

NATIONAL CENTRE FOR EPIDEMIOLOGY AND POPULATION HEALTH

ANNUAL REPORT 2002

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DIRECTOR'S FOREWORD



Directors of centres typically say that it's been a good year, that there have been encouraging developments, that the organisation is solvent, and that the omens for next year are good. These things were all true for NCEPH in 2002. Let's look at some of the highlights of the past year.

The Centre received a major boost to its research program in winning a five-year public health research "capacity building" grant from the National Health and Medical Research Council (NHMRC). This new type of grant seeks to improve long-term capacity in public health research in Australia by training early- and mid-career researchers. The program grant supports seven young researchers at NCEPH, during 2002-2007, across a broad range of topics, such as air pollution impacts on health; work and family influences on early childhood development; ultraviolet radiation exposure and immune disorders; and global climate change and health.

NCEPH's research strategy has been further clarified, and this has taken us in two main directions. First, we now have five well-established research topic groupings: social determinants of health; environmental health; communicable diseases; population, health and development; and health systems research. Typically, each NCEPH academic is based in one of these five areas, while also engaged in collaborative, interdisciplinary research across other areas. Second, we have crystallised several research topics that we hope will become major Centre-wide, nationally significant thrusts. These include: the social and environmental origins of obesity; ageing and health; and the health impacts, present and future, of global climate and environmental changes.

The Centre has become a substantial contributor to several of the University's newly-formed National Institutes, especially Health and Human Sciences, Environment, and Social Sciences. We have become increasingly involved in the preparations for the ANU's new Medical School, due to take in its first students in 2004. NCEPH is responsible for planning and teaching the "population health" component of the curriculum and I and another member of staff, Anne-Louise Ponsonby, have co-joint appointments in the School.

Other highlights during 2002 included:

- The appointment of Terry Hull, demographer, to the newly-established Caldwell Chair of Population Health and Development, based at NCEPH. (Terry divides his time equally between NCEPH and the ANU Demography Program in the Research School of Social Sciences.)
- Several major successes with grant applications, including: The Work, Family and Health Study (2003-2005, NHMRC), The Atmospheric Environment and Health Project, as part of the Commonwealth's Public Health Education and Research Program (PHERP) Innovations Program (2002-2005, with Sydney University, CSIRO Atmospheric Research, and the Bureau of Meteorology Research Centre), and participation in the Longitudinal Study of Australian Children, funded by the Commonwealth Department of Family and Community Services, and coordinated by the Australian Institute of Family Studies.
- The award of a three-year post-doctoral fellowship in epidemiology, 2003-2005, by the Vincent Fairfax Family Foundation.
- Commonwealth funding for a feasibility study of the enhancement of the Master of Applied Epidemiology. The very successful, ten-year-old, MAE training program is maturing towards greater breadth of context and increased integration. It has also become a widely recognised model around Asia, and staff of the Program have helped to implement similar initiatives in India, China, Malaysia and The Philippines.
- The commencement of a major extension to the main NCEPH building. This will enable us to house new staff and to relocate the approximately one-third of our staff currently occupying a separate building.

We continue to appreciate the substantial support given to NCEPH by the Commonwealth Department of Health and Ageing. Consonant with this support, the Centre has striven to increase its engagement in various national training and research activities and networks.

Finally, many thanks to the oft-unsung, behind-the-scenes support of Alison Humphreys and her general staff colleagues. The pressures and challenges within a multidisciplinary centre such as NCEPH, along with a rapidly changing external research environment, are many and unpredictable. We have greatly increased the flexibility of our administrative and support functions and have worked with considerable success towards closer integration of academic and general staff.

Tony McMichael, Director

STAFF

** for part of the year only*

Academic Staff

Director and Professor

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Mahomed S. Patel, MBChB *Rand*; FRACP, FAFPHM

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Research Assistants

Alexa Ridgway

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Ivan Hanigan

Wendy H. Cosford

Ann Howarth, BPharm *Syd*, BEc *ANU*

Visiting Fellows

Bob Douglas, Emeritus Professor

Stephen Lambert, University of Melbourne
Department of Paediatrics, Royal Children's Hospital
(11 July 2001 – 10 July 2003)

Judith Healy, WHO
(10 July 2000 – 31 August 2003)

Wayne Smith, University of Newcastle
(1 April 2002 – 31 March 2003)

Centre Visitors

Sam-ang Seubsman, Suhothai Thammathirat Open
University, Thailand.
(2 December 2002 to 21 January 2003)

Inoka Senaratne, University of Auckland.
(15 November 2002 to 31 January 2003)

Marianne Anderson, School of Resource and
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(15 November 2002 – 31 January 2003)

Tanya Mark, University of QLD/ UNSW
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Virginia Riddle*

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Omar Ibrahim

Colin McCulloch, BSc *ANU*

FOND FAREWELLS



Jack Caldwell

A Note from Jack Caldwell

Professor Jack Caldwell left NCEPH in December to return to ANU's Research School of Social Sciences Demography Program, with which he was previously associated for almost 30 years. He will retain a Visiting Fellowship at NCEPH, where he was coordinator of the Health Transition Centre for almost fifteen years. He writes here of his time spent at NCEPH.

NCEPH has been good for me and has provided me with a deeper knowledge of epidemiology and health matters, so strengthening my work on the morbidity/mortality side of the demographic transition. It was a personal transition I needed after over eighteen years as head of the Department of Demography.

Some time in the autumn of 1988, before I officially became Associate Director and Acting Director of NCEPH, I was drawn into the problems associated with the withdrawal of our first appointee as Director. I was faced with four problems: no administrative staff (but in due course a powerhouse was identified in the form of Barbara Payne); no academic staff (but we designed advertisements); no Director (but, after a second false start, I found Bob Douglas at a conference in Leura); no location. The ANU offered what is now a splendid heritage building but what was then almost a ruin, much of it having been reduced to an animal house with associated stains and odours. Stronger and more knowledgeable persons than I, found mostly in the ANU's Building Section, assured me it could be salvaged and warned against turning down the offer.

The advertisements yielded a range of excellent applicants, but few epidemiologists. They hardly existed in Australia and that was why NCEPH was being established. I tried to console Bob Douglas (the new Director) by pointing out that the ANU's Demography program had faced the same problem four decades earlier and had solved the difficulty by very largely training its future staff.

We transferred the Health Transition Centre to NCEPH as a going concern. For the first couple of years it brought in a good deal of soft money

beyond the Health Department's grant, made a respectable contribution to NCEPH's publications, held its first international conference ("What we know about Health Transition: The Culture, Social and Behavioural Determinants of Health", May 1989), and published its first international journal (*The Health Transition Review*, 1991-1997).

Thereafter, under Bob Douglas and then Tony McMichael, NCEPH took off, and I and HTC became a small part of a growing empire. It was a splendid achievement, and in retrospect will be seen as a milestone in the growth of a central discipline in Australia's health armoury. In the early years, and even later, its permanence was by no means guaranteed. The greater stability now achieved has been partly due to leadership and partly to the fact that we did indeed train much of our staff, as well as our willingness to pioneer in such fields as indigenous health.

There will be a "retrospect" as the years pass and Australia becomes more populous, educated and richer. In the early 1980s I was invited to the 700th anniversary of the founding of the University of Florence, and in my speech mentioned, to the horror of the Italian dignitaries, that I had recently been invited by the three universities with which I had enjoyed my strongest associations (ANU, University of Ghana, University Ibadan, all established in 1948) to their 25th anniversaries. Such infants were hardly established in the viewpoint of my audience. Yet I still think it is those first years which are fundamental and exciting, and to the extent that I have helped avoid neonatal mortality in the case of NCEPH or Demography, I am proud.

Jack Caldwell

Professor Tony Adams

Tony Adams retired in October after a long and distinguished career in public health. Colleague and friend, Bob Douglas, writes briefly about some of the highlights of that career.



Tony Adams and Romaine Rutnam

Tony Adams joined the staff of NCEPH in 1996, capping off an illustrious public health career that spanned 42 years. He was a pioneer and leader in Australia's public health system. Tony and I were good friends at medical school where, from early days, he displayed a concern for the world beyond Australia and an unusual (for those days) passion for the health of the whole population. While the rest of us followed the fashion of one-to-one clinical care (which was going through exciting times in the late fifties and early sixties) Tony headed for the US where he rubbed shoulders with the Harvard public health "greats" and began to develop his own ideas about the systemic factors that affect the health of populations and the services that they use.

Returning to Australia in the mid-sixties, Tony joined forces with a number of progressive thinkers (Basil Hetzel among others) to form the Australian Society for Epidemiology and Research in Community Health (ASERCH), which later became the Public Health Association of Australia. He also played a vital role in the development of the International Epidemiological Association of which he was Secretary.

In the early 1970s, Tony moved from his academic post in the School of Public Health and Tropical Medicine at Sydney University to work with Syd Sax in the NSW Health Department. He succeeded Syd as head of research into health services when Syd moved to Canberra to lead the National Hospitals and

Health Services Commission. I recall avidly following Tony's publications during that phase of his career as he brought rigour to research into what doctors in the community were actually *doing* in the name of medical care. He later became the Chief Medical Officer for NSW, and became a state legend for his work on communicable disease outbreaks including the great Wollongong Legionella outbreak.

In the late eighties he became the Chief Medical Officer for the Commonwealth Government. In that role he served Australia with distinction on a huge range of domestic public health issues and on the executive board of the World Health Organization and as chair of the International Agency for Research on Cancer in Lyon.

During his time at NCEPH, Tony continued his work on the global eradication of polio, a task he continues and hopes to see through to its conclusion. He has also been a superb contributor to the life of NCEPH, teaching and supervising postgraduate students and enriching our social events with his magnificent baritone voice.

Now that he has moved away from Canberra to Avoca Beach, we will see less of him and his partner, Romaine Rutnam, who has also had a long association with NCEPH. We all wish both of them a thoroughly enjoyable retirement and many happy returns to NCEPH.

RM Douglas Visiting Fellow

RESEARCH AT NCEPH

Our compact but vibrant Centre, comprising 23 full-time academic staff in 2002, undertook research and research training and developed a number of initiatives in each of the four existing program groups – communicable diseases, environmental health, health systems research and social determinants of health. Approximately 70 peer-reviewed articles, 18 book chapters and 3 books were published. In addition, during 2002, the Centre added a fifth research program with the establishment of the population, health and development group under the leadership of Professor Terry Hull.

The Centre held a successful two-day retreat in September, which focused on the overall research program and the leading initiatives in each of the five research groups. Another direct consequence of the retreat was the establishment of a more thorough and systematic approach to the development of research grant proposals.

A quality-controlled, peer-reviewed system for the development of competitive research grants was implemented and several newly-funded major research projects were begun, including the Work, Family and Health project, and Ultraviolet Radiation and Immune-Disorders. The award in 2002 of a major NHMRC Public Health Capacity Building grant worth \$2.47m over five years has enabled the Centre to employ six early-to-mid-career researchers who will be working with senior researchers focusing on environmental and population health with an emphasis on research development.

The year also saw the expansion of the Centre's engagement in international research and review activities including: several contracts with the World Health Organization (WHO); the transition from the pilot to the main AusAid project Australian Arsenic Mitigation Program: Health and Social Research Project; involvement in the Millennium Ecosystem Assessment Project (see opposite); and development of the Asian MetaCentre for Population and Sustainable Development Analysis, funded by the Wellcome Trust and based at the National University of Singapore. NCEPH is a principal collaborator in the Asian MetaCentre and, on its behalf, will host a workshop on Urbanisation, Transport and Health in Asia early in 2003.

Policy engagement is seen by NCEPH as a core component of its work, both nationally and internationally. This includes production of policy-relevant research outputs, academic staff accepting positions on national and international expert panels and committees, other direct involvement in policy making processes, and policy commentary, review and evaluation. A partial list of committee involvement by NCEPH staff can be found on page 47.

Research groups at NCEPH:

Communicable Diseases - develops new research methods for infectious disease epidemiology, uses models to assess control policy and addresses a variety of applied research issues concerned with surveillance systems, responses to outbreaks of disease and factors associated with transmission and its control.

Environmental Health - encompasses the study of factors and processes from the household level, through those acting at the community or local geographic level, to those acting globally.

Health Systems Research - integrates economic, sociological, anthropological, and epidemiological science in the study of health systems. The main focus of the research is the governance, organisation and financing of health systems.

Population, Health and Development - conducts wide-ranging research on issues of inequality in the developing world. All research undertaken by the group has practical policy implications, though not necessarily easy policy options.

Social Determinants of Health - looks at features of the social environment that cause health to vary in different groups. This encompasses health inequalities, Indigenous health, women's health and drug use in the community.

A selection of research projects undertaken during 2002 are featured on the following pages. A more comprehensive list of all research projects at NCEPH can be found on the Centre's website: <http://nceph.anu.edu.au/research>

Millennium Ecosystem Assessment Project

NCEPH has become actively involved in the Millennium Ecosystem Assessment Project. This is an ambitious, four-year (2001-2004), international scientific review and assessment project, funded by several major international environmental conventions, international agencies and some national governments. More than a thousand scientists from diverse research disciplines and from many developed and developing countries are involved in the work. The project seeks to describe and understand humankind's increasing impacts on the world's ecosystems, to forecast the likely scenarios of future impacts, and to assess the current and future consequences for human societies, including wellbeing and health. The social and economic response options are also being assessed.

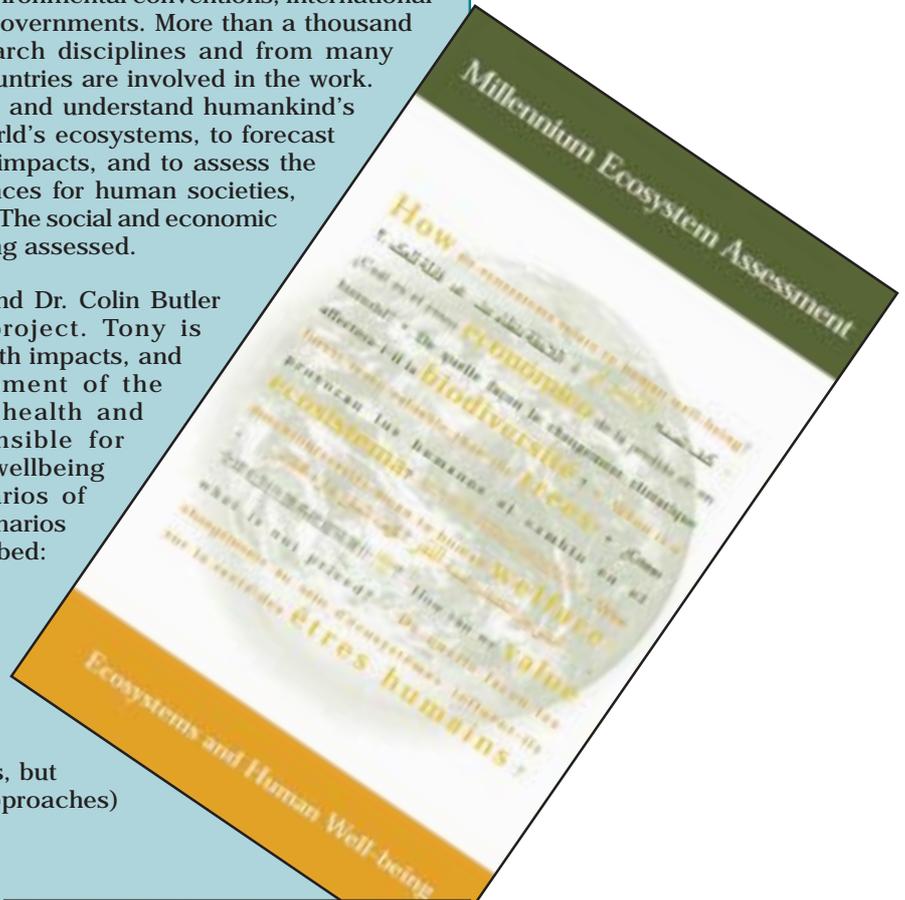
Both Prof. Tony McMichael and Dr. Colin Butler are lead authors in this project. Tony is coordinating the work on health impacts, and has overseen the development of the conceptual framework on health and wellbeing. Colin is responsible for developing the health and wellbeing aspects of the future scenarios of ecosystem change. Four scenarios have been provisionally described:

- A. Economic optimism
(genuine free trade and convergence between the rich and poor world)
- B. Local learning
(attempts at local solutions, but at the expense of global approaches)
- C. Technogarden
(a revolution of high technology and eco-friendly farming)
- D. Higher fences
(the reverse of A, a deepening of current inequalities).

This project connects well with NCEPH's active engagement in research on climate change and its health impacts.

In 2002 several doctoral students, including Rosalie Woodruff and Kathryn Kelly, were engaged in studies bearing on this rapidly emerging research domain.

(For further details, see <http://www.millenniumassessment.org>).



COMMUNICABLE DISEASES

Research in the area of infectious diseases is usually motivated by the ultimate goal of improving the control of the transmission of infection, thereby reducing the incidence of disease. To this end much research tends to focus on seeking a better understanding of transmission within communities, assessing the effectiveness of vaccines and determining effective immunisation strategies. The methods used in this research are often adapted from those used to study chronic diseases and therefore fail to take proper account of the fact that transmission occurs. A major component of our research at NCEPH is to develop research methodology that is specifically tailored to the study of infectious diseases, and to apply these methods to issues of particular relevance in Australia.

NCEPH's communicable disease research was stimulated this year by visits from Dr Tom Britton (Uppsala), Dr Philip O'Neil (Nottingham) and Professor Herbert Hethcote (Iowa), who collaborated on projects concerned with developing methods for assessing vaccines and developing new vaccination strategies for the control of pertussis (whooping cough). Engagement with the policy sectors has included modelling and costing of measles control in the Western Pacific Region for the World Health Organization.

This year, the research of our group has seen a greater overlap with NCEPH's Environmental Health research program through our study of the effect of temperature on salmonellosis notifications. Program members have also strayed into other territory, including the question of whether air travel triggers deep vein

thrombosis, a project undertaken in collaboration with Dr Chris Kelman and others from the Commonwealth Department of Health and Ageing.

Late in the year, Rebecca Hogan and Andrew Jardine joined us as summer vacation scholars, to identify groups at risk of gastroenteritis and to examine the nature of household outbreaks of gastroenteritis. This contributed substantially to a research program centred around Dr Gillian Hall, who is the focal point of a collaboration between OzFoodNet and NCEPH on estimating the amount of foodborne disease in Australia.

One of the great success stories of infectious disease control is the eradication of smallpox in the mid-1970s. Sadly, recent global events have raised concerns that smallpox might reappear as a result of acts of bio-terrorism. This possibility, together with concerns about the emergence of new infections (particularly a new strain of influenza), has recently turned the program's attention to mathematical models that can help us to prepare against such unfortunate events.

As always, candidates working in the field towards their Masters of Applied Epidemiology (Disease Control) degree have undertaken a very wide range of applied research projects concerned with communicable disease outbreaks and surveillance. Candidates from Fiji and East Timor have added an international dimension to this training program.

Some examples of staff research projects in 2002 follow. For a complete list of research projects in this area, see the Centre's website: <http://nceph.anu.edu.au/research/>



Summer research scholars Rebecca Hogan and Andrew Jardine, standing between Gillian Hall and Niels Becker

Monitoring measles elimination in Victoria

In 1998, Australia conducted a mass vaccination campaign against measles. Such campaigns rapidly reduce the number of people susceptible to infection, the incidence of measles cases falls, and the disease dies out, at least temporarily. However, a few new cases of measles continue to crop up, brought in by travellers carrying the disease. The state of Victoria adopted enhanced measles surveillance to keep an eye on these cases.



Niels Becker

The number of new cases will be small while the population immunity remains sufficiently high. However, if the immunisation of infants is inadequate, the fraction of susceptible individuals in the population may grow large enough to allow measles to become re-established. It is therefore important to analyse data on measles outbreaks following an



Zengfeng Li

immunisation campaign. NCEPH is engaged in such analyses, using modern statistical methods, transmission models and the enhanced surveillance data collected by the Victorian Department of Health and Human Services.

NCEPH research team: Niels Becker, Zengfeng Li, Edmond Hsu

Climatic temperature and foodborne disease

NCEPH researchers are studying the possible health effects of anticipated climate changes, including the potential effects on food production and foodborne disease. The researchers have examined the relationship between mean monthly notifications of *Salmonella* infections



Gillian Hall

(a common form of food poisoning) reported to the National Notifiable Disease Surveillance System for the last 11 years and mean monthly temperatures in Perth, Adelaide, Melbourne, Sydney and Brisbane. Data for the five cities were analysed, both separately and together. The analysis found a strong positive association between *Salmonella* infections reported in one month in each city and the mean temperature in the previous month. Seasonal patterns in *Salmonella* notifications were no longer significant once temperature was allowed for. For a temperature increase of 1°C, *Salmonella* notifications increased by 10% in Brisbane, 6% in Sydney, 5% in Melbourne and Adelaide and 4% in Perth.

The strength of the association, the remarkable consistency over the five cities and a plausible biological pathway, suggest that higher temperatures are a cause of higher *Salmonella* notifications. The lag of one month suggests that temperature might be more influential earlier in the production process, rather than at the food preparation stage. Understanding this can help



Rennie D'Souza

to guide policy on food preparation and distribution, possibly serve as an early warning system when climatic conditions suggest increased incidence, and validate health concerns associated with global warming.

NCEPH research team: Rennie M D'Souza, Niels Becker and Gillian Hall

Identification, management and prevention of Influenza-like illnesses in Aged Care Facilities



Mary Beers Deeble

Master of Applied Epidemiology scholars Rebecca Guy and Hazel Clothier, together with Stephen Lambert and Mary Beers Deeble, have investigated reported outbreaks of influenza A and other respiratory viruses, including coronaviruses, in aged-care facilities in Victoria.

Unless influenza is specifically identified, outbreaks of viral respiratory illnesses are not notifiable to public health authorities. However, these facilities do request assistance with the management of outbreaks, usually when affected residents die or staff capacity is limited.

NCEPH researchers have now investigated a number of such outbreaks and have assessed the preparedness of nursing home staff to manage such events, and the level of vaccination in staff and residents.

They have found that staff are rarely prepared for such events and most lack detailed infection control guidelines or the resources with which to respond quickly to prevent spread of infection within and beyond the facility.

Influenza outbreaks can rapidly become overwhelming for staff to manage, with attack rates in the order of 50 per cent for residents and 30 per cent for staff. Although the resident population is usually appropriately vaccinated

against circulating strains of influenza, vaccine effectiveness for preventing clinical disease in this population is low. In one outbreak 40% of vaccinated residents still developed the clinical symptoms of influenza. However, 84% of vaccinated residents who did get sick were not ill enough to require hospitalisation.

Very low levels of staff vaccination for influenza, as well as a high proportion of staff being contract workers across a number of facilities, have resulted in their being either the source of infection or becoming infected themselves.

As a result of the work done by the MAE group, guidelines for the control of respiratory disease outbreaks in aged-care facilities in Victoria have been developed and tested by Rebecca Guy and Hazel Clothier and there are current plans to adapt these guidelines for use nationally.

Since July 2002, the guidelines have been used in five outbreaks of respiratory diseases and an evaluation has shown that where they have been used facilities have:

- managed outbreaks with minimal external support;
- implemented infection control procedures within 48 hours;
- provided demographic, environmental and vaccination information within 1-7 days; and
- initiated staff influenza vaccination programs after the outbreak.

As a result of this work, the development of outbreak management plans and detailed infection control procedures may become an accreditation requirement nationally for aged-care facilities.

NCEPH research team: Rebecca Guy, Hazel Clothier, Stephen Lambert, Mary Beers Deeble

ENVIRONMENTAL HEALTH

Traditional concerns about environmental risks to health have focused on local environmental pollutants and infectious agents in water, air and food. In today's world, however, the environmental health research agenda is much broader. Over the past quarter-century, there has been the unexpected emergence of global environmental changes – such as global climate change – as the impact of human numbers and economic activities upon the biosphere grows.

NCEPH's environmental health research program therefore spans household exposures (such as indoor air quality and other domestic exposures that contribute to asthma), through local community exposures (such as air pollution, water chemistry, heat waves and food safety), to large-scale environmental changes (such as climate change, stratospheric ozone depletion and biodiversity loss). 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, such as the rising prevalence of obesity and its adverse health consequences in Australia.

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

- studies of household environments in relation to childhood asthma
- analyses of the relationship between urban air pollution levels and daily/weekly death rates
- preliminary 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 how climatic variations influence the occurrence of several infectious diseases, especially Ross River virus disease and bacterial food poisoning in Australia, and malaria in eastern Africa
- a program of research in Bangladesh into the widespread health risks posed by natural arsenic contamination of freshwater obtained from deep tube wells.

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.

NCEPH researchers, in conjunction with CSIRO climate scientists and others, carried out a scientific assessment of the potential health impacts of climate change in Australia and the adjoining Pacific region. A similar exercise was conducted for the World Health Organization (WHO) to estimate the global burden of disease currently attributable to solar ultraviolet radiation exposure – with particular attention to skin cancers and disorders, impacts on the eye, and effects due to altered immune activity and vitamin D synthesis.

Some examples of staff research projects in 2002 follow. For a complete list of research projects in this area, see the Centre's website: <http://nceph.anu.edu.au/research/>



Climate change

NCEPH researchers, with collaborators from CSIRO, Bureau of Meteorology, and the University of Otago in New Zealand, conducted a risk assessment for the Commonwealth Department of Health and Ageing of the potential health impacts of climate change over the coming decades in Australia, New Zealand, and the Pacific islands. Climate change is expected to cause various environmental and ecological changes. Annual average temperatures are projected to be 0.4 to 2.0°C higher over most of Australia by 2030 (1.0 to 6.0°C higher by 2070). An increase in rainfall variability is projected, with more frequent heavy rainfall events expected.

The report argues that reducing the total level of greenhouse gas emissions remains a primary preventive health strategy. The health impacts of climate change will be strongly influenced by the extent and rate of warming, as well as local environmental conditions, and the range of social, technological, institutional and behavioural adaptations taken to reduce the threats. Some individuals and communities lack the resources required for adequate response. Remote Aboriginal communities, people on low incomes, elderly people and many Pacific Island countries will be most vulnerable.

The projected rise in temperature is predicted to result in a substantial increase in heat-related

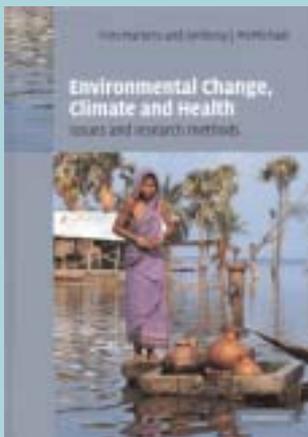
deaths in all the cities studied (in the absence of adaptive measures). Extreme temperatures currently contribute to the deaths of some 1100 people aged over 65 each year in ten Australian and two New Zealand cities. Suitable climatic conditions for the transmission of dengue and malaria are predicted for a greater proportion of Queensland and the Northern Territory. Extending the public health infrastructure will be one important adaptive response.

Extreme rainfall events are expected to increase across most of Australia by 2020, and annual flood-related deaths and injuries may increase. Warmer temperatures and increased rainfall variability are predicted to increase the intensity and frequency of food-borne and water-borne diseases. Successful adaptation will require the upgrading of sewerage systems, and safer food production and storage processes. The number of people exposed to flooding due to sea-level rise in Australia and New Zealand is predicted to approximately double in the next 50 years, although absolute numbers would still be low. For the Pacific region, the number of people who experience flooding by the 2050s could increase by a factor of more than 50, to between 60,000 and 90,000 in an average year.

NCEPH research team: Tony McMichael, Rosalie Woodruff, and Tord Kjellstrom.

Environmental Change, Climate and Health

Issues and research methods



Pim Martens and Anthony J. McMichael

The advent of global environmental change, with all its uncertainties and a requirement for long-term prediction, brings new challenges and tasks for scientists, the public and policy makers.

A major environmental upheaval such as climate change is likely to have significant health effects. Current mainstream epidemiological research methods, in general, do not adequately address the health impacts that arise within a context in which ecological and other biophysical processes display nonlinear and feedback-dependent relationships. The agenda of research and policy advice must be extended to include the larger-framed and longer-term environmental change issues. This book identifies the nature and scope of the problem, and explores the conceptual and methodological approaches to studying these relationships, modelling their future realisation, providing estimates of health impacts and communicating the attendant uncertainties.

Environmental Change, Climate and Health was published by Cambridge University Press, Cambridge, UK. 2002. ISBN 0 521 78236 8. For further information, see: <http://titles.cambridge.org/catalogue.asp?isbn=0521782368>

Infant bedding and asthma

Infants spend a lot of time in bed, and mattresses and bedding are an important source of allergens, such as those from house dust mites, that cause some types of child asthma. They are also a potential source of volatile organic compounds, which are pulmonary irritants that may enhance sensitisation to inhaled mite allergens.

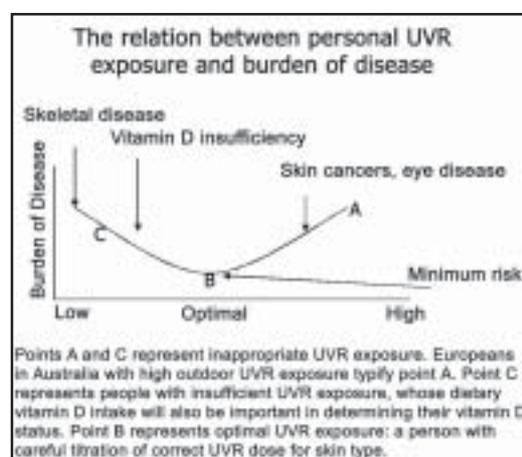
NCEPH is contributing to a better understanding of these associations. In collaboration with the Menzies Centre for Population Health, University of Tasmania, researchers have explored the relationships between different bedding items and both house dust mite sensitisation and asthma in childhood in the Tasmanian Infant Health Survey. The research has shown that sheepskins and plastic mattress covers are associated with the development of house dust mite sensitisation in childhood. The findings support current NSW Health Department recommendations that the use of sheepskin, which may harbour very high levels of mites, is inappropriate as infant bedding in allergic families. Further studies are needed to determine other potentially adverse environmental factors, such as the release of volatile organic compounds from plastic mattress covers.

NCEPH researchers have also contributed to new findings that add to the accumulating evidence suggesting a possible protective role for feather bedding in childhood asthma. Feather quilts are associated with reduced mite sensitisation, as well as with a reduction in severe asthma symptoms. Numerous studies have reported a positive association between synthetic bedding and child wheeze. Exploring this further, NCEPH researchers are now examining the contribution of upper bedding and sleep position to inhaled house dust mite allergen dose in the sleeping environment.

NCEPH research team: Anne-Louise Ponsonby, Leigh Trevillian, Lynette Lim, Suzanne Amerikow, Ivan Hanigan.

Ultraviolet radiation and immune disorders

Solar radiation, specifically ultraviolet B radiation, can affect how well people's immune systems function. Recent advances in immunological knowledge and measurements at the individual level have provided new opportunities for useful epidemiological work in this area. In 2002, NCEPH staff provided scientific reviews on this issue for various medical journals and WHO. In particular, an assessment of the overall burden of disease from ultraviolet radiation exposure was conducted for WHO. This assessment included a review not only of the diseases thought to be directly attributed to excess exposure to ultraviolet radiation, but also those that could be attributed to insufficient exposure.



Medical Journal of Australia 2002; 117:594-598

NCEPH researchers also conducted analyses of the association between season of birth and multiple sclerosis (MS), an auto-immune disorder, and the association between latitude and regional ultraviolet radiation levels on the age-at-death of sufferers of MS and other diseases. In collaboration with the International Federation of Multiple Sclerosis, NCEPH researchers also conducted an international internet-based survey of people with MS on their views on environmental factors that may affect MS. This information has been incorporated into the choice of study measurements for a clinical cohort of MS progression at the Menzies Centre for Population Health Research in Southern Tasmania. Another part of NCEPH's work in this area in 2002 was an examination of the association between past ultraviolet radiation exposure and MS in a case control study, in collaboration with the Menzies Centre.

NCEPH Research team: Tony McMichael, Anne-Louise Ponsonby, Robyn Lucas, Keith Dear, Judy Staples, Lynette Lim, Suzanna Amerikow, Ivan Hanigan.

Air pollution, climate and health

Air pollution from motor vehicles and home heating with wood or coal has become an increasing concern to regulatory authorities all over the world. A seminal study in 2000 of the mortality impact of air pollution from motor vehicles in three European countries has been an important driving force for research, analysis and regulation in this area. The study concluded that twice as many people die as a result of vehicle emissions as from traffic crashes. The increasing interest in the issue from Environment Australia, the Commonwealth Department of Transport and Regional Services and State Environmental Protection Authorities has triggered new research initiatives at NCEPH.

Tord Kjellstrom has carried out research on this topic for several years. Together with Rupendra Shrestha, he has studied the association of air pollution, climate variables and daily mortality in Christchurch, and found that extremes of hot and cold temperature, as well as air pollution levels, are associated with daily mortality. The dose-response relationship for mortality is more pronounced for vehicle emissions in the summer than for wood smoke in the winter. Studies of the seasonal mortality variations in Australian cities are in progress. The aim is to quantify the contribution of air pollution and climate variations to the seasonal variations.

Through NCEPH's participation in the Asian MetaCentre on Population and Sustainable

Development Analysis, collaborative studies of air pollution health effects in Asian cities are also planned. These cities often have extreme air pollution levels (see photo) and local studies will be of importance in finding local solutions to preventing exposures and effects.

The air pollution research is also closely linked to research on the direct effects of climate on health. Very hot and cold temperatures can also increase mortality in a similar manner to air pollutants.

This area of research was boosted by the PHERP Innovations grant for an NCEPH-led program on research training and methods development in the field of atmospheric environment and health in partnership with CSIRO, the Bureau of Meteorology, NSW Health and the University of Sydney. An initial workshop was held in November to bring together all researchers in this field in Australia and to take stock of the research being carried out. Two short courses and one methodology workshop are planned each year for the next three years.

NCEPH research team: Tord Kjellstrom, Rennie D'Souza, Geetha Ranmuthugala, Rupendra Shrestha, Zoe Cozens, Ivan Hanigan, Tony McMichael



Photo: Tord Kjellstrom

Manila morning

HEALTH SYSTEMS

According to a reputable dictionary of epidemiology, health systems research involves “the coordinated study of determinants of health (nutrition, housing, employment, education, etc.) as well as factors directly associated with health, such as use and function of health services”. Health systems research at NCEPH concentrates largely on the organisation, delivery and financing of health services and the impacts of these dimensions of health service provision on health. How is health service delivery organised across Australia and other countries? Do organisational differences affect health outcomes? Are new vaccines cost-effective, i.e. do they produce health gains at ‘acceptable’ cost? These are the types of questions addressed by health systems researchers.

Research in this area at NCEPH has both a national and an international focus. Several projects undertaken during 2002 were of national significance. An important piece of work examining the cost-effectiveness of a new vaccine against meningococcal C disease was completed and directly informed Australia’s policy on public funding of this vaccine. Among other options, this work examined the economic and health impacts of providing three doses of vaccine during the first six months of life compared with one dose of vaccine at 12–13 months of age. The decision by government to fund a routine one-dose program at age 12–13 months was taken in light of the findings of this analysis.

Another project involved an economic evaluation of extending publicly funded influenza vaccination to 50–64 year-olds in Australia. Currently, influenza vaccine is publicly funded under a Commonwealth program for all people aged 65 years and over. What are the costs and benefits of extending this program to 50–64 year-olds? This project found that the costs and benefits of this policy option did not compare favourably with other health interventions.

Research on health care financing has been a long-standing interest at NCEPH. Several projects investigating private health insurance in Australia were undertaken during the year, including a project that employed econometric techniques to forecast private health insurance coverage out to 2010 and beyond. A postgraduate student in economics, supervised by an NCEPH staff member, used simulation techniques to model the interaction between public and private health insurance in Australia and was awarded first class honours for his efforts.

International work on comparative health systems is an important feature of health systems research at NCEPH. During the year, two monographs examining health care systems in Australia and New Zealand were published. Work also continued on a project funded by the National Health Research and Development Program in Canada on public and private health care financing in the two countries. A comparison of health and health care financing in Australia and Korea is the focus of a new project being undertaken by staff at NCEPH in conjunction with colleagues in Korea and funded by the Australia-Korea Foundation.

Staff and students in health systems research maintained a high level of activity during the year attending conferences, teaching, presenting seminars and maintaining committee memberships in addition to the conduct of research projects. There has been active involvement with the Australian Health Economics Society and with the European Observatory on Health Care Systems.

Some examples of staff research projects in 2002 follow. For a complete list of research projects in this area, see the Centre’s website: <http://nceph.anu.edu.au/research/>

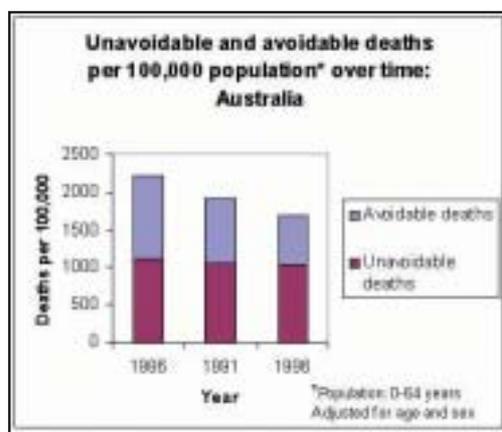


Time trends in avoidable and unavoidable mortality in Australia - 1986 to 1996

An avoidable death is one that could have potentially been avoided given currently available disease prevention and health care services. For example, cervical cancer is potentially avoidable through health promotion campaigns about behavioural risk factors such as smoking and sexual practices (primary prevention), screening and cytology services (secondary prevention) and surgery and other treatments (tertiary prevention). Examining avoidable death rates over time provides a means of assessing population health gains attributable to health system interventions. Inequalities in these gains across different groups in the community and the capacity for further gains can also be assessed.

NCEPH's work in this area is part of a larger study that will examine rates of avoidable and unavoidable deaths in Australia since 1964. The study uses death registration data for Australia supplied by the Australian Bureau of Statistics. The list of causes of avoidable deaths is based on those used in studies from other countries and include 25 different disease/injury groups. All other deaths are considered unavoidable.

The results for deaths spanning 1986-1996 are shown in the figure below. Notably, there has been a steady decline in the avoidable death rate. The rate for unavoidable deaths remains relatively unchanged over the same 10-year period, as expected given the concept of unavoidable mortality. The proportion of total deaths that are avoidable dropped from 50% in 1986 to 39% in 1996. Future work will compare time trends in avoidable mortality across countries.



Trends in avoidable mortality by socio-economic status will also be investigated to see if the higher mortality rates experienced by lower socio-economic groups reflect higher

mortality from avoidable causes only, or whether these groups have higher mortality rates from both avoidable and unavoidable causes. The 'neo-materialist' school of thought argues that the higher mortality rates in lower socioeconomic groups should reflect higher rates of avoidable mortality only, as their higher mortality rates are attributable to material deprivation in general and deprivation in access to health services in particular. In contrast, the 'social-psychological' school of thought argues that lower socioeconomic groups experience an overarching sense of social deprivation that should lead to higher death rates from both avoidable and unavoidable causes.

NCEPH research team: Rosemary Korda, Jim Butler

Forecasting Australian private health insurance coverage



Casey Quinn

By 1997 only about 30% of the Australian population was covered by private health insurance, and the proportion was falling. This led to government implementation of three policies to first entice and then coerce Australians into joining

private health funds. The concessions made with the third of these, the Lifetime Community Rating Scheme, were sufficient to halt the historic decline in demand for health insurance by imposing penalties for individuals over 30 years of age who joined a health fund. However if the same dynamic of high risks and premium increases that had existed before continues, this decline will not have been corrected permanently.

An analysis using a mathematical model of private health insurance showed that the government had only bought itself around a decade of respite before it must face the same problem again (i.e. coverage rates nationally will again fall to 30% by 2012). From this point the rate will not fall to zero until 2033 – 14 years after it was first predicted to reach that point prior to the introduction of lifetime community rating. A greater or smaller rate of decline will depend upon how well health funds can now retain their members. If they are able to remain attractive to the young and/or healthy, any decline will presumably be far slower. If they cannot, it could be significantly faster, and this retention will be made still more difficult by any attempts to reduce or remove the 30% private health insurance rebate without complementary changes to regulations governing health funds.

NCEPH research team: Jim Butler, Casey Quinn

Economic evaluation of influenza vaccination for 50–64 year-olds in Australia



Jim Butler

to include all persons aged 50-64 years on the basis that this group had a high proportion of persons with high-risk conditions and that offering vaccination to the entire age group would increase coverage among those most at risk.

A technical report was prepared for the Commonwealth Department of Health and Ageing on the cost effectiveness of extending the current program to include free vaccine for either: all persons aged 50-64 years; or for those in this age group who were at highest risk. The report was a collaboration with others from the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases, the Victorian Department of Human Services and the Victorian Infectious Diseases Reference Laboratory. For both groups, researchers estimated the proportion expected to contract influenza each year, consult a general practitioner, be hospitalised or die. They also estimated the direct costs of vaccination and treatment for each program option to achieve the reductions expected in disease incidence, consultations, hospitalisations and deaths. Based on the available evidence, the analysis indicated that providing free influenza vaccines to people aged 50-64 years was not a cost effective option, either for all people in the age group or only for those “at risk”. The health gains from extending vaccination coverage in either group were small relative to the cost of extending coverage, giving rise to relatively high costs per unit of health gain.



Ross Andrews

NCEPH research team: Ross Andrews and Jim Butler

Profiles of Australian and New Zealand health care systems

The European Observatory on Health Care Systems released two reports in 2002 on the health care systems of Australia and New Zealand. They are part of a series of country reports covering over 40 European and some other OECD countries. NCEPH visiting fellow, Dr Judith Healy, was a co-author of both reports.

Industrialised countries face similar challenges in reforming their health care systems and international comparisons can be very useful to policymakers. New Zealand, for example, has been through several major structural changes over the last two decades, moving from a centralised ‘welfare state’ model in the 1950s, through regionalised services in the 1980s and variations on a quasi-market model in the 1990s, to regional governance through district health boards. Areas of particular interest in the current New Zealand system are the commitment to reducing inequalities in health amongst Maori and Pacific people, the creation of district health boards that involve communities in decision-making, and the reforms of primary health care services.

Australia’s health care system has evolved more incrementally and, for average OECD expenditure, produces generally accessible and high quality services. Australia manages a complex health care system with a mix of public and private providers within a federal system of government and has considerable experience with regulatory and consultative mechanisms. The tensions in the Australian system have grown, however, with challenges to the publicly funded health system, Commonwealth and States disagreements over hospital funding and a decline in bulk-billing by doctors.

The Health Care Systems in Transition profiles are a valuable information resource for policy-makers, practitioners, researchers and students since they offer a concise overview of the health care system of each country and the trends over time, facilitate cross-national comparisons, and are updated about every three years. These profiles can be downloaded from the website <http://www.observatory.dk>

NCEPH researcher: Judith Healy

POPULATION, HEALTH AND DEVELOPMENT

The world community has made a wide variety of commitments to the reduction of poverty and the improvement of health in developing nations. Despite the gains made in these areas, there are still too many children and mothers dying from easily preventable diseases and conditions. Hunger produces ill health from malnutrition in many of Australia's close neighbours. Infectious diseases continue to ravage populations that lack immunisation or the behavioural measures needed to prevent the spread of disease. Access to the means to control fertility is often inhibited by regulations of governments or rules of religious groups.

Most disturbingly, sickness and poverty are very unevenly distributed, both within and between nations. While economic structures can explain some of these inequalities, variations in cultural practices, personal behaviour and gender ideologies play crucial roles in the distribution of illness and death. Ironically, it is often the populations with the heaviest burdens of mortality and disease that also carry the heaviest burdens of fertility and population growth. The Population, Health and Development Working Group conducts wide ranging research on issues of inequality in the developing world. All of the research undertaken has practical policy implications, but these do not necessarily include easy policy options.

In Bangladesh, major efforts have been made to provide rural families with clean and convenient drinking water through the installation of deep tube wells. Aid agencies and the government have invested millions of scarce aid dollars in this approach, and millions of women have benefited from no longer having to carry heavy loads of water long distances, and to boil groundwater to prevent infections. In recent years, scientists have found that much of the tube well water is contaminated with arsenic leading to an increasing number of poisoning cases among Bangladeshis.

In an attempt to understand the tradeoffs and dilemmas confronting the government as it

grapples with this problem, Bruce and Jack Caldwell have conducted intensive and widespread investigations of villages to assess the risks of arsenic contamination compared with the competing risks of potential illness and the heavy labour costs of using ponds and rivers to obtain drinking water. Their analysis has shown that there are few easy answers. While 'arsenic poisoning' is an emotive challenge, a rush to stop people from using contaminated tube wells could result in both increased risk of deaths from diarrhoeal disease, and resistance from poor people who lack the time to collect water and the resources to treat it.

Other studies, planned or under way, include: analyses of national censuses to identify levels and trends of infant mortality among Indonesians of different socio-economic strata; the analysis of child mortality among poor people living in different housing conditions in Dhaka and Jakarta; and a study of Australian data to quantify the impact of legal changes on abortion-related mortality.



Photo: Bruce Caldwell

Some examples of staff research projects in 2002 follow. For a complete list of research projects in this area, see the Centre's website: <http://nceph.anu.edu.au/research/>

Sexually transmitted disease and sexual dysfunction



Terry Hull

In the poor countries of Southeast Asia, government family planning programs have achieved remarkable reductions in fertility, but have had little impact on the treatment of reproductive tract infections and problems of sexual dysfunction that afflict

a substantial portion of the population. Indonesia, the Philippines, Vietnam and Thailand still report high levels of venereal disease, despite the availability of effective treatments. Studies conducted over the past decade have shown that medical personnel in clinics are not trained to deal with sexually transmitted infections because they know little about the patterns of sexuality of their patients, and even when they have some suspicion of reproductive health problems, they are embarrassed to make the enquiries required for adequate treatment. In this context the prevention of HIV infections is highly problematic.

Terence Hull and Iwu Utomo, with funding from the Ford Foundation, have organised a study of gender and sexuality designed to identify some of the harmful sexual practices that health personnel should be aware of. While some practices are relatively rare – like men's sub-dermal implant of ball bearings, pearls and precious stones in their penises, or the practice of decorative circumcision – the motivations behind them are grounded in cultures of great gender inequity and related ignorance of healthy patterns of sexuality. The discovery of widespread use of vaginal drying agents to enhance male sexual pleasure suggests that

neither women nor men appreciate their potential harm. The research is directed at identifying new approaches to medical training and general sex education to overcome the harmful effects of such behaviour. These will be reviewed and developed in 2003-2005 in collaboration with the World Health Organization.

Male and female circumcision is also widespread in Indonesia and the Philippines. For most medical practitioners circumcision is regarded as a problem only if it is carried out by traditional healers. The general public thinks that such genital cutting falls outside the medical sphere, especially since motives for the practice are founded on religious traditions overlain with assumptions that the practices are needed to promote proper gender roles. Not only are the precise techniques of genital cutting unknown to public health professionals, the implications of the gender meanings embodied in the practices are unexamined, with the result that a wide range of inequitable and psychologically harmful assumptions are promoted without critical reflection.

In such a setting of secrecy and deceit, even evidence of clinical harm is dismissed as being of 'minor' importance. Members of the research team are currently struggling with the challenge of revealing the scope, meaning and importance of these practices to people who are both complacent and defensive about issues they regard as sacred, or at the very least, personal. It is hoped that the scientific knowledge generated by the study will inform local debates in ways that open policy discussions to goals of improved reproductive health care. In this way there may also be some benefits to the international discussions of sexual health, particularly in the framing of more gender equitable goals for policy.

NCEPH researcher: Terry Hull

Health in Asia's Slums

Health in developing countries is generally better in urban than rural areas. However, this is not always true among the urban poor of the large emerging mega-cities (urban areas with over 5 million inhabitants). Even though these cities typically have a disproportionate share of national resources with which to provide water, sanitation and good health services, including the best hospitals, the urban poor often do not properly benefit. This is because they lack effective access or because they do not use the services available.



infants and young children are regarded as largely female concerns except to the extent that male agreement and assistance are needed when financial outlays are required or extended travel is involved. Many women prefer to avoid doing this, and choose cheaper, more familiar and closer indigenous healers to reduce the burden on already small family budgets. Cheapness means that action is often within the capacity of the women themselves, and men are not forced to involve themselves with 'female concerns'.

NCEPH Research team: Jack Caldwell, Bruce Caldwell.

Bruce Caldwell, together with SN Mitra, the head of Bangladesh's major scientific survey organisation, has carried out health surveys and anthropological research in the poorer areas of Dhaka City, Bangladesh. The research found that most of Dhaka's slum residents were of rural origin, and shared with villagers indigenous concepts of disease causation which emphasised supernatural causes where germ theory had no place. These concepts, in combination with strong gender roles, discourage households from using modern medical services for women and young children. Pregnancy, birth and the health of



Photos: Bruce Caldwell

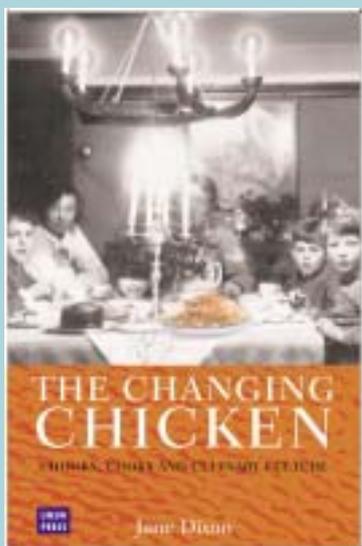
SOCIAL DETERMINANTS OF HEALTH

Internationally, both governments and academics are paying increased attention to the diverse social, cultural and economic factors affecting population health. There is particular interest in health inequalities, that is, the way the distribution of health tends to resemble the distribution of other kinds of advantage, both material (such as income) and symbolic (such as education). Research at NCEPH reflects some of the diversity in the broad field of 'social determinants', addressing a range of research questions and population groups through a variety of methods. The work is, however, united by its focus on synthesis and policy.

A project that illustrates both of those qualities is called Understanding the Health Effects of Social Policies. It aims to test the feasibility of using routinely collected social indicators to assess the effects of social policies. Another set of activities is contributing to developing and using new measures of national progress which incorporate wellbeing (rather than only economic indicators). These projects draw attention to the role of cultural as well as socio-economic determinants of health and satisfaction.

Several activities are oriented toward improving the understanding of the effects of paid work on family health and wellbeing. The largest of these has now received funding from the National Health & Medical Research Council (NHMRC) to investigate the effects of parental working conditions on the health of children. NCEPH is also conducting research on the health needs and experiences of disadvantaged sub-populations, including Indigenous people, women with Hepatitis C, and parents who use illicit drugs.

Some examples of staff research projects in 2002 follow. For a complete list of research projects in this area, see the Centre's website: <http://nceph.anu.edu.au/research/>



The Changing Chicken

Chooks, Cooks and Culinary Culture

Jane Dixon

Since World War II, chicken has become one of the most popular foods in the Western world. By looking at our shifting attitudes to chicken meat, *The Changing Chicken: Chooks, Cooks and Culinary Culture* provides a unique view of food systems and culture.

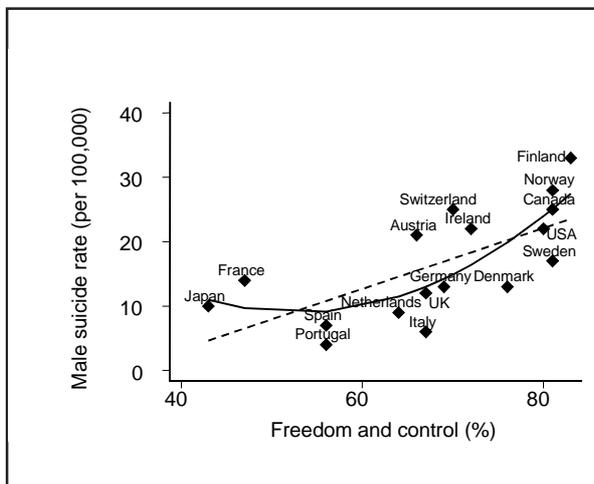
The Changing Chicken takes a very ordinary food to tell a story about how food production, retailing and consumption influence how we think and act in relation to eating. The chicken supply chain is described in fine detail, shedding light upon those who have the power to determine what takes place in the food system and culinary culture. The book questions the proposition that consumers are more powerful than ever before, and it also unsettles assumptions about the importance of primary producers and food processing firms. Instead, the balance of power in contemporary food systems increasingly lies with 'actors in the middle', particularly with large food retailers.

Jane Dixon was co-editor of *The Social Origins of Health and Well Being* (2001) and is a member of the Australasian Agri-Food Research Network and the Food and Nutrition Special Interest Group of the Public Health Association of Australia.

The Changing Chicken was published by UNSW Press, University of New South Wales, 2002. ISBN 0 86840 477 2.

Cultural correlates of youth suicide

Youth suicide has risen in most developed nations over the past 50 years, especially among males, but the increase remains to be explained. NCEPH researchers have examined the association between youth suicide rates and a wide range of socio-economic and cultural variables in up to 21 mainly Western, developed countries. The study found that cultural variables had a stronger association with youth suicide rates than socio-economic variables, including youth unemployment, poverty and divorce. Male youth suicide rates were strongly and positively related to several indices of individualism, including personal freedom and control; female youth suicide was also associated with individualism, but more weakly.



The association between suicide rates for males aged 15-24 and individualism, measured as the proportion of those aged 16-29 years in each country saying they had a great deal of free choice and control over their lives.

The findings can be interpreted as supporting two, very different hypotheses: that increased youth suicide represents 'an island of misery in an ocean of happiness' – that is, life is getting better for most young people but at a cost to a few - or 'the tip of an iceberg of suffering' - that is, it is one aspect of a general deterioration in young people's wellbeing. In favouring the latter, the researchers argue that high rates of youth suicide reflect a failure of Western societies to provide appropriate sites or sources of social identity and belonging and, conversely, a tendency to promote unrealistic or inappropriate expectations of individual freedom and independence.

NCEPH research team: Richard Eckersley, Keith Dear

A national index of wellbeing



Richard Eckersley

The Australian Unity Wellbeing Index is a new barometer of quality of life in Australia. Unlike most official indicators, the index is subjective, measuring Australians' satisfaction with their own lives and with life in Australia. NCEPH's Richard Eckersley developed the index in collaboration with

Robert Cummins, of the Australian Centre on Quality of Life at Deakin University. The project is a partnership between Australian Unity, a financial services and healthcare company, and Deakin University.

The index allows people's life satisfaction to be tracked over time and compared across demographic groups. It also permits the study of the effect on wellbeing of specific aspects of life, issues and events – including the terrorist attacks on the United States and Bali. For example, life satisfaction tends to be higher among those who are elderly, married, living with their spouse and no children, well-off and female. September 11 deeply distressed most people, but was associated with higher wellbeing, possibly through a 'preciousness of life' effect.

The index is based on a quarterly telephone survey of 2000 adult Australians, and consists of two values: the Personal Wellbeing Index, the average level of satisfaction with seven aspects of people's personal lives - standard of living, health, achievements in life, personal relationships, community connectedness, future security and safety; and the National Wellbeing Index, the average level of satisfaction with six aspects of national life -the economy, social conditions, the natural environment, government, business and national security.

The project also includes a longitudinal component, using a mail survey of people recruited in the telephone surveys, to allow aspects of wellbeing to be studied more thoroughly. The index is believed to be the first of its type in the world. An international research network has been established to apply the index in other countries.

NCEPH researcher: Richard Eckersley

Diabetes



Dorothy Broom

the emphasis on lifestyle in diabetes prevention and management. This study with adults who have diabetes shows that gender operates in various ways that affect the lives of adults living with the disease.

For many people, traditional gender roles organise important aspects of their adaptation to the disease. In particular, men emphasise the intrusion of demanding working conditions on their ability to adhere to recommended diabetes regimens. Often, they also believe that work stress is implicated in the onset of their diabetes, or in elevated blood glucose. And some express anxiety about discrimination or job loss because of diabetes.

The expression of traditional gender norms surrounding food appeared in women's accounts of feeding the family. Indeed, women with diabetes and wives of diabetic men told largely similar stories of the challenges of imposing a diabetic diet on others who might resist any change or limitation on their eating. Gendered patterns of consumption sometimes required a diabetic woman to prepare separate

Diabetes type 2 has, for some time, been associated with sexual and reproductive health problems. There has otherwise been no clinical reason to expect that women and men experience the disease differently. Gender comes into play through

meals for herself if she wished to eat as instructed for her diabetes because her husband refused to eat 'that rabbit food'. A few husbands with diabetes were as resentful of the diet as non-diabetic family members, placing the woman in an invidious position. Overall, when men placed responsibility for their diabetes management on their partners, the results might have been good for short-term glycaemic control but bad for marital harmony, and ultimately bad for the man's health if the woman died or the relationship broke down.

The interplay between gender and this chronic disease is intricate and subtle and is intertwined with other elements of social structure which multiply the forms of gender available. Although many people's response to diabetes is framed in terms of a traditional understanding of gender, others articulate very different gender relations. For example, in a few households, a man rather than a woman was doing the shopping and meal preparation, and these men took responsibility for educating themselves about the dietary requirements of diabetes and imposing the new regime, even when it was their wife who had been diagnosed. While cooking has customarily been a feminine responsibility in Australia, here we see its incorporation into a non-dominant form of masculinity. Similarly, there were a few instances in which a wife left it to her (diabetic) husband to make the necessary changes, rather than altering the food patterns of the entire household on his behalf. These examples illustrate that gender is more than a simple dichotomy between masculine and feminine. These various forms of gender affect how people with diabetes experience and live with the condition. A fuller account of the complex and reciprocal interplay between gender and chronic disease can improve health care as well as the understanding of the dynamics of gender itself.

NCEPH researcher: Dorothy Broom

NATIONAL INSTITUTES AT ANU

NCEPH staff and students hold membership of six of the University's National Institutes, and are represented on the steering committees or board of management of each of them. These include the ANU Institute for Indigenous Australia, the National Institute for Asia and the Pacific, the National Institute for the Environment, the National Institute for Health and Human Sciences and the National Institute of Social Sciences. Professor Jack Caldwell gave the inaugural public lecture for the National Institute of Social Sciences and Dr Gabriele Bammer was one of two speakers in the National Institute for Health and Human Sciences 2002 public lecture series.

Dr Gordon Carmichael was instrumental in the establishment of the Graduate Program Board of Studies and of Graduate Program operating procedures for the National Institute for Health and Human Sciences. The Graduate Program at NCEPH is located within this institute together with that of the Medical School, the Centre for Mental Health Research and John Curtin School of Medical Research, among others.

GRADUATE PROGRAM AT NCEPH

Postgraduate training at NCEPH during 2002 focused primarily on Doctor and Master of Philosophy research and the Master of Applied Epidemiology programs in Disease Control and Indigenous Health.

An induction program for newly commenced PhD students was carried out on an individual basis. In May a highly successful Work in Progress conference, followed by dinner, was held off-campus at the University's Mt Stromlo Observatory. This format, jointly organised by a student committee and the Graduate Program Convenor, worked well. It enabled research students to obtain valuable feedback and gain experience in making presentations in a conference environment.

A breakfast held later in the year at Canberra's historic Kurrajong Hotel, and timed to coincide with the second MAE courseblock, was also well attended. The guest speaker was Julie Tongs, CEO of the Winnunga Nimmityjah Aboriginal Medical Service, whose informative address was followed by an opportunity to visit the Winnunga facility in the Canberra suburb of Ainslie.

A strong batch of applicants for MPhil and PhD degrees during 2002 is likely to see a healthy increase in commencements during 2003. In an attempt to build this momentum, a web-based system for soliciting inquiries from potential research students has been established, and efforts are being made to identify potential external sources of funding for students, and to direct applicants to those sources.



Graduate Program Convenor Gordon Carmichael (back row, third from left) and students at Work in Progress conference

The Medical School



Professor Paul Gatenby

The Medical School will open its doors to students in 2004, offering a four-year graduate medical degree. The program will use problem-based learning structured around four themes: medical sciences, clinical skills, population health, and personal and professional development. These themes reflect important knowledge and professional domains that medical graduates will need in the 21st century. Professor Paul Gatenby has been appointed the first dean of the Medical School.



Dr Anne-Louise Ponsonby

NCEPH has contributed to the development of the population health theme and will be involved in its teaching. Director Tony McMichael was appointed Professor of Population Health in the Medical School in 2002, and another NCEPH staff member, Dr Anne-Louise Ponsonby, also holds an appointment in the school. Both serve on the school's population health theme committee, which has produced an overview document for the population health curriculum, with detailed content for the first two years. The curriculum will give students a firm grounding in population-based perspectives on health, which are very different from the focus on individual patient care that dominates clinical medicine.

The overall program addresses the need for doctors to have: an understanding of the scientific basis of medicine; competency in defined clinical skills; and an understanding of medical law and ethics and an ability to reflect on their own performance and capacity. The knowledge base in medical sciences is growing very rapidly and nobody can ever be expected to carry all this knowledge. The program will emphasise the understanding of general principles and the development of skills to access the literature when needed. Clinical skills include the ability to critically appraise the medical literature to allow a high standard of evidence-based medical practice. Professional and personal development will place particular importance on the role of human rights.

Teaching will occur on the ANU campus, particularly in the first two years. There will be patient contact from early in the course with much of the last two years spent in the health sector, both in the ACT and in surrounding NSW. In the ACT the principle teaching hospital is the Canberra Hospital. Students will also go to Calvary Hospital, to facilities of ACT Community Care and selected general practices. The school will establish a rural clinical school nearby in NSW. A select group of students will be invited to spend the third year of the course in a rural curriculum that will run in parallel to an urban-based curriculum.

For further information, please see - <http://www.anu.edu.au/medicalschoold/dean.html>

Research Training

Twenty-two research students were enrolled in 2002, studying a broad range of topics including: the relationship between research and policy in public health in Australia; postnatal depression in the ACT; methadone program evaluation – urban and rural comparisons; estimation and analysis of private health insurance purchasing decisions; and environmental and personal factors in the prevention of Ross River Virus disease. Five PhD students were approved by Council for the award of their degree and obtained employment in government, university and other posts in Australia and overseas.

Students continued to attend regular methodology seminars organised by academic staff and presented papers at conferences in Australia and overseas. Marian Currie was invited to present a keynote address on postnatal depression — global and local — at the Tenth Annual Midwifery Conference held at Nepean Hospital and was awarded a prize for another of her conference presentations (see page 46). PhD student Colin Butler won the Australian Population Association's prestigious W.D. Borrie prize for the best essay on a population-related topic submitted by a postgraduate student. Several other students had papers accepted for publication in national and international journals.

The Centre has expanded Indigenous engagement in research and research training. It has also established a series of scholarships and grants to support Honours students from ANU and other universities whose projects are supervised at the Centre, Indigenous students undertaking Honours or Graduate Diploma projects, and Indigenous and non-Indigenous students wishing to attend a conference around Australia or visit NCEPH from elsewhere.

STOP PRESS



Rosalie Woodruff

The 2003 Rothman Epidemiology Prize will be awarded to PhD student Rosalie Woodruff *et al* for the best paper published in the leading international journal *Epidemiology* in 2002. Criteria were importance, originality, clarity of thought, and excellence in writing. The prize of \$US3000 is funded by a grant from Hoffman-La Roche Ltd., which is managed by the International Society for Pharmacoepidemiology.

Woodruff RE, Guest CS, Garner MG, Becker N, Lindesay J, Carvan T, Ebi K. Predicting Ross River virus epidemics from regional weather data. *Epidemiology* 2002; 13: 384-93.

Profile: Kamalini Lokuge

(DrPH student)



Over 30 million people in Bangladesh may be drinking water contaminated with arsenic at levels higher than the WHO recommended standard. The source of this arsenic is shallow tube wells installed over the past 2–3 decades to provide clean drinking water.

My Doctor of Population Health research project is a collaborative study with several researchers at NCEPH and in Bangladesh. The aim of the study is to provide information at the field level on how effective selected interventions are at removing arsenic while at the same time limiting water related infectious diseases, in particular diarrhoea.

I have a background in development, and have worked on medical assistance programs in Central and South-East Asia. When I decided to do further studies in public health, I was keen to work on a project that would be relevant to health in such regions. NCEPH was able to offer exactly the type of collaborative research project and supervision that I was looking for.

Working on the Bangladesh Arsenic Mitigation and Water Supply project has given me the chance to develop high level skills in epidemiology and biostatistics methodology while at the same time working on a community level, practical project in a developing country.

Profile: Brendan Gibson

(PhD student)



I commenced my PhD at NCEPH in 1997 and have been studying on a part-time basis while working full-time with the Commonwealth Department of Health and Ageing. I was fortunate to receive a development award from the Department in 2001, which meant I could study full-time for a period of 15 months.

My topic is the relationship between research and policy in public health in Australia. While this has remained stable for the last six years, my research questions and method have gone through constant development and refinement. I've completed four case studies of public health policy development over a period of 15 or more years. I've studied mammography screening, prostate cancer screening, and needle and syringe exchange programs in the community and in prisons. I enjoyed each of these case studies immensely. In each case, the research has been interesting and the process of policy development fascinating. I interviewed about 40 people who were involved in either the research process, the policy process, or both. I particularly enjoyed interviewing two former Commonwealth Health Ministers.

One of the most valuable things provided by NCEPH has been a broad appreciation of the field of public health and its research methods. I have drawn on sociology, political science and public policy analysis and used qualitative research methods. My supervisor, Bev Sibthorpe, has been a constant source of support as well as challenging questions. NCEPH's writing group, led by Dorothy Broom, has been an enjoyable and worthwhile part of the NCEPH learning environment. I am hopeful that my PhD, once completed, will make a contribution to research on an important issue in public health in Australia.

The Master of Applied Epidemiology (MAE) Program

The 2002 cohort commenced in February with eight new students enrolled in the MAE (Disease Control) degree and four new students taking the MAE (Indigenous Health) course. Continuing into the second year of their degrees were the ten 2001 MAE (DC) and four MAE (IH) scholars. Of the 2002 MAE (DC) cohort, three are medically trained, two are microbiologists, one a PhD in environmental health, an environmental health officer and an occupational therapist. One of these scholars is from Fiji and is funded by a fellowship from the World Health Organization (WHO). The four 2002 MAE (IH) scholars have backgrounds in nursing, social work and health sciences.

Seven of eight MAE 2000 students graduated in February and one withdrew early to take up a position with the Victorian Health Department as a Public Health Medical Officer in the Infectious Diseases Unit. Of the seven graduates, all are working in public health related areas. Two are employed in newly created epidemiologist positions for the surveillance of healthcare associated infections. Four work in state health departments and one is employed in clinical epidemiology.

In August 2002 the Commonwealth Department of Health and Ageing commissioned NCEPH to develop a plan for enhanced national postgraduate competency-based training in Applied Epidemiology which would add workforce training in Environmental Health to the Communicable Disease Control and Indigenous Health focus of the MAE. The plan is to include the enhancement of training opportunities for the Indigenous Health workforce. The project steering committee has included representatives from the Department of Health and Ageing, WHO, the National Public Health Partnership, the Environmental Health Council, and the ANU, and is chaired by the Deputy Director, NCEPH.

The annual MAE Conference in March 2002, "Responding to New Challenges in a Changing World", showcased the work of MAE scholars. Guest speakers included: Dr Hitoshi Oshitani, from the Western Pacific Regional Office of WHO in Manila; D'ato Dr Tee Ah Sian, Director General of Public Health in Malaysia; Professor Zeng Guang, head of the new China Field Epidemiology Training Program; Dr Cathy Mead of the National Public Health Partnership; and Mr Steve Larkin, Chair MAE(IH) Advisory Board and Deputy Principal of the Australian Institute of Aboriginal and Torres Strait Islander Studies who spoke about public health training for Indigenous settings: challenges and opportunities. A panel of field supervisors raised emerging issues for MAE training and a lively discussion took place with the conference participants. Issues raised included: national preparedness for responses to biological terrorism, surveillance, emerging infections and rapid assessment capabilities; disaster management principles; leadership in public health; hospital epidemiology; and enhancing Indigenous health training for all MAEs.

Two MAE2001 students, Ms Rebecca Guy and Dr Monica Robotin, were chosen to give oral presentations at the annual Training Programs for Epidemiology and Public Health Interventions Network (TEPHINET) meeting, which was held in Madrid in June 2002. MAE program staff have continued to be active within TEPHINET. MAE Program Director Mary Beers Deeble was invited to present a paper at the conference highlighting the role of public health laboratory services in surveillance for communicable diseases in Australia. Dr Mahomed Patel has continued to provide assistance to countries in the Asia-Pacific region wanting to commence applied epidemiology training. To date he has assisted new programs in China, Malaysia and India. He is currently providing advice to the TEPHINET Board on the development of Quality Assurance principles which will apply to all member programs. Mary Beers Deeble gave an invited presentation at the Asia Pacific Economic Cooperation (APEC) Network of Networks meeting in Seattle in January 2002, outlining the work of TEPHINET and giving examples of the MAE program's achievements in terms of responding to emerging infectious diseases, and its contributions to workforce and public health policy development.

Profile: Michael Wright

(MAE Indigenous Health student with supervisor Dr Phyll Dance)



Placement: Communicable Disease Control Branch, Sexual Health and Blood-borne Viruses Program, Department of Health, Western Australia.

Supervisors: Dr Phyll Dance, Dr Sandra Thompson.

I am a Nyoongar man, and my grandmother and mother's country is north of Perth, an area known as the Victoria Plains. This area is located between the Moore River just north of Perth through to the town of New Norcia. My grandmother's language group is known as Juit.

In 1986 I completed the Aboriginal Bridging Course at the Centre for Aboriginal Studies, located at Curtin University. Since graduating from this course I worked professionally in a number of settings, all Indigenous, ranging from health to education. In 1992 I returned to study and completed a Bachelor of Social Work. Since graduating I have been more actively involved in Indigenous health. My first job after graduating was working as the Indigenous Social Worker at Royal Perth Hospital, which is the major inner city hospital in Perth. From the experience of working at the hospital and from my community work I have in recent years been more actively involved in Indigenous mental health issues. From 1997 I managed a program that provided an innovative community support service to Indigenous clients living with serious mental health issues. This service was located within the Derbarl Yerrigan Health Service.

The main reason why I have decided to study in the MAE (IH) course is to pursue my professional development in becoming a more credible and competent researcher who is able to be involved in investigations that will benefit the Aboriginal community. I would like to use the MAE experience to broaden my understanding of scientific research. Importantly, my aim is to be able to transfer the skills and knowledge gained back into the community.

Finally, I encourage more Indigenous people to apply for this course as I believe that it is important for Indigenous people to participate in courses like the MAE.

Profile: Martyn Kirk

(MAE graduate and field supervisor)



My original background was in aquatic biology. I enrolled in the MAE program to further my interest in the relationship between water and health. I was placed in the Communicable Diseases Branch at the South Australian Department of

Human Services, which was a great place to learn about public health surveillance and investigation. During the two years I investigated at least eight outbreaks of various diseases, including Legionnaires' disease, intestinal trematodes, Campylobacter infection and, of course, *Salmonella*! When I think back to these wonderful experiences I liken it to a whitewater rafting trip where you pop out the other end and wonder what happened! I made many contacts in public health epidemiology, which I still rely upon.

When I finished the MAE in March 1997, I returned to the Environmental Health Unit in the Department of Human Services to work on water-related diseases and environmental health issues. After two years, I moved to the Communicable Diseases Section to manage surveillance of infectious diseases in Victoria. This was a challenging job that made use of my MAE training.

In 2000, I investigated a large cholera outbreak in Pohnpei, Micronesia, as part of a Pacific Public Health Surveillance Network team. This was a fantastic experience and I made some good friends as a result.

Later that year, I accepted a position as the Coordinating Epidemiologist of a fledgling network to enhance surveillance of foodborne disease in Australia - OzFoodNet. I have been here for three years now, and have really enjoyed the mixture of public health response and applied research. During this and previous work I have had numerous contacts with MAE scholars, which I have really enjoyed. The enthusiasm and quality of MAE work never cease to amaze me. MAE students are constant contributors to the work of OzFoodNet in terms of outbreak investigations, case control studies and routine surveillance.

The MAE program has opened many doors for my career. You only have to mention to international collaborators that you have completed a field epidemiology training program and they have an immediate level of confidence about your ability. I feel privileged to have completed the MAE program and have continuing association with current scholars and alumni.

STUDENTS

Doctor of Philosophy students, their PhD topics and supervisors

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

Colin Butler, BMedSc (Hons) *BMed Newcastle*; MSc *London School Hygiene and Tropical Medicine*
Inequality and sustainability

Professor RM Douglas, Professor J Caldwell, Professor J S Deebble, Mr R Eckersley

Samantha Crompvoets, 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 *CCAIE*; GradDipPopHlth *ANU*

Postnatal depression in the Australian Capital Territory

Dr G Hall, Prof W Smith, Dr L Lim, Dr J Thompson, Professor D Ellwood

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 Paddy 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

Prof W Smith, Dr K Dear, Dr B Caldwell, Dr J Ng

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

Methadone program evaluation

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

Carol Kee, BEd *Riverina - Murray Inst of HED*; GradDipSpecialEd *Goulburn CAE*; GradDipPopHlth *ANU*

Being working poor is bad for your health: the challenge of the new millennium

Dr D Broom, Dr L Lim, Dr J McMillan

Kathryn Kelly, BSc *Griffith*; MEnvMDev *ANU*

Water management and health considerations

Professor A J McMichael, Professor T. Kjellstrom, Professor I. White

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 Deebble

Karen Lees, RN, RM, BAppSci (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

Robyn Lucas, BSc, MBChB, *Auckland*; MPH&TM *James Cook*

Biomarkers of social disadvantage

Professor A J McMichael, Dr K. Dear, Dr B Rodgers, Prof W Smith, Professor R M Douglas, Dr D Broom

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

Rosemary Norman, BHealthMan, GradDipPubHlth *UNE*; Master of Nursing *Canberra*

Injecting drug-users and nurses in the ACT: understanding the issues

Dr L Lim, Dr T Makkai

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 R. D'Souza

Stephen Rudzki, MBBS *Adelaide*; GradDipSportsSc *Cumberland*

The cost of injury to the Australian army

Professor RM Douglas, Dr J Butler, Prof W Smith

Marluce Silva, BSocWk *PCUMC*; GradDipPH *UNAERP*

The long-term impact of work-related neck and upper body disorders; an historical cohort study of all female office workers employed at The Australian National University from 1980 – 1984

Dr G Bammer, Prof W Smith, Dr G Carmichael

Leigh Trevillian, MBBS, MPH *Syd*

Asthma: the relationship to a child's sleeping environment

Dr A-L Ponsonby, Professor AI 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 *Sydney*, FRACP, RACP

The ACT heart failure survey

Professor A J McMichael, Professor W Smith, Professor N Becker

Kamalini Lokuge, MBBS *Tasmania*

Interventions for arsenic mitigation in Bangladesh and their effect on childhood diarrhoeal disease

Dr K Dear, Dr B Caldwell, Dr W Smith, Dr M Patel

Judith Staples, BSc(Hons), MSc *Canterbury*, BAppSc *QUT*

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

Rubaiul Murshed, MBBS *Dhaka*, Diploma in Paediatric Surgery *London*

A study of Public Health Management of Arsenic in Bangladesh

Prof RM Douglas, Dr B Caldwell, Dr G Ranmuthugala

Casey Quinn, BComm(Hons) Econometrics, *Sydney*

Alternative modelling methodologies pertaining to private health insurance demand and the private health insurance purchasing decision

Dr J Butler

Master of Population Health students

Nicole Druhan, BSc *St Francis Xavier University*

Frances Fischer, BA/BSc *ANU*

Sarah Hinde, BSc *ANU*

Graduate Diploma of Population Health students

Therese Foster BSocial Work *Sydney*

Indra Ramasamy, MSc *Surrey*, PhD *London*

Joyce Steele, BSc *Qld*, AssDip Diagnostic Radiography *QUT*

Kim Werner, BALLB *ANU*

Master of Applied Epidemiology scholars, placements and field supervisors

* For part of the year only

Karen Adams, Australian Research Centre in Sex, Health and Society, Melbourne
Dr Anne Kavanagh, Ms Jill Guthrie

Paul Armstrong, Centre for Disease Control, Darwin
Dr Vicki Krause, A Prof Scott Cameron

Angela Babo-Soares, TB Division, East Timor Ministry of Health, Dili
Dr Jaine Sarmento, Ms Angelina Martins, Dr Mahomed Patel, Ms Linda Halliday

Jenny Barralet, Queensland Health, Brisbane
Dr Linda Selvey, Ms Linda Halliday, A Prof Scott Cameron

Sandra Campbell, Centre for the Study of Mothers' and Children's Health, Melbourne
Dr Stephanie Brown, Ms Jill Guthrie

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

Karen Dempsey, Mt Isa Centre for Rural and Remote Health, Mt Isa
Dr Elizabeth Chalmers, Ms Mary Beers Deeble

Luis Dos Reis, Subdivision Surveillance and Communicable Diseases, East Timor Ministry of Health,
Dili
Dr Greg Fernandez, Dr Mahomed Patel, Ms Linda Halliday, Dr Stephen Lambert

Paige Dowd*, South East Sydney Area Health Service
A Prof Mark Ferson, Dr Gillian Hall

Francine Eades, Institute for Child Health Research, Perth
Professor Sven Silburn, Dr Geetha Ranmuthugala

Keith Eastwood, PathCentre and Department of Health, Perth
Dr Gary Dowse, Professor Tom Riley, A Prof Scott Cameron

Kellie Grace*, Mid Western Area Health Service, Bathurst
Dr Jeanine Liddle, Dr Rennie D'Souza, Dr Gillian Hall

Rebecca Guy, Department of Human Services, Melbourne
Dr Graham Tallis, Dr Stephen Lambert

Joy Grogan*, Brisbane Southside Public Health Unit
Dr R Nable, Dr Gillian Hall

David Hogan, AIDS Communicable Diseases Branch, NSW Health, Sydney
Dr Jeremy McAnulty, Ms Mary Beers Deeble

Rebecca Hundy, Communicable Diseases Control Unit, Adelaide (until September 2002), *then*
Defence Health Services Branch, Canberra
Air Commodore Tony Austin AM, Ms Mary Beers Deeble, A Prof Scott Cameron

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

Dallas Leon, Brisbane Southside Public Health Unit, Brisbane
Dr Brad McCall, Dr Noel Hayman, Dr Christine McClintock, Dr Gillian Hall

Megge Miller, Department of Health and Ageing, Canberra
Dr Jenean Spencer, Ms Linda Halliday

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

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

Ramakrishnan Ramachandran, National Institute of Epidemiology, Chennai, India
Dr M D Gupte, Dr Mahomed Patel

Monica Robotin, National Centre in HIV Epidemiology and Clinical Research, Sydney
Dr Andrew Grulich, Dr Mahomed Patel

Nerida Sutherland, Royal Women's Hospital, Melbourne
Dr Catherine Bennett, Ms Jill Guthrie

Nola Tomaska*, OzFoodNet, National Public Health Partnership, Melbourne
Dr Martyn Kirk, Dr Stephen Lambert

Hassan Vally, Health Department of Western Australia, Perth
Dr Gary Dowse, A Prof Scott Cameron

Kimasala Whitfield*, Office of Aboriginal and Torres Strait Islander Health and Central Sydney Area
Health Service, Dr Gillian Hall

Michael Wright, Sexual Health Services, Department of Health, Perth
Dr Sandy Thompson, Dr Phyll Dance

Kefle Yohannes, Hunter Public Health Unit, Newcastle
Dr Craig Dalton, Ms Linda Halliday



MAE students at work during September coursework intensive.

PUBLICATIONS

Peer-Reviewed Journal Articles

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Invited Keynote Conference Papers

Bammer G. 'The translation of research into policy and practice (with particular emphasis on alcohol and other drug issues).' Plenary presentation at APSAD 2002 Alcohol and Drug Conference, Adelaide, November, 2002.

Caldwell J. 'The contemporary population challenge.' Keynote paper to United Nations Population Division Conference on Low Fertility in Third World Countries, New York, March, 2002.

Caldwell J. 'Population.' Keynote paper to Australian Population Summit, Melbourne, February 2002.

Caldwell J. 'The demography of the NSW Central Coast.' Keynote paper to Central Coast Planning Conference, July 2002.

Caldwell J. 'The African AIDS research program.' Inaugural address to ANU's National Institute of Social Sciences, Canberra, March 2002.

Currie M. 'Postnatal Depression – Global & Local.' Tenth Annual Midwifery Conference, Nepean Hospital, March 2002.

Deeble JS. 'Financing of Indigenous Health Care.' Keynote Address to Australian Medical Association Northern Territory Branch Conference, Darwin, September 2002.

Deeble J. 'The Australian Healthcare Agreements.' Keynote Address to The Australian Healthcare Association Annual Conference, Hobart, August 2002.

Eckersley R. 'Sustainable communities: looking at the big picture.' ACTCOSS biennial conference, Canberra, June 2002.

Eckersley R. 'Taking the prize or paying the price: young people and progress.' NZ Public Health Association national conference, Dunedin NZ, June 2002.

Eckersley R. 'Young people and progress: taking the prize or paying the price?' Australian Council for Educational Leaders (Tas), State conference, Hobart, October 2002.

Healy J. 'Innovations in hospital payment mechanisms in Europe.' Conference on financing and paying for health care, Ministry of Health, Bled, Slovenia, May 2002.

Hull T. 'Caught in transit: Questions about the future of Indonesian fertility.' Keynote paper to United Nations Population Division Conference on Low Fertility in Third World Countries, March, 2002.

Hull T. 'Data, Research and Training.' Asia-Pacific Conference on Population and Development, Bangkok, Dec 2002.

McMichael AJ. 'Relations between climate, energy and health issues.' Royal Society Conference: Climate Change – Integrating Human and Natural Dimensions, Wellington, NZ, February 2002.

McMichael AJ. 'Global Environmental Change: Detecting and Predicting Health Impacts.' Elizabeth Cass Oration, International Ophthalmology Conference, Sydney, April 2002.

McMichael AJ. 'Environmental Change and Human Health.' Public Lecture, Parliament House, ANU's National Institute for the Environment, Canberra, May 2002.

McMichael AJ. 'Global Climate Change: Where and When Might We Detect Health Impacts?' International Conference on Climate and Health Impacts, Barbados, May 2002.

McMichael AJ. 'Recent Mortality Trends in the World – Evidence For or Against Sustainability?' International Union for the Scientific Study of Population Conference, Rostok, Germany, June 2002.

McMichael AJ. 'Global Health Concerns for Epidemiology.' Triennial Conference of International Epidemiological Association, Montreal, Canada, August 2002.

McMichael AJ. 'Climate Change: Does Global Warming Warrant a Health Warning?' Killam Lecture, Dalhousie University, Nova Scotia, Canada, October 2002.

McMichael AJ. 'Global Environmental Changes, Climate, and Infectious Diseases.' International Conference on Sustainable Development and Health, Ottawa, Canada, October 2002.

McMichael AJ. 'Ecosystem Services, Sustainability and Health Inequalities.' International Conference on Ecosystem Health, Perth, November 2002.

McMichael AJ. 'Microbial Consequences of Environmental and Social Change.' Western Pacific Congress on Chemotherapy and Infectious Diseases, Perth, December 2002.

McMichael AJ. 'Global Climate Change: Assessing Social and Health Impacts.' National Academies Forum Conference, Living with Climate Change, Canberra, December 2002.

Ponsonby A-L. 'Ultraviolet radiation and Autoimmune Disease: Insights from Epidemiological Research.' National Institute of Water and Air Quality, Christchurch, New Zealand, August 2002.

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. For example, NCEPH researchers served on over 30 committees, boards, councils and other bodies in 2002, including:

- National Influenza Pandemic Action Committee (Niels Becker)
- Infectious Disease Emergency Response Working Group: Vaccination Strategy Group (Niels Becker)
- Board of Trustees Carleton College member (Dorothy Broom)
- National Breast Cancer Centre Monitoring Working Group member (Dorothy Broom)
- Canberra Alliance for Harm Minimisation and Advocacy (Phyll Dance)
- Board, International Society for Equity and Health (Jane Dixon)
- Board, Australia 21. (Jane Dixon, Bob Douglas and Richard Eckersley)
- Expert steering committee, National Drug Strategy Prevention Agenda (Richard Eckersley)
- Board of Trustees, ICDDR, B (Centre for Health and Population Research), Dhaka, Bangladesh. (Terence H Hull)
- Board, Sexual Health and Family Planning, ACT. (Terence H Hull)
- Board, Australian Reproductive Health Alliance. (Terence H Hull, John C Caldwell)
- Public Health Association of Australia ACT Branch (Geetha Isaac-Toua, Rosemary Korda, Cathy Banwell)
- Director, Board, Accident Compensation Corporation, New Zealand (Tord Kjellstrom)
- Alcohol and Other Drugs Council of Australia (David McDonald, Board Director; Geetha Isaac-Toua)
- National Drug Research Strategy Committee (David McDonald)
- Chair, Grant Review Panel (Public Health), NHMRC (Tony McMichael)
- Health Advisory Committee, NHMRC (Tony McMichael)
- Working Group on Quality Assurance in Applied Epidemiology Training, Global Network of Training Programs in Epidemiology and Public Health Interventions (Mahomed Patel)
- Assessment, Curriculum and Teaching Committee: The Australian National University Medical School (Anne-Louise Ponsonby)
- Australian Health Ethics Committee Working Party, Review of the Interim Guidelines on Ethical Matters in Aboriginal and Torres Strait Islander Health Research (Bev Sibthorpe)
- Steering Committee, Evaluation of the GP Education, Support and Community Linkages Program and the EPC MBS Items Component of the EPC Package, Department of Health and Ageing. (Bev Sibthorpe)

- Steering Committee, Aboriginal Community Controlled Health Services Service Activity Reporting, Department of Health and Ageing (Bev Sibthorpe)
- Australian Population Association (John C Caldwell)
- International Union for the Scientific Study of Population (John C Caldwell).

Staff of the Centre have given many public lectures in 2002, in universities, government departments, schools and other institutions and have given 27 invited and keynote presentations at national and international conferences (see page 44).

NCEPH staff have also served on editorial boards for a number of national and international journals. These include *Epidemiology*, *Global Change and Human Health*, *Australia and New Zealand Journal of Public Health*, *Social Science and Medicine*, *Bulletin of the World Health Organisation*, *Studies in Family Planning*, *Bulletin of Indonesian Economic Studies*, *Australian Feminist Studies*, *Culture, Health & Sexuality*, *Biostatistics*, *Current Issues in Criminal Justice*, and the *American Journal of Industrial Medicine*. Tony McMichael is co-editor of the journal *Global Change and Human Health* and Niels Becker is associate editor of *Biostatistics*. Reviews of manuscripts have been carried out by staff for an even 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, the Ford Foundation, the New Zealand Medical Research Council, the UK Medical Research Council and various other national, international and state research funding organisations.

HONOURS AND AWARDS

Gabriele Bammer

Fulbright New Century Scholar 2001-2002.

Visiting Research Fellow, Hauser Center for Nonprofit Organizations, Harvard University (March 2002-June 2003).

Visiting Research Fellow, Center for Population and Development Studies, Harvard School of Public Health, Harvard University (March - September 2002).

Colin Butler

Awarded the 2001 W.D. Borrie Prize, by the Australian Population Association for the best essay on a population related topic submitted by a postgraduate student.

Richard Eckersley

Awarded the Public Health Association of Australia's 2002 Damon Laris Prize for Public Health Perspectives on Suicide, for his essay, 'Suicide in young people: causal layers and complexities'.

Marian Currie

Awarded the prize for Best Presentation (Midwifery) for her oral presentation of 'Validation of Two Models for Predicting Women at High Risk for Postnatal Depression' at the Perinatal Society of Australia and New Zealand 6th Annual Congress & Federation of the Asia and Oceania Perinatal Societies 12th Congress, Christchurch, March 9-13, 2002.

Rosalie Woodruff, Charles Guest and Niels Becker

Awarded the 2003 Rothman Epidemiology Prize for best paper for 2002. Woodruff RE, Guest CS, Garner MG, Becker N, Lindesay J, Carvan T, Ebi K. Predicting Ross River virus epidemics from regional weather data. *Epidemiology* 2002;13(4):384-93

GRANTS

In 2002, the Centre was awarded grants which totalled over \$8 million*, of which approximately 31% (\$2.6m) was core funding from the Public Health Education and Research Program and the University, and \$1.2m was funding from the Commonwealth for the MAE Program. The core funding provided by the Commonwealth, together with matching funds from the University, provided a solid infrastructure base for the Centre's activities.

The remaining income came from 14 research grants and consultancies in 2002, including:

- The NHMRC Public Health Capacity Building Grant;
- NHMRC Grant – Intergenerational transmission of health inequalities; effects of work conditions on parent resources and child health;
- Commonwealth Department of Health and Ageing – PHERP Innovations Project: National Collaborative Program on the Atmospheric Environment and Health; Workforce Training, Research Capacity-Building and Graduate Student Education in Environmental Health;
- Fellowship in Epidemiology, funded by the Vincent Fairfax Family Foundation;
- NHMRC Fellowship: Multi-State Population Models for Smoking – Burden of Disease.

FINANCE

Income and Expenditure Statement 2002

Income	\$
ANU Operating Funds	1,321,000
Commonwealth PHERP Funds	1,168,001
Grants and Consultancies	4,570,184
Total Income*	7,059,185
Expenditure	
Salaries	3,781,501
Students	1,106,690
Travel	440,663
Operations and Equipment	930,379
Total Expenditure	6,259,233

* Some grants are to be received over a 3–5 year period.