



THE AUSTRALIAN NATIONAL UNIVERSITY

NCEPH Annual Report 2001



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contents

director's foreword	4
the staff	5
research at nceph	8
environmental health	10
environmental health projects	11
communicable diseases	13
communicable diseases projects	14
health systems research	16
health systems research projects	17
social determinants of health	19
social determinants of health projects	20
graduate program at nceph	24
research training	24
mae(disease control)	26
mae (indigenous health)	28
research students	29
coursework students	32
publications	
peer-reviewed journal articles	34
books and chapters	36
invited keynote conference papers	38
outreach	39
honours and awards	40
grants and finance	41

director's foreword



2001 was a year of transition at the National Centre for Epidemiology and Population Health (NCEPH) with the appointment of a new Director of the Centre. Dr Gabriele Bammer, Acting Director for much of the year, oversaw various arrangements of both administrative and academic staff in accord with the evolving research directions of both the Centre and the University.

NCEPH was established in 1987 as a multi-disciplinary research-based centre in population health. The foundation Director, Professor Bob Douglas, steered the Centre through its formative first period, establishing masters-level and doctoral training programs, and developing a broad portfolio of research. In the past several

years, NCEPH has consolidated its four main research programs: environmental health, social determinants of health, infectious disease transmission, and health systems research. Following the arrival of the new Director, additional focus and research resources were applied to these four areas, to help develop one or more high-profile research activities in each.

During 2001, NCEPH extended and consolidated its international connections, including by partnership in the newly-established, Singapore-based, Asian MetaCentre on Population Change, Sustainable Development, and Health, by collaboration in various international scientific reviews (e.g. Intergovernmental Panel on Climate Change and Millennium Ecosystem Assessment Project), by its involvement, via a contract with AusAID, in the Australian Arsenic Mitigation Program in Bangladesh, and by undertaking contractual research for international bodies such as WHO.

A stronger relationship with the ANU's Centre for Mental Health Research, under its new Director, Professor Tony Jorm, was also forged.

NCEPH's ongoing national collaborative research includes its involvement in the Commonwealth-funded Longitudinal Survey of Australian Children and the National Research Partnership for Promoting (Child) Developmental Health and Well-Being. NCEPH has also extended its research collaborations internationally, with various university partners in the UK, USA and New Zealand and with several international agencies.

With the decision to develop a new Medical School at the ANU, NCEPH became involved in the development of the curriculum. The Centre will play a significant role in the teaching of epidemiology and population health.

A new five-year funding contract was agreed with the Commonwealth Department of Health and Ageing under its Public Health Education and Research Program (PHERP) for the continued support of the Centre.

the staff

Academic Staff

Director and Professor (to 14 January)

Robert M. Douglas, AO, MBBS *Adel*, MA *Penn*, MD *Adel*, FRACP, FRACGP, FAFPHM

Acting Director (15 January – 22 August)

Gabriele Bammer, BSc, BA *Flinders*, PhD *Syd*

Director and Professor (from 23 August)

Anthony John McMichael, MBBS *Adel*, PhD *Monash*, FAFPHM, FRCP, FMedSci*

Acting Deputy Director (15 January – 22 August)

Beverly M. Sibthorpe, NZRN, BA(Hons), PhD *ANU*

Deputy Director (from 25 October)

James R.G. Butler, BEcon, MPolEcon, PhD *Qld*

Associate Director (from 23 August)

Beverly M. Sibthorpe, NZRN, BA(Hons), PhD *ANU*

Coordinator, Health Transition Centre and Emeritus Professor of Demography

John C. Caldwell, BA *UNE*, PhD *ANU*, FASSA

Professor

Niels G. Becker, BSc(Hons), MSc *Melb*, PhD *Sheffield*

Adjunct Professors

Tony I. Adams, MBBS *Adel*, MPH *Harvard*, FAFPHM*

John S. Deeble, BComm, PhD *Melb*, DipHospAdmin *UNSW*

Senior Fellows

Gabriele Bammer, BSc, BA *Flinders*, PhD *Syd*

James R.G. Butler, BEcon, MPolEcon, PhD *Qld*

Dorothy H. Broom, AM, BA *Carlton*, MA *Ill*, PhD *ANU*

Keith B.G. Dear, MA *Cantab*, MSc, PhD *Reading*

Lynette L-Y. Lim, BSc(Hons) *WA*, MSc *Oxford*, PhD *Reading*

Anne-Louise Ponsonby, BMedSci MBBS PhD *Tasmania**

Wayne T. Smith, BMath, BMed *Newcastle*, MPH, PhD *Syd*, FAFPHM

* For part of the year only

Fellows

Gordon A. Carmichael, BA, MA *Auckland*, PhD *ANU*

Jane M. Dixon, BA(Social Work) *SA Inst of Technology*, MA(Social Work) *NSW*, PhD *RMIT**

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

Beverly M. Sibthorpe, NZRN, BA(Hons), PhD *ANU*

Senior Lecturers

Mary Y. Beers, BMus, GDPH *Adel*, MAppEpid *ANU*

Rennie M. D'Souza, MBBS *Karachi*, MSc(Epi) *Harvard*, PhD *ANU*

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

Research Fellows

Bruce K. Caldwell, BA(Hons), MA, PhD *ANU*

Phyllis R. Dance, BA PhD *ANU**

Lei Li, BS *People's University of China*, MS, *Chinese Academy of Sciences*, PhD *University of Hawaii at Manoa**

Geetha Ranmuthugala, MBBS *PNG*, MAppEpid, PhD *ANU*

Lyndall M. Strazdins, BA(Fine Arts) *Tasmania*, MA(Clin Psych), PhD(Psych) *ANU**

Andrea M. Whittaker, BA(Hons), PhD *Qld**

Lecturers

Carmen Audera, MPH *Escuela Nacional de Sanidad*, MD *Universidad Complutense of Madrid**

Jillian A. Guthrie, BA MAppEpid *ANU*

Gillian V. Hall, MBBS BSc(Med) *Syd*, DCCH *Flinders*, PhD *ANU**

Linda J. Halliday, BAppSci(Medical Technology) *SA Inst of Technology*, MAppEpid *ANU**

Postdoctoral Fellows

Catherine L. Banwell, DipT *Murray Park*, BA *Adel*, MA *Auckland*, PhD *Melb*

ZhengFeng Li, BA *Henan Normal Univ*, MA *Chinese Academy of Sciences*, GradDip(CompSci) *UNSW*, PhD *ANU**

Suet-Lam Mui, BSc NSW, Grad Dip (Occ Therapy) Syd, MComm NSW, PhD ANU*

Eileen Wilson, MSc *Harvard School of Public Health*

Visiting Fellows

Ross S. Bailie, Menzies School of Health Research
(2 March 1998 – 1 March 2001)

Gordon Briscoe, History Department, RSSS
(18 May 1998 – 31 December 2001)

Scott Cameron
(15 October 2001 – 14 October 2002)

Robert Condon, Consultant Public Health
Physician/Epidemiologist
(11 July 2001 – 10 July 2002)

Margaret Dean, Department of Health and Ageing
(15 July 2000 – 14 July 2001)

Bob Douglas, (Emeritus Professor)
(15 January 2001 – 31 December 2002)

Ian R. Falconer, CRC for Water Quality and
Treatment, University of Adelaide
(1 February 1998 – 31 December 2001)

Charles Guest, National Centre for Disease
Control, Commonwealth Department of Health and
Ageing
(1 January – 31 December 2001)

Gillian Hall, Australian Institute of Health and
Welfare
(9 October 2000 – 16 February 2001)

Judith Healy, WHO European Observatory on
Health Care Systems
(27 August 2001 – 31 August 2002)

Chris Kelman, Information and Research Branch
of the Portfolio Strategies Division, Department of
Health and Ageing
(26 June 2001 – 25 June 2002)

Stephen Lambert, Clinical Epidemiology and
Biostatistics Unit, University of Melbourne
Department of Paediatrics, Royal Children's
Hospital
(11 July 2001 – 10 July 2002)

Vivien Lee, International Relations Department,
Research School of Pacific and Asian Studies, ANU
(31 December 1999 – 20 April 2001)

Carmel M. Martin, Department of Veterans Affairs
(1 April 1998 – 31 March 2001)

Clare McGuinness
(26 February 2001 – 25 February 2002)

Cathy L. Mead, National Centre for Disease
Control, Public Health Division, Department of
Health and Ageing
(11 October 1999 – 31 March 2001)

Jan Nicholson, Centre for Public Health Research,
School of Public Health, QUT
(1 January – 31 December 2001)

Israel Olatunji Orubuloye, University of Ado-
Ekiti, Nigeria
(two periods of three months from late May 2001)

Leslee Roberts
(1 January – 31 December 2001)

Romaine Rutnam, Department of Family and
Community Services
(23 April – 31 December 2001)

Leonard R. Smith
(to 31 December 2001)

Jennifer Thomson, National Centre for Disease
Control, Department of Health and Ageing
(1 June 2000 – 31 May 2001)

Craig Veitch, North Queensland Clinical School,
University of Queensland
(1 April 1999 – 31 March 2001)

Centre Visitors

Kate Burns, ACT Department of Health and
Community Care
(1 December 1999 – 30 June 2001)

Pat R.C. Caldwell
(12 January 1989 – 31 December 2002)

Robyn Davies
(6 December 2001 – 5 December 2002)

Tord Kjellstrom, Division of Community Health,
University of Auckland
(22-26 October 2001, 9-13 December 2001)

Erich V. Kliewer, Department of Epidemiology
and Preventive Oncology, Manitoba Cancer
Treatment and Research Foundation, Winnipeg,
Canada
(5-19 February 2001)

Josee Lavoie, London School of Hygiene and
Tropical Medicine
(1 July 2001 – 31 December 2002)

Rubaiul Murshed
(12 September – 31 December 2001)

Lindsay Watson, La Trobe University
(19-23 November 2001)



General Staff

Executive Officer

Alison M. Humphreys, *Assoc of Inst of Linguists Lond*

Assistant Executive Officer

Jennifer Elliott, BA *UNE*,
GradDipArts(Linguistics) *ANU*, GradDipAdmin
*Canberra**

Administrative and Clerical staff

Mildred Karen Alarcon, BGraphicDes
Canberra, BA/BSc *ANU**
Blanka Baric
Kaye L. Devlin
Roslyn K. Hales, DipArts (Visual) *Canberra*
School of Art
Jean E. Hardy
Elaine M. Hollings
Leonie A. Hoorweg
Tuula Karjalainen*
Ling Hong Koh*
Helen E. Lawley*, BSc *ANU*
Colleen M. Lee*
Elizabeth Lovell
Heather McIntyre*
Gillian McKinlay*
Sylvia Ramsay*, BA *Macquarie*
Virginia L. Riddle
Susanne K. Smethills, Diploma of Government
Financial Management, *CIT*

* For part of the year only

Research Assistants

Roslyn M. Brown*
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Sarah Hinde, BSc *ANU*, DipPubAdmin *AFFA**
Ann Howarth, BPharm *Syd*, BEc *ANU*
Rosemary Korda, BAppSci(Speech Pathology)
Lincoln Institute of Health Sciences
Susan P. Lindsay, BA *ANU**
Bruce Missingham, BA *Qld*, GradDipEd *Qld*
University of Technology, MEd *Qld*, PhD *ANU**
Thomas Schindlmayr, BA MSc *London*, MA(Int
Law) PhD *ANU**

Special Project

Australian National Research and
Development – Collaboration on Socio-
economic Status and Health

Jane M. Dixon, BA(Social Work) *SA Inst of*
Technology, MA(Social Work) *NSW*, PhD *RMIT**

Information Technology Support

Omar Ibrahim
Colin McCulloch, BSc *ANU*

research at NCEPH

The Centre's main interest is population health research. This includes studies of the patterns and causes of ill health and the effectiveness of health care strategies.

A broad, multidisciplinary approach is taken, encompassing the social, behavioural, environmental and genetic influences on health. Along with epidemiology and biostatistics, the disciplines of economics, demography, sociology and anthropology are essential to much of our research, as we study how to improve health across different groups in society, and how to use society's health-care resources most effectively. Contemporary questions about the links between sustainable development and population health are also addressed.

The key to NCEPH's success in research is its interdisciplinary character and its emphasis upon quality - often achieved via research collaboration.

Projects are developed within the general four-themed framework (see below), and the resulting program of research seeks to advance our understanding of a range of processes and relationships in population health, and their translation into effective social policy.

Communicable Diseases — This group 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 — NCEPH's environmental health program, current and planned, 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 — This program integrates economic, sociological, anthropological, and epidemiological science in the study of health systems. The main focus of our research is the governance, organisation and financing of health systems.

Social Determinants of Health — NCEPH researchers are looking 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. The Health Transition Centre extends the research of this group.

NCEPH Staff published 45 scholarly articles in peer-reviewed journals in 2001, and gave keynote presentations at 17 national and international conferences.

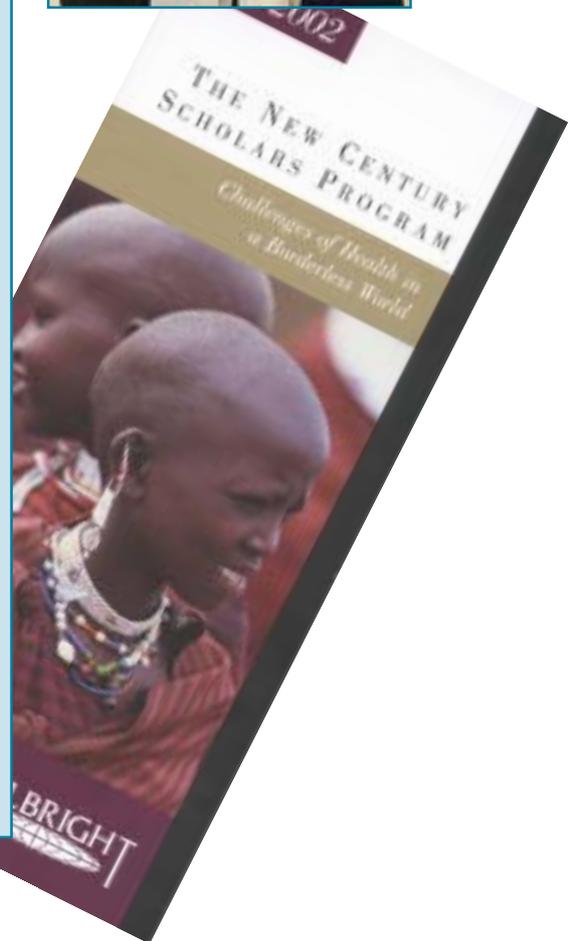
Details can be found on the Centre's website at:

<http://nceph.anu.edu.au/publications.htm>

Dr Gabriele Bammer was the sole Australian recipient of the inaugural Fulbright New Century Scholarship in 2001. She has joined a high profile group of international health researchers exploring 'the Challenges of Health in a Borderless World.' The aim of the program is to provide a platform for the multinational and multidisciplinary investigation of the concept of public health and the challenges and potential solutions for addressing public health issues on a global basis.

A considerable amount of her time will be spent looking at integrative applied research: concepts and methods for strengthening collaborations between disciplines and between researchers and government, business, practitioners and community groups. Her research in this area will help facilitate collaborations between the 30 scholars in the Fulbright New Century Scholars Program.

The project aims to develop a new concept – that of the integrative applied researcher – who takes responsibility for the collaborative processes, for ensuring that the problem is defined in a wide-ranging manner, for identifying and involving key players, for ensuring that appropriate research projects are undertaken, that the findings are suitably assessed and integrated and that pertinent bridges are built from the research to its application.



environmental health

The “environment”, viewed in relation to health, readily conjures up images of polluted air, chemical residues in food, radioactive wastes and so on. The topic, however, is much broader. Indeed, with the recent advent of global environmental changes, in a world in which the impact of human numbers and economic activities is now unprecedentedly large, the environmental health agenda is being extended yet further.

The environmental health research program at NCEPH therefore ranges from 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, heatwaves and food safety), to large-scale environmental changes (such as climate change, stratospheric ozone depletion and biodiversity loss). There is also increasing emphasis on changes in the human-made environment, especially aspects of urbanisation, transport systems, and other profound changes in the ways modern human societies structure their living environments.

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

- (i) studies of household environments in relation to childhood asthma,
- (ii) preliminary research on the relationship between ultraviolet radiation exposure, immune system activity and the occurrence of immune-related disorders (especially multiple sclerosis, an autoimmune disease),

(iii) studies of how climatic variations influence the occurrence of several infectious diseases, especially Ross River virus disease and bacterial food poisoning, and

(iv) a program of research in Bangladesh into the widespread health risks posed by natural arsenic contamination of freshwater obtained from deep tubewells.

Later in 2001, NCEPH researchers began to undertake studies of the population health impacts of climate change. This encompassed both collaboration in a formal



quantitative risk assessment for the World Health Organization, as part of its *Global Burden of Disease 2000* project, and the development of a research plan for estimating the health impacts of climate change in Australia and the adjoining Pacific region.

Further research was also begun, in conjunction with WHO, to estimate the global burden of disease 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.

Discussions were held with various divisions of CSIRO, the Australian Institute for Health and Welfare, and with several branches of the Commonwealth Government, to plan collaborative research and review activities for 2002. There are important opportunities, via data linkage, spatial analytic techniques and the use of environmental health “indicator” variables, to advance national research and knowledge on environmental health in Australia.

In December, the Director, Professor Tony McMichael, visited the WHO Western Pacific Regional office in Manila, to develop further the proposal for NCEPH to become a WHO Collaborating Centre in Environmental Change and Health. Also on the international front, NCEPH was part of a successful bid, in 2001, for funding from the UK Wellcome Trust for establishing the Asian MetaCentre on Population Change, Sustainable Development and Health, based in Singapore. This interdisciplinary initiative will facilitate broad-ranging research activities within the Asian region relating to demographic and environmental changes and their impacts on population wellbeing and health. NCEPH will contribute much of the population health dimension to this research program.



environmental health projects

The following are some examples of staff projects in Environmental Health. For a complete list of research projects in this area see the Centre's website:

http://nceph.anu.edu.au/Research/environmental_health.htm

Health impacts of global climate change

The science of global climate change and its potential impacts has evolved rapidly over the past decade. It is clear that the world is on a human-induced path towards global warming, and climatologists are now confident that the process is already discernable. The tempo of research into the actual and potential health consequences of climate change has increased, and during 2001, NCEPH became increasingly involved in that research topic.

Tony McMichael continued with his long-running research into the various ways in which climate variations and trends affect patterns of health, disease and injury. With colleagues at the London School of Hygiene and Tropical Medicine he completed, under research contract for the World Health Organization, the estimation of the burden of global disease, disability and premature death attributable to climate change now and over the coming several decades.

He also completed a study into the impacts of extremes of hot and cold weather on patterns of daily mortality in urban populations in developing countries around the world. In conjunction with Drs. Rennie D'Souza and Gillian Hall at NCEPH, he initiated a study of the relationship between regional temperature variations in Australia and the occurrence of bacterial food poisoning (from salmonellosis and campylobacteriosis). These studies have strengthened the information base on which to make modelled predictions of climate change impacts on various health outcomes. Indeed, preparations were made, in conjunction with CSIRO Atmospheric Research and the Bureau of Meteorology Research Centre, to conduct an assessment, in 2002, of the potential health impacts of climate change in Australia and New Zealand.

NCEPH researchers: Tony McMichael, Rennie D'Souza, Gillian Hall



Risks and benefits of arsenic mitigation programs in Bangladesh.

Thirty years ago Bangladesh suffered from extremely high rates of infant mortality. Half of these deaths were due to diarrhoeal disease as a result of drinking contaminated water. The international aid community therefore assisted the Bangladesh government in promoting the use of ground water, using deep tubewells attached to a hand-pump. Recently it has been shown that almost 20% of this water is contaminated by high levels of naturally-occurring arsenic. Tens of millions of people have been exposed to this health hazard over the past 1-2 decades.

In this project, Drs Wayne Smith, Geetha Ranmuthugala, Bruce Caldwell and Keith Dear, along with Profs. Bob Douglas and Jack Caldwell and other colleagues and research students at NCEPH, have been looking at the health and social consequences of the current exposure levels to arsenic, and the costs (monetary, social and health) of introducing arsenic mitigation programs in Bangladesh.

Funding for the project has been provided by AusAID. NCEPH is collaborating with the Department of Epidemiology and Preventive Health, Monash University; National Research Centre for Environmental Toxicology, University of Queensland; NGO Forum for Drinking Water and Sanitation, Bangladesh; and Mitra and Associates, Bangladesh.

NCEPH researchers: Wayne Smith, Geetha Ranmuthugala, Bruce Caldwell, Keith Dear, Jack Caldwell, Bob Douglas, Kamalini Lokuge, Milton Hasnat.

The role of environmental factors in the development of multiple sclerosis and other immune disorders.

Multiple sclerosis (MS) is a complex autoimmune disease that has baffled epidemiologists for several decades. Population-based studies are required to identify possible causal factors. Australia is a particularly promising setting for such studies because of the uniquely strong geographic gradient in this disease, with the reported rates in the south being more than six times higher than those in the north.

Recent insights into the likely roles of childhood infections and of the immune-suppressive effect of solar ultraviolet radiation have stimulated some new research ideas. Indeed, the immune-mediated effect of ultraviolet radiation has particular significance because of the ongoing, human-induced depletion of stratospheric ozone, which allows more ultraviolet radiation to reach Earth's surface.

A case-control study, conducted by Dr Anne-Louise Ponsonby in conjunction with colleagues at the Menzies Centre for Population Health Research, University of Tasmania, and the Canberra Hospital, has examined how various childhood environmental exposures and infectious diseases are associated with subsequent MS risk. Preliminary results have been obtained and these are now being further refined.

This research has been funded by the National Health and Medical Research Council and MS Australia. Meanwhile, a study on the regional prevalence of MS in Australia in relation to ambient levels of ultraviolet radiation was completed and published. An ecological analysis of regional variation in ultraviolet radiation and other immune disorders in Australia, such as Type 1 diabetes mellitus is now being conducted.

NCEPH researchers: Anne-Louise Ponsonby, Judy Staples, Lynette Lim, Tony McMichael.



Bedding choice as a prevention measure in childhood asthma: a randomised control trial.

Childhood asthma remains a major public health problem in Australia, as in other countries. Rates have increased markedly over the past three to four decades. Almost certainly this reflects widespread changes in human domestic conditions and behaviours and in other environmental exposures.

NCEPH is collaborating with the Academic Unit of General Practice and Community Care, Canberra; the Clinical School, Canberra Hospital; the University of Sydney and the University of Melbourne in a randomised controlled trial that will provide new information on the environmental management of respiratory disease induced by house dust-mite exposure, especially in relation to bedding sources. The fieldwork for this secondary prevention trial commenced in August 2001 and will continue throughout 2002, until 200 children with house dust-mite allergy and moderate to severe asthma have received 12 months clinical follow-up after random allocation of a bedding intervention. This trial should contribute new information to allow optimal health advice on bedding in relation to asthma.

Funding for the project has been provided by Children's Financial Markets.

NCEPH researcher: Anne-Louise Ponsonby

communicable diseases

The field of communicable disease deals with diseases that can be transmitted by one, or more, of many modes. These modes include person-to-person contact, sharing of needles and blood products, transmission borne by air, water or food, as well as vector-borne transmission. Although awareness of transmission has existed for a long time, there is still a tendency to study communicable diseases by methods that do not explicitly acknowledge that transmission occurs. This can lead to misleading conclusions.

One focus of NCEPH's research in this area is to develop methods for the study of disease transmission and its control that take transmission into account. These modern methods make use of models that describe the transmission of infection. The other focus of NCEPH research is the application of these methods to specific issues, such as developing an early warning system for epidemic seasons of Ross River virus disease in the form of a model based on observable climate variables.

Studies of vaccine-preventable diseases and the development of strategies for their control are priority areas of research. A central issue for these is assessment of vaccines.

In a major study during 2001, NCEPH staff developed measures of vaccine efficacy that both encompass the wide range of response individuals may have to vaccination and make allowance for transmission of infection, in contrast to commonly used measures of vaccine efficacy. The new measures address both reduced susceptibility to infection and reduced level of illness for a vaccinated individual, when infected.

In collaboration with researchers from Sweden and the UK, NCEPH researchers have started to develop methods for estimating these measures from data on incidence in different settings. These settings include data on the size of household outbreaks in a partially vaccinated community and data on

outbreaks arising from re-introductions, when endemic transmission has been interrupted. As part of this work researchers are determining circumstances under which currently used estimates are sensible in the infectious disease context.

There continues to be a need to monitor trends in infection with HIV for different exposure groups. Methods for reconstruction the HIV incidence curve from AIDS diagnosis data have become unreliable for this task because therapy has reduced progression to AIDS in ways that are not well quantified at this time.

This has motivated staff at NCEPH to study reconstructions based on HIV diagnosis data. The time until HIV diagnosis is less affected by improvements in therapy, because therapy is only available after diagnosis. The use of HIV diagnosis data also has the advantage of enlarging the data set substantially, thereby improving the precision on estimates of trends. In search of further improvement in precision, additional data on age at diagnosis has been incorporated. The method has been applied to diagnosis data on Australian women who acquired HIV infection by heterosexual transmission.

Other research on methods for the study and control of infectious diseases begun in 2001 include estimating the requirements for interrupting transmission of infection among heterogeneous individuals and assessing the impact of different control strategies against measles. For the latter work, in collaboration with WHO, NCEPH staff have used mathematical models to predict the impact of enhanced control efforts against measles in countries of the Western Pacific Region.

Work at NCEPH on foodborne transmission in 2001, included co-ordination of a national gastroenteritis survey, as a member of OzFoodNet, a collaborative group of epidemiologists from state and commonwealth health departments and other organisations concerned with foodborne disease.



communicable diseases projects

The following are some examples of staff projects in Communicable Diseases. For a complete list of research projects in this area see the Centre's website:

http://nceph.anu.edu.au/Research/communicable_diseases.htm

Control of Infectious Diseases

Preventing disease transmission by vaccines continues to be one of the major success stories of public health intervention. Following the global eradication of smallpox, polio and measles are in our sights. However, measles is highly infectious and so it is necessary to fine-tune our vaccination strategies and to have good ways of assessing how effectively vaccines reduce disease transmission in the community.

The optimal age at which to vaccinate is a trade-off between early vaccination, which reduces exposures prior to vaccination, and late vaccination that reduces primary vaccine failures due to infants still being protected by maternally acquired immunity. Niels Becker, with his collaborators, uses mathematical models to explore the relative effectiveness of one and two dose strategies, and to determine the ages at which to administer doses so as to have the greatest impact. This research also compares the impact of routine vaccination schedules, periodic vaccination campaigns and use of a one-off catch-up campaign targeting school and pre-school children. Having found that commonly used measures of vaccine efficacy often give misleading results for transmissible diseases, this research team is also developing better ways to study how well vaccines interrupt disease transmission in the varied communities of today.

NCEPH researcher: Niels Becker



Rosalie Woodruff and Niels Becker



Forecasting Epidemics of Vector-borne Diseases

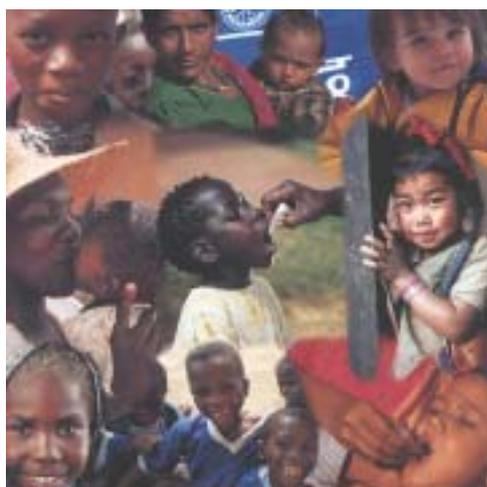
Diseases caused by arboviruses cause extensive mortality and morbidity throughout the world. The recent focus of epidemiological research in this area has been to map high-risk regions and populations, and to identify factors for predicting outbreaks of disease. Weather conditions directly affect the breeding and survival of mosquitoes, the principal vector of many arboviruses.

PhD candidate, Rosalie Woodruff has been involved in a study of Ross River virus (RRV) disease, the main arboviral disease in Australia (more than 5000 cases are reported each year). The study has tested whether climate factors can predict epidemics of RRV disease with enough lead-time and accuracy to assist public health planning.

In 2001, she completed a study in the Murray Region of southeastern Australia. She found that weather forecasts could be used in conjunction with other surveillance techniques to identify conditions suitable for an epidemic of RRV disease. The multi-staged approach (early and late warning models) means that health authorities can adjust response plans as forecast certainty increases, allowing them to make the most of limited resources.

Future work will focus on the prediction of more complex endemic systems, on the application of modelling results to public health work, and on the impacts of climate change to vector-borne disease distribution in the region.

NCEPH researchers: Rosalie Woodruff, Charles Guest, and Niels Becker.



The Global Eradication of Poliomyelitis.

When WHO with other partner agencies such as UNICEF, CDC, and Rotary International, commenced the ambitious program in 1988 to eradicate poliomyelitis from the face of the earth, more than 1000 children a day were being paralysed by this awful disease.

By the end of 2000 the number of annual cases globally had dropped to 2,979, and by the end of 2001 to only 537 cases. This has been achieved through the tireless efforts of some 10 million vaccinators who have mounted national and subnational immunisation days, house to house and boat to boat campaigns to reach every child on earth under the age of 5 years. In 2001 alone 575 million children in this age group were immunised in 94 countries.

The goal of the campaign is to completely stop the transmission of wild polio virus by the end of 2002. Once this goal is reached and three years pass without a single case of polio occurring anywhere, then WHO will declare the disease to have been eradicated (only the second in human history after smallpox).

WHO is organising the program region by region. In 1994 the American Region was declared free and in October 2000 the Regional Certification Commission for the Western Pacific (an area containing one quarter of the world's population including China) which is chaired by NCEPH's Professor Tony Adams, informed the Regional Director of WHO that this region is now polio free. In July 2002 the European Region is expected to be certified as well. This leaves only three regions - Africa, South East Asia and Eastern Mediterranean.

Once all Regions are certified then the Global Commission, of which Professor Adams is a member, will inform the Director General of WHO that the eradication of polio from the world is complete. Several years later it will then be possible to cease immunising children with polio vaccine.

Ten countries remain a problem and WHO is intensifying its efforts in 2002 in order to stop transmission — particularly in two northern Indian provinces, Pakistan, Afghanistan, Somalia, Sudan, Nigeria, and a few others — so that the end of year target can be met.

NCEPH researcher: Tony Adams

Rennie D'Souza, from NCEPH, was a member of the Australian Polio Certification Committee and the Polio Expert Committee. She received a letter of appreciation in 2001 from the Minister for Health and Aged Care for her contribution to the Certification of Polio Eradication in Australia.

OzFoodNet

OzFoodNet is an initiative established and funded by the Department of Health and Ageing. It has representative epidemiologists from the departments of health in six of the states and territories, NCEPH, the Department of Health and Ageing and the Australia and New Zealand Food Authority (ANZFA).

The main brief of OzFoodNet is to enhance the surveillance of foodborne disease in Australia, to conduct applied epidemiological research on foodborne disease and to enhance the training of epidemiologists in the area of foodborne disease. OzFoodNet state epidemiologists have commenced a number of studies to investigate the causative factors in foodborne disease due to Campylobacter, Salmonella, Listeria and EColi.

NCEPH is responsible for conducting the national community gastroenteritis survey. An outbreak register has also been established as well as studies to collate historical outbreak information, investigate laboratory testing and reporting and typing of Campylobacter.

NCEPH Researcher: Gillian Hall



OzFoodNet members

health systems research

The process of scientific discovery usually begins with basic research, followed by the development of applications that build upon that research, and result in products suitable for common use. For example, basic research revealed that small specks of calcium in the breast (microcalcification) were indicative of rapidly dividing cells potentially associated with cancer. When coupled with research on imaging technology that reduced radiation exposure from breast x-rays, screening mammography emerged as a technique for the early detection of breast cancer. Once this point is reached, however, an additional range of questions can be posed.

- In what sub-groups of women is screening mammography likely to be most beneficial?
- If screening mammography is effective, is it also cost-effective?
- Do alternative ways of paying service providers affect the number of women who are followed up if the screening mammography is suggestive of breast cancer?
- Do the women most likely to attend for screening mammography belong to the high-risk groups for breast cancer?

Health systems research is concerned with investigating questions such as these. Health systems are concerned with the organisation, delivery and financing of the products of basic and applied scientific research to populations. Broadly, research on health systems at NCEPH falls into two categories: that with a national focus, and that with an international focus.

At the national level, economic evaluations have been undertaken on a range of prevention and treatment programs. For example, as part of a larger project involving five case studies of the returns to

investment in public health, a cost-benefit analysis of Australia's HIV/AIDS strategies was completed. This study showed that, even with quite conservative assumptions regarding the impact of public health programs on risk-taking behaviour, the benefits from the number of HIV infections avoided far exceeded the costs.

Research was also completed on cost-effectiveness of alternative strategies for colorectal cancer screening programs in Australia, and the results of this research are now being used to inform the design of such a program.

Other projects completed during the year involved an analysis of the policy changes towards private health insurance that have been implemented in Australia since 1997, and the production of disease-specific estimates of the cost of general practitioner services in Australia.

An interesting area of on-going research involves an exploration of the relationship between research and policy in public health in Australia: To what extent are the results of research translated into policy? What factors affect the extent to which this occurs?

At the international level, a number of projects involving comparative health systems research are underway. For example, a joint project with McMaster University in Canada is exploring lessons from Australia's experience with parallel public-private funding of health services for Canadian health policy. Work has also been undertaken for the European Observatory on Health Care Systems on health care systems in transition, including Albania, Bulgaria, Croatia, Hungary and Kyrgyzstan, among others. Funding has been received from the Australia-Korea Foundation for a comparative study of health and health care financing in the two countries.



health systems research projects

The following are some examples of staff projects in Health Systems Research. For a complete list of research projects in this area see the Centre's website:

http://nceph.anu.edu.au/Research/health_systems_research.htm

Policy change and private health insurance in Australia

From the introduction of Medicare in 1984 until recently, the proportion of the population covered by private health insurance declined steadily.

Following an Industry Commission inquiry into the private health insurance industry in 1997, a number of policy changes were effected in an attempt to reverse this trend.

The main policy changes were of two types: "carrots and sticks" financial incentives that provided subsidies for purchasing, or tax penalties for not purchasing, private health insurance; and lifetime community rating, which aimed to revise the community rating regulations governing private health insurance in Australia.

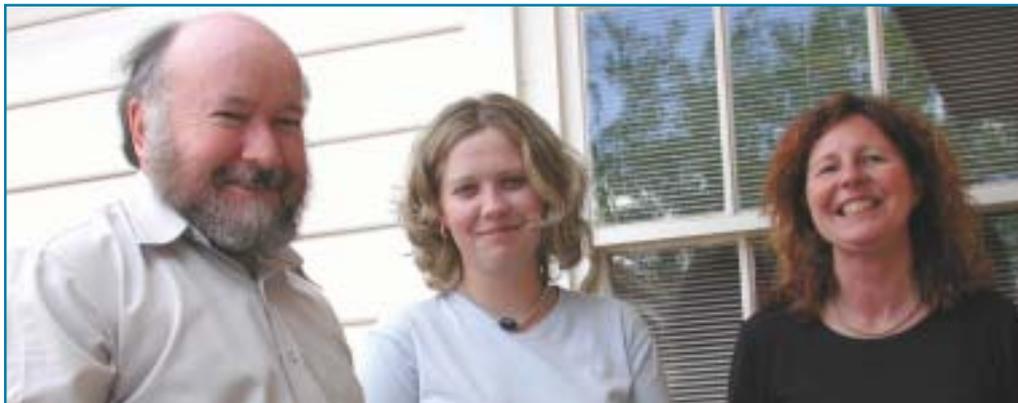
The success of these measures depends upon the extent to which they address the underlying causes of declining private health insurance membership. While it is the case that private health insurance premiums have been increasing, a potentially important cause of this has been the problem of adverse selection associated with the community rating regulations.

These regulations precluded any risk discrimination in the setting of premiums, with the result that private health insurance was more attractive to higher risk individuals and families. The reduction in demand for cover by lower risk individuals places upward pressure on premiums, making private health insurance even less attractive to lower risk groups. As a result, private health insurers were left with an increasingly adverse selection of risks, and the downward spiral in membership could have been an adverse selection death spiral.

This research has found that the increase in membership that has occurred over the recent past is largely attributable to the introduction of lifetime community rating which goes some way towards addressing the adverse selection associated with the previous community rating regulations.

This policy change had virtually no cost to government while the "carrots and sticks" policies, which appear to have had relatively little effect, have a considerable cost to government.

NCEPH Researcher: Jim Butler



Jim Butler, Ailsa Tuck (summer research scholar) and Ann Howarth

Award-winning research collaboration

The new pharmacotherapies clinical trials project won the Award for Excellence for Public Health Research in the 2001 Victorian Public Health Awards. This three-year program of research undertaken by NCEPH's Gabriele Bammer, Nicholas Lintzeris and the Turning Point New Pharmacotherapies Research Team, was funded by the State Government of Victoria Community Support Fund and completed in 2001.

Australia has lagged behind other countries in establishing new pharmacotherapies for heroin dependence. Levo-alpha-acetyl-methadol (LAAM), buprenorphine, naltrexone and slow-release oral morphine provide possibilities for improving the treatment service system, by increasing the choice available to clients. A comprehensive feasibility analysis conducted in 1996 determined the research questions and trial designs for 14 studies of these new treatments.

While most of the studies were undertaken in Victoria, there were also significant collaborations with the ACT and NSW and the studies provided the most substantial underpinning of the National Evaluation of Pharmacotherapies for Opioid Dependence (NEPOD) undertaken by the National Drug and Alcohol Research Centre at the University of New South Wales. (NCEPH was also a significant collaborator in the establishment of NEPOD.) In total, more than 60 sites across Victoria were involved in the clinical trials, with over 750 drug users participating.

Trials were designed to ensure that the outcomes were directly related to practice. Contribution towards registration of the pharmacotherapies was a guiding principle. The program of research has demonstrated the ability to conduct scientific work whilst also maintaining a focus upon the practical implications and contributing directly towards enhancing the treatment service system. Since the commencement of the program of research, both naltrexone (March, 1999) and buprenorphine (November, 2000) have been registered in Australia. The research program has directly contributed to the development of national clinical guidelines and training programs for these new drug treatment options.

NCEPH researchers: A Ritter, N Lintzeris, G Bammer

Public and private financing: analytics, dynamics and decision-making

In the 1960s and 1970s, the public sector share in health care financing in a number of OECD countries grew as many nations expanded publicly funded health programs and provided high levels of coverage for their citizens under those programs. In some countries this trend continued through the 1980s, but by the 1990s the public sector share in many countries had begun to fall. For example, in Canada the public sector share peaked at 76% in the late 1970s while in Australia it peaked at 70% in the late 1970s. Consequently, private financing of health care is on the rise.

The role and impact of private financing, and the interaction between public and private financing in the health sector, create some of the most vexing policy issues within health care systems. This research

project, funded by Health Canada under the National Health Research and Development Program, has four components that are concerned with various aspects of public and private roles in health care financing. One of these components, for which researchers at NCEPH and elsewhere at ANU are responsible, will analyse recent experience with parallel public and private insurance of health care in Australia and distil key lessons for Canadian public policy in this area. Canadian interest in this work is heightened by the fact that private health insurance in Canada is currently less widespread than in Australia and considerable thought is being given to expanding its role in health care financing in that country.

NCEPH Researchers: Jim Butler, Ann Howarth

social determinants of health

While life expectancy in developed nations has risen in recent decades, in the former Soviet Union longevity declined dramatically during the early to mid-1990s. This decline shows that social and economic circumstances can have marked effects on the health of populations.

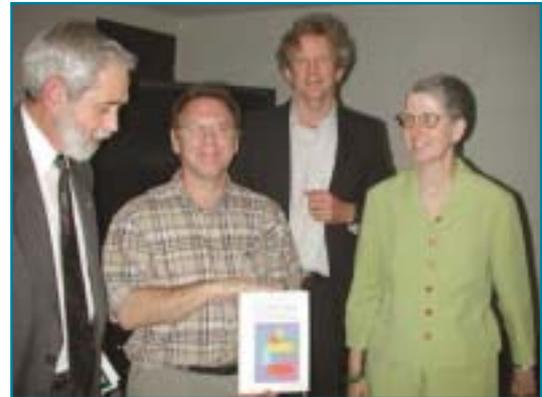
Interest in the social determinants of health has flourished in the last decade. Several governments, including Australia, are committed to addressing health inequalities, and are seeking research evidence that can guide the formulation of policies and programs, recognising that a healthy population requires much more than hospitals and doctors.

A wide range of social factors are potentially implicated in health, and many mechanisms may translate social conditions and experiences into health outcomes. To narrow the focus, NCEPH's research is organised around a specific theme: how health inequalities are transmitted from generation to generation.

This theme highlights the fact that health gradients persist from one generation to the next, yet material and 'lifestyle' risk factors explain only a small proportion of the association. NCEPH staff are investigating a number of social factors that contribute to the intergenerational persistence of health inequalities, and are developing particular research strengths in health and well-being in the early years of life.

Improving population health requires effective interventions to diminish the extent of health inequalities, but Australia has only limited public health research capacity in the area. Consequently, activities presently under way at NCEPH contribute critically to enhancing national competence.

Present research initiatives span the spectrum of influences on health, from the macro to the micro. For example, NCEPH staff are currently conducting studies of: parental working conditions and the health of children; the cultural correlates of youth suicide; parenting in the socio-cultural context of drug use; parental predictors of adult health; and the correlation between biomarkers and psychosocial stress.



Clyde Hertzman (holding book) at the book launch with Bob Douglas, Richard Eckersley and Jane Dixon

The Social Origins of Health and Well-being

Over the past few decades, public health has focused on individuals and their lifestyle and behaviour as the path to better health, tackling risk factors such as smoking, poor diet and lack of exercise. We are now seeing a resurgence of scientific and political interest in the social factors that influence health and well-being, notably socio-economic inequality.

NCEPH is playing a significant role in this area. In 2000, it organised, on behalf of the Commonwealth Government's Health Inequalities Research Collaboration, a trans-Tasman conference to present an Antipodean perspective on the social determinants of health.

This initiative continued through 2001 with the editing of a book, *The Social Origins of Health and Well-being*, published by Cambridge University Press and launched in November by the prominent Canadian epidemiologist, Clyde Hertzman.

Three NCEPH staff edited the book, while seven staff members were among the 36 contributors. The NCEPH contributions examined global, environmental and cultural factors and work-related and policy evaluation issues.

NCEPH researchers: Richard Eckersley, Jane Dixon, Bob Douglas, Colin Butler, Bev Sibthorpe, Tony McMichael, Dorothy Broom

social determinants of health projects

The following are some examples of staff projects in Social Determinant of Health. For a complete list of research projects in this area see the Centre's website:

http://nceph.anu.edu.au/Research/social_determinants.htm

Parenting and drugs

Concern exists about the health and general well-being of children whose parents use illicit drugs. While many such children grow up in normal, loving environments, there is evidence that some are at risk of being neglected and abused. For these children, the issues are complex and interactive. They include developmental impairment as a consequence of in-utero exposure to alcohol and other drugs and abnormal and disruptive behavioural patterns. Other issues for these children include physically and psychologically destructive care-giving practices of parents and others, exposure to a range of harmful and unhealthy behaviours and poverty.



Following a tradition of research into illicit drug use at NCEPH, Cathy Banwell, in collaboration with Dr Gabriele Bammer, is investigating, as part of a NHMRC funded postdoctoral research project, parenting practices by women with preschool children. She has interviewed a range of women, some of whom use illicit drugs, live on low incomes or have highly mobile lives, in order to explore the role of social, cultural and environmental influences on the physical and emotional components of parenting. Also, in association with Dr Barb Denton from LaTrobe University, she has been involved in studying an intervention program for such children, and has been part of a team of researchers from Deakin and La Trobe who have conducted a study of the personal, social, and health needs of women with hepatitis C, many of whom are past or current injecting drug users.

NCEPH Researchers: Cathy Banwell, Gabriele Bammer

Methadone Injection in NSW

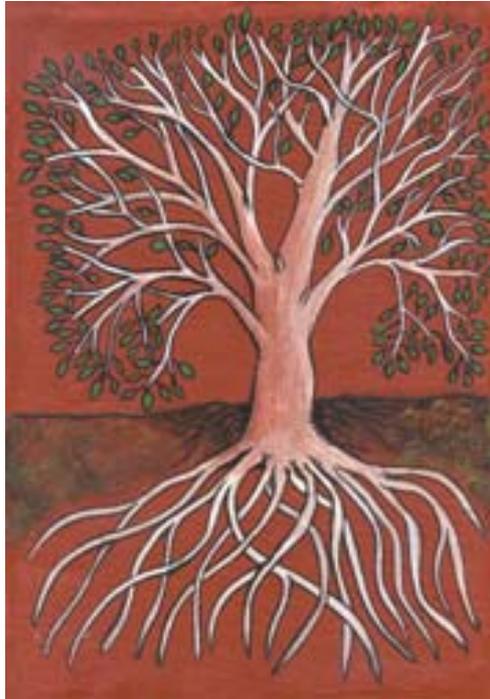
In early 1999, policy changes in NSW resulted in the withdrawal of needles and syringes used for injecting methadone, and restrictions in the availability of take-away methadone from public clinics. Gabriele Bammer and Geetha Isaac Toua, and researchers at the National Centre in HIV Social Research, interviewed 206 methadone injectors in Sydney and rural NSW, aiming to characterise methadone injecting. They were particularly interested in the social context in which it occurs and the nature of specific risk behaviours. The study also investigated the health risks associated with the level of availability of sterile injecting equipment and the extent to which the prevalence of methadone injecting is related to the availability of take-away doses and related dispensing practices.

They found that methadone injectors were a marginalised group with low levels of education and employment, a long history of drug use and injecting, and poor health. Significantly more participants re-used their methadone injecting equipment, compared with those who re-used their other drug injecting equipment. In addition, 19% reported sharing methadone injecting equipment, and 14% shared other drug injecting equipment. Over half of the participants had accessed diverted methadone and a minority reported the use of public spaces for injecting methadone. Women were more likely than men to re-use and share methadone injecting equipment; rural injectors had more problems, were more likely to report no change in injecting practice, were more likely to access injecting equipment from pharmacies and were less likely to have access to take-away methadone.

The results of the study, which was funded by the NSW Department of Health, have been presented to relevant policy-making bodies in NSW.

NCEPH researchers: Gabriele Bammer, Geetha Isaac-Toua

An Analysis of needs of Indigenous illegal drug users in the ACT and Region



The health of Aboriginal and Torres Strait Islander people needs more solutions-based approaches and this project represents just one. So in terms of conceptualising the model we have used a tree: a living entity. If nurtured the tree will grow strong, new growth happens, old growth falls away and it bears fruit. The trunk supports the branches and leaves which in turn support a much broader ecosystem. The tree, however, cannot survive without strong foundations, the root system. The root system stabilises the tree, nourishes and feeds continued growth. What takes place underground (or behind the scenes) is all the hard work and essential elements of strong growth.

People might ask what has a tree got to do with an illicit drug project. Well the elements are the same. Looking at the tree we can see:

a trunk which represents the building of trust, collaboration and understanding between Winnunga Nimmityjah Aboriginal Health Service and NCEPH. Winnunga is assisting in the building of relationships between NCEPH and the services client base, as well as the local Aboriginal community and is helping the researchers gain trust and cultural understanding of the complex issues faced by Aboriginal people daily. Winnunga is guiding the non-Aboriginal researchers and helping them understand the differences and the need for Aboriginal people and, especially, Aboriginal Community Controlled Health Services to be involved in such research;

the root system is about nurturing and building relationships. To achieve this some basic understandings needs to be encouraged. From NCEPH's side we are providing training, such as research methodologies, interviewing skills, and an understanding of statistics;

the branches and leaves are where growth can be seen. Areas of interest include; transfer of skills, two-way learning, supportive alliances, meaningful community benefits, a sense of ownership and the strengthening of relationships.

The project is fertilising new relationships. These relationships could create new seeds or could be grafted into new life.

Julie Tongs, the Chief Executive Officer of Winnunga Nimmityjah Aboriginal Health Service and her designated staff are associated researchers for the project. The tree was painted by Gerard Bennett of Winnunga. This story was written by Tom Brideson, chair of the Reference Group, and Julie Tongs.

NCEPH researchers: Phyll Dance, Jill Guthrie, David McDonald, Rennie D'Souza, Gabriele Bammer, Roslyn Brown.

Health for Life!

A study of work, family & well-being

The Australian labour market has changed dramatically in recent years. Increasing numbers of women now remain in the labour force while their children are young. The nature of work and of working conditions has also changed. There is growing casual and part-time employment, reduced job security, faster pace and heavier workloads, and, arguably, increased job strain and work stress. These changes have led to a widespread perception that parents are finding it harder to combine work with family commitments, and that these difficulties affect children's academic, behavioural and health outcomes.

NCEPH researchers are examining the extent that parent work conditions, through parent stress and parent child interaction, affect children's well-being. Job demands, control, reward, insecurity, workhours and access to family friendly conditions in the workplace vary across different social status and occupational groups, and their effect on child well-being may help explain how social inequalities in health are transmitted across generations.

The study examines the nested contexts of workplace, families and parent-child interactions, through observations, workplace policy analysis and in-depth interviews with key informants, parent interviews, and questionnaires. Seven day diary data is used to track parent work stress and parent-child interaction. Staff are also gathering physiological data on parent and child neuroendocrine and psychoneuroimmunologic response to stress. This helps to validate other sources of data, and to assess associations between parents' and children's physiology, stress and workplace factors.

With funding from ACT Health Promotion and Healthy City ACT received in 2001, 20 families have already been surveyed, and the remaining 40 employees who have volunteered will be contacted to participate over the next few months. In-depth interviews are now underway with some of the employees who have participated in the survey. These are providing detailed information on work and family issues, which will assist in interpreting the survey results.

NCEPH researchers: Dorothy Broom, Lyndall Strazdins, Lynette Lim, Romaine Rutnam, Sarah Hinde.



Children involved in saliva sampling for the Health For Life! survey.

The Health Transition Centre at NCEPH concentrates on Third World health issues where social circumstances and individual behaviour have played a major role.

Health in Asia's slums

One of the dominant features of the early 21st century is the urbanisation of the Third World. Within the next few years, a majority of the world's population will live in cities and towns and this will be the case even in Asia by 2020. A striking case is that of Dhaka, in Bangladesh, a country with which the Health Transition Centre has had a long research association. Dhaka's population reached one million in the late 1960s, 10 million by the end of the 20th century, and is projected to attain 20 million by 2020. Its major source of growth is rural-urban migration with huge numbers of poor peasants pouring into shanty squatting areas around the city.



In the 19th century, Europe's new industrial cities were "killers of men" with far higher death rates than the countryside. The reverse was the case in the second half of the twentieth century as the new medical technologies became concentrated in the cities, especially the capitals. Recently the situation has begun to reverse again as high mortality has persisted in the spreading slums.

Bruce Caldwell, together with S.N. Mitra, head of Bangladesh's major scientific survey research organization, carried out health surveys and anthropological research in Dhaka's slums. Because of very high neonatal mortality rates, early emphasis was placed on the conditions of birth, the reasons for the lack of professional help at most births, and the treatment given to sick babies. It was found that the failure to secure help, in the majority of cases, was due to the circumstances of birth being regarded as entirely women's business.

This had two impacts. The first is that women have few resources and limited mobility outside the home. The second is that much of their treatment of sick children was based on joint decisions with female

relatives and neighbours, drawing on rural folk beliefs, some of them pre-Islamic in origin. Papers with recommendations for dealing with these problems are being published.

NCEPH researchers: Bruce Caldwell, John Caldwell.

The global AIDS epidemic

The AIDS epidemic impact can be compared only with the Black Death. So far it has killed or infected 50 million people and the final total will be far in excess of this number. Three-quarters of the world's AIDS victims have been in sub-Saharan Africa. In some countries in that region over one-fifth of adults are currently infected, a majority of the population will eventually die of the disease, and life expectancy has fallen by up to 30 years. To combat the epidemic, important questions had to be answered with regard to sexual behaviour, local beliefs about infection, and the failure of the education programs.

The Health Transition Centre had the necessary research experience of African family structures and health issues. It employed its relations with university researchers in three African countries and was funded by Swedish and American bodies. Over twelve years, six books, hundreds of articles and chapters, and a series of conferences made a major input into local and international AIDS policies. The research program later spread to Bangladesh and more recently to Papua New Guinea. Alerting Papua New Guinea to its problems, Jack Caldwell prepared a report for AusAID and recently he and Geetha Isaac-Toua prepared a more extensive article for publication.

The highest levels of AIDS in the world is now in Southern Africa and the program has set up connections with researchers in South Africa to carry out further studies there.

NCEPH researchers: Jack Caldwell, Geetha Isaac-Toua, Bruce Caldwell, Pat Caldwell.

graduate program at NCEPH

Postgraduate training at NCEPH during 2001 focussed primarily on PhD and MPhil research and the Masters of Applied Epidemiology programs in Disease Control and Indigenous Health.

As in previous years, an induction program was held early in the year for newly commenced research students, covering such areas as degree rules, computer and library usage and supervision entitlements and requirements. During the year the Centre formalised its mentoring program, with the appointment of the Mentoring Coordinator. The Mentoring Coordinator's role is to ensure that students (and indeed staff) acquire high-level research skills, focus on productive research with practical applicability and have access to experienced researchers for supervision.

The focus of events in 2001 was again on the weekend for students and their supervisors at the University's coastal retreat, Kioloa, and also on the breakfast held later in the year at the Kurrajong Hotel. At this breakfast, which was very well attended, Dr Klaus Matthaei, from The John Curtin School of Medical Research, gave a talk on "Human Cloning".

Unfortunately, the numbers of students enrolled in the non-MAE coursework degrees in 2002 fell to the point where it was decided not to admit any new students to these degrees from 2002 onwards. A plan for each existing student was then developed, indicating the courses that would be available for them to complete their degrees over the next 1-2 years.

A highlight of the year!



Bev Sibthorpe (PhD supervisor) & Maggie Brady

The award of the JC Crawford Prize to Maggie Brady, who graduated in 2000 with a thesis entitled: "Difference and indifference: Australian policy and practice in Indigenous substance abuse", was a highlight of NCEPH's student calendar in 2001.

The J G Crawford Prize Fund was established in 1973 to recognise Sir John Crawford's outstanding contributions to the University, both as Vice-Chancellor for five years and as Director of the Research School of Pacific Studies for the preceding seven years.

Research training

The Centre continued with a strong cohort of research students in 2001. This included the first two candidates for the degree of Doctor of Population Health who commenced their research theses after completion of coursework. Ten NCEPH PhD students were approved by Council for the award of the degree during the year and went on to employment in government, university and other posts in Australia or overseas.

The range of research in our completed PhD theses reflects the broad range of research across epidemiology and population health that characterises activities at NCEPH. The subjects ranged from theoretical issues in biostatistics to applied studies on colorectal cancer screening and the training of family doctors in the detection and management of domestic violence.

Continuing students also made a number of notable contributions, and were supported to present papers at conferences during their degree courses. For example, Rosalie Woodruff was a keynote speaker and presented two papers at a conference in Colorado organised by Stanford University; and Colin Butler contributed to the book 'The Social Origins of Health and Well-being' edited by staff of the Centre. Nick Lintzeris submitted his PhD thesis in 2001 with his research contributing to the Award for Excellence in Public Health Research in the 2001 Victorian Public Health Awards.

During the year, academic staff introduced regular methodology seminars for postgraduate research students and encouraged the production of papers in international journals. NCEPH research

students actively participate in the Centre's seminar program and continue to play an important role in the intellectual life of the Centre.

Once again three undergraduate summer scholars spent the Christmas break at NCEPH. They undertook research projects supervised by members of staff of the Centre before returning to their home universities to do their Honours years.



Dr Jim Butler (left) and Dr Dorothy Broom (right) with summer research scholars Ailsa Tuck and Geraldine Treacher.

PhD Student Profiles



Rapid transition from a communist to a market economy, rural poverty and low wages, and family obligations: these structural factors firmly construct young women's sexual risk in Cambodia, a country

which is currently experiencing rapid spread of the AIDS epidemic. Featuring women workers in Cambodia's export garment industry, I aim to add knowledge to young never-married women's sexual health in Cambodia, which has long been overlooked. Research partners included women workers themselves, trade unions and Union Aid Abroad-Australia, with which I worked closely during my previous work with JICA Cambodia.

Choosing NCEPH for my PhD research was not accidental. It is known globally for its multidisciplinary AIDS-related sexual behaviour research in Sub-Saharan Africa by Prof. John Caldwell and his colleagues. I believe that Asia has a lot to learn from Africa to combat AIDS epidemics in multidisciplinary research, health education, and strategies to address young women's sexual health needs. Being one of the prominent national centres in health, NCEPH offers depth of knowledge developed for Australian constituents from which all research students can benefit.

Kasumi Nishigaya, PhD student



There is a gradient of ill-health that is related to socio-economic status. Those individuals with the highest income, the highest status jobs, living in the most sought after areas live longer and have less ill-health than those

less fortunate. This is not just a difference between the least well off and the best, but at any level of socioeconomic status, however measured, those above you do better healthwise and those below you do worse.

My PhD thesis seeks to explore the psychosocial theory of health inequality by measuring a number of possible psychological and social factors, and at the same time measuring a number of biological variables in blood and saliva. By seeing how each of these varies, by income and in relation to each other, I hope to add useful information to the research on health inequalities.

NCEPH provides a stimulating environment in which to conduct research and the opportunity to become involved in a wide range of topics and disciplines. My research involves collaboration with the Centre for Mental Health Research and the University of Canberra and has involved introduction to the social sciences, mental health research and laboratory medicine as well as building on my medical skills.

Robyn Lucas, PhD student

MAE (Disease Control)

The Master of Applied Epidemiology (Disease Control) is a national vocational training program which develops workforce capacity in Australia for the control of communicable diseases. Trainees spend all but three months of their two year program based in Commonwealth, State and Territory Health Departments or other national institutions such as the Australian Institute of Health and Welfare, the National Centre for HIV Epidemiology and Clinical Research and the Australia and New Zealand Food Authority. Field supervision is provided by experts in disease control and prevention and are typically the Directors of the institution where the trainee is placed. Intensive study at NCEPH takes place in four residential blocks in which trainees develop technical and applied skills in epidemiology, surveillance and outbreak investigation, as well as in biostatistics, scientific writing and oral communication. More than 90% of program graduates assume leadership roles in public health both in Australia and internationally.

During 2001, the MAE (DC) program has welcomed new students from East Timor and India and has accepted the challenges to consider the different needs of those whose efforts are focussed initially on basic human needs and secondarily on planning for a new future. During this year, six scholars graduated, eight moved into their second year and ten new scholars commenced the program.

The 2001 MAE conference "Charting New Directions: cutting edge issues in applied epidemiology" aimed to promote discussion, innovation and collaborative action on cutting edge issues both within Australia and the Asia-Pacific region. Guest speakers included



Students meet at Kioloa



Student Profile

I commenced the MAE(DC) in 2001 with a field placement in the Communicable Disease Control Branch in South Australia. I have

been involved in many projects in my first year, including being the principal investigator in two disease outbreak investigations.

The first was a *Campylobacter* outbreak among international delegates attending a conference in Adelaide, and the second was an outbreak of *Salmonella* Typhimurium 64var that was associated with eating at a local restaurant.

One of my more exciting roles was in the public health response to the Anthrax scares (white powder incidents) in South Australia. This involved establishing databases to document the incidents, as well as establishing surveillance of persons potentially exposed to the white powders.

The year has been very challenging for me, but also very successful in terms of developing my skills as an epidemiologist. I have completed many of the course requirements, while also having the opportunity to be involved in the everyday workings of a public health unit.

Rebecca Hundy, MAE(DC) 2001

Dr Yvan Souares and Dr Tom Kiedrzyński, from the Secretariat of the Pacific Community (SPC), and Dr Dave Durrheim, Director of Communicable Disease Control in Mpumalanga province of South Africa, as well as Professor John Mathews, National Centre for Disease Control, and Dr Cathy Mead, National Public Health Partnership.

Dr Hitoshi Oshitani from the Western Pacific Regional Office of the World Health Organisation also joined us for the conference. Dr Chin-Kei (C-K) Lee from the MAE Program staff was invited to travel to Manila in December to assist Dr Oshitani develop a regional surveillance strategy.

During 2001 both Dr Lee and Dr Mahomed Patel were invited by WHO to assist with the development of a Field Epidemiology Training Program in Beijing, China.

In August, four of the second year MAEs (Jane Greig, Ann Bull, Frances Birrell and Helen Thomas) travelled with the Program Director, Mary Beers-Deeble, to give presentations at the inaugural Regional Network of Training Programs in Epidemiology and Public Health Interventions (TEPHINET) meeting in Taipei, Taiwan. Mary was also invited to represent the program at the Global Outbreak and Response Network (GOARN) meeting at WHO Geneva in November and at the APEC Network of Networks meeting in Seattle.

Professor Scott Cameron joined the MAE team, as a Visiting Fellow, in 2001. Professor Cameron has had extensive experience in communicable disease control, being head of the Communicable Diseases Unit at the South Australian Health Commission from 1979 – 2000. Ms Linda Halliday graduated from the MAE in March 2001 and joined the program staff in April.

Eight new scholars have been selected to commence the program in 2002, including one WHO-funded scholar from Fiji. They will be placed in Perth, Darwin, Sydney, Canberra, Melbourne, Brisbane, Mt Isa and Suva.



MAE student, Ann Bull at TEPHINET conference



Supervisor Profile

When I came back to Australia following a post-doctoral fellowship in the USA, in order to enrol in the MAE program, I don't think I had a very good idea of what either public health or epidemiology was all about! That was in 1994, and I can now say that through the MAE program and my experiences since, that I have a pretty good idea.

When I finished the MAE in March 1996, I was appointed to an academic position spanning Tropical Health and Microbiology. Although there is significant overlap between the two areas, the approaches are like chalk and cheese.

It was a big challenge to carve out a significant research program and teach about tropical public health on the one hand and bugs on the other! Although I did attract some research funding, I gave it up in December 1996 to work for Queensland Health as Manager of Communicable Diseases Unit.

Apart from 15 months overseas working on polio eradication, I've been in this job ever since. I've supervised three MAE students who have graduated, and am currently supervising an MAE(DC) and an MAE(IH) student. I really enjoy the variety of my job.

My work unit covers surveillance and epidemiology, immunisation, HIV/AIDS and sexual health, infection control, water, waste and vector control. Obviously I don't do everything myself, but the variety means that I get to think about a lot of different things, talk to a lot of different people and utilise a number of different public health approaches. 'One size fits all' is not an approach that would work in communicable diseases.

None of this would have happened if I didn't happen to hear about the MAE program when living in the USA. I am certainly extremely grateful to have had such a wonderful opportunity, and now to be able to assist in providing the opportunity to others.

Linda Selvey, MAE94

MAE (Indigenous Health)

The Master of Applied Epidemiology (Indigenous Health) aims to strengthen Indigenous public health capacity, improve national networking and infrastructure and produce outputs in Indigenous health service research and evaluation by providing students with Masters level skills and experience in applied epidemiology.

In April 2001 three students from the 1999 cohort passed their examinations, and they graduated in September of that year.

As at March 2001 there was only one member of the original three-member 2000 cohort, as two students decided to withdraw from the program before commencement of the second year.

A fourth cohort of five students and one deferring student commenced in March 2001. These students have completed a range of projects in placements that include Public Health Units, national research centres, and a large women's hospital. Placements for these students have been in Melbourne, Brisbane, Sydney and Palm Island. Student projects from within this cohort have included: analysis of data related to breast cancer amongst Indigenous women; women's health after childbirth; study of Indigenous admissions and births at Royal Women's Hospital, Melbourne; and an investigation of an outbreak of salmonella. One student suspended from the Program in late November 2001.



Student Profile

Following my graduation from the University of Queensland with a Bachelor of Applied Health Science

in Indigenous Primary Health Care, I worked as an Aboriginal Health Worker and in other areas of Indigenous health.

One of the main reasons for choosing to study the MAE(IH) at NCEPH, was the opportunity to study and learn whilst still being situated in the workplace. This would be a great learning experience and would be of particular benefit when rejoining the workforce.

The aim of my major research project for the MAE is to improve diabetes care in an urban Community Health Centre. This will involve doing an evaluation of the current diabetes recall system, developing a descriptive diabetic profile and implementing changes to help maintain and improve ongoing diabetes care in this centre.

Other projects involve conducting a descriptive analysis of a survey and comparing lifestyle risk factors in an urban Indigenous population to an urban non-Indigenous population.

Dallas Leon, MAE(IH) 2001



Student Profile

In previous employment, in both Aboriginal Community Controlled and mainstream health organisations as a nurse and tertiary educator, I had

noticed a lack of information about Indigenous health, which made it challenging and at times frustrating to plan, implement and evaluate health interventions. Often health information that is taken for granted as being present for non-Indigenous people, simply does not exist for Indigenous people. I therefore enrolled in the MAE(IH) at NCEPH, to learn further research skills.

My research projects, in collaboration with various Indigenous health organisations, include Koorie women and breast-screening in Victoria and hearing loss in Koorie children in Victoria. The first project looks at outcomes and participation of Koorie women attending BreastScreen Victoria, and evaluating the accuracy of data collection. The hearing loss project evaluates the current methods of data collection on hearing loss in Koorie children in Victoria.

Working on these projects and studying research in an Indigenous context has allowed me to rapidly gain research skills that I have found applicable and useful.

Karen Adams, MAE(IH) 2001

PhD students and supervisors

Ross Andrews, DipAppSc *Swinburne Inst*, 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

Samantha Crompvoets, BSc (Hons) *Melb*

Breast cancer and the post-surgical body.

Dr D Broom, Dr A Whittaker, Dr K Robinson, Dr K White

Marian Currie, BAppSci *Canberra CAE*, GradDipPopHlth *ANU*

Postnatal depression in the Australian Capital Territory.

Dr W Smith, Dr L Roberts, Dr L Lim, Dr J Thompson, Professor D Ellwood

Robyn Davies, BA (Hons) *ANU*

Protective factors for adolescent drug use.

Dr G Bammer, Dr G Hall, Dr L Roberts

Anne Gardner, BA MPH *ANU*

Health status after bacterial and fungal bloodstream infections.

Dr B Sibthorpe, Dr P Collignon, Dr K Dear, Dr W Smith

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 W Smith, Dr C Kelman

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.

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

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

Methadone program evaluation.

Dr G Bammer, Dr R D'Souza

Carol Kee, BEd *Riverina - Murray Inst of HEd*, GradDipSpecialEd *Goulburn CAE*, GradDipPopHealth *ANU*

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

Dr D Broom, Dr L Lim, Dr J McMillan

Monita Kothari, BA(Econ) *St Xavier's Ahmenahad*, MA(Econ) *Rajasthan*

Health-seeking behaviour: a case study in rural Rajasthan, India.

Professor J Caldwell, Dr J Butler, Dr S Jain, Dr R D'Souza

Michelle La Sen, DipTeach *Bris*, BA(Hons) *James Cook*

Child mortality regimes of the Koronadel B'laan, Southern Mindanao, the Philippines.

Professor J Caldwell, Professor J Cabignon, Dr G Carmichael

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

Karen Lees, RN, RM, BAppSci (NursSci) *Canberra*

The long-term impact of work-related neck and upper body disorders; an historical cohort study of all female office workers employed at the ANU from 1980-1984.

Dr G Bammer, Dr W Smith, Dr K Dear

Caleb Leung, BSc, MSc *ANU*

Random component models in geographical and temporal variation disease incidence.
Professor C McGilchrist, Professor S Wilson, Dr M Patel

Nicholas Lintzeris, BMedSc, MBBS *Tas*

The use of buprenorphine in the management of heroin withdrawal.
Dr G Bammer, Dr J Bell, Dr D Jolley

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

Biomarkers of Social Disadvantage.
Dr W Smith, Dr B Rodgers, Professor RM Douglas

David McDonald, BA *Syd*, MA *Alberta*, GDPH *ANU*

Firearms and interpersonal violence.
Professor RM Douglas, Dr D Broom, Dr P Grabosky

Clare McGuinness, MBBS *Newcastle*, MAppEpid *ANU*

Using client reports to measure coordination of health care.
Dr B Sibthorpe, Dr D Broom, Professor RM Douglas

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

Community level social determinants of mental health.
Professor RM Douglas, Dr B Rodgers, Dr L Lim

Susan Nancarrow, BAppSc, MAppSci *QUT*

If health outcomes are the answer: what is the question? The health outcomes in measuring health service accountability.
Dr D Broom, A/Professor N Glasgow

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 Caldwell, Dr D Broom, Dr G Bammer

Ann-Maree Nobelius, BSc, DipRepSc, MSc *Monash*

Evaluating the sexual health needs of out-of-school adolescents in rural South-west Uganda
Professor J Caldwell, Professor RM Douglas

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

Injecting drug-users and nurses in the ACT: understanding the issues.
Dr G Bammer, Dr L Lim, Dr T Makkai, Professor P Morrison

Michael Nunn, BVSc *Melb*, MSc *James Cook*, GDipMgt *Capricornia*

Studies on the application of risk assessment to animal quarantine and veterinary public health
Professor RM Douglas, Dr AJ Plant

Geetha Ranmuthugala, MBBS *Papua NG*, MAppEpid *ANU*

Disinfection by-products in drinking water and genotoxic changes in urinary bladder epithelial cells
Dr W Smith, Dr L Pilotto, Professor RM Douglas, Dr K Dear

Sabina Rashid, MLitt, BA *ANU*

An Ethnographic study on Reproductive Health among Married and Unmarried Female Adolescents in an Urban Slum in Bangladesh.
Dr B Caldwell, Dr A Whittaker, Dr R D'Souza, Dr M Lyon

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

The cost of injury to the Australian Army.
Professor RM Douglas, Dr J Butler, Dr W Smith

Judith Ryan, BA(Hons) ANU

Which is the more effective treatment for chronic neck pain, regionalised strength or regionalised endurance training? Results of a double-blind randomised controlled trial.

Professor A Adams, Professor RM Douglas, Dr 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, Dr W Smith, Dr G Carmichael, Dr L Roberts

Leigh Trevillian, MBBS, MPH Syd

Asthma: the relationship to a child's sleeping environment

Professor A Adams, Dr A-L Ponsonby, Dr A Whittaker, Dr B Caldwell

Agnes Walker, BEng Ecole Poly Tech Paris, MEng NSW

Modelling the links between socio-economic status and health

Dr J Butler, Professor N Becker, Professor A Harding

Rosalie Woodruff, BA Canb, MPH ANU

Environmental and personal factors in Ross River Virus Disease

Dr C Guest, Dr G Garner, Professor N Becker

MPhil students and supervisors

Rabaiul Murshed

Prof RM Douglas, Dr B Caldwell, Dr G Ranmuthugala

Casey Quinn

Dr J Butler

DrPH students and supervisors

Walter Abhayaratna

Stephen Lawton

Peter Lockey

Kamalini Lokuge

Dr W Smith, Dr K Dear, Dr B Caldwell, Prof RM Douglas, Dr M Patel

Judith Staples

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

MPH students

Nicole Druhan

Sarah Hinde

Tracey Newbury

GDPH students

Josie Barac

Trilby McGaw

Indrani Pieris

Indra Ramasamy

Joyce Steele

Felicity Summers

Katherine Turner

MAE students, placements & supervisors

Master of Applied Epidemiology (Disease Control) students 2000 cohort

Frances Birrell, Communicable Diseases Branch, Queensland Health, Brisbane
Dr B McCall, Dr L Selvey, Ms M Beers

Ann Bull, Australia and New Zealand Food Authority, Canberra
Dr S Crerar, Ms M Beers

Jane Greig, Communicable Diseases Section, Department of Human Services, Melbourne
Dr J Carnie, Dr M Patel

Therese Kearns, Centre for Disease Control, Territory Health Services, Darwin
Dr V Krause, Ms L Halliday, Dr M Patel

Janet Li, Communicable Disease Control Unit, ACT Health and Community Services, Canberra
Dr E O'Brien, Dr M Patel, Ms L Halliday

Mohinder Sarna, WA Centre for Pathology and Medical Research, Perth
Assoc Prof T Riley, Dr M Patel

Helen Thomas, Injury Surveillance Unit, Department of Health and Human Services, Adelaide
Dr R Somers, Ms M Beers

Sean Tobin, Communicable Diseases Section, Department of Human Services, Melbourne
Dr G Tallis, Dr C-K Lee

**Master of Applied Epidemiology (Disease Control) students
2001 cohort**

Paul Armstrong, Centre for Disease Control, Territory Health Services, Darwin
Dr V Krause, Prof Scott Cameron

Angela Babo-Soares, East Timor Ministry of Health and UNICEF, Dili, East Timor
Dr R Lamb, Dr P Kelly, Dr R Condon, Ms L Halliday

Luis Dos Reis, Subdivision Surveillance & Communicable Diseases, Ministry of Health, East Timor
Dr J Spencer, Dr R Condon, Dr J San Martins, Dr J Kolaczinski, Dr J Thomas, Mrs A A Martins, Ms L Halliday

Karen Dempsey, Mt Isa Centre for Rural and Remote Health, Mt Isa
Dr E Chalmers, Dr N Blackwood, Ms M Beers

Rebecca Guy, Communicable Diseases Section, Department of Human Services, Melbourne
Dr G Tallie, Dr S Lambert, Ms M Beers

Rebecca Hundy, Communicable Diseases Control Unit, Department of Human Services, Adelaide
Prof S Cameron, Ms M Beers

Remachandran Ramakrishnan, National Institute of Epidemiology, Chennai, India
Dr MD Gupte, Dr M Patel

Monica Robotin, National Centre in HIV Epidemiology and Clinical Research, Darlinghurst
Dr A Grulich, Dr G Dore, Dr M Patel

Nola Tomaska, OzFoodNet, Melbourne
Mr M Kirk, Dr S Lambert, Ms M Beers

Kefle Yohannes, Hunter Public Health Unit, Newcastle
Dr C Dalton, Ms L Halliday

**Master of Applied Epidemiology (Indigenous Health) students
2001 cohort**

Karen Adams, Australian Research Centre in Sex, Health and Society, LaTrobe University
Dr A Kavanagh, Ms J Guthrie

Sandra Campbell, Centre for the Study of Mothers' and Childrens' Health, La Trobe University
Dr S Brown, Ms J Guthrie

Paige Dowd, South Eastern Sydney Public Health Unit, Randwick
Assoc Prof M Ferson, Dr R D'Souza

Joy Grogan, Northern Queensland Rural Division of General Practice, Garbutt, Qld
Dr R Nable, Dr G Hall

Dallas Leon, Communicable Disease Control, Brisbane Southside Public Health Unit, Brisbane
Dr B McCall, Dr C McClintock, Dr G Hall

Nerida Sutherland, Resource Unit Indigenous Mental Health Education and Research, Melbourne
Dr C Bennett, Ms Moo, Ms J Guthrie

peer-reviewed journal articles

Audera C, Patulny R, Sander B, Douglas RM. Mega-dose vitamin C in treatment of the common cold: a randomised controlled trial. *Medical Journal of Australia* 2001; 175:359-362.

Bammer G, Richter K. A hierarchy of strategies heroin-using mothers employ to reduce harm to their children. *Journal of Substance Abuse Treatment* 2001; 19:403-413.

Becker N, Britton T. Design issues for studies of infectious diseases. *Journal of Statistical Planning and Inference* 2001; 96:41-66.

Becker N, Marschner I. Advances in medical statistics arising from the AIDS epidemic. *Statistical Methods in Medical Research* 2001; 10:117-140.

Becker N, Utev S. Threshold Results for U-Statistics of Dependent Binary Variables. *Journal of Theoretical Probability* 2001; 14(1):97-114.

Broom D. Public Health, private body. *Australian and New Zealand Journal of Public Health* 2001; 25:5-8.

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Butler J, Skull S. Meningococcal vaccination for adolescents? An economic evaluation in Victoria. *Journal of Paediatrics and Child Health* 2001; 37:S28-S33.

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Caldwell J. The globalization of fertility behaviour. *Population and Development Review* 2001; 27:93-115.

D'Souza R. Role of maternal autonomy on child mortality in slums of Karachi, Pakistan. *Journal of Health and Population in Developing Countries* 2001; 4(1):111.

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Douglas RM. Disease control in the information era. *Medical Journal of Australia* 2001; 174:241-243.

Eckersley R. Economic progress, social disquiet: the modern paradox. *Australian Journal of Public Administration* 2001; 60(3):89-97.

Eckersley R. Losing the battle of the bulge: causes and consequences of increasing obesity. *Medical Journal of Australia* 2001; 174:590-592.

Eckersley R. The social context of youth marginality. *Health Promotion Journal of Australia* 2001; 12(3):199-200.

Eckersley R. What makes a better life? The role of learning in redefining progress. *Australian Journal of Adult Learning* 2001; 41(1):23-39.

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- Glasgow N, Taylor J, Bell J, Young M, Bammer G. Accelerated withdrawal from methadone maintenance therapy using naltrexone and minimal sedation: a case series analysis. *Drug and Alcohol Review* 2001; 20:213-221.
- Graham J, Broom D, Whittaker A. Consulting about consulting: challenges to effective consulting about public health research. *Health Expectations* 2001; 4:209-212.
- Healy J, McKee M. Hospitals in transition in central and eastern Europe and central Asia. *Eurohealth* 2001; 7(3):1. Editorial.
- Healy J, McKee M. Reforming hospital systems in turbulent times. *Eurohealth* 2001; 7(3):2-7.
- McKee M, Healy J. Health-promoting hospitals: meeting the needs of the people. *Journal of Health Gain* 2001; 5(2):3-7.
- McKee M, Healy J. The changing role of the hospital in Europe. *Clinical Medicine* 2001; 1(4):299-304.
- McMichael AJ. Climate change and health: Information to counter the White House Effect. *International Journal of Epidemiology* 2001; 30:655-657.
- McMichael AJ. Environment, Sustainability and Health: The learning curve steepens. *Medical Journal of Australia* 2001; 175: 569-570.
- McMichael AJ. Global climate change and health: Research challenges, ecological concepts and sustainability. *Environmental Health* 2001; 1:13-15.
- McMichael AJ. Global environmental change as "risk factor": Can epidemiology cope? *American Journal of Public Health* 2001;91: 1172-1174.
- McMichael AJ. Transitions in human health: Surviving this millennium by learning from the previous one hundred millennia. *Global Change and Human Health*, 2001; 2: 76-77.
- McMichael AJ, Hall AJ. Ultraviolet radiation and multiple sclerosis: time to shed more light. *Neuroepidemiology* 2001; 20:165-167.
- O'Neill P, Becker N. Inference for an epidemic when susceptibility varies. *Biostatistics* 2001; 2(1):99-108.
- O'Brien E, Bailie R, Jelfs P. Cervical cancer mortality in Australia: contrasting risk by Aboriginality, age and rurality. *International Journal of Epidemiology* 2001; 29:813-816.
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- Ponsonby A-L, Dwyer T, Kemp A, Couper D, Cochrane J, Carmichael A. A prospective study of the association between home gas appliance use during infancy and subsequent dust mite sensitization and lung function in childhood. *Clinical and Experimental Allergy* 2001; 31:1544-1552.
- Ponsonby A-L, Glasgow N, Gatenby P, Mullins R, McDonald T, Hurwitz M, Pradith B, Attewell R. The relationship between low level nitrogen dioxide exposure and child lung function after cold air challenge. *Clinical and Experimental Allergy* 2001; 31(8):1205-1212.
- Ponsonby A-L, Kemp A. Asthma and early childhood infectious disease. Critical time for protective effect of large family on asthma may not be during first year of life. *British Medical Journal* 2001; 323(7305):164-165
- Sibthorpe B. Models of Primary Health Care: The New Zealand Experience. *New Doctor* 2001; 74, (Summer 2000-2001):5-8.
- Sibthorpe B, Anderson I, Cunningham J. Self-assessed health among Indigenous Australians: how valid is a global question? *American Journal of Public Health* 2001; 91(10):1660-1663.
- Skull S, Butler J, Robinson P, Carnie J. Should programmes for community-level meningococcal vaccination be considered in Australia? An economic evaluation. *International Journal of Epidemiology* 2001; 30: 571-578.

Valery P, Chang A, Shibasaki S, Gibson O, Purdie D, Shannon C, Masters I. High prevalence of asthmas in five remote indigenous communities in Australia. *The European Respiratory Journal* 2001; 17:1089-1096.

Van der Mei IA, Ponsonby A-L, Blizzard L, Dwyer T. Regional variation in multiple sclerosis prevalence in Australia and its association with ambient ultraviolet radiation. *Neuroepidemiology* 2001; 20(3):168-174

Van Loveren H, Vos GJ, Germolec D, Simeonova PP, Eijkmanns G, McMichael AJ. Epidemiologic associations between occupational and environmental exposures and autoimmune disease: Report of a meeting to explore current evidence and identify research needs. *International Journal of Hygiene and Environmental Health* 2001; 203:483-495.

books and chapters

Bammer G. 'The challenges of the changing researcher - policy maker interface.' In: Gavin Mooney and Aileen Plant (eds), *Daring to Dream: the Future of Australian Health Care. Essays in Honour of John Deeble*. First edition, Black Swan Press, Bentley, Western Australia 2001; pp 23-29.

Becker N, Utev S. 'A distribution functional arising in epidemic control.' In: Ch.A. Charalambides, Markos V. Koutras, N. Balakrishnan (eds), *Probability and Statistical Models with Applications*. First edition, Chapman & Hall, United States 2001; pp 573-582.

Bromley G, Ashwell S, McGuinness C, Sibthorpe B. 'A GP perspective on the ACT Coordinated Care Trial.' In: *The Australian Coordinated Care Trials. Reflections and Lessons*. Commonwealth of Australia, 2001; pp 43-48.

Broom D. 'Australian women's health: from margins to mainstream.' In Gavin Mooney and Aileen Plant (eds), *Daring to Dream: the Future of Australian Health Care. Essays in Honour of John Deeble*. First edition, Black Swan Press, Bentley, Western Australia 2001; pp 39-49.

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Butler CS, Douglas RM, McMichael AJ. 'Globalisation and Environmental Change: Implications for health and health inequalities.' In: Eckersley R, Dixon J, Douglas RM. (eds), *The Social Origins of Health and Well-being*. First edition, Cambridge University Press, Cambridge 2001; pp. 34-50.

Butler J. 'Policy change and private health insurance: did the cheapest policy do the trick?' In: Gavin Mooney and Aileen Plant (eds), *Daring to Dream: the Future of Australian Health Care. Essays in Honour of John Deeble*. First edition, Black Swan Press, Bentley, Western Australia 2001; pp 51-62.

Caldwell B. 'Marriage patterns and demographic change in Sri Lanka: a long-term perspective.' In: Ts'ui-jung Liu, James Lee, David Sven Reher, Osama Saito and Wang Feng (eds), *Asian Population History*. First edition, Oxford University Press, Oxford 2001; pp 416-440.

Caldwell J. 'African studies: health.' In: Neil J Smelser, Paul B Baltes (eds), *International Encyclopedia of the Social and Behavioral Sciences*. First edition, Elsevier, Oxford 2001; pp 244-250.

Caldwell J. 'Demographers and the study of mortality; scope, perspectives and theory.' In: Maxine Weinstein, Albert I Hermalin, Michael A Stoto (eds), *Population Health and Aging; Strengthening the Dialogue between Epidemiology and Demography*. First edition, The New York Academy of Sciences, New York 2001; pp 19-34.

Caldwell J. 'What do we know about Asian Population History? Comparisons of Asian and European Research' In: Ts'ui-jung Liu, James Lee, David Sven Reher, Osama Saito and Wang Feng (eds), *Asian Population History*. First edition, Oxford University Press, Oxford 2001; pp 3-23.

Carmichael GA. 'New Zealanders'. In James Jupp (Ed.), *The Australian People: An Encyclopedia of the Nation, Its People and their Origins*. Cambridge University Press, Cambridge 2001; pp. 602-608 and 899.

Devitt J, Hall G, Tsey K. 'Determinants of health: underlying causes.' In: Condon JR, Warman G, Arnold L (eds), *The Health and Welfare of Territorians*. Epidemiology Branch, Territory Health Services, Darwin 2001; pp 9-18.

Diaz HF, Kovats RS, McMichael AJ, Nicholls N. 'Climate and human health linkages on multiple timescales.' In: Jones P, et al (eds) , *History and Climate: Memories of the Future*. Dordrecht: Kluwer Academic/Plenum Publishers, 2001; pp. 267-289.

Douglas RM. 'Electronic health records as essential building blocks for the Public Health Information System. In: Gavin Mooney and Aileen Plant (eds), *Daring to Dream: the Future of Australian Health Care. Essays in Honour of John Deeble*. First edition, Black Swan Press, Bentley, Western Australia 2001; pp 63-67.

Eckersley R. 'Culture, health and well-being.' In: Eckersley R, Dixon J, Douglas R. (eds), *The Social Origins of Health and Well-being*. First edition, Cambridge University Press, Cambridge 2001; pp 51-70.

Eckersley R. 'Postmodern science:the decline or liberation of science?' In: Susan M Stocklmayer, Michael M Gore and Chris Bryant (eds), *Science Communication in Theory and Practice*. 1st edition, Kluwer Academic Publishers, The Netherlands 2001; pp 83-94.

Eckersley R, Dixon J, Douglas RM. *The Social Origins of Health and Well-being*, First edition, Cambridge University Press, Cambridge 2001; pp 347.

Feyer A, Broom D. 'Work and health: the impact of structural workforce changes and the work environment.' In: Eckersley R, Dixon J, Douglas RM. (eds), *The Social Origins of Health and Well-being*, First edition, Cambridge University Press, Cambridge 2001; pp 178-188.

Keatinge W, Kovats RS, McMichael AJ. 'Overview of Climate Change Impacts on Human Health in the UK: Heat-and-cold-related mortality and morbidity and climate change.' In: Green E, Maynard R (eds), *Health Effects of Climate Change in the UK*. London: Dept of Health, 2001.

Khuda B, Caldwell J, Caldwell B, Pieris I, Caldwell P, Ahmed S. 'Determinants of the fertility transition in Bangladesh.' In: James F Phillips and Zeba Ayesha Sathar (eds), *Fertility Transition in Asia*. First edition, Oxford University Press, Oxford 2001; pp 364-385.

McMichael AJ. 'Fatness and thinness.' In: Lock, S., Last, J.M. (eds), *Oxford Illustrated Companion to Medicine*. Oxford University Press, Oxford 2001; pp. 303-305.

McMichael AJ. 'Rethinking environment and health.' In: Heller T, et al (eds), *Working for Health*. Sage, London 2001; pp.114-123.

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McMichael AJ, Githeko A, Confalonieri U, et al. 'Health.' In: Canziani, O., McCarthy, J. (eds.), *Climate Change 2000. Impacts and Adaptations. Volume II, Third Assessment Report, Intergovernmental Panel on Climate Change*. Cambridge University Press, 2001.

McMichael AJ, Haines A, Kovats RS. 'Methodological Issues in Assessing the Effects of Climate Change on Health.' In: Green, E., Maynard, R. (eds), *Health Effects of Climate Change in the UK*. Dept of Health, London 2001.

McMichael AJ, Woodward AJ. 'Climate change and stratospheric ozone depletion.' In: McKee, M., Garner, P., Stott, R. (eds), *International Cooperation in Health*. Oxford University Press, Oxford 2001; pp 61-80.

Pearce N, McMichael AJ. 'Interactions of environmental change and human health.' In: *Encyclopaedia of Life Sciences. Volume 1. Our Fragile World: Challenges and Opportunities for Sustainable Development*. EOLSS Publishers, London 2001; pp.795-804.

Powles JW, McMichael AJ. 'Human disease: Effects of economic development.' in *Encyclopaedia of Life Sciences*. Macmillan, London. <http://www.els.net>, Nature Publishing Group, London 2001.

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invited keynote conference papers

Bammer G. 'Pregnancy, parenting and treatment.' *Perinatal Society of Australia and New Zealand 5th Annual Congress*, Canberra.

Bammer G. 'Wellbeing in the 21st Century: getting better, or getting worse?' *VicHealth Symposium, 'Thinking Well – mental health and wellbeing: everybody's business.'* Melbourne.

Bammer G. 'Beyond the physical environment: culture, health and wellbeing', *National Conference of the Royal Australian Planning Institute*, Canberra.

Banwell C. 'Balancing Acts: Family and Social Issues for women living with Hep C.' *National Women's Health Conference*, Adelaide.

Broom D. 'Everything old is new again (or is it?): Australian women's health, politics and policies.' *4th Australian Women's Health Conference*, Adelaide.

Caldwell JC. 'The demographic approach.' *Demography and Epidemiology: Frontiers in Population Health and Ageing*. Washington DC.

Caldwell JC, Caldwell P. 'The gains and losses from amalgamating family planning and AIDS programs in sub-Saharan Africa.' Meeting in New York.

Caldwell JC, Caldwell P. *Family Research in Sub-Saharan Africa*. Harvard University.

Caldwell JC. Opening address. *Demographic Change and Family Planning Interventions in Rajasthan*. Jaipur, Rajasthan.

Caldwell JC. 'Future demographic change and the situation of the elderly' *IUSSP General Conference*, Brazil.

Deeble J. 'The New Taxation System - funding implications for health?' Australian College of Health Service Executives & Australian Healthcare Association joint one-day conference, Adelaide.

Eckersley R. 'Wellbeing in the 21st Century: getting better, or getting worse?' *VicHealth Symposium, 'Thinking Well – mental health and wellbeing: everybody's business.'* Melbourne.

Eckersley R. 'Beyond the physical environment: culture, health and wellbeing', *National Conference of the Royal Australian Planning Institute*, Canberra.

McGuinness C. 'Client perceptions of coordination show promise for health care evaluation.' Royal Australian College of Physicians Annual Scientific Meeting, Sydney.

McMichael AJ. Keynote address. *The Canberra Region Annual Scientific Meeting*, The Canberra Hospital, Canberra.

Woodruff R. 'Public Health Prevention: Using Climatic Factors for Ross River Virus Surveillance', *International Workshop on energy modelling, climate and health impacts*, Snowmass, Colorado.

outreach

A major continuing activity of the Centre is the wide and diverse engagement of its academic staff in external committees, commissioned reviews, research application reviewing, public communications and media interviews. Population health research is never far from the front-line of social policy, and further, much of that research is of an applied nature in relation to social interventions and strategies.

NCEPH staff continue to serve as members of over 50 important national and international committees. These include, for example:

- NHMRC Indigenous Health Research Advisory Committee (Jill Guthrie)
- Council, Australian Population Association (Gordon Carmichael)
- Australian Health Economics Society, President (Jim Butler)
- NHMRC Health Advisory Committee (Tony McMichael)
- Board of Directors, Australia 21 (Bob Douglas *chair*, Jane Dixon, Richard Eckersley)
- Australian Drug Information Network, National Reference Group (David McDonald)
- Steering Committee, Evaluation of State-based Organisations for Divisions of General Practice, Department of Health and Aged Care (Bev Sibthorpe)
- CSIRO Climate-Atmosphere Sector Advisory Committee (Tony McMichael)
- Expert Steering Committee, National Drug Strategy Prevention Agenda (Richard Eckersley)
- Scientific Committee on Musculoskeletal Disorders, International Commission on Occupational Health (Gabriele Bammer)
- Board, International Society for Equity in Health (Jane Dixon)
- WHO Scientific Working Group, Early Health Effects of Climate Change in Europe (Tony McMichael)
- Board of Trustees, Carleton College, Northfield, Minnesota (Dorothy Broom)
- International Expert Scientific Advisory Group (on heroin prescription), Health Council of the Netherlands (Gabriele Bammer)
- International Scientific Panel on Population and Environment (Tony McMichael)

Staff of the Centre have given many public lectures in 2001, in universities, government departments, schools and other institutions. A partial list of invited and keynote presentations at conferences is shown on page 35.

NCEPH staff have also served on a variety of editorial boards, for approximately 40 different national and international journals. These include *Epidemiology*, *Australian and New Zealand Journal of Public Health*, *Australian Feminist Studies*, *Health Sociology Review*, *Journal of Statistical Computation and Simulation*, *Current Issues in Criminal Justice*, *Population and Development Review*, *Social Science and Medicine*, and the *Journal of Population Research*. Tony McMichael is co-editor of the journal *Global Change and Human Health* and Keith Dear is the Australasian Regional Editor for the *Journal of Biopharmaceutical Statistics*. Reviews of manuscripts have been carried out by staff for an even longer list of national and international journals and books. Meanwhile, staff members have also participated widely in the reviewing of research grant applications, for the National Health and Medical Research Council, the Australian Research Council and various other national and state research funding organisations.

honours and awards

Tony Adams

Harvard University School of Public Health Alumni Merit Award for lifetime contribution to public health.

Rotary International Award for Contribution to the Global Eradication of Poliomyelitis.

Gabriele Bammer

Co-recipient of the Award for Excellence for Public Health Research in the 2001 Victorian Public Health Awards. This was awarded to Turning Point Alcohol and Drug Centre in collaboration with NCEPH for “high quality research examining new drug options for the treatment of heroin dependence”.

Fulbright New Century Scholar, 2001.

Clare McGuinness

Gerry Murphy Prize for best presentation of Faculty of Public Health Medicine Trainees, at Royal Australian College of Physicians Annual Scientific Meeting, Sydney.

Tony McMichael

Burnet Award (NHMRC) - provision of research support for five years, at \$400,000 per year.

grants

The Centre, through the University, entered into a new five year contract, from the commencement of 2001, with the Commonwealth Department of Health and Ageing, through the Public Health Education and Research Program. This contract funds the Centre's core activities. The grant was fully matched by the University, thus amounting to a total of \$12,601,432 over five years. This solid base enables the Centre to pursue initiatives in long-term, emerging areas of research through grant applications and to extend and expand the Centre's public health research and training activities.

Some of the other grant highlights in 2001 included

- the major research contract signed with AusAID for a study of the contamination of drinking water by arsenic in Bangladesh. This problem has rapidly become a major public health issue in that country. \$1,437,680 over three years was awarded.
- continued funding for the Master of Applied Epidemiology (Indigenous Health) from the Office of Aboriginal and Torres Strait Islander Health, Department of Health and Ageing, of \$1,375,000 over three years.
- the new Director, Professor McMichael, was awarded the NHMRC prestigious Burnet Award for outstanding Australian researchers to encourage them to return to Australia. The award is \$2,000,000 over five years.

finance

Income and Expenditure Statement 2001

Income	\$
ANU Operating Funds	1,374,000
Commonwealth PHERP Funds	1,420,759
Grants and Consultancies	4,424,342
Total Income	7,219,101
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Expenditure	
Salaries	3,261,353
Students	1,120,710
Travel	819,843
Operations and Equipment	1,531,987
Total Expenditure	6,733,893