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Director's Foreword

No sooner do you write for one annual report than the next one comes around. As globalisation proceeds and the tempo of change in human affairs accelerates, so too, apparently, does the passage of time. Well, all this mobility on the social, environmental, cultural and political fronts means more grist to the NCEPH research, teaching and doctoral training mill. Many new population health issues to study.

As a multi-disciplinary Centre we have continued working on diverse research fronts. The spectrum of topics includes: investigating the role of solar ultraviolet radiation as immune-suppressant in multiple sclerosis (the rates of which are much higher in southern than northern Australia); exploring the socio-cultural origins of the rise of obesity in Australia; modelling the optimal intervention strategies for the control of infectious disease spread (e.g. SARS, avian 'flu); evaluating the health-care financing systems in some of our Asia-Pacific neighbours; elucidating the links between poverty, environment, child diarrhoea and mortality in Bangladesh; studying how the changing workplace (with more casualisation, mobility and insecurity) affects employee and family health; clarifying the relationships between climatic variation and infectious diseases (Ross River virus, food poisoning, and others); and initiating an ambitious five-year multi-collaborative study in Thailand to better understand the factors influencing the ongoing “health transition” and the associated shifts in risk factors/behaviours and health profile.

In keeping with the times and increased funding for research networking and inter-disciplinarity, we extended our national and international engagements in 2004. We have rich connections with the World Health Organization and various other UN bodies, international development agencies and major universities overseas. We are also engaged in newly-evolving international research networks in the areas of integrative research methods, ecosystem changes and their health impacts, global climate change, urbanisation and health, infectious disease surveillance and control, and others.

The Centre got a healthy “tick” from the ANU’s Quality Review, conducted by an international team of assessors in mid-2004. We were pleased, flattered even, by some of the very positive remarks that were recorded. But perhaps we shouldn’t evince surprise. After all, in 2004 as in 2003 we did very well in the research grant application stakes – and, hence, staff numbers have continued to edge upwards with several more externally funded positions.

There were also successes on the teaching and training fronts. The Masters of Applied Epidemiology (MAE) continued on its well-recognised, successful, course, providing custom-built training of work-ready epidemiologists. Our MAE graduates now account for a large part of the epidemiology workforce in national and state governments, and, along with the tireless efforts of our MAE teaching staff, we are now also contributing significantly to Southeast Asian infectious disease epidemiology training and practice. In 2004, NCEPH played a foundational role in the first year of the new ANU Medical School. We are responsible for one of the four themes, “Population Health”, that runs through the four-year graduate curriculum.

There is a long list of potential “thanks”. These must include the Centre’s appreciation for the continuing support from the Department of Health and Ageing, through the Public Health Education and Research Program (PHERP), and my own appreciation for the sturdy support we (sometimes disorganised) academics receive from our administrative staff colleagues – especially under the strictures of today’s increasingly stringent university funding environment. Finally, the occasional ripple aside, I think that most of us find NCEPH to be a congenial, interesting and productive place in which to work. Perhaps that is the most important thing to report.

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Director, NCEPH
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1 June 2004 — 31 May 2005
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14 July 2004 — 6 December 2004
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* For part of the year only
Research & Grants

The Centre now comprises 33 full-time equivalent academic staff. In 2004 those staff published 95 papers in peer-reviewed journals, four books and 20 book chapters. Staff were also invited to give 38 keynote conference addresses during the year. Fourteen conference papers were published, as well as over 40 reports and other journal articles, including three NCEPH working papers.

The number of grants, consultancies and externally funded scholarships awarded to NCEPH more than doubled between 2003 and 2004. The Centre was awarded 19 grants (including a $4.5million NHMRC Health Services Research grant), two externally funded scholarships, three fellowships and 19 consultancies. This was an increase in the yearly total from 19 in 2003 to 41 in 2004 and included a number of grants awarded in late 2003 which did not commence until 2004.

The Centre’s rate of success in the major schemes (NHMRC Project Grants and ARC Discovery Project Grants) continued to improve and remains well above the national average.

In June 2004, NCEPH’s Grants Officer moved from a half-time to a full-time position, firmly establishing the Centre’s commitment to its quality, peer-reviewed system for the development of competitive grant applications and the review of consultancy contracts.

Some of the funded research awarded and undertaken in 2004 included:

- ARC Discovery Project and QEII Fellowship - Reducing child deaths among the poor in Asian cities: the cultural, social and institutional determinants of child survival ($627,405 over 5 years)
- ARC Discovery Project and Australian Postdoctoral Fellowship - The economics of mothers’ milk and the market for infant food ($258,000 for three years)
- NHMRC Project Grant - Improved ways to study the effect of transient exposures on the risk of an illness, with application to flying and DVT ($207,750 over three years)
- NHMRC Project Grant - Choice or Chance: the social context of contraceptive use by women with HCV and their reproductive and sexual health needs ($265,400 over two years)
- NHMRC Project Grant - Mortality, morbidity and income inequality in Australia ($243,050 over 3 years)
- ACIL Australia Pty Ltd - ASEAN emerging and resurging infections: surveillance and response program ($650,000 over 2 years)
- Department of Family and Community Services (FACS) - jointly to NCEPH and the Centre for Mental Health Research, to facilitate the provision of social policy research ($155,000 per year for 6 years)
- NHMRC Health Services Research Grant: ACERH – Innovative analyses of health insurance, ageing and the economic burden of illness and injury ($4.5 million for 5 years)
- NHMRC Training Award (Sidney Sax Postdoctoral Fellowship) - Epidemiological studies of the association between immune deficiency and cancer and sunlight and immune-related disorders ($294,000 over 4 years)
- NHMRC Project Grant - The role of EBV and HHV-6 infection in demyelinating disease with a consideration of past UVR exposure ($302,300 over 3 years)
- ARC Discovery Project Grant - New mathematical and statistical methods that inform the control of infectious disease outbreaks ($202,318 over 3 years)
- ARC Discovery Project Grant - Using national surveys to uncover and assess potentially harmful sexual practices in Southeast Asia ($330,000 for 3 years)
- ARC Discovery Project Grant - Chronic disease prevention and treatment – cost-benefit model systems to assist with priority setting ($524,500 over 5 years)
- ARC Discovery Project Grant - The weight of modernity: mitigating obesity ($149,000 over 3 years)
Asbestos and health projections

Mark Clements

The health effects of asbestos exposure have been the subject of recent controversy. In particular, there is public concern whether industries and government will cover future claims for asbestos liability, which are expected to continue to rise.

Mesothelioma, an aggressive cancer of the pleura and peritoneum, and lung cancer account for a large number of asbestos-related claims. Cases of mesothelioma are almost always explained by asbestos exposure. In contrast, cases of asbestos-related lung cancer are probably under-reported, due to cases being "explained" by smoking exposure. We want to predict the number of mesothelioma cases, which may be predictable from historical trends. This is simpler than trying to predict the number of claims, which is an actuarial calculation affected by changing social and legal processes.

However predicting the number of future mesothelioma cases has its own problems. The interval between asbestos exposure and the onset of mesothelioma can be greater than fifty years, so that exposure twenty years ago may cause cases in 30 years. There have been different waves of exposure, with asbestos mines closing before there were any appreciable reductions in the use of asbestos products such as in the construction industry. Unfortunately, these different asbestos exposures are difficult to characterise. At present, the only Australia-wide mesothelioma predictions are predicated on a peak at 2010, which may – or may not – be true.

Our current research will a) evaluate the use of predictions based on simple descriptive models and on a thorough understanding of the aetiology, and b) assess the utility of data on population-level asbestos exposure in mesothelioma predictions. This multi-disciplinary project will include epidemiology, biostatistics, actuarial science and mathematical modelling. The project involves Dr Mark Clements from NCEPH, Jill Shi as part of her ANU actuarial honours project, and Professor Bruce Armstrong from the University of Sydney.
Is life getting better?

Today, many more people are living much richer, longer lives than ever before. So is all well and good? Not exactly. There is growing evidence that quality of life is not the same as standard of living, and that how well we live is not just a matter of how long we live, especially in rich nations such as Australia.

In this book, NCEPH researcher Richard Eckersley explores what makes a good life. He goes beyond the usual objective indicators by which we measure our situation to examine the subjective aspects of life that are so important to our wellbeing: meaning and purpose, identity and belonging, perceptions and expectations. His concern, then, is with how we interpret the world and our place in it, with what it is to be human – in other words, with cultures and values.

The book approaches the question from a range of perspectives – from global economics, equity and sustainability and the characteristics of modern Western culture, through the sources of health and happiness and the disturbing trends in young people’s wellbeing, to the prospects of human transformation or obsolescence.

The book shows that the many paradoxes and contradictions of our situation reflect not just its inherent complexity and our incomplete understanding of it, but also parallel processes of cultural decay and renewal, a titanic struggle as old ways of thinking about ourselves fail, and new ways of being human strive for definition and acceptance.

Its cultural perspective reinforces the need to shift from a worldview framed by material progress, which gives priority to economic growth and a rising standard of living, to one based on sustainable development, with its aim of balancing social, economic and environmental goals to create a high, equitable and lasting quality of life. Fundamentally, this conceptual transformation requires a deep shift in values.

The book argues that hope for the future rests on several crucial developments: a potent synergy between scientific and spiritual understandings of the world and life; our unprecedented potential as individuals to make our own moral choices and to accept responsibility for these choices; and the evidence that the necessary cultural change is already under way.
Empowerment of Indonesian Women
Family, Reproductive Health, Employment and Migration
Edited by Sri Harijati Hatmadji and Iwu Dwisetyani Utomo
Demographic Institute, Faculty of Economics University of Indonesia, 2004.

Gender issues in Indonesia form the central theme of this book, based upon the empirical data from the Central Board of Statistics from various years, the Ministry of Health and the Ministry of Manpower, as well as case studies. The book is set within the context of a range of recent developments that have had a significant impact on women and children such as government decentralisation, regional conflicts and human trafficking. The chapters include issues related to gender equity and the socio-economic characteristics of the Indonesian family, a gender perspective of the elderly, reproductive health with a special coverage of internally displaced women, international migration and trafficking. The book also covers government policies and programs to combat these problems, for example the establishment of a women's crisis centre as a strategy for the elimination of violence against women and also efforts for women's empowerment in a post conflict situation.

It is expected that this book will promote policies that empower and protect women within the Indonesian family context. This book would be of interest to policy makers, program implementers, social scientists and NGOs concerned with the empowerment of women.

Environmental Health in Australia and New Zealand
Edited by Nancy Cromar, Scott Cameron & Howard Fallowfield

Written by experts in the field, Environmental Health in Australia and New Zealand provides an accessible and comprehensive introduction to this important discipline. The book was co-edited by NCEPH faculty member Scott Cameron with contributions from several other NCEPH researchers.

It is the only text of its kind, written specifically for Australian and New Zealand environmental health students and professionals. The risk framework is applied throughout the text as the methodology for addressing environmental health issues, and is also used extensively to highlight those issues that are particularly relevant to Australia and New Zealand.

Very practical in its approach, Environmental Health in Australia and New Zealand provides its readers with the tools for assessing, correcting, controlling, and preventing those aspects of human health that are determined by physical, chemical, biological, social, and psychosocial factors in the environment. An insightful summary chapter surveys global issues and future directions for environmental health.

Since its publication this text has been widely adopted for use as a reference for environmental health courses around Australia.
Communicable Diseases

While there is still much to learn about how to get the most out of our childhood immunisation schedules, a greater fraction of our work has become concerned with the control of emerging infections. This shift in research focus was initially motivated by SARS and is now fed by concern about the threat of a pandemic of influenza. It is accepted that sooner or later there will be a substantial shift in the nature of the influenza pathogen, which will make virtually everyone susceptible to infection, with drastic consequences across the globe. The recent avian influenza epidemics, with some transmission to humans, suggest that sooner is more likely than later.

The design of infectious disease studies is an attractive new feature of our research. There is a misconception that the design of studies, which receives much attention in other sciences, plays no role in communicable disease research because they are by nature observational. However, it turns out to be very important to choose carefully what to observe, because results can be biased if we do not acknowledge that disease incidence is driven by transmission. This year the focus has been on the design of vaccine trials, taking care to accommodate the structure of the community and finding ways to deal with the practical fact that large vaccine trials necessarily require staggered entry of participants.

Our communicable diseases research continues to overlap with NCEPH’s environmental health research program through our studies of the way climatic factors influence the incidence of foodborne diseases such as salmonellosis and campylobacteriosis. This work has been expanded by initiating an international study that will analyse surveillance and hospitalisation data on foodborne disease from a range of countries. To previous work on estimating how much foodborne disease occurs in Australia we have added a costing study, covering health care costs, lost productivity costs and the cost of public health surveillance and control. Work on estimating the number of foodborne gastroenteritis cases that occur in the community for every case reported to health authorities is continuing.

In October we helped to organise an international workshop on the Design and Analysis of Infectious Disease Studies, held in Germany. This helped to foster collaborations with leading international researchers, leading to joint studies to determine how optimal vaccination strategies depend on the community structure and the design of vaccine trials.

We are very fortunate to have people at NCEPH with experience in the use of mathematical models to investigate the control of infectious diseases. Our capacity for this work has received a substantial boost this year with the success of grants which will add three modellers to the team. With this critical mass we will be able to tackle a wider range of topics and respond quickly to hot topic areas as they arise.
Niels Becker, Katie Glass

The dramatic increase in international travel and migration brings with it a concern about imported infections.

This was highlighted by the emergence of SARS, but there are similar concerns about established infections such as tuberculosis, polio, HIV and hepatitis B and C. We have studied the effect of importation on the incidence of an infection when it is endemic, under various levels of control, including control that is adequate to achieve local elimination.

A start has been made on assessing the effectiveness of various border control measures. Which combination of border screening, education, and data collection on travellers is most effective in delaying the time until an importation leads to a major outbreak?

Is it worthwhile screening immigrants, when many more tourist travellers are not screened?

Can border control compete with a capacity to respond rapidly to an outbreak, or does border control only have a role because of the potential political cost of not having it?

The study of these questions is stimulating our research.
Regional partnerships to combat disease

Mahomed Patel, Mary Beers-Deeble

The 2003 spread of Severe Acute Respiratory Syndrome (SARS) exposed a widespread lack of preparedness to respond to communicable disease threats in the Asia region. Many countries recognised that their fragmented surveillance and response systems, together with a shortage of skilled workforce and the devastating economic impact of the outbreak, left them vulnerable to outbreaks of emerging and resurging infectious diseases.

Our existing partnerships with regional countries including Thailand, Malaysia, China, Cambodia, Japan and the Philippines enabled us to initiate or participate in projects aimed at strengthening regional responses to communicable diseases. In partnership with the Secretariat of the Association of South East Asian Nations (ASEAN) and the ASEAN Expert Group on Communicable Diseases, we were awarded an AusAID grant to initiate ‘Phase 1 of the ASEAN plus 3 Emerging Infectious Diseases Project’. (The 10 member countries of ASEAN are Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, and the ‘plus 3 countries’ are China, Korea and Japan).

Since August 2004, Mahomed Patel has worked in partnership with ASEAN and the World Health Organization (WHO) establishing the building blocks for regional coordination and policy development. This includes work related to areas such as deployment of multilateral response teams, development of uniform systems for laboratory quality assurance and biosafety, collaborative assessments of national ‘Early Warning of Outbreaks and Response Systems’, and exploration of ways to integrate public health and animal health sectors at country and regional levels and with the Food and Agricultural Organization (FAO).

During November, at the request of the Australian Government, Mary Deeble participated in an AusAID scoping mission to develop a further regional communicable diseases initiative which would take account of existing activities and provide funds to enhance capacity development across the human and animal health sectors. Subsequently Mahomed was invited to join the Asian Development Bank and WHO Team to catalyse the ASEAN activities in Cambodia, Laos and Vietnam, the poorest countries of the ASEAN membership. MAE alumni, Megge Miller and Sean Tobin, are working with us to help address neglected and endemic diseases, particularly among the vulnerable ethnic minorities residing in the border areas of the Mekong river basin.

The task ahead is one of developing sustainable enhancements in the context of poverty, uneven economic growth, political instability, a context in which many international technical and donor agencies operate with overlapping agendas. Our focus is not limited to the development of technical skills in epidemiology and laboratory services, but extends to mechanisms to enhance formal and informal intra- and inter-country networking across sectors, and addressing issues related to governance on communicable disease control in a globalised world.

The Australian Government’s support of these activities has demonstrated commitment to improving health in our region and thereby for Australia. As always, our current MAE students and alumni together with their field placements are an integral part of our work both nationally and regionally. Their own regional networks underpin Australia’s national capacity development and regional communicable disease security.

In addition to this project, as members of various WHO Working Groups, we have contributed to the ongoing revision of the International Health Regulations, the development of Guidelines on Implementation of Early Warning and Response Functions, and Guidelines for Monitoring and Evaluation of National Communicable Disease Surveillance and Response Systems.
Research into infectious diseases is primarily driven by an interest in controlling their transmission in our community. Vaccines are a great success story in this control, and therefore a focus of much research. NCEPH has contributed through its research into determining good vaccination schedules and methods for assessing the effectiveness of vaccines.

Vaccines are designed to protect individuals against infection, but may also reduce the severity of disease. Therefore, when they do get infected, vaccinated individuals will often be less infectious than unvaccinated cases. It’s really important to estimate how much vaccination reduces infectivity, but it’s difficult to do because we usually don’t know the source of an infection. We have designed vaccine trials that allow such estimation, by making use of data on household outbreaks.

When we know both how much vaccination reduces susceptibility and how much it reduces infectivity, we can combine these and use epidemic models to tell us how much the transmission is reduced in the community. We can then estimate the level of direct protection the vaccine provides, and also how much everyone benefits from the reduced transmission when part of the community is vaccinated.

Niels Becker has collaborated with European colleagues in this work.

Environmental Health

Environmental health research at NCEPH engages with the traditional range of local concerns about environmental pollutants and infectious agents in water, air and food. In addition to this, we recognise that the dramatic changes that are occurring at the global level - such as climate change, environmental degradation, changing trade regimes and travel - have profound implications for environmental health research.

NCEPH's environmental health research program therefore spans household exposures (such as indoor air quality and other domestic exposures that contribute to asthma), through community exposures (such as air pollution, heat waves, mosquito-borne diseases and food safety) to large-scale environmental changes (such as global warming, stratospheric ozone depletion and ecosystem sustainability). Inclusion of the human-made environment leads to consideration of how aspects of urbanisation, transport systems, and other profound changes in the ways-of-living of modern human societies affect health outcomes. These include the rising prevalence of obesity and its adverse health consequences in Australia.

Over the past year, the major research emphases have been on:

• research on the relationship between ultraviolet radiation exposure, immune system activity and the occurrence of immune-related disorders (especially multiple sclerosis, an auto-immune disease).

• studies of household environments in relation to childhood asthma.

• initiation and survey development for the NSW 45 and Up longitudinal cohort study (around 100 collaborators are involved, and funding is secured).

• analyses of the relationship between urban air pollution levels, climate factors and daily/weekly death rates, including new approaches to detailed spatial analyses.

• research on the effect of seasonal variations in temperature on respiratory infections in children, and cardiovascular disease in older people.

• developing a research program on the contribution of changing exposures to environmental hazards to the health transition in Thailand.

• studies of how climatic variations influence the occurrence of several infectious diseases, especially Ross River virus disease and bacterial food poisoning in Australia.

• a program of research in Bangladesh into the widespread health risks posed by natural arsenic contamination of freshwater obtained from deep tube wells.

• research on health impacts of motor vehicle transport (including obesity and physical activity).

• "Innovations" workshops: we convened a national workshop on air pollution research and methods.

The research program is involved not only in conducting new population-based studies, but also in predictive modelling and in developing integrative approaches to address complex environmental health problems.

Our research into environmental health issues is fundamentally enhanced by our collaboration with partners at the ANU, other universities, government and industry. Three major programs are the NHMRC capacity-building program in environmental health; the Australian Government Department of Health and Ageing's "Innovations" program, Atmospheric Environment and Health (with CSIRO, Bureau of Meteorology, University of Sydney and NSW Health); and the NCEPH participation in the Asian MetaCentre for Population and Sustainable Development Analysis (with the National University of Singapore and others). These programs create bridges with non-NCEPH researchers within ANU, Australia and in other countries.
Anne-Louise Ponsonby

Living with a younger brother or sister during the first six years of life is associated with a reduced risk of multiple sclerosis (MS), according to a study I participated in.

MS is a chronic disease that occurs when the body’s immune system randomly attacks the fatty myelin sheath covering nerves in the brain and spinal cord. This leads to various degrees of disability, ranging from tingling and numbness to paralysis and blindness. Twice as many women as men have MS, with the onset of symptoms most often occurring between the ages of 20 and 40.

In this study, carried out in Tasmania, we interviewed 136 people with MS, and 272 people without MS, between 1999 and 2001. We included questions about number and age of siblings, whether they lived in the same house and illness history including glandular fever. We also took blood samples to determine the presence of immune-system antibodies to Epstein-Barr virus (EBV). Elevated EBV antibodies and glandular fever have been previously linked to risk of subsequent MS.

The results showed that the longer people, in the first six years of life, were cumulatively exposed to any sibling younger than two years, the lower the risk of developing MS. We also found that healthy participants who had contact with infant siblings were less likely to have a history of glandular fever or higher EBV antibodies.

Younger infant siblings may be important because they are a source of common infant viral infections. Re-exposure to active viral infection is known to cause immune boosting and train immune responses. Further work is required to confirm these findings and understand the underlying mechanisms. In particular, as MS is a complex multifactorial disease, further work examining how combined patterns of adequate sun exposure, early life infection and immune responses and genetic factors, may protect against the disease. The Australian multi-centre Ausimmune Study, co-ordinated by NCEPH, will try to address these issues.

We suggest that the study results may strengthen the so-called "hygiene hypothesis" – that exposure to infections early in life may alter immune activity by influencing the developing immune system and decrease the risk for autoimmune disorders such as MS. The possible protective role of early life infection in the development of MS is in line with the increasing prevalence of the disease, which has accompanied a decline in childhood infection rates over time.

This collaborative project between NCEPH, ANU and the Menzies Research Institute was supported with funding from the National Health and Medical Research Council of Australia, the Australian Rotary Health Research Fund and MS Australia.

Globally, more than two billion people are undernourished. Over 800 million lack sufficient calories in their daily food to function properly. More than a billion additional people are chronically short of micronutrients. As a consequence, they are disproportionately vulnerable to illness, and many are perpetually tired – factors which reduce the capacity to learn effectively. This, combined with a lack of educational and other forms of opportunity, leads to a massive loss of human intelligence and human potential. A recent study estimated that US$8 billion - less than one week’s spending by the United States on its military – if spent in 2005 could get the Millennium Development Goal concerning hunger back on track. (This goal aims to halve the proportion of hungry people in 1990 – 16 per cent – by 2015.)

Achieving sustainability in the face of a still growing population is even more daunting and apparently intractable than eliminating world hunger. Global fishstocks are declining, forest area is falling (contrary to official claims) and greenhouse gases continue to accumulate. Many ecosystems are under pressure, and numerous high value species are in decline. Climate change threatens to accelerate harmful ecosystem change, including reducing agricultural productivity in sub-Saharan Africa and India, thus aggravating world hunger and, possibly, military tensions.

My work and publications in 2004 mostly concerned these inter-linked problems of sustainability and health. I was one of two co-ordinating lead authors for the chapter on human wellbeing in the (future) scenarios working group of the Millennium Ecosystem Assessment (MA) (www.millenniumassessment.org). The MA is an international scientific assessment involving several hundred scientists. Under the aegis of the major international environmental agencies it has considered: (i) the ‘goods and services’ supplied by the world’s ecosystems to human societies, (ii) how those ecosystems and their services are affected by human actions, (iii) the likely future state of those ecosystems, and (iv) the impacts on human societies from ecosystem changes. There are few grounds for complacency, the challenges are immense.

Canberra is well-known for its long, cold winters (by Australian standards). A cold season increase in respiratory infections, particularly among children, has been observed previously, and various streams of research have focused on a number of likely causes (including physiological, behavioural and viral). However, there has been remarkably little effort directed towards the contribution of climatic variations per se.

We conducted some research for the ACT Department of Health which evaluated the seasonal trends in hospital and emergency admissions to identify whether periods of increased admissions occur. The results demonstrated a strong seasonal pattern for respiratory conditions (not including asthma) and diarrhoea. Admissions to hospital for these conditions were highest in winter and spring respectively. Strikingly, each winter in Canberra there is a six-fold increase in the number of infants (0-1 year olds) admitted to hospital suffering from respiratory infections, and a 3-fold increase among 1-2 year olds. These numbers will only represent a small proportion of the true burden of disease in the community.

To further investigate these findings, we are embarking on a study that will consider the role of the household environment in contributing to this seasonal increase. We will be collecting information from interviews in the home with parents of children who have been admitted to hospital with serious respiratory disease, and interviews with a control group. The aim is to find out how the household environment (heating, humidity and indoor air pollution) contribute to this rise in numbers.

We have also commenced two other, related collaborations. With CSIRO Atmospheric Research, we’re quantifying relationships between air pollution, weather and hospital admissions in Melbourne and Brisbane. The aim is to develop a model for the short-term forecasting of changes in the risk of hospitalisation that are likely to occur because of upcoming extreme temperatures or air pollution, helping hospitals to better estimate staffing levels and ward use. The second project, in collaboration with Macquarie University, examines seasonal and interannual climatic variability in relation to asthma hospital admissions throughout Australia. In particular the focus is on relationships between asthma and El Niño, and changing profiles of airborne allergens such as pollens and moulds.
Health Systems

Over the past few years, there has been growing recognition that health systems research is a useful tool to empower policy makers in informed decision making. The World Health Organization, in its recent World Report on Knowledge for Better Health: Strengthening Health Systems, argues that health systems research has the potential to produce dramatic improvements in health worldwide and to meet some of the major development challenges in the new millennium. It goes on to state that effective research could prevent half of the world’s deaths with simple and cost-effective interventions.

In recognition of the importance of health systems research, Australia’s National Health and Medical Research Council has committed funding to a Health Services Research Program with the priority area in the first year of funding being health economics and health financing. In 2004, the health systems group at NCEPH, in collaboration with colleagues at The University of Queensland and the University of Western Australia, won a grant of $4.5 million over five years under the program.

This new program of research will focus on three themes – ageing, health insurance, and the economic burden of illness and injury – and will be conducted within a new multi-university centre, the Australian Centre for Economic Research on Health (ACERH). An important resource that will underpin the work is the population dataset that has been constructed for Western Australia. The dataset involves linked unit-record data, at the level of the individual, on public in- and out-of-hospital services dating back to the pre-Medicare period as well as more recent data on pharmaceuticals use. Additional data sources such as police data on car crashes have previously been linked to this dataset. Under an established and approved protocol that is already in place in Western Australia, ACERH proposes to link private health insurer data from two large private health funds to the public dataset.

Other important developments during the year included: the commencement of research, funded by an ARC Discovery Project grant, on the economics of mothers’ milk; work on modelling the economic cost and impact of HIV/AIDS in Ukraine, funded by the World Bank; the provision of technical expertise to the World Bank Health Sector Support Project in Tonga concerning reforms of health care financing; continuation of work on Aboriginal communities in Australia; provision of economic advice on recognising new medical specialties through membership of the Australian Medical Council’s Recognition of Medical Specialties Advisory Committee (ROMSAC) and its Economic Sub-Committee; completion of work on time trends in avoidable mortality in Australia since 1968 and comparisons of the Australian experience with that in selected European countries; continuation of work on the cost-effectiveness of changing the criteria for implementation of drug therapy for hyperlipidaemia in the Pharmaceutical Benefits Schedule; a study of quality of life after post-operative infection in total joint replacement; the conduct of a survey in Tanzania as part of a study of the economic impact of malaria in that country, including the socio-economic gradient in malaria incidence; the design and development of a study to assess the impact of the new Cooperative Medical Scheme in rural China; and the continuation of work on international trade in health services.
Julie P Smith

Australian mothers produced about 33 million litres of human milk for their babies during the last decade, contributing milk worth $2.2 billion a year to economic output. Tens, perhaps hundreds, of millions of dollars of national health care costs may be attributed to early weaning. Yet, despite its economic importance, and a challenge from feminist thinkers, economists have hardly given a second glance to the issue of human milk or the economics of its production.

My research, funded by an Australian Research Council Discovery Project grant, is using a multidisciplinary approach to generate fresh perspectives on the economics of breastfeeding. The study has updated previous estimates of the economic value of human milk supply in Australia, including using information on prices charged by human milk banks in Europe and North America. These estimates show only slight improvement in the aggregate supply of mothers’ milk in Australia. Overall, a small improvement in breastfeeding initiation rates during the 1990s offset the negative effects on aggregate human milk supply from declining exclusive breastfeeding, despite NHMRC recommendations for six months of exclusive breastfeeding. The latter trend seems to be due to the early return to work by new mothers, and practices encouraging the premature introduction of weaning foods.

A recent publication from this project in an Australian journal examines the measurement of economic value in public policymaking from a feminist economic perspective. If more women breastfeed, this appears paradoxically as a fall in gross domestic product and national food output because breastfeeding lowers commercial baby food sales and production and reduces health care spending. My research has shown how existing national accounting practices ignore an important aspect of national food production – human milk output – despite international statistical guidelines and practices that suggest there should be an attempt to measure production of such goods produced by households for their own consumption where its value is significant. Another publication uses a market analysis of infant feeding practices to demonstrate that unrecognised social costs and information failures, agency problems and unequal power relationships, along with unfair competition in the market for infant food, lead to a series of market failures that result in economically inefficient (and unfair) infant feeding and health outcomes for society.

Alexandra Sidorenko

I have been working on several projects in the area of international trade in health services, contributing to the activities of the Asia Pacific Economic Cooperation (APEC) Secretariat, the Association of South East Asian Nations (ASEAN) Economic Forum and the ASEAN Secretariat.

Trade in health services has been on a rise over the past decade, reflecting global trends in liberalised movement of medical practitioners, nurses, patients, as well as capital investment in health care establishments. Cross-border trade in health services (telehealth or e-health) is also gaining momentum, especially in the areas of medical testing and diagnosis, health records management, continuing professional education and dissemination of health information. Population ageing, including a growing proportion of retirees in the developed countries, creates a global demand for health and aged care services that many developing countries are trying to meet through increased exports.

Successful exporters of health services are characterised by a competitive cost structure, the availability of a skilled medical workforce, technological advancement along with the geographical position, climate and cultural links, as well as a welcoming regulatory environment. Benefits from trade in health services include foreign exchange earnings (and hence, reduced fiscal pressure from the public health finance), improvements in hospital infrastructure and management, enhanced human capital and skills, technology transfer and spill-over effects, specialisation in areas of comparative advantage, and economies of scale through extending the market beyond its geographic boundaries.

However, there are potential negative impacts from opening up to trade in health services, such as a shift of resources from the public to the private sector (a crowding-out effect), creation of a dual domestic market for health services, deterioration of access to essential health facilities in rural areas leading to a potential deterioration of public health outcomes, and a "brain drain" through the outflow of skilled medical workforce. Any liberalising measures should be preceded by careful evaluation of both economic and social consequences and undertaken only if the net benefit to the society is positive.
Rosemary J Korda, James R G Butler

Life expectancy in Australia, as in other developed countries, has been steadily increasing over the last century due to falling death rates across all ages. We examined the extent to which health care contributed to this trend by examining trends in avoidable mortality, a concept that refers to deaths from certain conditions that are considered to be largely avoidable given timely and effective health care.

Using unit record mortality data for people aged less than 75 years, we classified deaths into three avoidable categories: (1) conditions amenable to medical care ('medical care indicators'-MCI); (2) conditions responsive to health policy but that lack effective treatment once the condition has developed ('health policy indicators'-HPI); and (3) ischaemic heart disease-IHD.

Age-standardised mortality rates for avoidable and non-avoidable deaths from 1968 to 2001 show total avoidable death rates fell 68 per cent in females and 72 per cent in males. The corresponding non-avoidable death rates fell 35 per cent and 33 per cent. Given that avoidable deaths were around two-thirds of all deaths at the start of this period, these declines in avoidable mortality rates are substantial. For females, declines in death rates from causes amenable to medical care contributed 54 per cent to the decline in avoidable mortality rates, ischaemic heart disease contributed 45 per cent, and causes responsive to health policy intervention contributed one per cent. For males, the corresponding contributions were 32 per cent, 57 per cent, and 11 per cent.

In international comparisons with nine European countries for the period 1980-1998, Australia showed the greatest decline in avoidable death rates in both absolute and percentage terms, with our ranking improving from eighth (third highest) in 1980 to fourth in 1998. On MCI indicators alone, Australia had the third lowest avoidable death rate for females and the lowest for males in 1998.

Overall, our findings suggest that the health care system is an important determinant of health improvements in Australia in recent decades. Nevertheless there are indications that further gains in life expectancy are possible through the health care system given deaths from avoidable causes still account for half of all deaths in those aged less than 75 and that avoidable death rates are lower in several comparable European countries.

Figure 1. Age-standardised death rates for the three avoidable death categories and non-avoidable deaths, males and females aged 0-74
Population, Health & Development

Just as disease and disability do not respect boundaries, so the agendas of epidemiology and demography must be prepared to reflect the situations of health and development across national and cultural borders. The members of the Population, Health and Development Working Group regularly cross these boundaries in their search for ways to improve human wellbeing.

A case in point was the involvement of Terence Hull, Iwu Utomo and Bruce Caldwell in the design and analysis of the Timor-Leste Demographic and Health Survey. Begun in 2003 as an effort by the health department of the new nation to ascertain the immediate needs of a population emerging from nearly three decades of occupation by Indonesia, the survey evolved into a much larger project.

Not only did the survey swing show that Timor-Leste had the highest fertility in the world in 2003, with an average of 8.3 births per woman, but calculations of infant mortality were lower than any previous surveys. While this might have been welcome news for parents, it posed serious questions about data quality and reliability that could only be answered through careful demographic analysis.

What is emerging is a picture of a desperately poor population that has recently enjoyed the lifesaving services of the interim administration. Supplies, personnel, and effective logistics have saved children’s lives, presumably through adequate rates of immunization and timely curative services. The story is still unfolding, as are the demographic consequences of high fertility and moderate mortality. At the present rate of growth Timor-Leste will double in population in less than two decades, and the population age structure will pose a major challenge to planners attempting to generate employment opportunities for the rising generations.

At the other end of the demographic spectrum, Thailand has achieved low mortality and low fertility. Adrian Sleigh is leading a team of Thai and NCEPH researchers to study the morbidity patterns and health outcomes of the developmental changes that have carried the nation through the demographic transition. With funding from the Wellcome Trust and the National Health and Medical Research Council, the team spent 2004 preparing a large-scale survey for a cohort of over 100,000 students of the Open University of Thailand. The first round in March 2005 will form the foundation for regular revisits to the respondents to monitor the behavioural, clinical and other factors affecting their illness and mortality.

Team members will look into a wide range of health issues, including accidents, dietary patterns, stress, treatment of chronic conditions, and marriage and family formation patterns. This survey, perhaps the largest of its kind and quality in Asia, will produce insights into the future track of human wellbeing in countries that have achieved affluence through the modernisation projects of the late twentieth century.

These two examples of major political or economic change indicate the social transformations sweeping through the Asia-Pacific Region. The changes bring many improvements to life, but also serious challenges. PhD staff and students are engaged in studies of arsenic contamination of water supplies in Bangladesh, potentially harmful sexual practices in Indonesia and Thailand, data problems in Asia, fertility and family decision-making in Australia, health system reforms in China, and clinical manifestations of sexually transmitted diseases. The common factors in all these studies are cultural and social differences that shape the risks and responses related to particular health conditions.
We collaborated with Michael Dibley of the University of Newcastle in assisting the Timor-Leste National Statistics Office to undertake the Timor-Leste 2003 Demographic and Health Survey (TL 2003 DHS), the first comprehensive assessment of the demographic, health and nutrition status of this newly independent state. In 2004 we undertook the major analysis and prepared the general report for publication. The analysis highlighted a number of critical issues including deep poverty, extensive malnutrition, and unexpectedly high birth-rates. In this piece we will examine this last point, an issue likely to be of critical importance if Timor-Leste is to meet its urgent development goals.

Fertility is the major component in population growth and consequently has critical implications for a country's ability to provide opportunities for its future population. At the household level, the number of children a woman has affects the resources a family can provide to those children as well as her own opportunities. It also has important implications for the health of the mother and her children.

The data indicated the total fertility rate (TFR) – the number of children a woman would be estimated to bear based on current age specific fertility levels – was 7.8 in 2000-2003. This is probably the highest level in the world and far in excess of the levels found in other countries in Southeast Asia. Even more remarkably, the level appeared to be rising and for the 12 months preceding the survey the TFT was 8.3 children per woman. One-third of women aged 20 to 35 years give birth in any given year.

These figures are of particular concern as the survey also showed that many of the women are malnourished and suffer severe anaemia. A further concern is that most of these births take place at home with no medical assistance, endangering the health of both mother and child. The high birth rates also imply that the population would double every 17 years, challenging the most optimistic projections of Timor-Leste being able to provide services such as education and job opportunities for its people.

Fertility levels were uniformly high and varied little across sub-groups of women. Remarkably there was very little variation in fertility by level of education and only a little by urbanisation, though income had a small effect. In keeping with these findings, women expressed strong desires to have many children. The TFR may have been temporarily boosted by the circumstances surrounding Timor-Leste's recently gained independence. Nevertheless the data provide no sign of an incipient fertility decline. If the Government of Timor-Leste decides that large family size and very high population growth are major impediments to development, it will face major obstacles in addressing this issue.
The Timor-Leste 2003 Demographic and Health Survey (TL 2003 DHS) provided a detailed background to the many challenges facing the Government of Timor-Leste as it works to provide a better future for its citizens. The survey brought out the very deep poverty faced by the people of Timor-Leste, especially in the rural areas, where the great majority of the population lives.

Housing characteristics were uniformly poor with seven in ten households having earthen floors. Only 28 per cent had access to electricity, but there were large geographical disparities with 74 per cent of the urban population having electricity but only three per cent of the rural western population. Some 47 per cent of households got their water from an unprotected source; in the rural east this rises to 78 per cent. For those with protected water this generally comes from a public tap that is often at some considerable distance, especially in rural areas.

Seventy per cent of households had inadequate toilet facilities, with 51 per cent using open areas, particularly bush/forest/yard, and 19 per cent using pit toilets. Similarly household possession of durable goods was low, with only nine per cent having a television and three per cent a refrigerator. The essentially rural nature of most households, including many defined as urban, was brought out by the very high proportions owning livestock, especially pigs, but also goats, cattle, horses and buffalo.

Of even greater concern were very high rates of malnutrition. In the week preceding the survey a half (49 per cent) of the interviewed households reported being short of food. A high proportion of the population, especially women and children, reported signs of malnutrition. Thirty-eight per cent of non-pregnant women had a low Body Mass Index or evidence of chronic energy deficiency. Thirteen per cent of women had short stature, a risk-factor for delivery complication and low-birth weight babies.

Poor nutritional outcomes for women reflect not only food shortages but also onerous work loads, for example collecting water, firewood, cooking, child care etc. Overall 32 per cent of non-pregnant women and 37 per cent of pregnant women suffered from anaemia. Almost half of all children under five were underweight and 14 per cent severely so. Forty-eight per cent of under five children were stunted and 27 per cent severely so. These characteristics were worst among poorer families and children from highland areas, which are generally remote.

More positively, the data indicated dramatic improvements in education, albeit from very low levels. The great majority of household members over the age of 40 had no education, but for the youngest age group, 15-19, some 60 per cent of both males and females had some secondary education and only 15 per cent had no education. There were also encouraging signs of improvements in infant and child mortality.

However, even with these promising improvements, the challenges remain daunting. High fertility and declining infant and child mortality mean that half the population is under the age of 15 years. Increasing education, accompanied by rising expectations, and coupled with severe rural poverty and limited resources, imply that the government and the people of Timor-Leste will require ongoing assistance if they are to meet their hopes of a better future.
Massive recruitment drive begins for Thai Cohort Study

Adrian Sleigh and a large team from NCEPH, The University of Queensland, Sukhothai Thammathirat Open University, Chiang Mai University and several branches of the Thai government.

How do you prepare a questionnaire covering all topics that could affect health transitions without creating a boring and inconsistent camel or an unanswerable 60 page document? Not without much sweat and blood, we learned when the Thai study got underway in mid-2004. We had to grapple with the problems of working across disciplines and also discovered how much more complex it is to develop a questionnaire across two cultures - Australian and Thai - for final application in Thailand.

But it has been done. The early ‘wish-list’ was nearly 60 pages of questions. It went through numerous revisions and fell to 25 pages before Sam-ang Seubsman and Duangkae Vilainerun came to Canberra to develop it further. They then returned to Thailand and pre-tested it intensively with inputs by the whole Thai team; another round of revisions reduced it to a ‘mere’ 20 pages. We finally spent one more month working with the Thai team on the back-translation and fine tuning all the contents and logistics.

Then tenders and commercial commitments had to be arranged. This meant huge print jobs (201,000 copies of questionnaires, folders and envelopes), postage and return postage to reach all Sukhothai Thammathirat Open University (STOU) students residing all over Thailand, and planning data management (scanning and storing ten terabytes). By late February 2005 the mailout was ready and plans complete.

If response rates are reasonable the research team will have established a large cohort in Thailand within a very short lead time (seven months), with modest resources and without restricting membership to one sex, profession, industry or city, as noted for almost all other large cohort studies in Europe or USA. The NCEPH and Thai teams have worked well together to make this possible. Other activities include a lookback study, mini projects and workshops. Five PhD students - three Thai and two Australian - are part of this project.

The National Health and Medical Research Council and The Wellcome Trust have funded this large longitudinal study of the complex health-risk transition in Thailand to enable understanding of phenomena which affect many other populations. The research will document changes in health risk and disease patterns over time to enable feasible interventions to reduce disease burdens.
Social Determinants of Health

A new field called 'social epidemiology' has arisen in response to the substantial increase in research on social and economic forces related to health and disease. The traditional focus of epidemiology is thus expanded from studying the physical factors implicated in patterns of illness to a consideration of a wider range of explanations. The main emphasis in this new research is documenting and explaining the links between health and socio-economic status, but health is also organised by culture, ethnicity and gender. For example, longevity is greater among women than among men in most nations, but in a few societies, females tend to die younger than males. Although health services may be implicated in situations of extreme poverty, other elements play a larger part in shaping the health of most people in Australia. Research in the social determinants of health aims to shed light on the mechanisms that produce both the typical patterns and the exceptions in the hope that such information can assist in the alleviation of injustices in the distribution of health.

Inequalities in health have been documented for hundreds of years, and they have often been attributed to the 'bad behaviour' of people whose health is compromised. Emphasis on individual behavioural 'risk factors' such as smoking and consumption of dietary fats reinforce this tendency toward victim blaming. While educational messages directed toward personal behaviour change can help in some instances, evidence suggests that such messages are heeded most by those who need them least: people who are already comparatively healthy. Researchers at NCEPH take a different approach, one which strives to illuminate the social structures and social and cultural trends that organise, enable or obstruct what individuals and families do. We are interested in dimensions as varied as urban transport and cultural values, and how they may contribute to health and wellbeing. Our studies are designed to supply policy makers, politicians, employers and others with information about how to create the broader conditions that can promote good health and healthy behaviours, rather than simply to document further how to motivate individual people to change what they do.

Social patterns in the distribution of health are known to persist from generation to generation. That is, healthier parents typically have healthier children who, in turn, grow into healthier adults, and those tendencies are not just a matter of genetics. Several projects at NCEPH focus in particular on this intergenerational dimension, investigating how family circumstances shape (and sometimes limit) parental opportunities to enhance their children's health. Parental health itself may be relevant to children's wellbeing. Additionally, conditions of parental employment may affect the capacity to give children time, attention and material resources. We are investigating these questions.

In addition, several members of NCEPH are interested in the ways that international, indeed global, politics and economics influence population health. War and civil strife clearly have terrible health consequences. Less dramatically, international trade agreements are shaping the capacities of governments (including Australian) to regulate goods and services that are pertinent to health. These concerns represent a domain of investigation we hope to develop in the future.
Australia is one of the few countries to remain free of Bovine Spongiform Encephalopathy (BSE), the degenerative brain disease in cattle that causes the deadly variant Creutzfeldt-Jakob disease (CJD) in people. My research suggests that free trade agreements weaken Australia’s capacity to use quarantine to protect the safety of the Australian food supply.

Although ministers have insisted that Australian quarantine is not being put ‘on the negotiating table’, in the 2004 bilateral trade agreement with the USA, Australia made several concessions to its quarantine system sought by the US.

In addition, Australia’s food standards are under constant pressure from the World Trade Organization (WTO). Theoretically, WTO member countries can set their own health standards on imported foods. But disputes between members tend to result in decisions in which the bare minimum international standards are set as the maximum that a country can require of imported food. Food standards are driven downwards in the interest of increasing trade, rather than maintained or increased in order to protect human health.

Under the WTO rules countries cannot invoke quarantine to exclude an import unless they can prove a specific risk exists. Concerns over potential risks are seen as insufficient, and banning potentially dangerous imports is not considered to be scientifically founded. This approach prevents operation of the precautionary principle which allows action to buffer public health from potential harm without having to be justified on the basis of serious health outcomes. The precautionary principle requires scientific evidence but not conclusive proof.

In the case of BSE, when British cattle were fed the remains of sick sheep, BSE and its human health dangers were unknown. Nevertheless, in 1966 Australia banned the importation from Britain of any stock feed that contained animal parts, which later had the effect of protecting Australia from BSE. However, when Australia tries to adopt similar precautionary measures today, its actions are condemned by trading partners as restrictive trade practice. Australia’s ‘choice’ is either to accept potentially dangerous imports or face retaliatory action by trading partners. Several countries still feed sheep to cattle, proving that a practice that is internationally accepted can still be dangerous.

Despite everything we now know about the specific risks, testing cattle for BSE is still inadequate. For example, until December 2003 when their first case of BSE was confirmed, the US tested only 0.01 per cent of all cattle slaughtered, and most of these were obviously sick. Now the US is increasing sampling ten-fold, to one per cent, yet calls from Japan for the US to test all its cattle intended for human consumption have been branded by the US meat industry as ‘unscientific’.

Under the Australia-US Free Trade Agreement, direct pressure to accept US imports is increased. Should Australia be compelled to accept beef products from a BSE-affected country that only samples 1 in 100 of their slaughtered cattle? The BSE disaster provides an opportunity to learn from mistakes, but practices in the global marketplace still favour short-term economic gains over major human health considerations. Increasing Australian vulnerability to BSE is an example of the potential hazards to Australian public health from an unlikely source: international trade agreements.

Health scientists have warned about the consequences for Australia’s health and economy if the rise in obesity continues. The obesity research team at NCEPH, with Chris Forth (ANU Faculty of Arts), is addressing the broader social and environmental determinants of obesity. To further advance this work we received an Australia Research Council Discovery Grant at the end of 2004 which will enable us to undertake a cultural economy analysis of the social trends behind rising levels of obesity, and to undertake an extensive interview program enquiring into the practices of socially situated individuals. For this aspect of the project, we are working with Graham Giles, the lead investigator on the Melbourne Collaborating Cohort Study. A PhD student will add an intergenerational component to the interviews. We intend also to examine the societal response to other diseases of modernisation as a source of lessons for obesity mitigation. The various parts to the research will enable us to bring historical, structural and experiential dimensions to an issue that is usually reduced to behavioural risk factors.

We have already been using a cultural economy approach to audit the major social trends that 50 Australian experts considered to underpin Australia’s rise in obesity. We are most advanced with the audit of car-reliance, and Sarah Hinde is working with the team to examine the impact of car-reliance on population health as part of her PhD.

The theoretical focus of the cultural economy approach is being enlarged by applied intervention research. In early 2004 we (with Kirsty Douglas from the ANU Medical School) received funds from the ACT Health and Medical Research Council to seed a sentinel site for obesity prevention in the ACT. We are committed to a whole-of-government and community-wide approach addressing the environmental determinants of the two behavioural risk factors, diet and physical activity. With the assistance of Sharon Friel, a nutrition epidemiologist employed from the University of Ireland, we have been working with the ACT Healthy Weight Coordination Committee to identify preferred interventions. Given the need to accumulate evidence on successful interventions, we have done considerable work outlining the prerequisites for a surveillance system capable of monitoring changes in the environment, as well as behavioural changes. This developmental work has led to links with the ANU Centre for Gambling Research and their spatial mapping expertise. Researchers from NCEPH and that Centre have subsequently applied for funds to map regional determinants of obesity.

A further component of the research is an exploration of how “obesogenic environments” are embodied and experienced. We have attracted three ANU Medical School students to work on relevant research. The students are examining the following issues: how health care professionals view obesity in their patients, how leaders of weight loss groups view obesity, and the courses of action that they recommend; and how participants in the weight loss groups experience their bodies and their efforts to lose weight. A gender dimension underpins all of this research. A fourth student project involves mapping the policy, practice and research networks which act on obesity issues in the ACT, and identifying the views of each network in relation to effective interventions. The findings from this research will inform our strategy of communicating other aspects of the research with interested stakeholders.

Richard Eckersley

A sense of control over our lives is important to both health and happiness. Individualism – placing the individual at the centre of a framework of values, norms and beliefs – is supposed to be about giving us this control, about freeing us to live the lives we want. The reality, however, may be very different.

Building on the work of American psychologist Rich Ryan and his colleagues, I have argued that by confusing autonomy with independence, individualism may diminish personal control – as well as reducing social connectedness and support (also important to wellbeing).

Autonomy is a matter of volition, the ability to act according to our internalised values and desires. Its opposite is not dependence, but heteronomy, where we feel our actions are controlled by external forces and regardless of our own values and interests. Individualism, in emphasising independence, could lead to less real autonomy because it encourages a perception that we are separate from others and the environment in which we live, and so from the very things that influence our lives. The more narrowly and separately the self is defined, the greater the likelihood that the social forces acting on us are experienced as external and alien.

These impacts would be reinforced by other effects of individualism: a heightened sense of risk, uncertainty and insecurity; a lack of clear frames of reference; a rise in personal expectations, coupled with a perception that the onus of success lies with the individual, despite the continuing importance of social disadvantage and privilege; and a surfeit or excess of choice, which is experienced as a threat or tyranny.

This analysis explains the finding of a study by psychologist Jean Twenge that American college students today feel substantially less control over their lives (measured as locus of control) than students in the 1960s.


Outreach

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

NCEPH Director, Professor Tony McMichael, was invited to join 15 other high-level scientists, policy-makers (including NSW Premier Bob Carr) and representatives of the private and Non-Government Organisation (NGO) sectors, from nine developed and developing countries, on the International Climate Change Taskforce. The Taskforce was launched in March 2004, and co-chaired by the UK’s Hon Stephen Byers (Government MP) and the USA’s Senator Olympia Snowe (Rep). The Taskforce initially met in London (Windsor Castle) and, later in the year, in Sydney where the final report was drafted. The report, proposing a flexible, universal, post-Kyoto commitment to substantial cuts in greenhouse gas emissions, was released in January, and contributed to the impact of Prime Minister Tony Blair’s plenary speech at the World Economic Forum at Davos later that month. The report has been widely cited and discussed in media around the world.

Professor McMichael also co-organised and participated in the Pontifical Academy of Sciences workshop on “Interactions between Global Change and Human Health” at The Vatican in October/November. The workshop’s central purpose was to analyse the feedbacks and interactions between socio-economic conditions and global environmental change and human health – especially the emergence and spread of infectious diseases. It brought together international experts from the three fields, carefully chosen not only for their expert knowledge, but also for their ability to look across boundaries of scientific disciplines and communities. A summary position paper was prepared for the Pontifical Academy, and the proceedings will be published as a book.

International Climate Change Taskforce members & Secretariat (pictured here outside St George’s Chapel at Windsor Castle, UK) included:

Stephen Byers MP, House of Commons UK; Premier Bob Carr, NSW; Prof John Holdren, Harvard USA; Martin Khor, Third World Network Geneva; Nathalie Kosciusko-Morizet, French National Assembly; Dr Claude Martin, WWF International Switzerland; Prof Tony McMichael, ANU Australia; Dr Jose Miguez Interministerial Commission of Climate Change Brazil; Dr Pachauri, TERI India; Johnathon Porritt, Forum for the Future UK; Olympia J Snowe, US Senate; Adair Turner, Merrill Lynch Europe; Prof Ni Weidou, Tsinghua University Beijing; Dr von Weiszaecker, German Bundestag; Tim Wirth UN Foundation Washington; Cathy Zoi, Bayard Capital, Sydney.
NCEPH researchers served on over 60 committees, boards, councils and other bodies in 2004, including:

- **Communicable Diseases Network Australia**
  - Mary Deeble

- **National Influenza Pandemic Action Committee**
  - Niels Becker

- **ACT and South East NSW Breast Screening Advisory Committee**
  - Emily Banks - member

- **Association of South East Asian Nations (ASEAN) Emerging and Resurging Infections Surveillance and Response Program**
  - Mahomed Patel - team leader

- **Australia 21**
  - Jane Dixon, Bob Douglas, Richard Eckersley - directors

- **Australian Health Economics Society**
  - Jim Butler - president

- **Collaboration Working Group, Australian Research Alliance for Children and Youth**
  - Gabriele Bammer - member

- **Intergovernmental Panel on Climate Change (United Nations)**
  - AJ McMichael - member

- **National Health and Medical Research Council**
  - AJ McMichael - member

- **Public Health Association of Australia, ACT Branch**
  - Cathy Banwell - president, Hilary Bambrick - secretary, Rosalie Woodruff - member

- **Reproductive Health Services, ACT**
  - Terence Hull - committee member and chair

- **Doctors for the Environment, Australia**
  - Colin Butler

- **ACT Health and Medical Research Council**
  - Tony McMichael

- **National Health and Medical Research Council (NHMCR) Triennium Council 2003-2005**
  - Tony McMichael

- **Grant Review Panel – Public Health, New Zealand Medical Research Council**
  - Anne-Louise Ponsonby
Reviewing - manuscripts and grants

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

- Asian Population Studies
- Australian and New Zealand Journal of Public Health
- Australian Health Economics Society
- Biostatistics
- Cancer Causes and Control
- EcoHealth
- Health Sociology Review
- Journal of Population Research

Reviews of manuscripts have been carried out by staff for a much longer list of national and international journals and books.

Staff members have also participated widely in the reviewing of research grant applications – for the National Health and Medical Research Council, Australian Research Council, New Zealand Health Research Council, Wellcome Trust, the European Commission and various other national, international and state research funding organisations.

Collaborations

Many of NCEPH’s research activities involve collaborations with research partners in other universities, CSIRO, government or other professional organisations. A small sample of these are listed below:

- “I want to be heard”: an analysis of needs of Aboriginal and Torres Strait Islander drug users in the ACT and region for treatment and other services. Phyll Dance, Jill Guthrie, David McDonald, Rennie D’Souza, Carmen Cubillo, Gabriele Bammer with Julie Tongs and the Winnunga Nimmityjah Aboriginal Health Service.


- Economics and accessibility of rural China’s new co-operative healthcare compared to the fee-for-service system. Adrian Sleigh with Xi-li Liu, Li Peng: CDC, Henan, China.


- The Ausimmune Study. A case control study of past sun exposure and first demyelinating events. Tony McMichael, Anne-Louise Ponsonby, Keith Dear, Robyn Lucas with investigators from Tasmania, Victoria, Brisbane and Newcastle.

NCEPH staff also collaborated on successful grant applications submitted by the following institutions during 2004: Menzies Centre for Population Health Research; Curtin University of Technology; University of Sydney; University of New South Wales.
NCEPH in the media

NCEPH experts featured often in the media in 2004 - in print and on radio and television. Our researchers are often called upon by the media to provide expert comment on a variety of issues making the daily news. Several also published opinion pieces and feature articles in major newspapers and broadcast items on ABC Radio National.

Prominent media stories involving NCEPH staff during 2004 included:

Changes to Medicare/Bulk-billing (John Deeble)
“Architect” of Medicare, Professor John Deeble was quoted in numerous national newspapers in late January 2004. Along with a number of other health academics, he appeared before a Senate Committee, warning that the proposed GP rebate scheme would not improve Medicare bulk-billing levels.

Progress and wellbeing (Richard Eckersley)
The publication of Richard Eckersley’s book, Well & Good, attracted radio and press interviews, and provided the opportunity to publish extracts and opinion pieces.

Extreme heat and health (Rosalie Woodruff)
Rosalie Woodruff was interviewed on a number of radio stations around the country in February 2004, providing advice to people on how to cope with heatwaves.

Hospital infections (Anne Gardner)
Anne Gardner did a number of radio and newspaper interviews in early March about her PhD study on the impact of hospital infections. The Australian reported that her study showed that “infections acquired during hospitalisation last longer and are more deadly than similar infections obtained outside hospital”.

Global climate change (Tony McMichael)
ABC National and other radio stations announced in March that NSW premier Bob Carr will join NCEPH Director Tony McMichael and other eminent politicians, scientists and academics in an international climate change taskforce to meet in London.

El Niño and hepatitis A (Tony McMichael)
A number of national and regional newspapers published stories in May about a link between weather patterns and hepatitis A. These quoted a letter published by Tony McMichael and others in the Medical Journal of Australia.

Autoimmune disorders and environment (Anne-Louise Ponsonby)
Anne-Louise Ponsonby was interviewed on radio and television in May about the link between environmental factors (climate, sun exposure) and diseases like asthma, diabetes and multiple sclerosis.

Food safety and the free-trade agreement (Hilary Bambrick)
The Financial Review quoted Hilary Bambrick in November as saying that a “lack of firmness on essential Australian quarantine restrictions means that forthcoming free-trade negotiations pose a severe risk to Australian agriculture and food safety standards.”

Mental health (Helen Berry and Bryan Rodgers)
National and regional newspapers and radio stations throughout Australia reported on a mental health symposium held at NCEPH in December. They quoted Bryan Rodgers’ report that married people have more peace of mind and drink less than singles. Helen was interviewed on radio about the high cost of depression to employers.
The Graduate Program

Postgraduate training during 2004 was concerned primarily with Doctor and Master of Philosophy research and the Master of Applied Epidemiology program. An induction program for newly commenced PhD students was carried out on an individual basis.

In March 2004 the Deputy Vice-Chancellor (Education) approved the introduction of amendments to the system of reports students are required to complete to demonstrate their academic progress. The new reporting requirements included the Annual Plan, and in the first year of candidature, the Thesis Proposal Review.

In June a “Work in Progress” conference was held off campus at the Australian Institute of Sport. The conference gave nine research students the opportunity to present seminars on their current research in a conference environment. A good audience of academic staff and other research students attended the seminars and provided feedback to the speakers on both the content and presentation of their seminar.

In August NCEPH and the Centre for Mental Health Research collaborated to provide an information evening for prospective research students. The session was hosted by the Director of NCEPH, Professor Tony McMichael, and a number of academic staff and students made brief presentations on their research. 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 Open Day and Graduate Expos.

During 2004 a number of academic staff and students conducted methodology seminars for research students, including seminars on the following topics: qualitative analysis, GIS modelling, thesis proposals, literature reviews, ethics, and absolute risk. Research students are represented on the seminar organising committee, ensuring that student requirements are incorporated into the program. All academic staff are to be involved in the methodology seminars in 2005.

A luncheon was held for research students to review issues they wished to have raised by their representative at the NCEPH retreat, held over two days on 23 and 24 November. A number of recommendations which arose from the Retreat are to be implemented in 2005. These included the recommendation that NCEPH implement a system of academic mentoring, to provide support and advice to students in addition to, and independent from, that provided by their supervisory chair and panel.

Two ANU students were awarded honours scholarships in 2004, one commencing in first semester and one in second semester. The Centre advertised the Baume scholarship, established to assist an enrolled student at NCEPH with a contribution towards travel and associated costs to attend a conference. In alternate years the scholarship is open only to Indigenous Australian students enrolled at NCEPH. Regrettably the Centre was unable to award the scholarship in 2004, an alternate year.

NCEPH graduates celebrate following conferral of degrees ceremony in July.  
Left to right: Geoff Simms, Brendan Gibson, Anne Gardner, Rosalie Woodruff, Sarah Hinde.
Two NHMRC Training Scholarships were awarded to NCEPH in 2004:

- An Indigenous Australian Health Scholarship for the commencement of the PhD: *The Development and Practical Application of Epidemiological Skills Within Indigenous Health* ($61,452 for 3 years); and
- A Research Scholarship for Medical, Dental, Allied Health & Nursing Graduates for the completion of the PhD: *How Do Nurses Deal With Illicit Drug Users: A Health Services Investigation* ($37,780 for 2 years)

## Summer research scholars

In 2004, NCEPH was pleased to host three Summer Research Scholars. The intention of the Summer Research Scholarship program is to provide opportunities for undergraduate and honours students from all over Australia to gain insight into how research is conducted at ANU, to experience being part of a research community and to learn about future career opportunities in higher degree studies.

Our scholars were awarded a Summer Research Scholarship on a competitive basis. 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 summer research projects follow.

**Karen Nunweek  (University of Otago, New Zealand)**

Karen completed several projects for the Ausimmune Study under the supervision of Robyn Lucas. These included: electoral roll searches at the National Library for contact details of study controls; reviews of the literature on the protective effect of infants on multiple sclerosis, Bradford-Hill causality and Epstein-Barr virus related cancers; designing protocols for blood collection for analysis; investigating the role of ethics in research; assisting in editing questionnaires for the study cases; learning to use Stata statistical software for data analysis of a published internet survey; and cataloguing stored blood samples for future use in the study.

Of her experience at ANU as a Summer Research Scholar, Karen says:

"I applied for a summer scholarship to obtain an experience of what is involved in day-to-day work in epidemiology and population health projects. I feel that during my time at NCEPH I have achieved this goal.

I have been attending the Ausimmune project meetings that occur three times a week. In these meetings I observed the development of short and long term plans for the project as well as progress reports. Listening in on the national teleconference was an interesting insight into the functioning of a multi-centre study."

NCEPH Annual Report 2004
Ruth Pitt (Australian National University)

Under the supervision of Terry Hull and Bruce Caldwell, Ruth researched marriage trends in Indonesia and conducted a literature review on infant and child morbidity and mortality in urban Asia, with a focus on Dhaka and Bangladesh. She helped to create a template file that automatically generates demographic measures when information from the census is entered.

In her own words:

“I’ve really enjoyed my time at NCEPH and look forward to applying my new skills to my undergraduate degree. More importantly, I have a better idea of the skills that I need to develop if I would like to continue research. Although the research component was useful, possibly the most beneficial aspect of my summer scholarship was talking to NCEPH staff at morning tea, and learning about their careers and their current projects (although the other summer scholars will claim that I just like tea, cake and talking). I have a much better idea of what research requires (including the administration and funding side) and how I might use my degree.”

Belinda Warren (University of the Sunshine Coast)

Belinda was supervised by Dorothy Broom, and worked with Richard Eckersley on a survey and subsequent report ‘Views of the Future from Australian Youth’. She spent most of her time at NCEPH working with the Health for Life! team on data sets.

Belinda said that

“The most interesting part of the work with Richard was that it was clearly evident that there has been a considerable shift in young people’s views of the future over the past two decades. Even more interesting was thinking about each question in more depth, reasoning why these changes were occurring and what other factors were influencing these changes.

Familiarising myself with the Health for Life! data set, and then organising it all, was quite a lengthy process, but a valuable one. I have realised just how difficult it can be working with census data, especially when collection processes change. I was quite intrigued with the results that did come of this work, and rather enjoyed our discussions as to why these results were evident.”
After 35 years in the Commonwealth public service, I knew that there were many areas where more research would assist in policy development. My particular interest, after working on health issues in various Departments from the early 1990s, was in GP financing and the causes of the changes in bulk billing which generated so much political heat.

It has been difficult to develop an understanding of the sources of these changes, with the views of some economists about supply and demand and the Australian Medical Association view about appropriate incomes for doctors providing quite contradictory perspectives. This topic is both a technical economic question (requiring econometric models) and an opportunity to analyse the policy options available in general practice financing.

I approached NCEPH to investigate the opportunities of PhD study in this area because NCEPH has the main health economics capacity at the ANU. I am working not only with NCEPH supervisors, but also with a supervisor from the Department of Economics in the Research School of Social Sciences.

The process to date has been both exciting and rewarding, and I am looking forward to moving into the core analysis of the project, which I hope can add to our understanding of the Australian medical market and can contribute to the policy debate on GP financing and bulk billing.

Ian McRae

My "official" undergraduate academic background is in biochemistry and molecular biology; I’m now a social scientist, so NCEPH has been the home of my transformation! Before I came to NCEPH I had also worked in various sectors: market research, the public service and science communication. Although I found these jobs rewarding, I wanted to make more of a difference in the world by shedding light on the social issues that are important for health. NCEPH was the right choice for learning how to do that. I have been here for over 3 years, starting out as a research assistant, and studying for the Graduate Diploma of Population Health (which unfortunately no longer exists), then moving on to start my PhD in 2004, under the supervision of Jane Dixon.

My research interest is in Australia’s transport system. We are an immensely car reliant nation, and this is increasingly being acknowledged as a rather unsustainable, and indeed unhealthy, situation. The known detrimental population health impacts of the motor vehicle are numerous, but little is known about the role of the motor vehicle in influencing the health of different socioeconomic groups. My PhD will explore the role of the automobile in people’s lives in order to elucidate better the ways in which car use is affecting health, and therefore reproducing health inequalities. Using in-depth interviews with residents of Melbourne, Australia, I intend to build a description of the various uses and meanings of the automobile amongst people from different suburbs and socioeconomic positions. The analysis will be informed by the work of Pierre Bourdieu, exploring how the car is used in competition for various forms of capital. The outcomes of the PhD study will be: to make a contribution to our knowledge of the sociology of car-reliance, and the reproduction of health inequalities; and, to demonstrate the value of sociological theory and methods in advancing the field of social epidemiology.

Sarah Hinde
The Master of Applied Epidemiology (MAE) is a national program conducted for the Department of Health and Ageing to train applied epidemiologists in communicable diseases, Indigenous health and environmental health. MAE scholars undertake field placements in government health departments and national and international institutions.

In 2004, students were placed in the Department of Health and Ageing, Canberra; The Australian Institute of Health and Welfare; the Macfarlane Burnet Centre for International Health; and State health departments in Northern Territory, South Australia, Queensland, Victoria, Western Australia and Tasmania.

2004 again saw the MAE engaged in national partnerships for the identification and response to communicable disease, Indigenous health and environmental health issues.

MAE staff, students and alumni were major contributors to the Association of South East Asian Nations (ASEAN) tsunami response (Tony Stewart MAE91, Angela Merianos MAE91, Ben Coughlan MAE04); the desquamating rash illness in methadone users in New South Wales (Paul Armstrong MAE01, Noore Alam MAE04); and the national trial of NetEpi, a web-based rapid outbreak investigation and reporting tool (Jenean Spencer MAE99, Martyn Kirk MAE95, Karen Dempsey MAE01, Minda Sarna MAE00, Chris Oxenford MAE04). Five students had abstracts accepted for presentation at the 2004 global TEPHINET conference in Beijing (Julie Wang, Albert Tiong, Sanjaya Senanayake, Sally Munnoch, and Kylie Carville).

Diabetes is a major health issue in Indigenous communities and was the focus of projects for Indigenous MAE students in 2004. These included an analysis of hospital admissions for diabetes (Ray Lovett MAE04), the impact of diabetes in communities (Wendy Hermeston MAE03, Cynthia Payne MAE02) and Indigenous housing issues (Jessica Shipp MAE04).

NCEPH maintains an active alumni network, which includes more than 100 MAE graduates who contribute to national and international emergencies, providing surge capacity for communicable disease and natural disasters. The MAE is a member of the World Health Organization (WHO) Global Outbreak Alert and Response Network and is able to rapidly disseminate calls for assistance through current students and alumni. Current students, Gina Samaan and James Fielding both took part in the WHO response to avian influenza in the WHO Western Pacific Regional Office in Manila.

MAE graduates and staff at valedictory celebration in February 2004.

Left to right: Coral Watson, Gill Hall, Phyll Dance, Mary Beers Deeble, Michael Wright, David Hogan, Roseanne Muller, Keith Eastwood, Scott Cameron, Hazel Clothier, Megge Miller, Hassan Vally, Jennifer Barralet, Mahomed Patel.
MAE Student Profiles

Gina Samaan

Placement: Australian Government Department of Health & Ageing
Supervisors: Mahomed Patel and Jenean Spencer

Prior to the MAE, I worked as a psychologist with the asylum seekers on Nauru through the International Organization for Migration. This led to an interest in population health - and the MAE.

I worked on a variety of public health emergencies during the course. During the 2003 SARS outbreak, I worked closely with medical specialists, policy makers and media personnel to provide up-to-date information about the emerging infection.

In 2004, I joined the World Health Organization’s response to the bird flu epidemic in South East Asia. From the WHO regional office in the Philippines I established enhanced rumour surveillance. I liaised with many countries in the region to provide situation updates and to monitor and verify disease reports. This was a highly rewarding experience despite the 6am starts and long work days!

I also undertook a project in refugee health – a field that I am passionate about. I developed world-first principles and performance indicators for refugee health service delivery. I was able to combine my knowledge of psychology, refugee health and epidemiology when I did an evaluation of the ACT refugee health service.

Overall, the MAE was an excellent introduction to the fascinating world of epidemiology. My work on the bird flu epidemic was published in Emerging Infectious Diseases and my article on the SARS outbreak made the cover page of the Medical Journal of Australia.

I find the international aspects of epidemiology challenging and I look forward to facing these challenges in the future, initially at the Department of Health and Ageing where I will work on Australia's communicable disease early warning system.

Ray Lovett

Placement: Australian Institute of Health and Welfare (AIHW) and the Winnunga Nimmityjah Aboriginal Health Service (WNAHS).

Supervisors: Gill Hall, Julie Tongs

I am a descendant of the Wongaibon people of western NSW and I have lived in the country most of my life. After completing my Bachelor of Nursing at Charles Sturt University in Wagga Wagga, I worked at the Canberra Hospital and in Tamworth Base Hospital. I then completed a Bachelor of Health Science (Community & Public Health) and began work with New England Area Health Service as an Aboriginal Primary Health Care Worker. In 2001 I took up a position with NSW Health where I managed a project to increase the number of Aboriginal nurses in the NSW.

I have just completed my first year in the MAE program. In contrast to many other higher degrees for health, the MAE was my course of choice as it allows me to mix academic studies with field work.

To date, through the MAE, I have conducted a disease outbreak investigation, written a paper about diabetes in Indigenous communities and conducted teaching exercises on data standardisation and Indigenous health. I am currently in the process of evaluating a health information system for WNAHS and starting a major study into the factors that influence Indigenous identification in the hospital setting and assessing the rate of Indigenous under-identification in ACT public hospitals data.
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

Ross Andrews, DipAppSc Swin MPH Monash MAppEpid ANU
Evaluation of the impact of a publicly funded pneumococcal vaccination program for persons aged 65 or more
Dr J Butler, Dr L Roberts, Dr P McIntyre

Helen Berry, BSc ANU, BAppPsych Hons, UCAnberra, MA Hons University of Aberdeen (Scotland)
Community Participation and Psychological Distress
Dr B Rodgers, Dr K Dear

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

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 Sleigh, Professor AJ McMichael, Dr C Butler, Dr B Lees

Samantha Cromptvoets, BSc (Hons) Melb
Breast cancer and the post-surgical body
Dr D Broom, Dr A Whittaker, Dr K White, Dr A Dugdale

Marian Currie, BAppSci CCAE GradDipPopHlth ANU
Postnatal depression in the Australian Capital Territory
Dr G Hall, Professor W Smith, Dr L Lim, Dr J Thompson, Professor D Ellwood

Robyn Davies, R.N., R.M., BA Hons, ANU
Protective factors for adolescent drug use
Dr G Bammer, Dr G Hall

Rosemary Ford, BHealthMan GradDipPubHlth UNE Master of Nursing Canberra
Injecting drug-users and nurses in the ACT: understanding the issues
Dr G Bammer, Professor N Becker, Dr T Makkai

Howard Galloway, BM BS Flinders FRANZCR
Can Information Technology Improve Patient Safety in Radiology? Evaluation of the Implementation of an integrated RIS/PACS
Dr J Butler

Anne Gardner, BA MPH ANU
Health status after bacterial and fungal bloodstream infections
Dr B Sibthorpe, Dr P Collignon, Dr K Dear

Brendan Gibson, BA Syd; MPH UNE
An exploration of the relationship between research and policy in public health in Australia
Dr B Sibthorpe, Dr G Gray, Professor S Duckett
Jennifer Hargreaves, BSc (Hons) ANU
Adverse events in routinely collected mortality and morbidity data
Dr B Sibthorpe, Dr C Kelman, Dr P Philips

Milton Hasnat, MBBS Dhaka MSc TN Med
Randomised controlled trial of the effectiveness of Dugwell and Three Pitchers Filter as sources of arsenic free safe
drinking water in Bangladesh
Professor W Smith, Dr K Dear, Dr B Caldwell, Dr J Ng

Sarah Hinde, BSc, GradDipPH ANU
Car cultures and health inequalities
Dr J Dixon, Professor 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, BAAppSci MAAppSci La Trobe GDip Pop Health ANU
Socioeconomic inequality in the use of health care in Australia, and the impact on health outcomes.
Dr J Butler, Dr M Clements, Dr J Dixon

Chin-Kei Lee, MBChB Chinese Uni of Hong Kong MPH Syd MAppEpid ANU
Modelling person to person transmission of infectious diseases: implications for control
Professor N Becker, Dr M Patel, Dr L Roberts, Ms M Beers-Deeble

Karen Lees, RN RM BAAppSci (Nurs Sci) Canberra
Long term outcomes of neck and upper body disorders among female office workers
Dr G Bammer, Dr Lyndall Strazdins, Dr K Dear

Kamalini Lokuge, MBBS Tasmania
Interventions for arsenic mitigation in Bangladesh and their effect on childhood diarrhoeal disease
Dr K Dear, Dr B Caldwell, Professor W Smith, Dr M Patel

Robyn Lucas, BSc MBChB Auckland MPHetTM James Cook
Biomarkers of social disadvantage
Professor AJ McMichael, Dr K. Dear, Dr B Rodgers, Professor W Smith, Emeritus Professor RM Douglas, Dr D Broom

Ian McRae, BSc Hons Monash, MSc, BA ANU
The Economics of GP Bulk Billing and the Impact of Policy Change
Dr J Butler, Dr A Sidorенко, Professor B Chapman

Lynelle Moon, BMath Wollongong GradDipStats ANU
Inequalities in population-level health outcomes: the case of coronary heart disease
Dr G Carmichael, Dr Lim, Emeritus Professor RM Douglas, Dr P Magnus, Dr J Butler

Kasumi Nishigaya, BA Meiji Gakum MAAS MA ANU
Social and sexual relations of young female garment factory workers in Cambodia and their risk of HIV/AIDS
Professor J C Caldwell, Dr G Carmichael, Professor N Becker

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

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
Sabina Rashid, MLitt BA ANU
An ethnographic study on reproductive health of female adolescents and women living in slums in Bangladesh
Dr B Caldwell, Dr A Whittaker, Dr RM D’Souza

Stephen Rudzki, MBBS Adelaide Grad Dip SportsSc Cumberland
The cost of injury to the Australian army
Emeritus Professor RM Douglas, Dr J Butler, Professor W Smith

Sanchia Shibasaki, BPhysiotherapy Qld MAppEpid ANU
Health Information Systems
Dr B Sibthorpe, Dr J Condon, Professor N Glasgow

Rupen Shrestha, MBA Waikato MSc Auckland
Population health impact of air pollution
Dr K Dear, Professor T Kjellstrom, Dr G Morgan

Masha Somi, BA/BEc(Hons) ANU
Household socioeconomic status and malaria in rural Tanzania
Dr J Butler, Dr M Patel, Dr A Martina

Xiaoyun Sun, BMed Shanghai Medical University, MPH Shandong University
Community health financing in rural Shandong China: the New Cooperative Medical Schemes and its impact on health care provision and financial protection.
Professor A Sleigh, Dr G Carmichael, Dr A Sidorenko, Dr S Li, Dr S Jackson

Leigh Trevillian, MBBS MPH Syd
Asthma: the relationship to a child’s sleeping environment
Dr A-L Ponsonby, Professor Al Adams, Dr L Lim

Agnes Walker, BEng Ecole Poly Tech Paris MEng NSW
Modelling the links between socio-economic status and health
Professor N Becker, Dr J Butler, Professor A Harding

Rosalie Woodruff, BA Canberra MPH ANU
Environmental and personal factors in Ross River virus disease
Dr C Guest, Dr G Garner, Professor N Becker, Dr J Lindsay

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

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

Master of Philosophy students, research topics and supervisors

Jenny Cahill, BAPS Cumberland College of Health Sciences
The overall cost to the individual and the community of post-operative infection in total joint replacement
Dr P Smith, Dr J Butler

James Harris, BSc Hons Otago
Optimal resource allocation for prevention and treatment of cardiovascular disease in New Zealand
Dr J Butler, Dr P Magnus, Dr M Clements
Rubaiul Murshed, MBBS Dhaka Diploma in Paediatric Surgery Lond
A study of public health management of arsenic in Bangladesh
Emeritus Professor RM Douglas, Dr B Caldwell, Dr G Ranmuthugala

Casey Quinn, BComm(Hons) Syd
Alternative modelling methodologies pertaining to private health insurance demand and the private health insurance purchasing decision
Dr J Butler

Graduate Diploma of Population Health students
Indra Ramasamy, MSc Sur, PhD Lond

Master of Applied Epidemiology scholars, placements and field supervisors
Noore Alam, Centre for Public Health, Sydney West Area Health Service
Dr Stephen Corbett, Dr Conrad Moreira

Angela Babo-Soares, TB Division, East Timor Ministry of Health, Dili
Dr Jaine Sarmento, Ms Angelina Martins, Ms Mary Beers-Deeble

Jenny Barralet, Queensland Health, Brisbane
Dr Margaret Young, Dr Linda Selvey, Dr Robyn Pugh, Dr Scott Cameron

Philippa Binns, Centre for Disease Control, Block 4, Royal Darwin Hospital Campus
Dr Vicki Krause, Dr Scott Cameron

Kylie Carvill, Telethon Institute for Child Health Research and WA Centre for Pathology and Medical Research, Perth
Dr Deborah Lehman, Professor Tom Riley, Dr Gillian Hall

Hazel Clothier, Department of Human Services, Melbourne
Dr Graham Tallis, Ms Mary Beers-Deeble, Dr Stephen Lambert

Ben Coghlan, Centre for International Health, Victoria
Dr Tony Stewart, Dr Mahomed Patel

Francine Eades, Institute for Child Health Research, Perth
Professor Sven Silburn, Dr Geetha Ranmuthugala, Ms Jill Guthrie, Dr Phyll Dance

James Fielding, Communicable Disease Control Branch, Department of Human Services, Adelaide
Dr Rod Givney, Dr Scott Cameron

Kelli Grace, Office of Aboriginal and Torres Strait Islander Health, Australian Government Department of Health and Ageing
Dr Phyll Dance

Wendy Hermeston, Combined Universities Centre for Rural Health, Geraldton, WA
Dr Marisa Gilles, Dr Gillian Hall

Kirsty Hope, Hunter Population Health, NSW
Dr Craig Dalton, Ms Mary Beers-Deeble

Ilisapeci Kubuabola, Health Department, Suva, Fiji
Dr Joe Koroivueta, Ms Mary Beers-Deeble

Chris Lawrence, National Centre in HIV Epidemiology and Clinical Research, Sydney
Dr Andrew Grulich, Ms Jill Guthrie
Raymond Lovett, The Australian Institute of Health and Welfare / Winnunga Nimmityjah Aboriginal Health Service, ACT
Fadwa Al-Yaman, Dr Gillian Hall

Roseanne Muller, Centre for Disease Control, Darwin
Dr Vicki Krause, Dr Scott Cameron

Sally Munnoch, Department of Health and Human Services, Hobart
Dr Roscoe Taylor, Ms Rosie Ashbolt, Ms Mary Beers-Deeble

Bridget O’Connor, Communicable Disease Control Branch, SA
Dr Rod Givney, Dr Scott Cameron

Chris Oxenford, OzFoodNet, Department of Health and Ageing, ACT
Mr Martyn Kirk, Dr Scott Crerar

Cynthia Payne, Queensland Health and Townsville Division of General Practice
Dr Ross Nable, Ms Mary Beers-Deeble

Helen Quinn, Communicable Disease Unit, Queensland Health, Brisbane
Dr Margaret Young, Dr Gillian Hall

Gina Samaan, Communicable Disease Branch, Department of Health & Ageing, Canberra
Dr Jenean Spencer, Dr Margaret Norington, Dr Mahomed Patel

Sanjaya Senanayake, South Eastern Sydney Area Public Health Unit, Randwick
Associate Professor Mark Ferson, Dr Mahomed Patel

Jessica Shipp, Department of Health, Qld
Dr Brad McCall, Mr Russell Stafford, Dr Gillian Hall

Nerida Sutherland
Dr Gillian Hall

Albert Tiong, Communicable Diseases Section, Department of Health and Human Services, Vic
Dr Mahomed Patel

Nola Tomaska, OzFoodNet, National Public Health Partnership, Melbourne
Mr Martyn Kirk, Dr Gillian Hall

Julie Wang, Dept of Human Services, Melbourne
Dr Ross Andrews, Dr Trang Vu, Dr Stephen Lambert

Ros Webby, Centre for Disease Control, Darwin
Dr Vicki Krause, Dr Peter Markey, Dr Mahomed Patel


Dixon J. Authority, power and value in contemporary industrial food systems. *International Journal of the Sociology of Agriculture and Food*, 2004; 11(1).


### Books

- Hatmadji SH, Utomo ID. *Empowerment of Indonesian Women: Family, Health, Employment and Migration*, Demographic Institute, University of Indonesia; 2004.

### Book chapters


Invited keynote conference papers

Bammer G. *Towards a new science of integration and implementation.* Keynote presentation at the 2nd HEMA (Human Ecosystems Modelling with Agents)/CABM (CSIRO’s Agent Based Modelling Working Group) Workshop, Canberra, May.

Bammer G. *The nexus between research, policy and practice.* Royal Australasian College of Physicians Annual Conference, Canberra, May.

Butler JRG. *The Economic Viability of Preventative Care.* Vital Links State Forum 2004 organised by the Alliance of New South Wales Divisions of General Practice, Sydney, May.


Eckersley R. *Nailing down the jellyfish: understanding the full impact of the media on mental health and wellbeing.* Internet, media and mental health conference, Brisbane, April.

Eckersley R. *From health promotion to population health: understanding the social determinants of wellbeing.* “Health Promotion: thinking differently about what we do”, Adelaide, May.

Eckersley R. *From individual illness to population health: understanding the social determinants of wellbeing.* Orygen Youth Research Centre planning day, Melbourne, May.

Eckersley R. *Who is the happiest of all?* Volunteering, wellbeing and human development. Volunteering ACT annual conference, Canberra, May.

Eckersley R. *Being better off, but feeling worse: what’s happening to people in Australia.* “Soil, soul & society” festival, Melbourne, May.

Eckersley R. *The state of the nation, the fate of the earth – and citizenship.* National Discovering Democracy Forum, Canberra, May.


Eckersley R. *Why values matter: The individual and community.* Communities in Control conference, Melbourne, June.

Eckersley R. *Apocalyptic nihilism and other stories: global change and personal choice.* Studies in Asia Conference, Melbourne, August.

Eckersley R. *Resilience: what is it, what builds it, and is it always good?* ”More strong stuff”, symposium on resilience, Canberra, September.


Eckersley R. *Tales of the future: human obsolescence or transformation?* Anglicare National Conference, Newcastle, October.
Eckersley R. *Progress and wellbeing: why we need Lifeline – and more.* Lifeline National Convention, Melbourne, November.

Eckersley R. *Is life getting better or worse?* 11th Queensland Combined Critical Care Conference, Sunshine Coast, November.

Hull TH. *Is Decentralization Healthy?* 6th Indonesian Regional Science Association International Conference, Yogyakarta, August.

Hull TH. *Fertility After the Conflict: the Case of Timor-Leste.* Australian Society for Human Biology, Canberra, December.


McMichael AJ. *Environmental change and food production: Consequences for human nutrition and health.* Nutrition Society Congress, Brisbane, August.


McMichael AJ. *Ecological and social influences on emergence/resurgence of infectious diseases,* International Workshop on Population Dynamics and Infectious Disease in Asia, Singapore, October.

McMichael AJ. *Climate Change and Health: Impacts - and Significance,* NSW Government Clean Air Forum, Sydney, November.


Ponsonby A-L. *Childhood asthma: Has the prevalence decreased in Australia and the UK over recent time? If so, why?* National Institutes of Health, Washington, USA.


Sidorenko A. *Methodology for Studying the Effects of Liberalisation of Trade in Health Services in the ASEAN Region.* ASEAN Economic Forum, Siem Reap, Cambodia, June.


Woodruff R. *Climate science – something to get excited about.* National Siemens Science Week, Australian National University, Canberra, October.
Honours and awards

• Terence Hull was awarded a medal for 25 Years Service at ANU (awarded after 29 years of service).

• Lorrae van Kerkhoff received a Fulbright Post-doctoral Fellowship and is currently spending twelve months at the John F Kennedy School of Government at Harvard University in the United States. Dr van Kerkhoff will look at how the increasing pressure on scientists to commercialise their research is affecting the production and usability of science in ‘public good’ areas such as environmental health and sustainable development.


• The Australia Unity Wellbeing Index, co-authored by Richard Eckersley, received a Victorian Public Health Award for excellence in capacity building.

Finance

Income and Expenditure Statement 2004

Income

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<td>ANU Operating Funds</td>
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<td>ANU Internal transfers</td>
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<td>Commonwealth PHERP Funds</td>
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<td>Grants and Consultancies</td>
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<td><strong>Total Income</strong></td>
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Expenditure

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<td>Operations and Equipment</td>
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<tr>
<td><strong>Total Expenditure</strong></td>
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