH and the Centre of Mental Health Research, ANU, we found strong associations between job demands, control, and insecure employment with mental and physical health, and also with sickness absence. We thought that people in low status jobs might be particularly vulnerable, but the findings are evident in all status groups. The association between health and job insecurity was stronger than the association with job strain (high job demands with low control), and the combination of job insecurity and job strain together produced a stronger association with health outcomes than either one alone.

Further, despite the common belief that any job is better than no job, we found that people in poor quality jobs (combining insecurity, high demands and low control) reported at least as many mental and physical health problems as people who were unemployed. Those with poor quality jobs reported substantially worse health than workers who experienced fewer or no stressors.

These findings will be unsurprising to some readers who believe that their personal health is impaired by workplace stress, but it is important to document such subjective impressions with systematic, independent investigation and large numbers (we studied nearly 2,500 people). The next step in this research program is to look at the same people over time, to find out whether people in bad jobs experience a decline in their health, or whether people in poor health tend to have to settle for poor quality jobs.

In light of the continuing changes in industrial relations, and the potential impact of poor health on productivity (for example, our sickness absence finding), this research agenda is particularly significant to contemporary policy and the economy, as well as to the health and well-being of the Australian people.

Drinking histories of non-drinkers: Is drinking in moderation *really* good for you?



Tanya Caldwell and Bryan Rodgers

People who drink are usually pleased by media reports stating that moderate drinking is good for your health. Indeed, researchers have often found that non-drinkers have worse health than people who drink in moderation, including cardiovascular disease, psychological distress and mortality. However, research on the health benefits of moderate drinking remains controversial. For instance, researchers have argued that non-drinkers are a heterogeneous group, including people who used to drink but who stopped because of poor health or because they had problems with alcohol. Therefore, many researchers have distinguished past drinkers from people who have never drunk (lifetime abstainers), comparing the health of these two groups to that of moderate drinkers. While findings are inconsistent, studies suggesting that lifetime abstainers report poorer health than moderate drinkers underpin the argument that there are health benefits associated with moderate drinking.

Lifetime abstainers are usually identified by asking people whether or not they have ever drunk alcohol. We investigated the validity of such retrospective questions. The 1958 British Birth Cohort Study has followed more than 9,000 people from birth. When they were 45, they were asked whether they had ever drunk alcohol. Other information about their drinking had already been collected when they were aged 16, 23, 33 and 42 years. We found that two-thirds of 45-year-olds who said that they had never drunk alcohol, had in fact reported drinking on a previous occasion; 25 per cent had previously reported drinking on a weekly or daily basis. Therefore, our findings suggest that claims about the health benefits of moderate drinking may be flawed by relying on an invalid measure of abstinence.

We also investigated whether socioeconomic status distinguishes different patterns of midlife alcohol consumption, problems and abstinence. Very early childhood, as well as cumulative disadvantage throughout life, distinguished midlife non-drinkers from low-risk drinkers. Socioeconomic advantage is strongly associated with better health. Therefore our findings raise the possibility that lifecourse socioeconomic advantage of moderate drinkers relative to non-drinkers may contribute to or explain the apparent protective effects of moderate drinking.

We also found that socioeconomic disadvantage from early childhood distinguished midlife binge and problem drinkers from low-risk drinkers but that socioeconomic circumstances were not related to heavy drinking per se. Overall, our findings call attention to the importance of childhood socioeconomic circumstances in contributing to long-term drinking behaviours, including abstinence, binge and problem drinking. This is especially the case when disadvantage persists throughout life. By identifying risk factors and predictors that relate to specific patterns of drinking, our findings inform current public health and research initiatives targeting the reduction of binge drinking in addition to heavy drinking.

Tanya Caldwell and Bryan Rodgers have collaborated with Charlotte Clark, Stephen Stansfeld, Chris Power and Barbara Jefferis from the University of London.

OUTREACH

Scientific research and postgraduate training form the core of NCEPH's activities, however staff also make many contributions to professional associations, journals, research funding processes, government decision-making and public education. These activities, which include public lectures and seminars, form an important dimension of the creation and application of scientific knowledge about population health.

Committee membership

NCEPH academics serve on over 70 national and international committees and boards, including:

- Global Environmental Change and Health Project, Earth System Science Partnership, Paris
- Human Rights and Equal Opportunity Commission, Expert Advisory Group
- National Influenza Pandemic Action Committee
- UK Medical Research Council Advisory Board
- WHO Expert Network for Implementation of Global Strategy on Diet, Physical Activity and Health
- International Society for Environmental Epidemiology
- Expert Panel, Research on Academic Research, Life Sciences Institute, University of British Columbia
- ACT Health and Medical Research Council
- Public Health Association of Australia (ACT Branch).

Editorial activities

NCEPH staff have also served on editorial boards for a number of prestigious national and international journals, including:

- American Journal of Epidemiology
- Australian and New Zealand Journal of Public Health
- Biostatistics
- British Medical Journal
- Epidemiology
- Health Policy
- Health Sociology Review
- International Journal of Tuberculosis and Lung Diseases
- Journal of the American Medical Association
- Lancet
- Medical Journal of Australia
- Social Science and Medicine.

Reviewing activities - journals and grants

Reviews of manuscripts have been carried out by NCEPH staff for over 70 national and international journals.

They also participated widely in reviewing grant applications for:

- National Health and Medical Research Council
- ACT Health and Medical Research Council
- Australian Research Council
- European Commission
- New Zealand Health Research Council
- Wellcome Trust.

NCEPH in the media



NCEPH researchers featured regularly in the media in 2006 – in print and on radio and television. Our experts are often called upon by the media to provide considered comment on a variety of issues making the daily news. Topics covered, included climate change and health, wellbeing, job stress, obesity, pandemic preparedness, sun exposure, female genital mutilation and gender issues. A number of staff also published opinion pieces and feature articles in major newspapers and took part in SBS television forums and panel discussions on ABC Radio National.



Rosalie Woodruff being interviewed for WIN Television news.

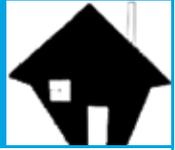
Tony McMichael – a visionary of the environment–health interface.

The Lancet published a profile of NCEPH Director, Professor Tony McMichael, in their July 1 edition. An excerpt of the article, written by Priya Shetty, follows:

*“Raising awareness of the potentially disastrous health effects from environmental degradation—and helping catapult sustainable living onto the global to-do list—will probably be McMichael’s most enduring legacy. Robert Beaglehole, WHO’s director of Chronic Diseases and Health Promotion, told *The Lancet* that “McMichael deserves huge credit for his leading role in placing the critically important health effects of environmental change, especially climate change, on the global development agenda.” This hard-won legacy has also required challenging the status quo of “development strategies based heavily on fossil fuel consumption and the exploitation of finite resources,” says Andy Haines, director of the LSHTM, who has also worked with McMichael on the IPCC.*

Sustainability, now a buzzword in global policy, figures prominently in McMichael’s thinking. “Our current, outdated, system of nation-states competitively pursuing self-interest poses a serious risk to achieving a sustainable way of living. As we crank up markets, ‘free’ trade, patent protection and the primacy of profits, we risk doing continuing damage to our social and natural environments.” And that, as McMichael argues, would be missing the point of sustainability: ‘the prime role of societies is to create enduring conditions that promote the population’s wellbeing and health.’ ”

Fenner conference – Urbanisation, Environment Health



The 2006 Fenner Conference on the Environment, organised by an NCEPH-led team including Tony McMichael and Jane Dixon, was held at the Shine Dome in May. The purpose of the conference was to bring researchers together with their counterparts in policy, private sector and community to discuss and debate the important topic of urbanism, environment and health. Professor Frank Fenner FAA welcomed conference participants and spoke of the global importance of urbanism, given that 2007 is the year in which, for the first time in history, more people will live in cities than in rural areas.

In his opening address, Professor Tony McMichael spoke from a historical perspective of phases of public policy interest in the urban environment and health. He argued that sustainability policy and debate should focus on outcomes including human opportunity, security, wellbeing and health.

Larry Frank, Bombardier Professor of Sustainable Transportation at the University of British Columbia, presented a plenary lecture on research into the relationships between health and the built environment, particularly the 'walkability' of residential areas. Other speakers included Australian leaders in the fields of urban management, transport, sustainability, and health and wellbeing.

Presentations from the conference are available on the conference website (<http://nceph.anu.edu.au/Fenner2006/presentations.htm>) and in 2007 the *New South Wales Public Health Bulletin* will publish two special issues on urban health containing selected papers from the conference. Peer-reviewed papers will also be published on the conference website.

Outcomes of the conference include a proposal for a Charter on the urban environment and health to be developed with the support of interested professional societies, including the Public Health Association of Australia, and a number of collaborative research funding submissions.



Fenner conference delegates and speakers in front of the The Shine Dome, May 2006.

An Indigenous Health Success Story



Phyll Dance, Cate Dugard

Opportunities for tracking research recommendations are rare.

ANU medical student, Cate Dugard's interest in Indigenous Health provided an opportunity to track the outcomes of recommendations emanating from research conducted during the period 2001 to 2004, between the Canberra-based Aboriginal Medical Service, Winnunga Nimmityjah and NCEPH.

In September 2006, a report containing findings from interviews conducted with local Indigenous and non-Indigenous service providers, state and federal politicians, and public servants was disseminated to the 19 people interviewed for the research. Cate's research, supervised by NCEPH Research Fellow Phyll Dance, evaluated the impact and implementation of the 22 recommendations made in the earlier research report.

'I want to be heard' – the first report

The original research was conducted in response to long-term concerns within local Indigenous communities about the problem of illegal drug use amongst Aboriginal and Torres Strait Islander people in the ACT and region, and the massive impact it was having on individual, extended family and community life. This collaborative research, funded by the National Health and Medical Research Council under a special National Illicit Drugs Strategy funding round, was guided by a Reference Group composed mainly of Indigenous people. Researchers from NCEPH and Winnunga Nimmityjah, including CEO Julie Tongs, interviewed 95 local Indigenous people who use illegal drugs to ask them questions about their sociodemographics, culture, drug use behaviours, needle using behaviours, general health, sexual behaviour and criminal histories. Specific questions were asked about needs related to culture, treatment, education, employment and health.

The research led to the report: *'I want to be heard': an analysis of needs of Aboriginal and Torres Strait Islander illegal drug users in the ACT and region for treatment and other services*. The report had a national launch at Winnunga in 2004 and was disseminated to relevant agencies, including Aboriginal and mainstream service providers, local and federal politicians, and public servants.

Taking the results to the community – the second report

It was considered important that the research findings be made readily accessible to the wider community. With this in mind, Winnunga and NCEPH successfully applied for funding from the ACT Office for Aboriginal and Torres Strait Islander Health to prepare a Community Report. Appropriate consultations were held with members of the local Indigenous community and the Community Report was launched by Olympian Patrick Johnson in 2005. It contains information about the research findings, a list of useful phone numbers and tips about, for example, prevention and treatment of overdoses.

I needed to hear this – evaluating the early research

In tracking the outcomes of the 22 research recommendations, Cate interviewed all relevant stakeholders. She found that this process encouraged stakeholders to engage in discussions surrounding the original report and implementing the recommendations. One of the useful suggestions made to Cate by one of the people she interviewed was that, in order for research recommendations to be better utilised, there needs to be a brokerage process between researchers and stakeholders at an early stage in the research process.

In 2007, Australians for Native Title and Reconciliation (ANTaR) will include the story of the collaborative research between NCEPH and Winnunga in a book of success stories on Indigenous health to be launched at Winnunga.

An aim of the original research was to give a voice to the people who might otherwise not be heard. The first words of Cate's report, 'I needed to hear this', were spoken by one of the politicians Cate interviewed. These words were a gratifying reflection of the first words of the original report, 'I want to be heard', which were spoken by one of the Indigenous people interviewed for that research.

THE GRADUATE STUDIES PROGRAM

Postgraduate training during 2006 was concerned primarily with Doctor and Master of Philosophy research and the Master of Applied Epidemiology program. An induction session for the newly commenced PhD students took place in March to provide an overview of the PhD program and to introduce our new students to our continuing students.

In May, we held a retreat for research students at Kioloa, the ANU's coastal campus. This is a perfect setting for a retreat, with gum trees, ocean views and lots of kangaroos. Students discussed their research projects, and shared thoughts and ideas about resources. This was particularly valuable for the newer students, as they were able to learn of each other's areas of interest and expertise.

In June, research students took part in a workshop on oral presentation skills, conducted by the National Centre for the Public Awareness of Science. Following up from this workshop, the students ran a 'Work in Progress' conference at Burgmann College. The conference gave research students the opportunity to present seminars on their current research in a conference environment. Academic staff and other research students at NCEPH attended the seminars and provided feedback to the speakers on both content and presentation.

In September NCEPH, the Centre for Mental Health Research (CMHR), The Australian Centre for Economic Research on Health (ACERH), and the Australian Primary Health Care Research Institute (APHCRI) collaborated to provide an information evening for prospective research students. The session was hosted by the Director of NCEPH, Professor Tony McMichael, and allowed current students and graduates to talk about their experiences at ANU. The information evening generated considerable interest and was found to be an effective means of promotion and recruitment. NCEPH also contributed material, and in some instances staff participation, in other recruiting events such as ANU Open Day and Graduate Expos.

During 2006 a number of academic staff and students conducted methodology seminars for research students on a variety of topics, including: causality in epidemiology, qualitative randomised controlled trials, methods for stakeholder engagement, bias, confounding and interaction: definitions and differentiation, an introduction to literature reviews, thesis proposal reviews, and ethics protocols in public health.

Student representatives in 2006 were Rosemary Korda and Michael Palmer.

Summer research scholars

The reproduction of professions like population health is a very difficult task. Not only does it require the preparation of new cohorts of skilled workers, but the young recruits also have to possess an extraordinary commitment to the development of science and service to the community. The Summer Scholar program at NCEPH has been a rich source producing a new generation of workers in the fields of epidemiology and population health. Bright undergraduates with an interest in health research are provided the resources needed to devote their vacation time to work with specialist mentors in NCEPH. While there is hope that many will go on to PhD studies and careers in population health, the main value lies in the life-changing experience they receive in gaining insights into the community of researchers, and modern public health challenges.

In 2006, NCEPH was pleased to host five such scholars who were each awarded a Summer Research Scholarship. This enabled them to attend ANU, where they were accommodated at Burgmann College over the summer break, and complete a research project at NCEPH. A brief description of their projects follows.

Prue Hogg (Monash University)



Prue worked with Lyndall Strazdins on a project which looked at the biomarkers for immune function and stress hormone levels in stressed children.

"Throughout the eight weeks I spent at NCEPH I worked on a literature review, investigating the current research surrounding the stress hormone cortisol and immunoglobulin A (IgA) levels, and the effects of stress, on humans. The research I undertook contributed to a paper which explores the effects of chronic stress on the regulation of cortisol and IgA in children.

When I began at NCEPH my learning objectives were to gain insight into working in a research environment; experience working in an independent capacity, but utilising advice and feedback from a supervisor; and to extend my research abilities. I also enjoyed thoroughly meeting and working with various people from NCEPH, most notably Lyndall Strazdins, who made me feel I was useful and contributing something valuable to the project right from the start. Another challenging, but rewarding part of my time at ANU was living in Burgmann College. To have had the opportunity to get to know so many motivated, intelligent, (and extremely amusing) new characters was a definite highlight of my summer, and I hope that I have created some lasting friendships."

Ngoc Mai Tran (The Australian National University)



Ngoc Mai's project with Niels Becker and Katie Glass was concerned with controlling and modelling an avian influenza outbreak.

"Being a student in mathematics, doing summer research at NCEPH was an invaluable experience for me. It showed the diversity of mathematical applications, and gave me an idea of how researchers work. I worked with Niels, Katie, Matt and David on simulating an avian flu pandemic, and checking Australia's preparedness for a possible outbreak. After one month of computer coding and reading papers, I learned a lot more about avian flu, the computer program R, how to use the leg-break of the NCEPH's free bikes, and the nice places in Canberra.

NCEPH has a great working environment – the people are so kind, friendly and helpful. The project was relaxing and at the same time provided a great experience. The summer program was well-coordinated, and we had the chance to meet other summer scholars. I made many friends through the program – it was one of my best summer vacations ever. I would like to thank my supervisors and NCEPH for the great opportunity, and I would definitely recommend other students to apply for the summer research program."

Audrey Goold (University of Western Australia)



Audrey was supervised by Terry Hull on a project on vaginal practices.

"Under the supervision of Terry Hull, my work focused on researching intravaginal practices in different contexts. Originally, it began by organising some of the existing literature that had been collected by previous researchers. Then I started my own search, to find more articles that would illuminate some of the reasoning behind why women choose to utilise various vaginal practices. This yielded about 50 additional articles that were compiled in a bibliography and written up as part of a bibliographic essay.

The idea of bearing witness and exposing realities through investigative journalism is something I may work towards. Journalism, like research would allow me to explore the social determinants of health, bringing to light how lived realities can influence health. It would also allow me to be involved with the subject and people concerned more directly.

This summer's experience of working at NCEPH and being exposed to how research is carried out has been extremely valuable and I am grateful to NCEPH and Terry Hull for the opportunity!"

Auli Oravala (The Australian National University)



Auli was supervised by Dorothy Broom and looked at food culture, ethnicity and childhood food consumption patterns.

"During my eight weeks at NCEPH, I explored a diversity of cross-disciplinary topics within the literature concerning the socio-cultural determinants of overweight and obesity. My research focused on examining various factors that determine family eating habits within societies, and accordingly, whether culture should be considered a risk factor for childhood overweight and obesity.

My time at NCEPH allowed me to consolidate my research skills, and proved to be a valuable foundation for the transition to honours year. In addition to a literature review, I designed a study to evaluate culture as a risk factor for childhood overweight and obesity. This study aims to provide original data for analysis within my honours thesis.

Being embedded in the research environment at NCEPH was a truly worthwhile experience, as it provided opportunities to meet research staff and PhD students, and to hear of the work that NCEPH are involved in. The summer research scholarship provided insight into the reality of research as a profession, and as such, I would recommend it to any student considering research at the postgraduate level and beyond.

Christal Jones (The Australian National University)



Christal worked on a project on induced abortion rates in Australian states and territories, supervised by Terry Hull.

"In my summer research project, one of the many issues I reviewed was identifying the need for women in Australia, particularly from rural and regional areas to have access to safe, cheap and effective legal abortion services. I found that given the current options available, the best way to provide this to women in rural and regional areas would be to allow the wider-availability of medical-induced abortion using a combination of Mifepristone (RU-486) and Misoprostol. Mifepristone is currently under regulation by the TGA, and only one doctor so far in Australia is authorised to prescribe this drug.

I have a strong interest in reproductive health science and I found this project to be very interesting and relevant in today's society where the issues of abortion are always re-surfacing in the media. The ANU Summer Research Scholarship at NCEPH has been a very rewarding and unique experience, and I will take away many new skills and contacts. I am grateful to staff and students at NCEPH for making my time there so enjoyable. I would also like to thank my supervisor Professor Hull for his input and guidance with the project.

Research student profiles



Penny Haora

"When I read about the Thai Health Risks Transitions project being implemented as a collaboration between NCEPH and partners in Thailand, I was immediately interested in joining the study. From my earlier work experience and studies in public health, I knew that it was important to consider the broad determinants of health in these rapidly changing contexts, in order to understand how best to preserve and improve health.

Before coming to NCEPH I worked in the central highlands of Afghanistan, establishing and operating primary care clinics with a focus on maternal and child health. I had spent about five years in various parts of Asia in similar work.

My PhD is investigating changes in birthing (practices and outcomes) in Thailand, where maternal deaths have reduced, but concerns have been expressed regarding the increasing rates of surgical delivery (Caesarean sections) in some populations, and the widespread use of medical interventions. The research follows the theme of the Thai Health Risks study by taking into consideration the proximal (downstream), the structural (upstream), and the systemic (distal) determinants of maternal mortality, morbidity and health. Thanks to a lot of support from a lot of people, I really enjoyed the 10 months I spent doing fieldwork in Thailand. I am currently analysing national data sets as well as qualitative interview data, collected mainly in the north.

It is my hope that this work will ultimately improve the birthing experience for many women, by informing policy and practice related to birthing in Thailand, and also in other countries who are implementing maternal health/safe motherhood programs. I've certainly gained new skills and knowledge during my studies at NCEPH, and future employment options have broadened. I look forward to engaging further with diverse stakeholders as we seek to relieve women of the 'disproportionate burden'."



Rosemary Korda

"My interest in health research dates back two decades when I was working as a speech pathologist in Melbourne. I enjoyed working with patients and was happily involved in clinical research with stroke patients, completing a Masters Research degree in the area. Over time, however, I became more interested in the big picture of health, ie, population health issues. This was reinforced by my time working in Zimbabwe in the early 1990s where the 'upstream' determinants of health, such as education, income and basic human rights, were clearly what mattered.

Being 'dragged to Canberra' in the mid 1990s gave me an opportunity to study epidemiology and population health at NCEPH. It was during this time that I was first shown a graph of the 'socioeconomic gradient' in health - a simple graph showing that as you move from low to middle to high income groups, death rates steadily decline. This had a profound impact on my view of health. Before that, to me health inequalities were the differences in health between rich and poor nations - I had not appreciated the extent of inequalities that exist within our own country.

By the time I graduated with a Graduate Diploma, I was hooked on social epidemiology. I was fortunate, then, to be able to stay on at NCEPH as a part-time research assistant, then as a research associate, working in the health inequalities area. I am now a student again, currently completing a PhD on socioeconomic inequalities in health care in Australia. By quantifying inequalities in health care, I hope to highlight that a universal health care system does not protect against health inequalities and that more needs to be done to ensure a more equitable delivery of services. One of the highlights of my research has been the opportunity to work with researchers from a wide range of disciplines, in particular, epidemiology, biostatistics, health economics and sociology. And I now consider myself very fortunate to have been dragged to Canberra."

Master of Applied Epidemiology

The MAE, now in its sixteenth year, is the only Australian Master's program that offers full-time practical training in addition to rigorous academic input. It was conceived to address the lack of trained epidemiologists in the surveillance and control of communicable diseases in Australia. The major goal of the program is to train health professionals in the practical applications of epidemiological methods to public health. The program is fully funded by the Commonwealth Department of Health and Ageing and two of the nine student places are available for Aboriginal and Torres Strait Islander students. The program provides an excellent grounding for graduates to work in diverse areas. Many of the graduates are now in highly influential positions in the Australian health system, academia and international organisations such as the World Health Organization (WHO). Many of the alumni remain connected with the program as field supervisors and as examiners.

During 2006, 12 students, including four Aboriginal and Torres Strait Islander students, sat their final examinations and graduated from the MAE. There were 18 students enrolled in the two year program, including five Aboriginal and Torres Strait Islander students. They were involved in a diverse number of projects with immediate and often major public health impact. Students were on the front-line of preparation for pandemic influenza with involvement in Avian Influenza prevention in Vietnam and in fostering links between Departments of Health and Agriculture in Australia and Indonesia. They were involved in ground-breaking research projects such as the descriptive epidemiology of non-human sources of Salmonella Ball in Darwin and investigations of unusual outbreaks of food-borne disease in several states. Investigations were not confined to communicable diseases, with projects examining antenatal care, perinatal outcomes, injury and the use of oxygen concentrators to prevent neonatal death in developing countries. There were 12 projects addressing health concerns in Aboriginal and Torres Strait Islander people.

Common themes of the public health impact of these projects included new knowledge or ways of thinking about problems leading to changes in public health policy or guidelines at a state, national or even international level. In several instances, new partnerships were forged by MAE scholars. These will lead to long term public health impacts including better coordination and a common purpose. Many of these projects were only able to be achieved because of the 'surge capacity' which MAE scholars and staff provide.

During 2006, the arrival of a new Director gave an opportunity for reflection and renewal of the MAE Program. In consultation with stakeholders, a series of key questions were addressed: What are the future needs of the workforce? How should the curriculum be structured to meet those needs? Who are the ideal candidates and from what mix of professional backgrounds? Major outcomes of the review were standardisation of the residential component of the course, curriculum development, clearer learning outcomes for students, revisions to the projects required for the bound volume, a new handbook and working rules and shortening of the scholarship from 24 to 21.5 months.

At the fourth Global TEPHINET Conference in Brasilia, MAE student Michelle MacPherson, gave an excellent talk on a national outbreak of Salmonella typhimurium 135. She also presented posters on her work with African



refugee children and one on the epidemiology of Salmonella ball in the Northern Territory, on behalf of her fellow student, Shelley Williams. TEPHINET is the global Network of Training Programs in Epidemiology and Public Health Interventions. The social nature of the conference, and its uniquely Brazilian flavour, was summed up by the opening ceremony which culminated in a spectacular musical display by a group from Salvador, Bahia State - pictured left.

MAE Student Profiles

Sophie la Vincente



Placement: Centre for International Child Health (CICH), Melbourne

Supervisors: Dr Ross Andrews, Dr Scott Cameron

"Before starting the MAE I was working at the Department of Clinical and Experimental Pharmacology at the University of Adelaide, where I had just completed my PhD. I wanted to learn more about population health and epidemiology, and the 'learning by doing' approach taken by the MAE sounded ideal. One of the things I am enjoying most about my MAE experience is the opportunity for fieldwork.

CICH, a WHO Collaborating Centre in Child and Neonatal Health works closely with the WHO Department for Child and Adolescent Health and Development. One of the WHO projects I have been working on is an evaluation of oxygen systems in paediatric wards in developing country hospitals. A reliable oxygen supply in a hospital is vital to keep sick children alive. We have developed a generic tool for evaluating oxygen systems in these settings. In June, together with a biomedical engineer and local Ministry of Health staff, I will be using this tool to evaluate oxygen systems in hospitals throughout Malawi.

I am also working on a project with the Menzies School of Health Research that aims to reduce the burden of skin sores and scabies in Aboriginal communities. Through this work I have been fortunate enough to spend a lot of time in the remote communities of East Arnhem Land, where I work closely with local community workers treating children with skin problems and evaluating the effectiveness of the community-based skin health program.

Since October I have worked with a paediatrician in South Africa to provide technical input in the analysis of a neonatal mortality database. Through my involvement in this project I was invited to attend the WHO Global Meeting to Review Hospital Improvement for Children in Developing Countries in Indonesia last January. This was a fantastic opportunity to work with WHO representatives and paediatricians from developing countries, to better understand the priorities and challenges in improving the health of children around the world.

The MAE is providing me with a fantastic opportunity to gain experience and develop my skills in international child health. I'm really looking forward to the experiences I'll have over the next 12 months and beyond."

Simon Graham



Placement: AIHW National Perinatal Statistics Unit, The National Centre in HIV Epidemiology and Clinical Research

Supervisors: Associate Professor Paul Kelly, Dr. Elizabeth Sullivan, Professor John Kaldor

"Prior to the MAE, I worked for four years in Bangkok, Thailand with a non-government organisation with HIV/STI training and care and support to HIV positive employees of private companies in their offices and factories in Thailand and Asia, including Adidas, Sony and General Motors.

My first year was spent at the perinatal unit which is an area I had no previous experience in and so I had to learn quickly about pregnancy and perinatal health. In this time I was able to conduct a large data analysis focusing on whether a mothers location in Australia affects her babies perinatal outcomes.

In my second year I was able to participate in a large outbreak investigation of Salmonella Typhimurium at a bread shop in Sydney which affected approximately 220 known cases over four days with 50 hospitalised. I then moved to a public health unit and became apart of a team investigating a Hepatitis C outbreak in a medical clinic in Sydney. This was an investigation over five months and included a large number of people. This outbreak became my epidemiological study.

The MAE has been a sharp learning experience and great fun. It has given me many opportunities and opened doors for me to become apart of different projects and approach research and epidemiology in different ways. I hope to use the large number of skills I have gained from the MAE in future projects."

Students

Doctor of Philosophy students, their PhD topics and supervisors

Karen Andreasyan, BDentalSurgery MDentalSurgery MDentalSci *Yerevan State Medical University MPH Umea University*

Dietary determinants of child asthma

Dr A-L Ponsonby, Dr K Dear, Associate Professor M Riley

Victoria Brett, BSc (Hons) *UNSW*

Understanding Ross River disease and transmission in NSW: using climate, vector and host distributions to predict onset and severity

Professor AJ McMichael, Dr K Dear, Dr R Woodruff

Annie Carroll, BA *CSturt* BSW (Hons) *Melb*

Achieving population health through trade unionism

Dr J Dixon, Dr C Butler, Dr L Strazdins

Stuart Collins, MBBS *Qld* DTM&H *James Cook* MPH *Syd*

Nutrition on Flores Island, Nusa Tenggara-Timur province, Indonesia: the impact of El Niño

Professor A Sleight, Professor AJ McMichael, Dr C Butler, Dr B Lees

Anna Davies, BSc(Hons) *UWA*

The social trends associated to the rise in obesity

Dr D Broom, Dr J Dixon

Penny Haora, DipAppSci(Nurs) *Avondale/SAH* RN Grad Dip Mid *UWS* RM MPH *UNSW*

Maternal deaths and maternal morbidities in Thailand: the impact of birthing technologies

Professor T Hull, Dr E Banks, Dr S Friel

Jennifer Hargreaves, BSc (Hons) *ANU*

Adverse events in routinely collected mortality and morbidity data

Dr B Sibthorpe, Dr C Kelman, Dr P Philips

Sarah Hinde, BSc GradDipPopHlth *ANU*

Car cultures and health inequalities

Dr J Dixon, Dr T Kjellstrom, Dr D Broom, Dr C Banwell, Mr M Dolan

Geethanjali Isaac-Toua, MBBS *PNG* DipPubHlth *Otago*

Methadone program evaluation

Dr R D'Souza, Professor N Becker, Dr P Dance

Rosemary Korda, BAppSci MAppSci *La Trobe* Grad Dip PopHlth *ANU*

Socio-economic inequality in the use of health care in Australia, and the impact on health outcomes.

Professor J Butler, Dr M Clements, Dr J Dixon

Ian McRae BSc(Hons) *Monash* MSc BA *ANU**

The economics of GP bulk billing and the impact of policy change

Professor J Butler, Dr A Sidorenko, Professor B Chapman

Lynelle Moon, BMath *Wollongong* GradDipStats GradDipPopHlth *ANU*

Inequalities in population-level health outcomes: the case of coronary heart disease

Dr G Carmichael, Dr L Lim, Emeritus Professor RM Douglas, Dr P Magnus, Prof J Butler

Anna Olsen, BSc BA Hons *ANU*

Choice or Chance: The social context of contraceptive use by women with hepatitis C

Dr D Broom, Dr P Dance, Dr C Banwell, Dr M Temple-Smith

Chaaim Pachanee, B AppSc (Env Health) *QUT* Masters of Int Health *Griffith*

Future burden of selected risk factors in Thailand

Professor A Sleight, Dr L Lim, Dr C Bain, Dr S Wibulprasert, Dr S Seubsman

Michael Palmer, BCom (Hons Econ) *Monash PGDip(Arts) UNSW*

Poverty and disability in Vietnam. A multidisciplinary study concerning the economic and social costs of disability, and public health outcomes.

Professor T Hull

Saifur Rahman, MBBS *Chittagong MPH Johns Hopkins Diploma AIDS/STD Management Consortium of Thai Training Institutes for STDs and AIDS*

Reproductive health of women complaining of vaginal discharge

Professor T Hull, Dr F Bowden, Dr RM D'Souza, Professor N Becker

Stephen Rudzki, MBBS *Adelaide GradDipSportsSc Cumberland*

The cost of injury to the Australian army

Emeritus Professor RM Douglas, Professor J Butler, Professor W Smith

Rupen Shrestha, MBA *Waikato MSc Auckland*

Population health impact of air pollution

Dr K Dear, Dr T Kjellstrom, Dr G Morgan

Masha Somi, BA/BEd(Hons) *ANU**

Household socio-economic status and malaria in rural Tanzania

Professor J Butler, Dr M Patel, Dr A Martina

Judith Staples, BSc(Hons) MSc *Canterbury BAppSc Qld UT*

Environmental factors, particularly ultraviolet radiation, affecting multiple sclerosis and other autoimmune disease

Dr A-L Ponsonby, Professor AJ McMichael, Dr L Lim, Ms M Beers-Deeble

Xiaoyun Sun, BMed *Shanghai Medical University MPH Shandong University*

Community health financing in rural Shandong China: the New Cooperative Medical Scheme and its impact on health care provision and financial protection.

Professor A Sleight, Dr G Carmichael, Dr A Sidorenko, Dr S Li, Dr S Jackson

Arunrat Tangmunkongvorakul, BSc (Nursing & Midwifery) *Chiang Mai Uni MSc (Health Promotions) London*

Sexual health in transition: adolescent lifestyles and relationships in contemporary Chiang Mai, Thailand

Professor A Sleight, Dr C Banwell, Dr I Utomo, Dr G Carmichael, Dr L Lim, Dr A Aramrattana, Dr K J Taywaditep

Leanne Unicomb, BSc (Hons) *La Trobe M Med Sci Newcastle*

Investigation of sub typing methods to determine regional and national risk factors for infection with *Campylobacter*

Professor N Becker, Dr M Patel, Professor L Gilbert

Catherine Vavrina, BAppSci *UC MEnvSci ANU*

To be advised

Matthew Williams, BA MA Intern Studies *UTS*

Transport fatalities and injuries in the context of the socio-economic and cultural transition underway in Thailand

Dr J Dixon, Dr T Kjellstrom, Dr C Banwell

Vasontara Yienprugsawan, BA (Econ) *Thammasat University MA (Int'l Relations) Maxwell School of Syracuse University*

Decomposing health inequalities in Thailand

Professor A Sleight, Dr A Sidorenko, Dr L Lim, Professor P Warr

Doctor of Population Health students, research topics and supervisors

Walter Abhayaratna, MBBS *Syd FRACP RACP*

The ACT heart failure survey

Professor AJ McMichael, Professor W Smith, Professor N Becker

Master of Philosophy students, research topics and supervisors

James Harris, BSc Hons *Otago*

Optimal resource allocation for prevention and treatment of cardiovascular disease in New Zealand
Prof J Butler, Dr P Magnus, Dr M Clements

Graduate Diploma of Population Health students

Indra Ramasamy, MSc *Surrey* PhD *Lond*

Master of Applied Epidemiology scholars, placements and supervisors

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Dr J Spencer and Ms M Deeble

Simon Graham, BIS *Flinders*

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Professor J Kaldor, Dr L Sullivan, Professor L Maher, Associate Professor P Kelly

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Kirsty Hope, BSc *UNSW* GradDipClinEpi *Newcastle**

Hunter Population Health, New South Wales
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Infection Control Service, Communicable Disease Control Branch, Department of Human Services, South Australia
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Lesley Nelson, BComm *Murdoch BA Edith Cowan*

Australian Biosecurity – CRC, Curtin University and South Metropolitan Public Health Unit, Western Australia
Professor A Plant, Dr M Seel, Dr P Dance

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Communicable Disease Control Branch, South Australia
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Chris Oxenford, BVSc Dip Vet Path *Sydney MPH&TM JCU**

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Cynthia Payne, AdvDip HSc (ATSI Primary Health Care) *TNQI**

Queensland Health and Townsville Division of General Practice, Queensland
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National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases, New South Wales
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Dr M Gilles, Dr S Cameron

Christine Sturrock, RN RM BHIthSc (Midwifery) *CSU*
Food Standards Australia New Zealand, Australian Capital Territory
Dr D Mahoney, Dr M Patel

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Dr M Patel

Nola Tomaska, BAppSc *Canberra**
OzFoodNet, National Public Health Partnership, Victoria
Mr M Kirk, Dr G Hall

Shellee Williams, BSc(Hons) MPH *UNSW*
Centre for Disease Control, Department of Health and Community Services, Northern Territory
Dr V Krause, Dr M Patel

*For part of the year

HONOURS & AWARDS

- Flood M. NSW Violence Against Women Prevention Award, NSW Department of Community Services
- Lucas R. Macquarie Bank MS Research Australia Fellowship, 2006-7
- Lucas R. RACP Cottrell Fellowship, 2007
- Roper K. Centre for Remote Health Bursary
- McDonald D. Australian Defence Medal
- A/Prof Scott Cameron. The College Medal , Australasian Faculty of Public Health Medicine
- Dr Vicki Slinko. Prize for best oral presentation in population health. Annual Health and Medical Research Conference for Queensland
- Ms Michelle Macpherson. A "top 10" oral presentation award at the TEPHINET conference, Brazil

PUBLICATIONS

Peer-Reviewed Journal Articles

Abhayaratna WP, Marwick TH, Smith WT, Becker NG, McGill DA. Characteristics of Left Ventricular Diastolic Dysfunction in the Community: an echocardiographic survey. *Heart*, 2006; 92: 1259-1264. online Feb 2006.

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Anstey KJ, Jorm AF, Réglade-Meslin C, Maller J, Kumar R, von Sanden C, Windsor TD, Rodgers B, Wen W, Sachdev P. Weekly alcohol consumption, brain atrophy, and white matter hyperintensities in a community-based sample aged 60 to 64 years. *Psychosomatic Medicine*, 2006; 68: 778-785.

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Becker N, Britton T, O'Neill PD. Estimating vaccine effects from studies of outbreaks in household pairs. *Statistics in Medicine*, 2006; 25: 1079-1093.

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Invited keynote conference papers

Bammer G. *Improved Research Strategies for Dealing With Complex Problems and Complex Decision-Making*. VicHealth Evidence Symposium: Getting Real: Incorporating complexity in models of evidence informed decision making, Melbourne, July.

Dixon J, Banwell C, Hinde S. *Consumption and health disparities: the explanatory values of theories of social contagion and social distinction*. Dangerous Consumption IV, ANU December.

Banwell C, Dixon J, Friel S. *An ACT Sentinel Site for Healthy Weight: A unique environment, a unique opportunity*. ACT Public Health Forum, Canberra, November.

Banwell C, Dance P, Olsen A, Temple-Smith M. *Internal or infernal Devices: Are contraceptive technologies serving Australian women with hepatitis C who inject drugs?* ACT Public Health Forum, Canberra, November.

Dixon J, Banwell C, Hinde S. *Cities, consumption and health: the 4 D's of density, diversity, disparity and diffusion*. Fenner Conference on Urbanism, Environment and Health, Australian Academy of Science, Canberra, May.

Banwell C. *Why we need to be aware of Hep C in the ACT*. Launch of ACT Hep C week 2006, October.

Olsen A, Banwell C, Dance P, Temple-Smith M. *Gendering the margins: The sexual and reproductive health needs of women with hepatitis C*. 5th Australian Women's Health Conf. Melbourne, April.

Becker N. *What Role does the reproduction number play in planning infectious disease outbreak control?* The Second International Symposium on Transmission Modules for Infectious Diseases: Preparing for Pandemic Influenza. National Institute of Infectious Diseases, Tokyo, January.

Broom D. *Gender in/and/of health inequalities*. First National Conference on Gender and Health Inequality, University of Melbourne, June.

Broom D. *The lesser evil: bad jobs or unemployment?* Australian Health Inequities Program, University of Melbourne, November.

Broom D. *Complicating Gender*. Victorian Women's Health Summit, Melbourne, July.

Caley P. *On invasiveness of transgenic plants: evaluating screening models and their predictions*. 9th International Symposium on the Biosafety of Genetically Modified Organisms, Jeju Island, Korea, September.

Clements M. *Socio-economic differences in cancer*, Epi Hour, Cancer Council NSW.

D'Souza R. *Work and Health in a contemporary society. Demands, control and insecurity*. The Royal Australasian College of Physicians, Australian Faculty of Occupational Medicine Meeting, Cairns, May.

D'Souza R. *Seasonality of Hospital Admissions and Emergency room presentations*. Professional development dinner of the Australian Asthma and Respiratory Educators Association, November.

D'Souza R. *Work stress and health*. Conference for Wellbeing in the Workplace Forum in Canberra, October.

Flood M. *Violence Prevention With Men: Strategies and Challenges*. II International Colloquium of Studies on Men and Masculinities, Guadalajara, Mexico, June.

Flood M. *The debate over men's versus women's family violence*. Australian Institute of Judicial Administration, Family Violence Conference, Adelaide, February.

Kelman C. *Pharmacovigilance - searching for the truth in linked data*. Australian Mathematical Sciences Institute, March.

Kelman C. *Drug interactions and reactions in observational data*, St Vincents Hospital Pharmacology Department, UNSW, July.

Kjellstrom T. CleanMed conference, Stockholm, Sweden, May.

McDonald D. *Drugs, money and government: estimating ACT Government expenditures on preventing and responding to drug abuse*, ACT Biennial Public Health Forum 2006, Canberra, November.

McDonald D. *Scoping drug policy interventions and taxonomies*. Strategic Approaches to Illicit Drug Policy: Findings from the first stage of the Drug Policy Modelling Program, University of NSW, Sydney, August.

McDonald D. *Evaluating peer education: values and evidence*, Australian Drug Foundation Drug Info Seminar: Peer Education as a Drug Prevention Strategy: What Works?, Melbourne, April.

McMichael AJ. *Environmental Change and Human Health: Challenges for Research, Policy and Sustainability*. Delphi Public Lecture, Second annual lecture: New Thinking on Health and Environment lecture series, University of Ottawa, Canada, January.

McMichael AJ. *Climate Change and Health: An Australian Perspective*. Guest Speaker, 2nd Australia-New Zealand Climate Change and Business Conference, Adelaide, February.

McMichael AJ. *Cycles of public-policy interest in urban environment and health: Relation to sustainability*. Fenner conference on Urbanism, Environment and Health, Australian Academy of Science, Canberra, May.

McMichael AJ. *Population and Environment in Australia: Reconciling Sustainability and Population Health*. The Population Debate, University of Adelaide, May.

McMichael AJ. *Population Health as Criterion of 'Sustainability' Can Epidemiologists Rise to the Challenge?* American Congress of Epidemiology (triennial), Seattle, June.

McMichael AJ. Keynote Speaker. *Sustainability and Public Health*. Public Health Association of New Zealand Annual Conference, Palmerston North, 5 July 2006.

McMichael AJ. *Evaluating Health Risks and Adaptive Strategies*. World Meteorological Organization Conference: Living With Climate Variability and Change, Espoo, Finland, July.

McMichael AJ. *Social and environmental influences on infectious diseases: are we inadvertently mobilising the microbes?* Vice-Chancellor's Annual Public Lecture, University of Auckland. Auckland, October.

McMichael AJ. *Global environmental change and human health: issues and research needs*. Earth System Science Partnership Conference, Beijing, November.

McMichael AJ. *Population health as criterion of sustainability*. International Symposium on Environmental Health, Climate Change and Sustainability, Brisbane, November.

McMichael AJ. *Climate change, environmental change and health: extending the environment-and-health research and policy agenda*. Symposium on Priorities in Environmental Health, Nelson, NZ, December.

Patel M. *Strengthening national capacity for disease control*. Planning Workshop for a Viet Nam Field Epidemiology Training Program, Hanoi, Viet Nam. WHO and Ministry of Health.

Strazdins L. *Work, family and wellbeing: is there a tradeoff?* Social Policy Research Conference, Canberra, November.

Strazdins L, Shipley M. *Policy perspective: the intersection of economic, social and health policy agendas in addressing issues of work/life integration*. Balancing work and life conference 2006. Queensland Department of Industrial Relations and the Centre for Work, Leisure and Community Studies, Griffith University. Brisbane, November.

Strazdins L. *Designs for the times: Work, families and sustainable cities*. Fenner Conference on Urbanism, Environment and Health, Australian Academy of Science, Canberra, May.

Swingler E. *Making the most of doing time: Incarceration - Chronic disease management inside - How does it compare*. Primary Health care Now! Current Research and Evaluation Development in Western Australia. Perth Zoo, November.

Swingler E. *An outbreak of Salmonella Kiambu in WA*. OzFoodNet National Face to face meeting: Enhancing Surveillance of FoodBorne Disease Across Australia. December.

van Kerkhoff L. *Knowledge systems: what are they and why might they be useful?* Working across diverse knowledges symposium, Cairns, October.

van Kerkhoff L. *Institutional change and stasis: how fast is fast enough?* Invited plenary panel speaker. Institutional Dimensions of Global Environmental Change Synthesis conference, Bali Indonesia, December.

van Kerkhoff L, Bammer G. *Improving integrated research: learning from theory and practice*. CSIRO Integration Showcase: Reflecting on integrated mission-directed research, Canberra, June.