

Independent Review

of

The Public Health Education and Research Program

Report to The Honorable Dr Michael Wooldridge MP
Minister for Health and Aged Care
Commonwealth of Australia

Reviewers

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April 1999

1. Letter of Transmittal

The Honorable Dr Michael Wooldridge MP
Minister for Health and Aged Care
Commonwealth of Australia
Parliament House
Canberra

30 April, 1999

Dear Minister

We respectfully submit the Review of the Public Health Research and Education Program conducted during 1998.

It has been our pleasure to document the outstanding success represented by this investment of Commonwealth funds for the future health of Australians.

We believe that PHERP should now be strengthened and expanded into a means of funding innovation and development in public health with an increased emphasis on public health research focussed on our national health priorities.

Sincerely,

Terry Nolan

Lois Bryson

Joyce Lashof

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5. Terms of reference

- An assessment of the performance of the Public Health Education and Research Program (PHERP) particularly in relation to the contribution made to the development of public health workforce and research capacity in Australia.
- The contribution of the program to public health research. In particular, how effectively the program has supported, promoted and disseminated research, across the spectrum of public health.
- An analysis of the benefits and limitations of the current PHERP funding and organisational arrangements to meet public health workforce and research needs to date and recommendations for improvement to meet anticipated future needs.
- Identify potential avenues for more effective utilisation of the capacity of the tertiary sector and the PHERP program in particular to meet anticipated public health workforce policy, planning, evaluation and research needs.
- Make recommendations for future Commonwealth investment in the tertiary sector for public health workforce development and research taking into account anticipated public health priorities and consequent workforce capacity requirements, changes in public health governance and changes in tertiary sector policy and funding.
- Document priority issues which have been raised during the review and which need consideration by Government and the public health sector for workforce policy and planning.
- Provide direction and advice where appropriate.

6. Executive Summary

In 1985 the Commonwealth commissioned Professor Kerr White to provide a vision for public health and tropical health for Australia to the year 2000 (report submitted in 1986). The Public Health Education and Research Program (PHERP) developed from this initiative and has now been in existence for eleven years. This is the second review of the Program, the first being by Professor George Salmond in 1991. The multidisciplinary, multi-sectoral and intergovernmental nature of the Program, together with its continuity and regular reviews, has allowed a productive intellectual infrastructure to develop in parallel with the development of the Program's organisational infrastructure.

In 1997-98 annual PHERP cash support was about \$8.7m to 17 universities and centres, representing about 30% of the \$29m teaching and research budgets of the relevant cost centres (Table C and Appendix 1). PHERP supports public health teaching consortia in 5 states (NSW, Queensland, South Australia, Victoria and Western Australia), special programs at James Cook University and The University of Newcastle, and 2 specialist research centres at The Australian National University (National Centre for Epidemiology and Population Health - NCEPH) and The University of Queensland and Queensland Institute of Medical Research (Australian Centre for International and Tropical Health and Nutrition - ACITHN).

Kerr White's vision for public health remains appropriate today but yet unfulfilled as we now prepare to move into the next century. This vision, articulated in the objectives of PHERP phase 1, was for a change in emphasis in the health service sector from cure to illness and injury prevention and health promotion mediated through widely accessible public health education for all members of the health industry. This vision was based on the same logical platform that underpins the recent Strategic Review of Health and Medical Research in Australia (the Wills Review), namely for a health system that contributes directly to the health of the population through its effectiveness, efficiency and equity. Kerr White's vision underlined the crucial need to improve Australia's capacity to understand and prevent socially caused disease and injury.

Over a period of 9 months, and after hearing evidence from all sectors of the Australian health industry and from the academic sector, we have determined that the PHERP investment from the time of the Kerr White Report has been an outstanding success. The major achievements attributable to this investment include:

1. Training of a sophisticated and skilled public health workforce
2. Establishment of two major national centres for public health research
3. The development of state-based consortia of universities delivering higher quality and new efficiencies and innovations in public health training and course delivery
4. Through the scope of the Program and flexible course delivery developments, making public health education widely available across Australia

This Report contains 40 recommendations regarding ways to further capitalise on this success. The overall findings of this Review are summarised in the following two principal recommendations:

Recommendation

R1: Based on substantial evidence of the outstanding success of PHERP to date, it is recommended that overall funding should be increased to permit enhancement of the nation's public health research capacity while continuing to build on the successful workforce development achieved by the Program.

Recommendation

R2: It is further recommended that there be a continuing transition of PHERP from being principally a source of infrastructure to, in addition providing a vehicle for funding innovation and development in public health education and particularly for achieving an increased emphasis on developing public health research capacity.

PHERP investment through the MPH has built a substantial trained public health workforce. It has also significantly contributed to the dissemination of public health education to the mainstream of medicine and health services in Australia. At a time of major change in the way universities are doing business, and with increasing recognition of the importance of public health and public health research and development, the next stage needs to build upon this platform (without disrupting it) in the following ways:

1. Focus workforce development and research more specifically on national priorities
2. Maintain and further develop the two major Centres for Public Health Research, ACITHN and NCEPH, and with NHMRC, develop further centres or health research partnerships based on priority health issues for the nation. Options for immediate consideration should include focussing on determinants and possible interventions to reduce or eliminate inequities in health especially from a developmental perspective; occupational health and safety; environmental health; food safety; oral health; and injury prevention
3. Fund and reward excellence in public health research through the introduction of new nationally competitive, portable institutional Public Health Research Enhancement Grants, and increase opportunities for PhD scholarships and postdoctoral awards
4. Maintain indigenous health as a national health research and training priority, and fund promising new developments in indigenous health worker training and research
5. Complete the permeation of public health training and an evidence-based approach to health professional practice and resource use in all sectors of the health workforce
6. Build a more sophisticated and better trained public health research workforce
7. Ensure that the proposed re-channeling of investment in health and medical research results in substantial direction of funds into public health research to enhance the base established over a decade of successful PHERP investment
8. Extend the accessibility of high quality public health education and training to more diverse groups across Australia through support for innovative approaches to education.

7. The History and Context of PHERP

HISTORY OF PHERP

History of PHERP: Phase 1 (1987-1995)

Public health education in Australia has come a long way since, in 1985 the Commonwealth Minister for Health announced an Independent Review of Research and Educational Requirements for Public Health and Tropical Medicine in Australia to the year 2000. The Review was carried out by Professor Kerr White from the USA and has remained influential, with ripple effects still detectable within the public health arena. His review and that of Salmond (1992) have been valuable resources for this, the second Review. The historical continuity provides evidence that there has been a gradual development of an intellectual as well as organisational infrastructure in support of public health in Australia, a lack of which partly led to the original Kerr White Review.

His recommendations formed the basis for the subsequent policy development that established the Public Health Education and Research Program, Phase 1. PHERP's objectives are to:

- Enhance access to public health education in Australia
- Improve Australia's knowledge of and interventions to prevent socially caused diseases
- Progressively change the emphasis on health services from curative medicine to illness prevention
- Contribute through this approach to the control of increasing health costs.

PHERP Phase 1 involved the provision of support for four Master of Public Health (MPH) courses as well as support for four specialist research and training programs (see Salmond, 1992: 10). The following were its major features

- Expansion of the MPH program at the University of Adelaide
- Enhancement of the MPH program at Monash University
- Development of a multidisciplinary MPH program at the University of Sydney
- Establishment of an MPH program at the University of Western Australia
- Closure of the School of Public Health and Tropical Medicine in Sydney.
- Development of a National Centre for Epidemiology and Population Health (NCEPH) at the Australian National University.
- Extension of the postgraduate training and research activities of the Centre for Clinical Epidemiology and Biostatistics at the University of Newcastle.
- Development of a tropical health education and research program at the University of Queensland and Queensland Institute of Medical Research (QIMR).
- Support for the Tropical Health Surveillance Unit at the Anton Breinl Centre at the James Cook University

Funding for programs and Centres was on the basis of 7 years after which it was planned that funds would be provided by the normal tertiary education mechanisms, although the contracts with the University of Sydney, the University of Queensland and QIMR, implied that if performance criteria were met, funding would be continued beyond 1993.

The expansion of public health education in the years after the establishment of the Program was dramatic. Between 1988, the year of the first PHERP funded enrolments and 1991, if all courses

included in the definition used by *The Public Health Workforce Education and Training Study* (Rotem *et al.*, 1995) are taken into account, enrolments almost doubled and the increase in the rate of graduations was even higher. This study, commissioned by the Commonwealth in 1993, after the Salmond Review, demonstrated that 'Between 1988 and 1993, a total of 5922 graduate students entered programs across Australia and 3088 students graduated. In the same period, the growth in the total annual enrolments (154 per cent), new student entry (170 per cent) and graduations (278 per cent) has been remarkable' (Rotem 1995, p. 437). While this development cannot be claimed entirely as PHERP initiated, there is no doubt that it provided leverage. During the period the PHERP funded institutions produced the majority of MPH graduates (more than four times that of the non-PHERP institutions), the non-funded institutions, and courses other than the MPH, grew at a much faster rate, the high demand indicating just how timely the Kerr White Review had been.

History of PHERP: Phase 2 (1995-1999)

One of Kerr White's recommendations was that PHERP be reviewed in 1991. Professor George Salmond, who reported in 1992, duly undertook the review. Informed by his recommendations and subsequent policy development, PHERP Phase 2 was established. To accommodate the work-up period, funding for Phase 1 was initially extended to 1994. Phase 2 commenced in 1995. It was to be a 5 year program with a Review planned for its fourth year, 1998. This Review fulfills that recommendation.

Summary of major features of PHERP Phase 2:

- All capital cities, except Hobart, were funded for MPH programs and this involved 8 additional universities. Programs in Newcastle and Townsville were maintained and a three-year Specialty program supported in Darwin. This achieved a far greater spread of the program, breaking down its elite nature.
- Universities within the same capital city formed Centres that allowed the sharing of academic expertise. This enhanced their capacity to offer MPH degrees and has resulted in the establishment of five Centres or consortia in: Adelaide (University of Adelaide and Flinders University), Brisbane (Griffith University, University of Queensland and Queensland University of Technology), Melbourne (Deakin, La Trobe and Monash Universities and University of Melbourne), Perth (Curtin University and University of Western Australia) and Sydney (Universities of Sydney and New South Wales).
- Funding was maintained for the Anton Breinl Centre for Public Health and Tropical Medicine at James Cook University for its research program and for its MPH, a program of particular relevance to Aboriginal and Torres Strait Islander communities.
- Funding was maintained for NCEPH as a national research centre
- A National Centre for International and Tropical Health and Nutrition (ACITHN), under the auspices of The University of Queensland and the Queensland Institute of Medical Research was established as a centre of excellence in respect of health problems of Aboriginal and Torres Strait Islander communities and the health problems of countries within the region.
- Funding was continued to the CCEB at the University of Newcastle.
- Funding for PHERP has been around \$8m per year (in 1997-8, \$8.77m) with host institutions required to match resources on a 1:1 basis.
- In line with Kerr White's original recommendation and taking account of the recommendation of the PHERP institutions, a Quality Enhancement Program coordinated by the Public Health Association of Australia commenced in 1997. This involves a detailed process of self-assessment of teaching and research, followed by peer review.
- A Specialty Program provided three year grants (\$100,000 per year, 1995-8) to encourage the development of teaching and training in areas in which training and research skill were

identified as in short supply. Funded programs were: *Health Economics and Health Promotion*, University of Sydney; *Community Health and Nutrition*, Deakin University; *Aboriginal Health*, Menzies School of Medical Research, Darwin; *Mental Health and Environmental Health*, South Australian Centre for Public Health. This Specialty program was reviewed in 1998 (Siggins/Miller, 1998).

The major thrust of these Phase 2 changes was the inclusion of more universities in the Program and requiring them to cooperate. This allowed greater geographic dispersal, greater fairness (as many universities were involved in public health education) and overcame the monopoly which medical faculties had in delivering Phase 1 of the Program. Salmond had pointed to the need for Phase 2 to take account of 'the application of social science knowledge and skills to public health practice' (p. 21). In PHERP Phase 1, all funding had been channelled through medical faculties and concentrated on the education of mainly 'medical graduates in the more traditional disciplines' (Salmond, 1992, p. 21).

Whereas Kerr White had attempted to address the issue of critical mass through centralisation, which brought its own problem, Salmond favoured funding that was not just targeted at more individual universities. Rather, an attempt was made to encourage cooperative arrangements (which also avoided duplication), and to establish more formal relationships with state health departments in order to better meet community needs. Salmond had noted with approval that a Master of Public Health Program was in place in Brisbane which was offered by three cooperating universities, Griffith, Queensland University of Technology and the University of Queensland. Salmond pointed to this development as 'of interest nationwide' (1992, p. 32). He also recommended a central role for state health departments in the development of the Program as part of their workforce planning activities, noting that a number of state departments were already taking an active interest in PHERP.

As the major features of PHERP Phase 2 indicate, increased diversification was achieved and varying degrees of cooperation. The changes were not however brought about without considerable conflict and struggle against the entrenched interests of individual universities. Informed by Salmond's views (and those of Kerr White), the details of policy underpinning Phase 2 were developed by a joint working party of members of the then Department of Health, Housing and Community Services and NHMRC with the involvement of the former DEET. State departments of health and other stakeholders were also variously involved in the implementation of the revised Program as have been the network of PHERP institutions which was fostered as part of PHERP and the Public Health Association.

Cooperation between universities has largely occurred in offering the MPH and even here not in all states. It has not extended much beyond this. None the less, as Phase 2 of PHERP draws to its close in 1999, the key parties are to be congratulated for cultivating what started out as very unpromising ground for achieving cooperation. In 1998 there is an enhanced and flourishing public health education and research program. Overall public health has gained considerably from the Program. The Commonwealth and State Departments responsible for health also deserve recognition for their commitment and perseverance.

As PHERP moves toward Phase 3, it is instructive to consider the broad observations of Salmond (1992). He considered the Program to have made 'a good start' during Phase 1 and we can assert that Phase 2 has effectively built on this good start. Having found that 'most Australia States have the basic building blocks necessary to build an effective public health infrastructure' (p. 18), he proposed that 'what is needed now is a plan and resources to build on the excellent foundation' (Salmond, 1992, p. 17). In the late 1990s even though public health is further down the track a similar principal challenge remains to that identified in 1992. This is to 'bring these

elements together in a concerted, cooperating and mutually supporting environment so that the networks can grow and flourish' (p. 18).

This challenge is made more difficult by a number of recent changes to public policy in education:

- Substantial unfunded academic salary increases
- Phasing out of government support through HECS of postgraduate coursework degrees
- An increased level of competition for students and resources in the tertiary sector
- Constrictions in the academic sector, making universities less able to respond to matching requirements for grants accepted

COMMONWEALTH FUNDING OF PUBLIC HEALTH RESEARCH AND RESEARCH TRAINING IN AUSTRALIA

There are nine centres for research and/or disease and injury surveillance funded primarily from Commonwealth Public Health Division funds (Table A) to a total annual value of about \$13.1m. Two of these are funded under the PHERP arrangement (NCEPH and ACITHN). Of the six NHMRC block-funded research institutes (\$25.8m per annum), none is specifically devoted to public health research.

There are a number of other research programs funded directly from the Public Health Division of DHAC, including the Australian Longitudinal Study on Women's Health (\$0.9m), Commonwealth AIDS Research Grants Program (\$4.2m), Research into Drug Abuse Program (\$0.734m), and the National Drug Strategy Household Survey (\$0.246m).

NHMRC funds public health and health services research (defined as application categories 3, 4 and 5) to the extent of about 13.6% of the total funds (\$147.2m in 1998) spent on project grants. If the \$42.9m spent on NHMRC block-funded institutes and program grants is added to this amount (some small amounts of these funds may be identified as public health research), the public health research proportion spent by NHMRC on all investigator-initiated health and medical research was 9.6% in 1998 (quoted as 6% by the Wills Review, p. 79). The Wills Review reports that DHAC spends a total of about \$42m per annum on priority-driven research (p. 81).

There are 192 NHMRC career full-time researchers funded directly through the NHMRC Fellowships scheme. According to NHMRC, only 2 of these are public health researchers.

Research Training

NHMRC administers a research training and awards scheme through a subcommittee of its Research Committee. Essentially, this scheme provides funds for personal support of doctoral and postdoctoral students and some travelling scholarships. The total budget for health and medical research provided by NHMRC through Research Committee is \$165m per annum of which \$13m is allocated to training. Public health awards are made on the basis of peer review of applicants' track record, research proposal quality, and importance for public health in Australia.

Postdoctoral fellowships

A total of \$1.5m is available each year for new postdoctoral fellowships for scientists in all areas of health and medical research. Under current arrangements, \$450,000 per annum of this amount (30%) is provided for 4-year public health postdoctoral awards (The Sydney Sax fellowship for 2 years work overseas and 2 years in Australia, and a local fellowship for 4 years in Australia). This is sufficient for up to 8 new awards per year. Applicants must be within 2 years of completing their doctoral training. In 1998, there were 2 applicants for the Sax Fellowship, and neither was considered fundable. There were 17 applications for local fellowships, and 5 were considered to be fundable. This most recent year's result is indicative of past years' funding with inadequate numbers of suitably competitive postdoctoral applicants from public health fields. The reasons for this situation are multiple and were echoed around the country in submissions to the PHERP Review. They included: lack of perceived opportunity for success in the NHMRC Fellowships scheme; lack of availability of research-only public health career opportunities; lack of public health research centres with critical mass and dedicated research approaches; and lack of opportunity for partial funding of research positions when part-time academic, clinical or public health occupational opportunities might have existed.

RECOMMENDATION

R3: NHMRC postdoctoral and career funding opportunities for public health scientists should be increased substantially for both full-time and part-time researchers, as one of several important steps to grow a critical mass for public health research.

Postgraduate scholarships

A total of \$1.715m is available for postgraduate scholarships for students in all areas of health and medical research. Public health postgraduate scholarships for higher degree study are allocated \$300,000 per annum, representing only about 16% of the total. This is sufficient for about 15 new awards per year. In 1998, there were 47 applicants (11 medically trained, 36 non-medical) of whom 15 (32%) were judged by peer review to be fundable (5 medical and 10 non-medical). All were funded. Funding only 1 in 6 of all health and medical research doctoral level students for public health research training is clearly inadequate at a time when the crucial role that these young people must play in Australia's future health research effort has been so clearly enunciated by the Wills Review.

RECOMMENDATION

R4: The pool of public health PhD scholarship applicants should be increased through expanding Australia's research infrastructure, and the number of available NHMRC-funded scholarships should also be increased so as to both maintain standards and lift the numbers of funded students.

Table A: Commonwealth (Population Health Division) funded Centres for research and/or surveillance, 1997-98.

Centres	Affiliation	\$000s
Australian Centre for International and Tropical Health and Nutrition*	UQ & QIMR	1,879
National Centre for Epidemiology and Population Health*	ANU	1,253
National Centre for Immunisation Research and Surveillance of Vaccine-preventable Disease	The New Children's Hospital, Sydney	700
National Centre for Research into Prevention of Drug Abuse	Curtin & UWA	840
National Drug and Alcohol Research Centre	UNSW	1,004
National Centre for HIV Social Research	Macquarie & Latrobe	1,442
National Centre in HIV Virology Research	Macfarlane Burnet Centre	2,364
National Centre for HIV Epidemiology and Clinical Research	UNSW	3,356
Research Centre for Injury Prevention Studies	Flinders	300
	<i>Total</i>	<i>13,138</i>

*PHERP-funded Centre

HEALTH & MEDICAL RESEARCH STRATEGIC REVIEW

Implications for PHERP

On December 4th 1998, a preliminary report was released as a discussion document by the committee commissioned by the Minister for Health and Aged Care to review health and medical research in Australia. This committee chaired by businessman Mr Peter Wills AM, included amongst others, a number of prominent and respected public health figures from Australia and overseas. At this time, the Wills review is not finalised, and there is no indication of how and to what extent government will respond to its recommendations.

None the less, a number of its findings and preliminary recommendations have important implications for public health research and workforce development in Australia.

Some of the most important of these are summarised here in order to provide a backdrop and context for the PHERP review, and particularly to anticipate possible opportunities for coincident developments to advance public health.

Vision

The Wills review adopts the World Bank and WHO *ad hoc* Committee framework of research as fundamental (i.e., basic science), strategic, or development and evaluation. It proposes a new nomenclature, namely 'priority-driven' research (abbreviated here to PDR) to subsume strategic, and development and evaluation research. It specifies that PDR 'contributes directly, in the short to medium term, to population health and the effectiveness, efficiency and equity of the health system' (p.9, Summary of the Health and Medical Research Strategic Review).

The Review finds that PDR 'is currently fragmented, lacks sufficient capacity, has no process for focussing on the highest priorities for the country, and shows unnecessary duplication between the States' (p.11). The Review's vision for the future includes a 'thriving research sector (that) must also include a systematic process for developing a PDR agenda. This will enable investment in PDR to be more effective and efficient and will expand Australia's capacity to perform this research and routinely integrate the results into health policy and practice' (p.13). To achieve this goal, the Review recommends increasing funding for PDR to a level of 1% of government health expenditure over the next 5-10 years, commencing with negotiations to establish national cost-shared arrangements from existing or new funds to invest an initial \$50 million in PDR. Of this, \$20 million to \$30 million a year is recommended to be directed into several multi-disciplinary centres for strategic, development and evaluation research.

Selected Recommendations of Particular Relevance to PHERP

1. Establish a consultative research priority-setting process, overseen by an NHMRC committee.
2. Negotiate national, cost-shared funding to establish a national program of PDR.
3. Develop several multi-disciplinary research centres for strategic, development and evaluation research as focal points for building capacity and visibility. These centres to be primarily based around public health, clinical practice, health policy and health economics.
4. Improve research training and mentoring for researchers and decision-makers to promote effective strategic, development and evaluation research across the full range of health issues.

5. Review undergraduate science and health science courses to give more options for those with interest in strategic, development and evaluation research.
6. Develop capacity in research areas of deficiency such as clinical research, health services and health policy research.
7. Institute a scholarship scheme for trainee and early researchers in applied fields.
8. Develop training for researchers and decision-makers to improve identification and specification of research relevant to health service needs.
9. Create career positions and pathways for practitioners of strategic, development and evaluation research.
10. Improve understanding and communication between researchers and decision-makers.
11. Disseminate knowledge widely to practitioners, managers and the community to build understanding and bring pressure to adopt best practice.
12. Develop methods and infrastructure to promote the uptake of new knowledge into practice.
13. Train decision-makers in techniques of research implementation.
14. Develop clinical epidemiology, biostatistics and research data management capacity in hospitals to assist in research, evidence-based policy development and quality management.
15. Develop funding for PDR building to 1% of government health expenditure over 5-10 years.
16. Negotiate national cost-shared arrangements from existing or new funds to invest an initial \$50 million in PDR.
17. Focus \$20 million to \$30 million a year of this initial investment into several multi-disciplinary centres for strategic, development and evaluation research (as in point 3 above).

8. Review Methods and Process

Conceptual framework

After consultation with officers of DHAC and representatives of the PHERP directors, we focussed the formal terms of reference into three main areas of inquiry:

1. The PHERP model
2. The extent to which the needs of the workplace are being met by the supply of trained workforce
3. The identification of specific gaps or deficits in skills, disciplines or areas of research

Given the large number of universities funded under the PHERP program, their distribution across the nation, the numbers of persons and organisations with an interest in PHERP, and given the limited resources and time available to the Review, just as Salmond had found in 1992, it was not possible to visit all PHERP sites, and not feasible to exhaustively review every funded university and centre.

Key stakeholder consultations

Interviews were conducted with a number of key stakeholders (see Appendix 2).

Written submissions

Advertisements in national newspapers were placed inviting submissions. Invitations to make submissions were extended to numerous professional bodies, state governments, universities, industry groups and others. Where appropriate, the content of these submissions has been incorporated into the Review. For a full list of those who made written submissions see Appendix 3.

Site visits

In order to have the opportunity to personally interact with PHERP institution staff and other key stakeholders, the reviewers conducted interviews in Brisbane, Sydney, Canberra, Adelaide and Melbourne. Arrangements were made to permit interviews with key individuals from Western Australia, Tasmania and The Northern Territory during the course of the visits of the review panel to the above 5 cities. A list of those interviewed is provided in Appendix 4.

Because of the necessity to contain the costs of the review, and to fit in with the availability of the international member of the review panel, these site interviews were restricted to about 2 days in each city.

Annual reports analysis

Where available, annual reports and other relevant documentation from PHERP-funded institutions were examined as part of the review process.

Resource group

A small group of public health academics met with the reviewers on 3 occasions to provide background for input into the review. Only one person sat on this group in a representative capacity, and that was the current chair (or delegate) of the PHERP Network. Those who participated in this group are listed in Appendix 5.

PHERP institution submissions

Detailed submissions were sought and received from all universities with PHERP contracts. These submissions were based on a standard format requested by the Review. The following general points were covered by the written and verbal submissions:

- Nature of public health teaching and research within the university structure
- Nature of staff, faculty
- Broad contribution associated with PHERP
- How PHERP money is spent
- How PHERP money is supplemented
- Number of students at all levels
- Nature of student body
- Specialties and their relation to the needs of city/state/nation/region/world

Submission of detail regarding research output, bibliographic analysis, and other measures of research productivity was not specifically requested although it was available for some PHERP-funded institutions, and where relevant it was considered.

International referees

A draft of this report was reviewed by a number of international experts on public health research and public health education (see Appendix 6), and the reviewers considered their comments in the final revision. These experts were drawn from the United Kingdom, Canada, The United States, and Europe.

Alumni and current student survey

A survey of current students of PHERP-funded postgraduate programs was considered necessary for the Review process in the absence of any uniform and universal analysis of student demographics and assessment of the value and relevance of their public health educational experience. Details of the method and results of this survey are provided on page 43 of this report. For the questionnaires used, see Appendix 7. Some universities had conducted previous student surveys. These were also examined as part of the Review process.

9. Reviewing the evidence

CENTRE REVIEWS

National Centre for Epidemiology and Population Health

The National Centre for Epidemiology and Population Health (NCEPH) was established at The Australian National University (ANU) in 1989 following the Kerr White Report under the original PHERP with the mission of becoming a ‘flagship centre’ in epidemiology and population health. Specifically, its original contract included a requirement to carry out research of the highest academic standards in epidemiology and population health in close association with social, biomedical and clinical scientists. It also stipulated that research training via MSc and PhD degrees should be provided together with “intensive short courses as appropriate”. Kerr White had envisaged that NCEPH would provide research training at a high level, especially in epidemiology as part of a ‘train the trainer’ development of public health research in Australia.

In the 1994 PHERP agreement, NCEPH was required to “undertake epidemiological and inter-disciplinary research and provide research training relevant to the formulation of Australian public health policy including the provision, analysis, and interpretation of data about health status, health services, and health outcomes”. Under the terms of the current NCEPH PHERP contract, funding is provided to cover the cost of an annual intake of 8-10 PhD students per year.

NCEPH now conducts research programs in 10 separate areas, namely communicable diseases, primary health care, health transition, environmental health, indigenous health, drug policy, biostatistics, gender and health, health economics, and general epidemiology.

NCEPH offers a range of postgraduate degrees including PhD, Master of Applied Epidemiology (Communicable Disease), Master of Population Health, Graduate Diploma in Population Health, and a Master of Science. In 1998, a separately funded MAE stream in indigenous health was introduced and there are plans for a professional Doctorate in Public Health for 1999. Subject to ongoing negotiation with ANU, the professional doctorate would be offered in distance mode with a minimum 1-year coursework component.

Under the initial establishment grant for NCEPH, \$2m was provided per annum. With PHERP 2, this amount was reduced to \$1.2m, phased in over 2 years. This allocation is now used to fund about 50% of the academic positions at NCEPH and about two-thirds of the staff. The remainder contributes to infrastructure including stipends for graduate students, including an average \$8,000 per PhD student to support field work and conference attendance. This allocation is not contractually fixed, and University money is used only for salaries. The ANU cash contribution amounts to about \$716,000 per annum. The ACT Government does not contribute resources to NCEPH.

The MAE program is funded by the Commonwealth but outside the PHERP arrangement (\$0.6m per annum). MAE scholars are relatively well endowed during their course that is partly attached to various state health bodies. The MAE in indigenous health has also been funded outside PHERP. Similarly the MPH and GDPH are not funded under PHERP, although all benefit to a substantial degree from PHERP contributions to NCEPH staffing and infrastructure.

To the end of 1997, NCEPH had graduated 28 PhD students and 2 MSc students. NCEPH has had one NHMRC-funded post-doctoral student (recently commenced).

The Centre has directed its research activity in some cases to issues of major public health importance for the government. For example, NCEPH is a partner in the Cooperative Research Centre (CRC) for Water Quality and Treatment together with, amongst others, Monash University's Department of Epidemiology and Preventive Medicine, another PHERP-supported department. NCEPH was involved in research to establish the feasibility of using heroin as a treatment alternative for heroin-addicted persons. Economic studies on price elasticity of demand for private health insurance (funded by NHMRC) and of Medicare have been carried out. Research on the restructuring of general practice has contributed to the thinking on such future arrangements nationally.

NCEPH was the subject of two recent reviews, the results of which were available to the PHERP Review Panel. The first was a Quality Enhancement Review conducted in March 1998 by Professors Dick Heller (Chair, Newcastle), D'Arcy Holman (UWA), and Faith Trent (Flinders) together with Dr Don Staines (QLD Health). It was commissioned by the Commonwealth under the auspices of the Public Health Association. The second was an ANU-commissioned Review of NCEPH carried out in April 1998 by Professors Geoffrey Brennan (Chair, ANU School of Social Sciences), Henry Nix (ANU), Tony McMichael (London School of Tropical Medicine and Hygiene), Sandy Gifford (Deakin), and Judith Whitworth (Chief Medical Officer for the Commonwealth). The findings of these reviews have important implications for the future of Commonwealth support through PHERP or other mechanisms.

The Heller Review

This Review noted that NCEPH's prime purpose was not to produce GDPH/MPH students, but to conduct a high quality PhD program. It noted that the GDPH/MPH program was poorly resourced and heavily subsidised by PHERP money.

The MAE program was generally applauded as NCEPH's most successful educational enterprise. The extent to which this program is cross-subsidised by PHERP was not commented upon.

The Panel was happy with the PhD program, noting its supportive nature and appropriate mix of independence and supervision. It did recommend increased provision of formal coursework as part of the PhD experience, and increased opportunity for national and international access to the program.

The Heller Review noted that research was a 'real strength' in relation to funds generated (albeit not to a great extent from NHMRC), the publication record, and the scope and importance of the research areas. It noted that a number of core disciplines were at risk due to a lack of critical mass, and although the Review did not have the opinion that the research was too diffuse, it felt comfortable with the mix and scope of the research areas. It did note a lack of continuity of major research themes.

The Brennan Review

The Brennan Review found that the research performance at NCEPH was generally good, with social scientists performing relatively better than scientists in other areas. Overall, the publication rate per academic was 2.5 per annum in the period 1991-95. Fewer publications than expected for a centre funded primarily for research were in high quality international journals. Relative weakness in epidemiology was noted by this Review, whilst recognising attempts to recruit greater strength in this core area since 1995.

The Review recommended reviewing and possibly winding down the MPH and GDPH programs because of similar courses being available elsewhere in Australia, and because of the

need to focus teaching on research PhD students. Recommendations were also made to provide formal coursework components for research PhD students.

The relatively poor level of support from ANU was also identified by this Review, but no recommendation to seek increased support from the University was made.

The Brennan Review recommended that NCEPH aspire to be the national leader in epidemiology and public health research, and to reach this goal through consolidation and focus in the Centre's core business. It argued that the strength of its multidisciplinary faculty should be better translated into research endeavour. Although the Review did not fully specify what this focus should be on, it did recommend greater attention being paid to the health of indigenous populations in Australia and in the Asia-Pacific region. It also recommended that since NCEPH was the National Centre for Epidemiology and Population Health, the successor to the current Director should be a top flight epidemiologist of international standing.

The Review did not endorse a professional doctorate program being introduced in the light of its call for greater focus on research PhD development. It also recommended co-location of the Psychiatric Epidemiology Research Centre (PERC) and NCEPH, and possibly also NCEPH and the John Curtin School of Medical Research.

NCEPH Response to the Brennan Review

The PHERP Review was provided with NCEPH's formal response to the Brennan Review. On the key recommendations summarised above, NCEPH's responses included:

1. Agreed to review its MPH and GDPH programs and in the meantime, not to take new students in 1999.
2. Rejection of the recommendation not to proceed with a professional doctorate (para 79).
3. Welcomed co-location with PERC.
4. Agreed to recommendation to clarify with ANU the basis on which NCEPH should be funded.
5. 'Largely agreed' to the central recommendation to focus research activity, although this initial response also stated that "if diversity of activity gives an impression of diffuseness, we believe it is an acceptable one". At a later date, this response was altered to "Agreed" without further qualification.
6. Agreed to advertise for the new Director to be a scientist of high international standing early in 1999, but no acknowledgment of the Review's statement that such a person should preferably be an epidemiologist.

Australian Centre for International and Tropical Health and Nutrition (ACITHN)

ACITHN comprises the Tropical Health, Indigenous Health, and Nutrition Programs under the auspices of The University of Queensland (UQ) and the Tropical Health Program of The Queensland Institute of Medical Research (QIMR). It is also affiliated with The Australian Army Malaria Institute (AMI).

Under the PHERP contract, ACITHN is required to:

1. promote excellence in public health education and research with focus on tropical health,
2. provide high quality and culturally appropriate public health education and training programs for health workers involved in Aboriginal and Torres Strait Islander communities,
3. contribute to Australia's international public health obligations, and
4. produce rigorous ideas which can challenge, evaluate and renew public policy and action.

ACITHN's research programs focus on:

- malaria
- schistosomiasis
- Epstein-Barr virus (EBV) and related diseases (Burkitt lymphoma, post-transplant lymphoma, nasopharyngeal carcinoma, and infectious mononucleosis)
- anaerobic parasitic protozoa (giardia, entamoeba histolytica, trichomonas)
- group A streptococcal disease
- vector-borne disease (arbovirus)
- acute respiratory infections
- vaccine development (through the CRC for Vaccine Technology aiming to develop vaccines against malaria, EBV, group A streptococcus, and better influenza vaccines)
- epidemiology and prevention of cancer (skin)
- indigenous health, including indigenous women's health
- nutrition (nutrition policy, strategy and intervention; prevention of micronutrient deficiencies; diet and cancer prevention)

ACITHN offers undergraduate and postgraduate courses in public health, summarised in Table B.

Table B: Courses offered by ACITHN in 1998.

	Undergraduate	Postgraduate
Coursework degrees	Bachelor of Applied Health Science (Indigenous Primary Health Care, BAppHSc)	Grad Cert in Tropical Health (GCTH) Postgrad Dip in Tropical Health (PGDipTH) Master of Tropical Health (MTH) Grad Cert in Community Nutrition (GCCN) Postgrad Dip in Community Nutrition (PGDipCN) Master of Community Nutrition (MCN)
Research degrees	Bachelor of Applied Health Science (Indigenous Primary Health Care, Honours BAppHSc)	Master of Medical Science (MMedSc) Doctor of Philosophy (PhD)

Of particular importance is the undergraduate course for indigenous health workers (with special provision for Torres Strait Islanders). It has a high retention rate and provides the capacity to make a meaningful impact on skilling the indigenous public health workforce. Enrolments in the BAppHSc (IPHC) in 1998 were 17 in year 1, 11 in year 2, 14 in year 3, and 2 in Honours. Students in this course are predominantly of Aboriginal and Torres Strait Islander background. Completion rates in this course are very high in minimum time, and of all graduates so far, 3 have gone on to an honours year, one is enrolled in a medical degree, and the other in the Master of Tropical Health program. The remaining graduates have found work in various community health settings.

The annual postgraduate EFTSU intake for ACITHN is 35 for the Masters programs (MTH/MCN), 2 for the MMedSc, and 7 in the PhD program. ACITHN's analysis of career destination and employment of its graduates students is somewhat biased by the relatively high proportion of MTH students (about 2 out of 3). About one-third were working in program management or policy development, one-third in teaching or research, 20% in health promotion and 11% in clinical roles. Just over one-half were working overseas, most commonly in the Asia-Pacific area. Their survey showed that 90% of their graduates perceived their training to have had a positive effect on their career opportunities.

ACITHN is the single largest recipient of PHERP funds, receiving \$1.91m per annum. The contribution of UQ to the ACITHN budget is \$1.27m and QIMR \$0.7m. PHERP funds are used for 4.5FTE senior academic salaries including the Director (all UQ-based academics), and also 4.7FTE senior academics based in the QIMR. The QIMR allocation of PHERP funds (approximating \$0.5m) pays for 50% of the salary of the Director of the CRC for Vaccine Technology and 3.2FTE for other scientists (2 molecular parasitologists, 1 in the EBV Unit and 0.2FTE of a scientist working in the Malaria and Arbovirus Unit). One FTE salary provides for a scientist in the Epidemiology and Population Health Unit.

QIMR is Australia's largest medical research institute, with about one-third of its activity in tropical health. It is estimated that only about half of the QIMR research program would have taken place in the absence of PHERP funding. Before PHERP, QIMR public health activity was in compartmentalised groups addressing cancer epidemiology, genetic epidemiology and vector-borne disease control. ACITHN has had a bridging effect in bringing bench scientists a population orientation and direction to their work. Specifically, for example, there has been a change in emphasis from studies of the immunology and cell biology of Epstein-Barr virus to studies in China and Indonesia on the role of EBV infections in the development of nasopharyngeal carcinoma and its control.

This type of integration of bench and population science is a fine example of the benefits arising from priority-directed research in large centres where critical mass can be achieved across the spectrum of molecular to public health cutting-edge issues.

UQ has treated ACITHN equally with other Faculty of Health Sciences departments in terms of performance-based funding, and is also providing a new public health building (cost \$4.46m) which will house ACITHN amongst others. The International Health and Nutrition programs of ACITHN occupy space at Royal Brisbane Hospital that was refurbished at UQ expense.

The non-PHERP ACITHN income was \$7.8 million before in-kind contributions in 1998, and \$12m after. Therefore the multiplier effect of the PHERP allocation is about 4 before and 6 after in-kind contributions.

The transfer of the AMI to Brisbane will further enhance the critical mass of ACITHN in the malaria area. ACITHN will now have one of the strongest malaria research groups in the world with depth of expertise in molecular biology and immunology, entomology, vector control, chemotherapy, and clinical trials.

The Watson Review

The UQ component of ACITHN was the subject of a University of Queensland internal review which was conducted in September 1998. This Review had three external members including Professors Charles Watson (Chair, Curtin), Malden Nesheim (Professor of Nutrition, Cornell), and Paul Torzillo (Royal Prince Alfred Hospital, Sydney). Internal members were Professors Peter Brooks (Executive Dean), Bryan Campbell (Head, Graduate School of Medicine), Helen Tiffin (English), and Jake Najman (Anthropology and Sociology).

This review did not include formal external written peer review of the research or education programs of ACITHN. Overall, the Review was complimentary to ACITHN.

“The Tropical Health Program and the Nutrition Program (are) of outstanding quality and of national strategic significance. The success of the MTH, MCN and undergraduate course in indigenous health is related to the highly integrated, multidisciplinary nature of the courses. This

structure and the close links between these three programs should be preserved because of the value they bring to the University and the wider community” (p7)

Its findings and recommendations concentrated mainly on internal structural issues within UQ relating to ACITHN and a proposed new School of International and Indigenous Health. Recommendations regarding teaching included rationalising the core curriculum of the three programs to find greater staff efficiencies, and strengthening health system policy and management and health services research. No detailed appraisal of the range of research activities was reported by this Review, and there was limited peer-based benchmarking beyond the somewhat restricted range of expertise represented by the three external reviewers.

ACITHN’s response to the Review acknowledged the need to strengthen research output, to raise the national and international profile of the Centre’s research program, and in some areas to take appropriate steps to achieve these objectives. In relation to the teaching program, development of core curriculum had already been commenced.

Although the QIMR component of ACITHN had undergone a comprehensive NHMRC review of its research program in the context of the recent QIMR successful application for block funding, the research activity of the UQ component of ACITHN has not yet been adequately reviewed. Whilst there was no reason to doubt the quality of its research, such a review needs to be undertaken and this review of the UQ component should incorporate an overview of the ACITHN research program in its entirety.

In relation to international health, ACITHN holds an AusAID ‘period contract’ together with the International Health Unit of The Macfarlane Burnet Centre in Melbourne (MBC) to provide consultants for specific overseas development projects. To date, there has been only limited opportunity for collaboration between ACITHN and MBC staff.

STATE PROGRAM REVIEWS

To underpin the subsequent recommendations and the discussion of new directions for PHERP, the following is a summary of key aspects of the program offered by each of the participating universities funded in 1998 in alphabetic order by state, based on material presented to the Review Team. The intention is to provide material to inform the discussion of future direction. It is not intended to provide a detailed 'quality' review of individual programs and centres, nor would the time constraints of the review have allowed this, with so many universities now involved in the Program. No formal request was made for submission of details of research activity and outputs from PHERP participants. However, where the data were made available, commentary is provided.

The State collaborating Centres and their individual universities involved in the MPH program are dealt with first, then the two other special state programs (University of Newcastle and James Cook University). Table C sets out the 1998 levels of funding for each unit. The hand of history is very clearly evident in these funding levels. Those universities which received funding in Phase 1 of PHERP mostly receive higher levels of funding than those which joined in Phase 2, even though White assumed the original funding levels would not continue in perpetuity.

Table C: State consortia and centres for public health teaching, annual PHERP contributions (\$000s), PhD and MPH statistics.

NOTES: Student data are for most recent year available. Total T&R budget refers to teaching and research budget including PHERP funds but excluding contract funds, NHMRC, or other external funds. Figures were provided to the Review during consultations and may be approximate. In some cases there is variation from numbers of graduates as indicated in official Activity Reports. State allocations do not include NCEPH and ACITHN. (* Indicates department within a medical school, # indicate Phase 1 PHERP institution).

University	IPHERP \$	IPHERP \$ as % of T&R	Total T&R Budget	% of State allocation	PhD new/y	MPH grads/y
<i>Newcastle*</i>	424	52.7%	804	17%	9	38
<i>Sydney*#</i>	1,700	75.0%	2,267	68%	10	58
<i>New South Wales*</i>	390	15.0%	2,600	16%	13	35
<i>Griffith</i>	115	19.2%	600	12%	5	10
<i>Queensland*</i>	150	9.7%	1,550	16%	7	22
<i>QUT</i>	120	8.6%	1,400	12%	5	12
<i>James Cook*</i>	580	38.7%	1,500	60%	4	39
<i>Adelaide*#</i>	430	51.8%	830	77%	8	18
<i>Flinders*</i>	130	24.5%	530	23%	7	32
<i>Monash*#</i>	280	17.5%	1,600	27%	5	18
<i>La Trobe</i>	256	9.5%	2,690	25%	10	15
<i>Melbourne*</i>	300	50.0%	600	29%	3	22
<i>Deakin</i>	190	16.0%	1,190	19%	8	10
<i>Western Australia*#</i>	420	29.6%	1,420	78%	5	11
<i>Curtin</i>	118	4.0%	3,000	22%	5	5

STATE PROGRAM REVIEWS

New South Wales

The Sydney Public Health Centre, established in 1994, is a consortium consisting of the Universities of Sydney and NSW and NSW Health. The distribution of funding is 18% to UNSW and 82% to University of Sydney, a division which reflects the history of PHERP with the University of Sydney being heavily supported in the first funding round. Unlike Victoria, Queensland, the SPHC does not offer a joint first year of the MPH. The two major collaborative activities within the MPH program consist of the sharing of a teaching position in management which has enabled one teacher to service both universities and the cross-institutional enrolments of students in elective subjects. This has increased over recent years, from 16 students in 1996 to 38 in 1998. A coordinated evaluation of student satisfaction with the MHP was carried out in 1997.

The potential of the collaboration has been extended through the preparation, by staff from both universities, of study guides. Subjects, from both universities are grouped in 'areas of concentration' to help students select subject according to their areas of work and professional interests. The University of Sydney is also collaborating nationally with Deakin, Curtin and the University of Queensland to offer Health Promotion in distance mode. UNSW has extended its collaboration beyond the University of Sydney and lists subjects in the MPH in environmental health offered by University of Western Sydney, Hawkesbury Campus.

There is some collaboration with the NSW Health and the University of Sydney in particular is involved with the Department's internal Public Health Officer Training Program (see Section on State health department contributions below).

The University of Sydney

At the University of Sydney the MPH is taught from the Department of Public Health and Community Medicine. The Department has received PHERP funding since the inception of the program in 1987. In 1998 PHERP funds (\$1.7m) were used to support 15.2 staff (including 3.5 at professorial level). PHERP funding thus represents about 75% of the Department's T&R budget (Table C), the highest proportion in the country. The PHERP allocation includes \$125,000 that is spent on a specialised departmental library. A lack of support for public health from the Faculty of Medicine is a long-standing problem at the University of Sydney. This was mentioned by Professor Kerr White in 1985 in his review of public health (1986, p. 6) though this comment was made in relation to the earlier School of Public Health and Tropical Medicine.

In the MPH, as well as its core subjects, there are specialty areas in Public Health Practice; Research Methods; Health Economics; Health Promotion and Reproductive, Maternal, Child and Sexual Health. The MPH program is the largest in the country with 54 students graduating in 1997, five of whom were overseas students. All but two of the graduating students had studied part-time. Slightly more than two thirds were women and about 40% had backgrounds in medicine and nursing and just under half in science or applied science.

Sydney has been responsible for a number of notable innovations, including a Masters program in Clinical Epidemiology with an intake in 1998 of 15 students from general practice, paediatrics, ophthalmology, oncology and surgery. A strength in this area is in the evaluation of screening programs and diagnostic tests. The PHERP contribution has made possible a substantial public health influence on Sydney's new graduate medical program with 12% of the curriculum identified as public health. Of special note also is the recently introduced Graduate Diploma in Indigenous Health Promotion. Its first intake of 10 indigenous students resulted in 8

graduations. This is possibly the largest cohort to date of indigenous students in post-graduate training in Australia.

The 1997 SPHC survey of graduates of the Centre's MPH program found that of University of Sydney graduates (n=145, 74% response rate) 84% nominated reputation in the field as a reason for choosing Sydney's MPH program, and 60% convenience of location, subjects offered, or the scope of the course. Eighty percent of respondents considered that their course had prepared them at least somewhat for their public health career.

Research performance has been reasonably high, and increasing in the 1995-97 triennium compared to the 1992-94 period. In 1995-97, there were 30 research grants valued at about \$1.8m. Peer-reviewed grants represented just under half of this number and about 30% of the dollar value. No formal bibliographic analysis or analysis per active researcher was available, but in 1995-97, the Department produced more than 60 peer-reviewed journal articles per annum, and a similar number of monographs, commissioned reports and non-peer reviewed articles.

University of New South Wales

At the UNSW the MPH is taught from the Centre for Public Health, which comprises the School of Community Medicine, the School of Health Services Management and School of Medical Education. The Centre was established in 1988, and has since developed a strong MPH program. PHERP funding was first received in 1994. In 1998 of a total departmental budget of \$2.6m PHERP provided \$390,000, (about 15%, see Table C). PHERP funds are used mainly for academic salaries (7.6 positions).

The MPH is made up of 6 core subjects, 6 elective subjects and a major project. The following seven areas are 'areas of concentration' designed to relate to students' professional needs: Environmental Health; Health Promotion; International Health; Policy, Management and Planning; Quantitative and Qualitative Methods; Social Basis of health and Health Care; Tobacco, Alcohol and Other Drug Issues. Eighteen of the more than 60 elective subjects are available in distance mode. This is a particular strength of the program and it represents the only HECS funded MPH in Australia that can be wholly under-taken in distance mode. Developments in web-enhanced delivery are being pursued.

Thirty-one students graduated in 1997, the expected number for 1998 was 42. The students of UNSW are distinctive in a number of ways. The majority of students study in external mode and just under 20 per cent are overseas students. Over 50 per cent in 1997 did not have English as their first language. As with most courses women outnumbered men (65 per cent). The predominant backgrounds of students are in medicine (37%), nursing (30%) and allied health (15%), and median age at enrolment 35 years.

A working group is currently looking at ways to target health professionals in the acute health sector with tailored MPHs or similar programs, and a committee is also developing plans for a DrPH.

There are about 12-13 new PhD enrolments per year. External grant success for research is high, and there is also substantial output in the peer-reviewed and other high impact public health literature.

Queensland

The Queensland Centre for Public Health has been a consortium since 1990 (predating the PHERP 2 arrangement) involving The University of Queensland, Griffith University, and QUT. Following the Salmond review of PHERP, the position of a full-time Centre Manager funded by

Queensland Health (\$80,000 per annum) was implemented. Negotiations have commenced with James Cook University in respect of it becoming part of the consortium. The Centre has facilitated sharing of MPH teaching, reducing duplication of core subjects. This collaboration has not extended yet, however, to research collaboration and cooperation in other areas of teaching. While Queensland Health invests more than \$1m annually in their management development program involving a component of public health training, there was a strong feeling among Centre members that their health department should contribute more to public health workforce development, possibly through funding and joint development of specific tailored programs.

Core subjects for the MPH are offered jointly by the collaborating universities, though teaching of the core subjects is not done on one campus. The University of Queensland specialises in epidemiology and biostatistics, Griffith in environmental and population health and QUT health services management and the three universities contribute to health promotion. Students take the rest of their subjects in their home university and may negotiate individually to undertake other than core subjects on the other campuses. There has been some concern regarding lack of streamlining of student enrolment procedures under the Centre arrangement.

The University of Queensland

At the University of Queensland teaching of the MPH is undertaken from the Department of Social and Preventive Medicine in the Medical School. PHERP funding is \$150,000 p.a and supports the salaries of two lecturers in epidemiology. The full departmental budget is 1.55m, (excluding research grants). The PHERP allocation was judged by UQ staff to be an important factor in exerting leverage on the University for further core funding and development of public health. In fact, the proportion of total teaching and research budget that is represented by PHERP allocation is one of the lowest in the Program (9.7%, see Table C).

The specialty teaching undertaken for the MPH is in Epidemiology and Biostatistics and a recent student survey shows the teaching was particularly highly regarded. The number of students graduating in 1998 was 22 (Tables C and L). A Graduate Diploma of Public Health is also offered. Two-thirds of the successfully completed research dissertations across the consortium have been the product of UQ students, although initial enrolments are approximately equally divided across the 3 universities. A substantial number of students who enrol at the other universities transfer to UQ during the coursework component of the course or prior to starting the dissertation. Reasons for these transfers include interest in epidemiology, access to ongoing research projects and/or research data and recognition of expertise in research supervision. Ninety per cent of the students are employed in the health workforce. Their backgrounds are predominantly in medicine and nursing (40%) and research and administration (20%).

The PhD program is vigorous with 33 enrolled candidates. A formal bibliographic analysis was not provided, but research publication activity has been reasonably high in a range of relatively high impact and/or appropriately targeted peer-reviewed general medical and public health journals. UQ staff submitted that resource allocation and funding were insufficient to permit adequate research productivity, with teaching drawing a high proportion of currently available resources.

Griffith University

At Griffith University the MPH is taught from the School of Public Health, described as a 'fledgling' school in the Faculty of Health Sciences (Health Group). PHERP funding amounted to \$115,000 in 1998, of a total budget of \$600,000 (19.2% see Table C). This has been used to support two of the School's 6 academic staff, one in international health and one in environmental toxicology. There are plans to grow staff numbers to 10-12.

In the MPH core, Griffith offers environmental health and contributes to health promotion. It also has a number of other masters programs in the public health area. A Masters of International Health is to start in 1999 in flexible mode. A virtual library has been developed and about 3,000 people per month access this resource. A considerable amount of university funding has been invested in the Logan Campus (a fast growing working class area) which offers public health at the under-graduate level in nursing, environmental health and health sciences courses. Griffith is looking to expand this undergraduate teaching in environmental and workplace health and health inequalities. The Logan campus is planned to be the site of a Research Centre in Environment and Population Health with a focus on urban development and integrated health planning. A prominent overarching theme in international health is also planned. Ten students graduated in the MPH in 1998 and there were 5 new PhD enrolments. Although there is active involvement in externally funded research by some of the academic staff, the research program is really only being established.

Queensland University of Technology

At Queensland University of Technology (QUT), the MPH is taught from the School of Public Health. PHERP funding is \$120,000 pa of a total budget of approximately \$1.4m (8.6% see Table C) and supports two lecturers and some administrative staffing. PHERP support does not contribute significantly to research activity.

Within the core of the MPH QUT contributes health services management and part of health promotion. About 12 students graduate each year, and in 1998 there were 5 new PhD candidates. Most public health teaching is concentrated at the undergraduate level, with 600 students taking the Bachelor of Health Science which has a general public health core and a variety of specialty strands (e.g. occupational health and safety; environmental health; health services management). As well there is a Graduate Diploma of Public Health and a range of short course are offered. A successful annual International Summer School (2 weeks), for example, in 1997 attracted 150 students from Australia and the Asia Pacific Region. Together with UQ, and funded by DETYA, QUT has also established a new Centre for Indigenous Health Education and Research (CIHER) providing one of the 2 staff operating from Cairns.

Research is now well established at this School, and is focussed on the Centre for Public Health Research (CPHR) and a collaborative centre with the University of Sydney, the National Centre for Classification in Health (CPHR). At present there are 29 PhD and research Masters students, together with 3 postdoctoral fellows and a number of research fellows. CPHR was involved in externally funded research to the value of \$1.2m in 1997.

South Australia

The South Australian Centre for Public Health (SACPH) formally consists of the University of Adelaide and the Flinders University of South Australia, though there is little collaboration between the universities, the least of any of the five Centres, with respect to the MPH. The University of Adelaide does offer a joint fee-paying Graduate Diploma in Occupational Health, with the University of South Australia and has established collaboration with both the University of SA and Flinders with respect to environmental health. The South Australian Health Commission has played an active role in facilitating public health education and research in the past, but currently there is a hiatus because of restructuring within the organisation. The Commission currently funds three positions within the Department of Public Health at the University of Adelaide.

The distribution of funds between the partners in the Centre is inequitable. The University of Adelaide was funded in Phase I of PHERP and a lack of adequate support from within the University since has meant continued pressure on the Department of Public Health and this has influenced funding negotiations in Phase 2. The total amount of PHERP funding received in 1998 by the Centre was \$583,000, of which the University of Adelaide received approximately \$450,000 and FUSA only \$130,000. Such a distribution is not warranted in terms of current activities.

The University of Adelaide

The MPH is taught from the Department of Public Health in the Faculty of Medicine. PHERP funding was first received in 1988. Because the department was heavily reliant on PHERP funding, in 1994 its level of funding was maintained at a high proportion of the State Centre's total. This situation has continued as the University administration has failed to meet its contractual obligation of \$1 for \$1 funding, after allowing for SA Department of Human Services contributions. There is currently a financial crisis within the Department, which sparked a Financial and Operating Review in April 1998. This revealed that although PHERP funding is intended to be stimulatory and to exert leverage on university funding, in this case it has been substituted for university funding. Of 15 full and part-time academic staff, only 5.5 FTEs are supported by the university compared with 5.8 from PHERP funding and 3 from SAHC. As well, PHERP funds support 4.3 administrative staff (1.5 from university sources) and casual teaching.

The \$430,000 provided by PHERP funding in 1998 represented 52% of the Department's total budget (see Table C) – the university provides about one third. The financial review pointed to poor accommodation, and access to computer facilities for students as other problems, noting that this situation has continued over the past 20 years. It pointed to a 'general dynamism of the department' and the important role it plays in relation to public health in SA. It called on the University administration to place the Department on a sound financial footing through greater equity within the university in the distribution of the funds the Department attracts through its teaching and research activities. The Review did not take account of the additional problem that PHERP funds should be redistributed within South Australia with FUSA gaining an increased share.

The Department of Public Health teaches and conducts research with a particular focus on epidemiology and health policy. The MPH that the Department offers specialises in epidemiology, biostatistics, policy and research. There were 18 completions of the MPH in 1998, 4 DPHs, and 8 new PhD enrolments. A fee-paying Graduate Diploma in Occupational Health is offered jointly with the University of SA (this brought \$105,000 to the Department in 1998) and a national short course in Environmental Health is offered annually. This latter development was made possible by PHERP Specialty Program funding (which finished in 1998). The Department contributes public health teaching to the undergraduate medical course and to a stream in the BHSc course. Students in the MPH are mostly female (80%) with a shift away from medical graduates to nurses, laboratory professionals and allied health workers.

Flinders University of South Australia

PHERP funding at Flinders is to the Department of Public Health and in 1998 was \$130,000 representing 24.5% of the Department's total budget of \$530,000 (see Table C). Although this is an acceptable proportion, in terms of PHERP contractual objectives, the Department makes a similar observation to that made by a number of public health departments located within medical faculties, that a fair share of the faculty's budget is not received. Staff are multidisciplinary and a range of courses is offered. At the Masters level the main course work degree is a Master of Primary Health Care (MPHC), which is very popular. An MPH as such is not offered.

About 32 students graduated in 1998 from the MPHC and about twice that number from other public health degrees. The major public health awards offered by the Department are: Graduate Certificate in Health; Master of Primary Health Care; Master of Science (Primary Health Care). Areas of specialty include: drug and alcohol services; mental health; primary health care; health administration, management, policy-making, promotion and service delivery. A contribution is also made through teaching a public health perspective to the Graduate Medical Curriculum and many short courses are offered in specialist areas.

Flinders specialises in distance education and currently the vast majority of students are external, though courses can be taken in a combination of mode. The proportion of external students has increased from 79% in 1996 to 87% in 1998 (of total of 281 students), with a considerable number from a wide variety of overseas countries. Because of the very different focus of their degrees, nature of the student body and the mode of delivery, a greater level of cooperation with Adelaide is seen as of doubtful benefit. There is already strong collaboration with the Menzies School of Health Research in the Northern Territory and the department is exploring with the University of Newcastle the possibility of collaboration in respect of advanced epidemiology.

Students are predominantly female and employed in public and not for profit organisations in the fields of community mental health, drug and alcohol services, health promotion, or primary health care. Among students nursing backgrounds predominate, followed by medical and allied health.

The Department of Public Health has a strong record of attracting project grants and is, or has recently been, involved in a number of collaborative public health research and development projects. Collaborations are with other universities or centres, including The University of the Western Cape, South Africa; government organisations and community based services. These projects are funded from a variety of sources including, NHMRC, AusAID, General Practice Evaluation Program, SA Health Commission and WHO.

Victoria

Although Queensland was the first state to develop a consortium arrangement, the Victorian Consortium for Public Health has taken collaboration further than other consortia. The VCPH was established in 1993 (first funded in 1994) as part of Phase 2 PHERP funding. Its first students were enrolled in 1995. In the first round of funding (1988) only Monash University was funded for its MPH program. The Victorian health authority, The Department of Human Services, has been centrally involved in facilitating this development. While the VCPH MPH has features in common with programs offered elsewhere (particularly by QCPH and WACPH), it is worthwhile recording in some detail its features because cross university collaboration is more extensively developed than in any other Centre. The key features of the VCPH MPH are:

- a common first year consisting of eight subjects, offered on one campus (currently Deakin University's Toorak Campus), chosen for its accessibility for students.
- students return to the home campus in the second year and undertake a specialty program within their university of enrolment. The structure of Part 2 varies from campus to campus, but consists of the equivalent of 8 units, but with variations in the number of compulsory subjects and the weighting of the research components. Some cross enrolment in second year subjects does take place and occasionally students transfer their enrolment.
- students are treated as a single body. This involves a common application form that asks for an order of preference for the four universities. If eligible students cannot be absorbed into the quota of their first preference university they can be passed on.

- students are oriented to the MPH course through a range of activities, including an information night held each year for prospective students, which is attended by staff from the four universities and the Victorian Department of Human Services. A social event is also arranged at the beginning of the first semester to allow staff and students to interact.
- a journal for student exchange, *Challenging Public Health*, is run by staff and students from the four universities.
- prizes for the best students are awarded annually by VicHealth.
- there is an integrated program for monitoring the quality of the course involving an annual survey
- the coordination of the program is rotated between the universities on a two yearly basis
- The Victorian Department of Human Services funds a part-time administrative officer (\$27,000 p.a.) for the program and the coordinating university supervises this post. It also provided seeding funding for establishing the VCPH and continues to take an active interest which 'offers the Consortium an opportunity ... to extend its activities' beyond those that are PHERP funded (p. 5 VCPH sub.). As well the Department provides in kind support by way of guest lecturers for the public health programs.
- management of the program is through a series of committees on which each university is represented. A senior academic from each university manages the program and the four meet monthly as do the coordinators of the eight Part 1 units.
- a Course Advisory Committee involving key stakeholders in public health meets six monthly and advises on emerging issues in public health, the suitability of the content of the course for workforce needs, etc.
- the VCPH has extended its activities beyond the Victorian MPH and, with the University of Queensland, provides the corporate MPH for the Commonwealth Department of Health and Aged Care. Individual universities have developed other collaborations, for example Monash and the Macfarlane Burnet Centre for Medical Research, jointly provide Monash's specialty in international public health education.
- While each of the four universities indicated ways in which there had been benefits from both PHERP funds and the collaboration, costs were also identified. A significant one has been the time and effort investment needed to establish and maintain effective collaboration. Also being able to rely on another university to teach a specialist area can result in that area being under-developed in the home university. Yet the expertise may be required for purposes, for example, for teaching medical undergraduates.

Monash University

The MPH at Monash University is located in the Department of Epidemiology and Preventive Medicine within the Medical School. The MPH has been offered since 1982, and was funded in the first round of PHERP. PHERP funding was \$280,000 in 1998 (17.5% of T&R budget, see Table C) has supported 4 staff positions, in environmental health, occupational health, biostatistics and an administrator. The affiliated Macfarlane Burnet Centre receives \$60,000 for its contribution in international health.

In the MPH, Part I, two units are taught and coordinated, Environmental Influences on Health, and Research Methods and Computing. Epidemiology and Introductory Statistics are taught jointly with the University of Melbourne. At Part 2 level there are three specialist strands in – Clinical Epidemiology, Occupational and Environmental Health, and International Health (offered with Macfarlane Burnet Centre for Medical Research). A fourth General Public Health Stream allows students to freely choose, including from other collaborating universities. Three Graduate Diplomas (fee-paying) in Clinical Epidemiology, Occupational and Environmental Health and International Health are offered and a program of short courses, which has been active from before PHERP. Short courses include: Australian Certificate of Aviation Medicine; Noise at Work; Risk Management; Epidemiology and Biostatistics; and courses related to the

Water Industry. Research degrees at Masters and PhD levels and a professional Doctor of Public Health degree are offered. Public health is also taught to medical undergraduates.

Students in the MPH and the Graduate Diploma of Clinical Epidemiology are predominantly female, though in the Graduate Diploma of Occupational and Environmental Health, they are in only a small majority. The dominant occupational backgrounds are nursing, medicine and health science. Short courses attract predominantly male students.

This department has an active research program with substantial external funding and collaboration. There are 28 PhD students, all of whom are required to complete introductory epidemiology and biostatistics subjects from the PHERP-funded MPH core program. Over \$3.2m was received as external research funds in 1998, with NHMRC contributing 39%. About 50% was derived from industry or the Victorian Department of Human Services. Monash also attracted 4 postdoctoral fellowships from the NHMRC and MRC Canada. Publication performance is impressive with high output in high impact and other appropriate public health journals.

Staff from Monash maintained that PHERP should shift its emphasis to research development and fund postdoctoral positions as the most efficient means of lifting national productivity. This, it was argued, would also assist with the problem of a lack of appropriate PhD student supervision. It was also held that infrastructure support to assist with biostatistician and data management resources is crucial.

The University of Melbourne

At the University of Melbourne the MPH is located in the Department of General Practice and Public Health within the Faculty of Medicine, Dentistry and Health Sciences. It is a multi-disciplinary department comprising public health physicians, general practitioners, epidemiologists, biostatisticians, psychologists, health economists and nurses. Funding from PHERP was \$300,000 in 1998 (50% of the T&R budget, see Table C) and has been used for 4.49 staff positions in epidemiology, biostatistics, program evaluation and administration, all of which are to a large extent preoccupied with course teaching.

For the MPH at Part I level, a unit: Health Economics Management and Evaluation is taught by Melbourne University solely while Epidemiology and Introductory Statistics are taught jointly with Monash University. Two specialist strands are offered in Part 2: Epidemiology and Biostatistics; and Health Program and Economic Evaluation. A Graduate Diploma in Epidemiology and Biostatistics and a Certificate in Health Program Evaluation (fee-paying and by distance mode) are also offered as well as research degrees at masters and doctoral levels and a professional Doctor of Public Health degree. The Department contributes public health teaching to medical degree students.

Students are predominantly female, the most common backgrounds, medical and research, although nurses are regularly represented in the student body (4 each year in a student body of 25-26 since 1996). PhD student output has been low (Table C and Table M), with 14 enrolments from 1995-98. A major research strength in this Department is in genetic and molecular epidemiology.

La Trobe University

At La Trobe University the MPH is taught from the School of Public Health which comprises a complex of departments and centres within the Faculty of Health Sciences. It has staff from many disciplinary backgrounds. Funding from PHERP was \$256,000 in 1998 (9.5% of T&R budget, see Table C) and has been used to support the full time equivalent of 2.2 staff positions (associate professor, senior lecturer, lecturer, administrator and part-time teaching). La Trobe

contributes two units to the MPH at Part I level: Sociological Foundations of Public Health and Public Health Policy and Planning. Three specialist strands are offered in Part 2: Health Policy, Health Promotion, Health Social Science and a General Stream allowing wide selection including up to two subjects from the collaborating universities.

MPH students are predominantly female and are mostly from nursing, allied health, or non-health backgrounds. Most commonly they are employed in hospitals or community based services. Only five since 1995 have had medical qualifications, compared with 17 nursing and 32 allied health professional.

A Bachelor of Health Sciences (approximately 80 students) has two core subjects in public health and a public health stream, which attracts up to one third of the BHS students. Also offered are: a number of specialist graduate certificate and diploma courses; research degrees at Master and PhD levels and a professional Doctor of Public Health. A Master of Health Science (Public Health Practice) is provided for staff training for the Victorian Department of Human Services. The course consists of 6 supervised placements, seminar programs and 3 subjects (Public Sector Administration, Public Sector Finance and Public Health Law) and a thesis.

Research training opportunities are extensive with about 10 new PhD enrolments per year. Research opportunities are strengthened through affiliation with externally funded research centres. These are the Centre for The Study of Mothers' and Children's Health (funded by VicHealth), the Centre for the Study of Sexual Health (also funded by VicHealth, and from other sources), the Lincoln Gerontology Centre, and the Primary Health Care Research and Development Centre. Details of research outputs were not submitted for review.

Deakin University

At Deakin University, the MPH is located in the School of Nutrition and Public Health, which from the beginning of 1999 will become the School of Public Health, Nutrition and Exercise Sciences. The program has been supported by PHERP both as part of the VPHC and through funding from 1995-8 for a National Specialty Program in Public and Community Nutrition. Through this Program a range of educational materials in flexible mode were developed, including three MPH units; Introduction to Public Health Nutrition; Nutritional Epidemiology and Food Product Law. Other initiatives involved the development of infrastructure to support the public health nutrition workforce, for example: two web-sites for knowledge development; a directory of post graduate training; refinement of definitions and competencies; and the establishment of a public health nutrition network and national newsletter.

The non-specialty funding from PHERP was \$190,000 in 1998 (16% of T&R budget, see Table C). In 1995-6 this funding supported the development of Health Strategies Deakin, a centre involved in public health policy research and strategic projects and for PhD research training. In 1997, 1.8 full-time staff equivalent positions were supported. Deakin's contribution to the MPH at Part 1 level is one unit in Health Promotion. At Part 2 level, specialties are provided in Public Health Nutrition, Public Health Social Science and Evidence Based Health Promotion.

Public health education and the use of PHERP funding within the university have been undergoing major change during 1998, following the appointment of a professor of public health and other staff, including an epidemiologist (to start from 1999). This change will result in a stronger social science emphasis and a focus on gender, ethnicity and social inequalities in health as well as public health in rural communities.

PhD enrolment is at the rate of about 8 per year. Details of research outputs were not submitted for formal review. All new staff have current or pending NHMRC or ARC research grants, and have strong publication records.

Western Australia

While the University of Western Australia was funded in Phase 1 of PHERP, and established its MPH in 1988, in the second round in 1995, UWA joined with Curtin University to form the WA Centre for Public Health. The Centre's funding for 1998 was \$583,000, which is currently shared by UWA with \$420,000 and Curtin University \$125,000 while \$30,000 is contributed to joint curriculum development. Today even though UWA does provide considerable financial support for public health this current distribution of PHERP funding still reflects the history of the program rather than the outcomes of the late 1990s.

Although there is cooperation with Health WA and Healthway, no direct funding is provided to WACPH. The consortium has set aside \$30,000 to support the Centre activities, including a student survey. This survey of WACPH graduates between 1990-97 on a relatively small number of graduates (Curtin 41, UWA 38; overall response rate 69%) showed that over 80% felt that their training had permitted them to carry out their job more effectively. Nearly all graduates were in salaried positions. About one-third were employed in senior management or other top-level positions. The main suggestions for improving public health training was to make courses more practical and relevant to subsequent employment in public health. A quarter of graduates had subsequently enrolled in a higher degree (usually PhD).

A PHERP Quality Enhancement Program review (Chaired by Professor Arie Rotem) of the WACPH was conducted in April 1998. Overall, the review panel was impressed with the operation and resourcing of this centre. The panel noted particularly the quality of strategic planning at UWA, but the report is not focused on a detailed analysis of the education or research programs.

The University of Western Australia

UWA took its first MPH students in 1988. In 1991 the Department of Public Health was created and in 1994 a Chair in Public Health was filled. The original funding was effective in providing leveraging for the development of public health at UWA and today the department consists of over 100 staff, including 10 academic/teaching and 78 research staff. The PHERP funding allowed progression from being a unit in the Department of Medicine to a major department in its own right. The Department's annual budget (without research) is \$1.42m, of which PHERP provides \$420,000 (29.6%, see Table C). The funding supports 5 academic staff, 2 support staff as well as other teaching and operating costs.

UWA offers the MPH and GDPH as well as a Graduate Diploma in Clinical Epidemiology. The MPH has graduated 45 students since 1988, with 11 students graduating in 1997. There were 5 new PhD enrolments in 1998. As with most programs students are predominantly female employed in the health field. As indicated by the large number of research staff, UWA has a major research presence with a substantial competitive funding base. While not formally evaluated by this Review, research productivity is very good with substantial impact on state and national health policy development.

An important achievement as a result of the increased profile and role of the Department within the medical school has been a substantial influence on undergraduate medical student curriculum. The proportion devoted to public health substantially increased and in addition, Department staff have been pivotal in the development of revised selection procedures for medical students.

Curtin University

Curtin University (formerly Western Australian Institute of Technology) has offered undergraduate and postgraduate public health education programs for more than twenty years and had its first graduate of the MPH in 1987. It is now one of the largest schools of public health in the country with over 1200 students and 52 academic staff. PHERP funding was first received in 1995 and in 1998 it was \$114,000, of a total School of Public Health T&R budget of \$3m (from DETYA, overseas and local fee paying students). This represents only 4% of the budget (see Table C), the lowest proportion for any of the Universities.

PHERP funding has been used to support salaries of teaching staff in health promotion, health economics and research methods, and tutorial teaching and secretarial support. The funding has been used according to the original intention of the program, to enhance and develop capacity. However the School fears that with pressures on university funding this role might change in future. A recent initiative has been the appointment of an inaugural Professor of Aboriginal Health, a joint arrangement with the Centre for Aboriginal Studies.

Curtin's contribution to the WACPH MPH UWA's teaching of the subject and GDPH programs involves contributing to teaching the subject Foundations of Public Health, and teaching in Environmental Health and Health Economics. Specialty areas include: health promotion, occupational health and health administration. Curtin's program is offered in distance mode, and through WACPH, students from UWA can also access these subjects. In 1997 there were five MPH graduates.

The School offers many undergraduate and postgraduate degrees in a wide range of public health areas, both generalist, e.g. Bachelor of Science (Health Sciences) and MPH, and specialist, e.g. Associate Degree in Occupational Health and Safety, Bachelor of Science (Health information Management) and MAE. At the doctoral level, both a PhD and a DrPH are offered. Fee-paying courses are offered at both national and international levels, with fees carefully set to take account of affordability (for Australian students, \$5,500, which if a student has tax deduction status is lower than HECS, but this will be progressively raised). The School has just commenced off-shore courses in Hong Kong (Occupational Health and Safety) and Singapore (Occupational Health and Safety and Health Administration). Many continuing education programs are also offered both in Australia and offshore in the Philippines, Thailand and Africa, in conjunction with local governments, and/or non-government agencies.

Information about the School's research program was not available but in 1998 there were 5 new PhD students and one DrPH.

SPECIAL PROGRAM REVIEWS

Centre for Clinical Epidemiology and Biostatistics, University of Newcastle

The Centre for Clinical Epidemiology and Biostatistics is based within The University of Newcastle. The PHERP contribution in 1998 was \$424,000 representing 53% of the Centre's total teaching and research budget (see Table C). The CCEB enrolls about 9 new PhD students per year and graduated 65 Masters students in 1997. In 1997, the Centre had 335 students (50 international, 143 local full or part-time students, and 142 distance education students). More than 50% of PhD students have previously done a Masters degree at Newcastle.

The CCEB has been one of the pioneers in Australian teaching of clinical epidemiology, biostatistics, and some areas of health-related social sciences. Flexible modes of course delivery have been a hallmark of the CCEB's contribution to public health education in this country. The emphasis has been on promoting an understanding of research and an ability to apply research findings to health care delivery among a broad range of health care providers, and also on training researchers for a variety of public health settings.

The CCEB offers two research degrees, PhD and Master of Medical Science. Coursework offerings number 15, and include Graduate Diplomas or Masters degrees in Clinical Epidemiology, Financial Management and Policy for Health care, Health Social Science, Health Promotion, Quality Improvement in Health Care, and Medical Statistics.

Over the past 5 years, there has been a steady increase in Australian students enrolled in distance learning mode (from 28% to 50%), and a corresponding decrease in students studying locally (from 55% to 22%), attributed to The University of Newcastle instituting full fee requirements for local postgraduate students.

Two innovations in courses are worthy of commendation, namely a GP specialisation stream in the Masters/Graduate Diploma of Clinical Epidemiology that began in 1995, and the Masters/Graduate Diploma in Quality Improvement in Health Care. The general practitioner course in clinical epidemiology is designed to build evaluation and research capacity for general practice. The quality improvement course is designed to equip health care professionals from a wide range of backgrounds with the ability to conduct quantitative measurement and monitoring of health systems and outcomes.

The CCEB plans to introduce a program of professional doctorates in Clinical Epidemiology, General Practice Research, Quality Improvement for Health, Applied Biostatistics, Health Promotion, and Health Social Science. This would enable appropriate students to extend their Masters training. The Centre intends this stream to equip graduates with the skills to perform independent research, but does not make a distinction between the product of this type of course from a PhD graduate who has had an appropriate level of coursework instruction in core substantive content.

The research capacity and output of the CCEB was not adequately assessed by this Review as data were not available to formally benchmark performance in this area. The research activity has been of an applied and collaborative nature and focussed on priority areas. For example, one major project commissioned by the Department of Veteran's Affairs is examining which of three models of preventative care (general practice-based, aged care assessment teams, or a community model) will be most effective in improving health outcomes and quality of life for older people. In another study with major implications for cost-savings for the health care system, The Royal College of Pathologists Australasia is working with the CCEB to benchmark

pathology services. The objective is to design a system that will result in major cost efficiencies without detriment to health care.

The Duckett Review

As part of the PHERP Quality Enhancement Project, the CCEB was reviewed over 3 days in December 1997 by a committee comprising Professors Stephen Duckett (Chair, Latrobe), Arie Rotem (UNSW), Lawrence St Leger (Deakin), and Faith Trent (Flinders). This Review found that the CCEB offered highly focussed educational programs of excellent quality. A very high student retention rate exceeding the national average by 15% was noted for CCEB distance mode courses. There was some criticism of the lack of content and integration of indigenous health material in course curricula.

The Review noted the inadequate level of support by the University for the CCEB. In 1997, for example, the Faculty accrued close to \$1m from CCEB activities (\$547,000 for teaching load (WEFTSU) and \$370,000 for Research Quantum) while contributing only \$450,000 in 1997 as salary or equipment support. The Review did not report on research activity, outputs or quality of research training at CCEB.

The School of Public Health and Tropical Medicine, James Cook University, Townsville

The School of Public Health at James Cook University (JCU) sees PHERP funding as industry support from the Federal Government as the biggest funder of the health industry. JCU receives \$580,000 per annum from PHERP (38.7% of \$1.5m T&R budget, see Table C). This represents 60% of PHERP state program funds to Queensland. Since 1995, the ratio of JCU to PHERP funding of the School has increased - 1995 1.39, 1996 1.54, 1997 1.71, and 1998 1.96. Over this time student enrolments have increased from 165 to 291, or in EFTSU terms from 67.0 to 106.5. New PhD enrolments in 1998 totalled 4 students and 39 Masters level students graduated in 1997. The Head of the School of Public Health at JCU holds a (Brisbane-based) joint appointment with Queensland Health as Principal Epidemiologist and Manager of the Health Information Centre.

Students are predominantly from Northern Australia, including a few from the Northern Territory. Overseas students are mainly from South Asia and the Pacific. More than 50 undergraduate and postgraduate subjects are taught in the School with a special emphasis on students from the public sector including Aboriginal controlled health services and Queensland Health. A large number of its students are Queensland Health employees. Students are nurses (40%), doctors (40%), and other health workers including indigenous health workers (20%) with a modal age around 39 years.

The School has a special relationship with Aboriginal community controlled health services. It shares a number of joint projects with the National Aboriginal Community Controlled Health Organisation (NACCHO), joint projects with individual community controlled health services, and provides short courses for a number of others.

Changes in HECS and Abstudy arrangements have had a negative impact on functioning, seriously threatening accessibility to courses for indigenous students.

At the undergraduate level, Diploma courses in Indigenous Health and in Public Health and Tropical Medicine, together with a Bachelor degree in Occupational Therapy and courses in maternal health and in ultrasound directed at indigenous health workers are available. Postgraduate degrees include Postgraduate Diplomas in Public Health and Tropical Medicine, in Tropical Medicine and Hygiene, and in Neonatology; Postgraduate Certificate in Travel Medicine; a Master of Public Health and Tropical Medicine, and an MSc (by research or

coursework); and PhD. Plans are in place for a Doctor of Public Health degree (DrPH) and a Bachelor degree in Health Science (Indigenous Health).

The undergraduate indigenous health program is of particular note. Newly introduced in 1998 for 24 students, the program permits multiple exit points to ensure that non-completing students retain recognition. A diploma is awarded if the student exits after one year, an advanced diploma after 2 years, and a Bachelor degree after 3 years. A new system of teaching ‘health centres’ aims to facilitate practical instruction.

The Douglas Review

JCU underwent a 3-day comprehensive external review in mid-1998 as part of the PHERP Quality Enhancement Project by a committee comprising Professors Bob Douglas (Chair, NCEPH), Arie Rotem (UNSW), and David Brewster (NT Clinical School), and Dr Aileen Plant (UWA). The review was generally complimentary about the educational opportunities available at JCU, noting “the School’s impressive effort to articulate learning experiences and awards which could progressively move a school leaver, a nurse, an indigenous health worker, a medical practitioner, or a researcher to incrementally enhance their skills and apply them to public health and health services”. Their conclusion was that the educational program was sound and of good quality. They noted the attractiveness to students in the workforce of the 1-year Masters programs that intensified face-to-face teaching especially in block mode and did not require a dissertation or research project. No adverse comment about the adequacy of content of this structure was made.

The reviewers singled out for special praise JCU’s innovative plans for a network of ‘teaching health centres’ to further integrate clinical practice with training in public health.

The Review also noted that while there were some notable research successes at JCU, the research capacity of the School was limited by the heavy teaching load on its most productive researchers, and by the fact that research training was not a particular strength of the School.

The Review concluded that “... the injection of PHERP funds into JCU is producing a public health education and research initiative of substantial importance ... providing high quality contributions to health systems in the state, the nation, and internationally”.

In its submission to the PHERP Review, JCU staff suggested the following as the main weaknesses of the current PHERP arrangements:

1. Degree of funding not related to the size of the health problem, especially for the indigenous workforce
2. Funding not directly related to dealing with national priorities
3. Equipment purchases are not permitted
4. Monthly payment rather than 6 months in advance
5. Public health research not supported
6. Maldistribution of funding amongst PHERP-funded schools
7. Competition for funds inhibits collaboration.

IPHERP SPECIALTY PROGRAM

Arising out of the Commonwealth's response to the Salmond review of PHERP in 1992, the Specialty Program was designed to address the problem of "... gaps in public health education (warranting) special health portfolio funding until they are bridged" (Strategic Directions for Public Health Education in Australia. Commonwealth discussion paper 1992). A working party on public health development was then convened to nominate special areas beyond core PHERP funding. Subsequently, in August 1993, proposals were sought via public advertisement for grants of \$100,000 per annum for three years from January 1995 to enhance the provision of specialist public health teaching and research skills in short supply across Australia. Subsequently, funding was provided for the programs detailed in Table D.

Table D: Recipients of PHERP Specialty Program grants

Centre	Special Program
Public Health and Community Medicine, University of Sydney	Program in health promotion
Centre for Health Economics Research & Evaluation, University of Sydney	Teaching and research in health economics
Health & Behavioural Sciences, Deakin University	Public health and community nutrition
SA Centre for Public Health	Environmental health program
SA Centre for Public Health	Teaching program in mental health
Menzies School of Health Research, Darwin	Aboriginal health
Menzies School of Health Research, Darwin	Communicable disease and venereology

At the completion of this Program at the end of 1998, each group had received about \$450,000 for a total investment over the life of the Program of \$4.2m.

The Siggins-Miller Review

This Program was reviewed exhaustively during 1998 by Professor Ian Siggins and Ms Mel Miller (Siggins Miller Consultants), Professor Ken Donald (University of Queensland), Associate Professor Robert Bush (University of Queensland), and Professor Ian Ring (James Cook University).

The Review found that this model of funding existing providers with short-term, small seeding grants at the margins of their programs had successfully stimulated activities in the selected areas. However, problems were identified in a lack of specificity of the contracts about the Commonwealth's desired outcomes from this investment. It was noted that the research component of the Specialty Program, as in the larger PHERP centres, had taken a back seat unless it was a strong prior focus of the recipient. A lack of national value from this type of investment was also noted, though qualified by the recognition of the Program's short-term, restricted funding.

The Review panel also recognised that this PHERP Specialty Program, and the broader PHERP program, was principally focussed on training rather than on research development, noting that potential researchers were frequently too busy teaching with not enough time for research. They

noted the effect of new competition policy in the education arena and the consequent negative tensions around possible collaboration – so-called ‘dysfunctional’ competition.

In order to fulfill its role as both an industry employer of the health workforce and as the protector of the public good, the Review recommended that the Government must invest in:

- Sustained intellectual development through the support of theoretical and conceptual developments and basic and applied research
- Sustained workforce development through training and education of individual workers, and
- Sustained capacity building of systems and organisations and communities to capitalise on the investment made in intellectual and workforce developments

In order to achieve these ends, the Reviewers suggested in subsequent discussions with the PHERP Review that this type of program not be continued. It was felt that the money could more effectively be used in collaborative programs concentrated around national health priorities, especially improved knowledge of interventions to address health inequalities and the supply of the workforce for the special needs of indigenous Australians. They also suggested developing funding models that would permit consortia of interest rather than geographic consortia, as had been successfully demonstrated with the Commonwealth’s Cooperative Research Centre (CRC) program.

STUDENT AND ALUMNI SURVEY

Survey of Students and Alumni of PHERP-funded Universities

A self-completed survey was designed, pre-tested and then mailed by individual universities on behalf of the Commonwealth and the PHERP reviewers to all currently enrolled students and graduates of PHERP-funded programs (see Appendix 7). Over 5,000 questionnaires were mailed, and 1,958 responses were received. There is no reason to believe that the response was systematically biased to any significant degree, but it was beyond the scope of the review process to investigate this further.

Completed questionnaires were mailed directly to the Commonwealth Department of Health and Aged Care where coding, data entry and data processing were arranged.

The assistance of the participating universities in expediting this survey is gratefully acknowledged.

Current Students

A total of 2,541 questionnaires were mailed to currently enrolled students in all PHERP-funded institutions. Of these, 1,131 (44.5%) responded in time for analysis. Respondents are shown by PHERP-funded consortium in Table E.

Table E: Respondents and originating public health consortia or centres.

Consortium	Current students		Graduates	
	n	%	n	%
Sydney	282	25.7	298	36.7
CCEB	94	8.6	112	13.8
NCEPH	32	2.9	66	8.1
Victoria	189	17.2	69	8.5
South Australia	164	14.9	107	13.2
Townsville	161	14.7	13	1.6
Queensland	122	11.1	92	11.3
ACITHN	37	3.4	61	7.5
Western Australia	66	6.0	51	6.3
Total	1,097	100	811	100

NOTE: Numbers slightly less due to missing values on consortium field.

Respondents included 72.5% females, with 83.1% using English as their main language. Of the 16.9% whose main language was not English, 9.0% spoke an Asian language and 5.9% another European language. A substantial proportion of current students were aged 40 years or older (37.8%), while 45.1% were aged 30-39 years, and 17.1% were under 30. Thirty-eight respondents (3.4%) were of Aboriginal or Torres Strait Islander descent. Sixty-six (5.9%) were overseas students.

Three-quarters were part-time students (39.4% internal, 35.2% external) and 25% were enrolled full time (20.7% internal, 4.1% external). MPH students accounted for 74.7% of respondents, 7.5% PhD students, 13.0% Graduate Diploma, 3.8% Graduate Certificate, 1.8% Bachelors degree, and 2.1% as Masters in Applied Epidemiology or other Masters degree.

Reasons for enrolling in a public health degree (2 main reasons per respondent possible) are shown in Table F. Aspiration for career change or promotion opportunity did not rate as highly as a desire to enhance skills and competence.

Table F: Reasons for enrolment of current students.

Reason for enrolling	%
Enhance knowledge or skills	60.4
Increase professional competence	43.3
Change career	30.7
Increase chance of promotion	12.7
To start a new career	10.9
Acquire specific skills	10.1

Payment for courses was via HECS (self-funded) in 66.3%, full-fees (self) in 27.4%, and employers contributed to HECS in 5.1% or full fees in 4.4%.

Employment of students prior to enrolment was little changed since enrolment with 26.7% coming from public hospitals, 16.5% from State health departments or area health authorities, 4.9% from Federal government, 9.5% in tertiary education or employment, 8.4% from private practice and 7.3% in not-for-profit organisations. Students' professional roles within these sectors did change however, and this was concomitant with the nature of their enrolment. A number left clinical services and became involved in research, health services management and health promotion (Table G).

Table G: Changes in professional roles since enrolment.

Major function	Pre-enrolment %	Now %
Clinical services	42.6	33.7
Research	12.4	17.0
Education and training	7.4	7.8
Health services management	7.2	8.4
Health promotion	7.1	7.9

The proportion of time devoted to public health in respondents' current employment was 25% or less in 46.9%, and between 75% and 100% in 32.1% of respondents.

Student assessment of the value of public health courses

Respondents were asked to rate their judgements of the value of their current courses on a 4-point Likert scale in terms of their expectations and a number of possible benefits. Responses have been collapsed into 2 categories, and are displayed in Table H. Ratings are uniformly positive with the exception of preparation for current job, the findings for which are affected by those not currently working in public health roles.

Table H: Current student rating of the value of their public health course.

The public health course:	Not at all/ a little %	Quite well/ very much %
Met expectations	12.2	87.8
Provides useful skills	11.2	88.8
Prepares for a public health career	20.4	79.6
Prepares for current job	43.9	56.0
Assists promotion/career change	24.1	75.9
Assists in professional life	12.6	87.4
Helps me make an impact on public health	23.4	76.6
<i>Mean</i>	<i>14.6</i>	<i>85.5</i>

A total of 38.7% of respondents had plans to undertake a subsequent higher degree in public health.

Graduate Students

A total of 2,553 questionnaires were mailed to graduates of all PHERP-funded institutions from the commencement of PHERP funding. Of these, 827 (32.4%) responded in time for analysis. Respondents are shown by PHERP-funded consortium in Table E.

Respondents included 65.3% females, with 84.8% using English as their main language. Twenty respondents (2.4%) were of Aboriginal or Torres Strait Islander descent. Thirty-one (3.8%) were overseas students.

MPH graduates accounted for 69% of respondents, 5.5% PhD graduates, 19.3% Diplomates, 4% recipients of Graduate Certificates, 2.5% of Bachelors degrees, and 5.4% as Masters in Applied Epidemiology or other Masters degree.

There were some shifts in employment location following completion of the public health training, as shown in Table I. To some extent, graduates had moved out of public hospitals and into State Government or tertiary institutions.

Table I: Changes in location of employment for graduates of PHERP-funded centres.

Employer	Pre-enrolment %	Now %
Public hospital	26.0	16.3
State government/Area Health	20.8	26.8
Tertiary institution	13.2	18.1
Private practice	7.7	8.8
Federal government	6.3	5.2
Not for profit organisation	5.4	5.2

Graduate respondents indicated a substantial shift in their professional role, with movement out of clinical services and into research and to a lesser extent into health service management (Table J).

Table J: Changes in professional role since graduation.

Major function	Pre-enrolment %	Now %
Clinical services	41.7	25.1
Research	11.8	21.0
Education and training	11.6	9.5
Health services management	7.5	9.0
Health promotion	6.3	6.2

The proportion of time involving public health in respondents' current employment was similar to that reported by currently enrolled students.

Following graduation, 16.7% of graduates reported at least some time spent working overseas in a health-related area.

Graduate assessment of the value of public health courses

Respondents were asked to rate their judgements of the value of their current courses in the same way as were currently enrolled students. Responses are displayed in Table K.

Table K: Graduates' rating of the value of their public health course

The public health course:	Not at all/ a little %	Quite well/ very much %
Met expectations	10.2	89.8
Provided useful skills	9.0	91.0
Prepared for a public health career	29.3	70.8
Prepared for current job	37.3	62.7
Assisted promotion/career change	41.2	58.8
Assisted in professional life	20.7	79.4
Helped me make an impact on public health	43.2	56.8
<i>Mean</i>	<i>22.6</i>	<i>77.4</i>

Approval rating of the value of their public health training was high in an overwhelming majority of graduates. However, 41.2% felt that their qualification had not significantly assisted promotion or career change. Approximately 1 in 3 respondents did feel that their training had not prepared them adequately for a public health career or for their current job. This interpretation does not allow for a current job that might have little or no public health function.

SUMMARY

This survey revealed, as have individual university surveys and earlier workforce surveys, that there is a high level of satisfaction amongst students, and that their education was associated with moderate career movement towards public health.

10. Major Findings

GENERAL OVERVIEW

In 1998, we found a flourishing Program, as had Salmond when he reviewed Phase 1 of PHERP in 1991. He saw the program to have made 'a good start' and observed that 'what is needed now is a plan and resources to build on the excellent foundation' (Salmond, 1992, p. 17). He found that 'most Australia States have the basic building block necessary to build an effective public health infrastructure' (p. 18). Since then these foundations have been effectively built on, and seven years on, the Program is more mature, more firmly established and the networks have grown and flourished. The evidence presented to the Review suggests that the main challenge now is to maintain the momentum of the Program; to enhance its effective elements and promote structural change to address problems with the model and unmet public health needs.

In the mid-1980s, Kerr White was struck by a need to raise the profile of public health. He also noted a need to develop a new concerted approach which would overcome the 'outmoded and counter-productive' adversarial and confrontational posturing and overt conflicts which have characterised the Australian health care scene for the past decade or more' (p. 17). Six years later Salmond observed that the Kerr White package had indeed been 'very successful in helping to raise the profile of public health in Australia' (1992, p. 7). Salmond noted, 'health promotion and disease prevention are increasingly being seen as everybody's business and not just the preserve of the regulatory health authorities' (p. 7). He also noted a lessening of the tension between the so-called medical and social models of health (Salmond, 1992 p. 16), with much greater acceptance of this latter approach.

In 1999 public health has an even higher profile. The reconciliation of approaches has continued, though there are still vestiges of the tension between public health and medicine noted by Kerr White (1986, p. 13). This is most obvious in the some medical schools in which a lack of high priority for public health is translated into a lack of appropriate resourcing for the faculty's public health program. With some notable exceptions, when public health is located within a medical faculty, that university support is lowest (see Table C).

The following assessment of the findings of Review deal with the performance of the PHERP at three levels:

- the State programs and public health workforce development;
- research and research workforce development;
- the structural model underpinning the Program.

OVERVIEW OF THE STATE PROGRAMS

The Review has shown that while PHERP Phase 2 has to its credit many worthwhile and important achievements, its most innovative is the collaboration between universities in offering Master of Public Health degrees. Currently the potential of collaboration is realised to varying degrees across the country. None the less the evidence gathered by the Review suggests that it can allow the achievement of high quality courses, without requiring the high level of resources per degree that would otherwise be required. And, as indicated by many who made submissions, there is scope for further development of collaborative effort both within current collaborating groups and particularly through new collaborations. Because of its flexibility, the model also has potential to inform other areas of education.

Aspects of the PHERP collaboration identified as important

- Collaboration has aimed to address the problem of achieving 'critical mass', particularly of staff. The problem of critical mass is inherent in Australia's tertiary education system, because there are many universities serving a relatively small population. The collaboration model has allowed universities, by pooling their resources to draw on wider expertise than is available in any one university and to reduce duplication.
- Conventional approaches to achieving critical mass favour concentrating courses and resources within a few universities, a view expressed many times to the Review team. The type of collaborative structure fostered by PHERP however, has allowed more universities to develop public education programs. Given the fundamental importance of public health knowledge to all communities, its wide availability is itself a public good.
- Collaborative arrangements are enhanced when a range of teaching methods is used. This means that it is possible for students to take some or all of subjects without weekly attendance at the university. In the late 1990s, this form of delivery is best described as 'flexible mode' rather than the more familiar 'distance mode', because this indicates the variety of teaching methods that are being utilised. These include technologically based methods (phones, fax, computers, internet, etc) as well as block teaching which either involves teachers going to students or students moving from home for blocks of face to face teaching. Flexible mode teaching is resource intensive, especially in the developmental stage, hence the value of collaborative effort.
- A collaborative structure means that public health education can be made available to students within their own regions, while addressing the issue of quality. This has a number of advantages in Australia because, since the expansion of access to universities in the 1970s, most students are accustomed to commuting to a local university rather than choosing a specialist course and relocating to attend. The issue is of particular relevance for public health post-graduate degrees because of the demographic profile of students. Seventy-five percent of current students are aged between 30 and 49 years (PHERP Review survey 1998). Most are in employment and wish to remain so; and family commitments are often a pressing issue for this age group which makes geographic mobility difficult. The profile also underlines the need to offer flexible mode delivery, to facilitate access across the country.
- Submissions to the Review indicated that regional workforce issues are more effectively addressed if courses are not confined to a few universities. One of the strengths of public health education, and one that PHERP aims to enhance, is that education does not stand aloof from the health field. The review found much evidence of interaction between academic staff and workers in the health field, and much mutual benefit. For example the work undertaken for student theses and projects regularly focuses on local issues.
- The issue of equity in respect of low socioeconomic status is central for both research and workforce development. In Phase 1 of PHERP the strongest courses were in the larger more traditional universities, which are not located in the poorer suburbs. A far wider range of universities has been involved in PHERP Phase 2 and their campuses are located in a far wider range of socioeconomic areas. Issues of equity and how to provide educational opportunities that are most likely to produce public health workers best suited and equipped to work with lower socioeconomic groups have not been explicitly addressed by PHERP funding. None the less the evidence before the Review team suggests that it is a goal better addressed by a dispersed education programs, in conjunction with collaborative arrangements than by centralised ones.

- The vibrancy of the collaboration model was evident in many submissions that suggested the considerable scope for extending its potential.

Effective collaboration has not been achieved without considerable effort both by the universities and the state health authorities. It has required heavy time demands, at least initially. Evidence presented to the Review suggests that university administrative systems are not geared to collaborative arrangement for course delivery. A range of the problems associated with the collaborative model are discussed later in this Section (see 12.4)

PUBLIC HEALTH WORKFORCE DEVELOPMENT

A key term of reference of this Review is the contribution of the Program to 'development of the public health workforce', a central goal of the PHERP. In relation to this, the Kerr White review recognised four major issues, which remain central today, even though good progress has been made towards meeting the deficit in the workforce.

- The first is that of up-grading the skills of those already working in public health, which Kerr White thought would be achieved through the MPH. He postulated that this might only represent a catch-up phase: 'In due course, it may be unnecessary to have MPH courses since most or all of those working ... in relevant health care institutions will have been adequately trained much earlier in their careers' (p. 30). Today, we remain far from this goal.
- The second is providing an introduction to public health to a range of students in for example 'medicine, nursing, economics, the social sciences and related fields' (p. 30), because of public health's relevance to a range of occupations and indeed to the public as a whole.
- The third is that of attracting an elite core of researchers and teachers and providing them with appropriate education and training and a career path. As Kerr White put it: there is 'a need to attract at an early stage in their careers a larger proportion of the best young minds to work in disciplines germane to public health' (p. 30). This was seen as a source in the long term for recruiting those who would fill the shortage of expert teachers and researchers.
- The fourth issue was that of the education of a cadre of top-level health services managers.

Output of MPH graduates throughout the life of the PHERP investment is detailed in Table L. The discrepancies in state totals of MPH graduates due to the funding concentrations are evident, though this evened out somewhat in the latter 1990s. Excluding NCEPH and ACITHN graduates, in the 1987-97 period NSW produced 737 (52%), Victoria 90 (6%), South Australia 152 (11%), Western Australia 93 (6.6%), and Queensland 334 (24%). Victoria produced its first MPHs from the new consortium arrangement in 1998.

Table L: MPH completions in PHERP institutions 1987 – 1997

University/Centre	1987-93	1994	1995	1996	1997	1994-97	1987-97
Sydney	195	50	58	41	66	215	410
New South Wales	52	20	30	33	31	114	166
Newcastle CCEB	24	19	19	20	59	117	141
NCEPH	1	1	1	0	2	4	5
ACITHN	100	10	27	26	34	97	197
Monash	49	15	18	18	12	63	112
Melbourne	0	0	0	0	2	2	2
La Trobe	0	0	0	0	0	0	0
Deakin	0	0	0	0	1	1	1
Flinders	21	32	28	36	38	134	155
Adelaide	34	18	6	8	12	44	78
Western Australia	6	8	6	8	11	33	39
Curtin	0	0	0	17	21	38	38
James Cook	3	15	25	32	31	103	106
Griffith	13	3	4	2	0	9	22
<i>Queensland</i>	<i>5</i>	<i>11</i>	<i>14</i>	<i>28</i>	<i>22</i>	<i>75</i>	<i>80</i>
<i>QUT</i>	<i>0</i>	<i>10</i>	<i>8</i>	<i>9</i>	<i>3</i>	<i>30</i>	<i>30</i>
<i>Total</i>	<i>503</i>	<i>212</i>	<i>244</i>	<i>278</i>	<i>345</i>	<i>1079</i>	<i>1,582</i>

*Supplied by the DHAC based on Activity Reports from universities. Numbers may vary from those given in Table C.

Workforce size

In attempting to assess whether education programs are meeting workforce demand, difficulties arise because there is little systematic comprehensive data available about the public health workforce and future needs. Certainly there is no clear picture available of what was the state of the workforce at the beginning of Phase 1 of PHERP. The Salmond Review (1992, p. 21) acknowledged this problem, suggesting that it was impossible to achieve a comprehensive overview of the public health workforce because of a lack of data. As Gifford (1988) pointed out in the earliest Review of post-graduate public health education to be undertaken across Australia, the problem is compounded by the complexity of the public health field and a lack of consensus about what to include.

In support of an increasing capacity to meet demand for public health education Salmond pointed to the fact that the Directory of Public Health Training in Australia, produced by the Public Health Association of Australia in 1992/3, was twice the size of the 1989 edition. In addition the number of institutions offering such training had increased by 80%, there was an increased range of programs offered and courses were mostly over-subscribed (PHA, 1991, p. 21). After the Salmond Review, the Commonwealth commissioned the Public Health Workforce Education and Training Study, 'to monitor the progress of [PHERP] and evaluate its impact within the context of the overall field of health activities in Australia' (Rotem, et al, 1995, p. 1). The study interviewed employers and attempted to map the public health workforce. A survey directed to students and graduates focused, as did Gifford's earlier study, on graduate courses though noted the emergence and likely increasing importance of undergraduate degrees in public health (Rotem, et al, 1995, p. 22). The study found a flourishing education scene, with varied courses and satisfied students and graduates. The workforce was found to be multi-skilled and involved in multiple tasks and keen to develop their competence in a range of areas. The report acknowledges the difficulty of defining just which courses should be included as of

relevance to public health, but through its student and graduate survey identified 114 courses offered by 23 institutions (p. 12).

The most recent edition of the Directory of Public Health Training in Australia, for 1997/8 (PHA, 1995) notes an increase in courses. In its introduction it is pointed out that the directory is three times the size of the earlier edition. While there seems to be little doubt that the number of courses has continued to increase, the reason for the additional size of the directory seems rather to be that more information is included for each entry rather than it including more entries. In fact the coverage is less comprehensive than the earlier edition, with only 23 universities represented where 30 were covered by the earlier edition. Universities not represented in the 1997/8 edition include 4 PHERP funded universities (Deakin, Griffith, Melbourne and Western Australia), so the reduction in the number of universities represented cannot be taken to indicate any withdrawal from public health education.

There has been a gradual build up of data about public health workforce education since the 1980s, another reflection of the developing infrastructure in the public health field. Thus the Reviewers can with some confidence conclude, as did Salmond and Rotem and his colleagues, that the demand and supply of public health education continues to increase. The demand is for a wide variety of education and training though we are not in a position to comment on its precise parameters. This continuing demand for public health education includes a demand for the MPH, and does not support White's proposal that at some stage this demand might be met, as undergraduate degrees were developed and modified the need for catch-up programs. The prediction of a declining demand for the MPH is still current and was repeated many times to the reviewers. However the evidence from enrolment statistics and from employers, particularly state government health authorities, does not support declining demand from students or employers. In terms of meeting workforce needs, the observation from a submission from the Queensland Department of Health expresses the sentiments of many public health organisations: Graduates of the MPH are found to be 'more focused on public health issues and able to respond more comprehensively to the issues' (Qld Health, p.1). At the same time, employers recognise there is considerable scope for development and improvement. Student surveys carried out for the review and by individual universities still suggest there are high levels of student satisfaction with the courses as well.

On top of issues related explicitly to public health, wider trends embedded in global economic, social and cultural change, suggest that continuing demand for the MPH is likely. The following three general points as well as one related specifically to public health are of key relevance here. First, there continues to be an expansion of post-graduate training in many tertiary education areas in Australia. Second, an emphasis on improved quality of practice in service areas encourages (and at times mandates) continuing education. Third, the pattern of entering a career at a young age and staying in that career for one's whole working life is a pattern that is weakening which suggests there will be increasing movement into (and out of) public health, thus feeding a continuing demand for post-graduate education. Fourth there is a continuing and expanding recognition of the importance of public health, especially in the light of increasing costs of health care, and an aging population. While it seems clear that there will be continuing demand, more needs to be known about the nature of the demand and the levels of training most appropriate.

Recommendation

R5: No deliberate reduction in the student intake into MPH degrees is warranted.

Many predict that the trend to withdrawal of HECS-funded places for coursework Masters level courses may affect the demand by students, because fees may prove a disincentive. Some, however, expressed the view that if the programs were of sufficient quality, they would survive

in ‘the marketplace’ and there would be no negative impact on enrolments and meeting the workplace demand.

In discussions with officers from DETYA, it became apparent that a strong case could be made to exempt public health Masters places from HECS exclusion on similar grounds to nursing and education Masters courses for which universities offer HECS places. The basis for this exemption is essentially around the ‘public good’ consequence of training of these disciplines. In addition, and as borne out to some extent in the PHERP Review survey of current students and alumni (see page 43), a public health qualification does not inevitably lead to higher salaries or workplace advancement. On the contrary, for many moving from the clinical services sector to public health, it may be the reverse.

As discussed later in this Section, the emerging demand for and provision of professional doctorates (Doctorate in Public Health, DrPH) is also affected by DETYA rules on research content. At present, the threshold requirement for research content is 66% for a doctoral degree to qualify for DETYA support via HECS. A DrPH is designed not to train researchers, but rather people working in public health (most often in the public sector) in administrative, management and policy roles. Some research content in such a degree is important so as to adequately train students in research appraisal, interpretation and implementation, but this may be as low as one-third of the total content of the educational experience. The basis for judging DETYA eligibility should not be on the research content at all, but rather on the fact that such training for the public health workforce is in line with government needs and policy, and generally for the public good.

RECOMMENDATION

R6: In order to ensure that the attraction of the MPH for workforce education is not diminished, negotiations by DHAC should proceed through DETYA to ensure that MPH and DrPH student places are fully HECS-eligible based on the ‘public good’ principle, and are offered as such by universities.

Professional Doctorates

A major contribution of the 1980s to post graduate education for the public health workforce was the MPH (or other-named equivalents). The degree of Doctor of Public Health (DrPH) or professional doctorate is a development of the 1990s, with the University of Wollongong first to introduce a DrPH at the beginning of the decade. This is a logical development from the MPH because it takes to the next level, education for those intending to remain in the public health workforce rather than making a career in research or teaching (who generally enrol in the PhD). It is therefore an important site for development for those occupying high level position in the public health workforce.

By the Review of 1998 the PHERP funded universities mostly offered a DrPH, were awaiting its formal approval by the university, or were planning one. While for the foreseeable future there is likely to be relatively limited call for the DrPH, at present its potential seems far from met. There are only a handful of enrolments across the country, though with more systematic and collaborative arrangements that address student’s interests and workforce needs, it seems likely that numbers will increase considerably. This would be a valuable contribution to the development of skills at higher levels of the public health workforce, noted by the two previous reviews and of central concern to State, Territory and Commonwealth health departments.

The details of requirements for the degree vary between universities but the hallmark is a more practically focused research project than the PhD, usually with about two-thirds coursework and

one-third research. However, in some settings the degree does not require coursework and this represents as significant a weakness as it is for a public health research PhD without a coursework entry requirement (such as an appropriate masters degree) or coursework content within the PhD itself.

Because of the relatively small numbers likely to be enrolled, some overlap with coursework for the PhD should be planned. This task can most effectively be done by taking a national approach, with a menu of advanced subjects made available across the country (and internationally). Students could then have access to top levels of expertise delivered through a variety of forms of flexible programming. Their individual support and guidance would still be provided by the home university.

Recommendation

R7: That high quality coursework subjects be developed to service the candidates of both the PhD and the DrPH. These should draw on the most highly qualified experts across the country, be available in flexible mode and recognised by all universities.

Recommendation

R8: That PHERP funding be made available for the necessary developmental work for this and for negotiating an administrative system acceptable to universities that will facilitate such national collaboration.

Under-graduate education and workforce demand

Because PHERP has focused on the MPH degree, evidence was collected about the employment destinations and history of students of this course, but similar information was not sought about the increasing numbers of students with a generic undergraduate degree in public health. Clearly to really understand the nature of the public health education, its links with the workforce and its future needs, more needs to be understood about the employment paths of students with relevant undergraduate as well as postgraduate degrees. So far there is not an agreed categorisation of what degrees should be included as relevant to the public health workforce, itself not a straightforward task, let alone an investigation of their efficacy for meeting workforce needs, though the Rotem et al (1995) study made a useful start here.

It is clear that workforce demands are being contributed to by both undergraduate and graduate degrees offered by universities outside PHERP (see Rotem, et al, 1995). From the inception of the Program, the issue of such courses has been acknowledged. Kerr White did not rule out supporting the newer universities which were offering these programs: He recommended that \$1m annually be provided for salaries of faculty and support personnel at universities (other than Sydney, Adelaide and Newcastle) and CAEs 'that provide strong undergraduate and postgraduate education in public health or related fields' (p. 29). Later he suggested that funding should be provided on a competitive basis of \$3m annually 'to endow or fund additional chairs or other positions in 'these universities and CAEs' (p. 29). He saw the CAEs as being 'highly important Colleges for training essential health workers with a broader population perspective' (p. 39).

As well as more information being needed about the contribution of undergraduate degrees in areas of relevance to public health, their consequences for continued education through post-graduate degrees needs to be investigated. If students cover much of the ground included in the MPH at an undergraduate level it will not be productive to merely repeat this content at the Masters level. Such undergraduate education has clear possibilities for gradually increasing the

depth of public health education in the community as well as making it more widely available, but only if the sequencing issue is systematically addressed.

A further advantage of undergraduate degrees at present is that the majority of places are HECS-funded.

Sequencing of subject and the importance of recognition of many forms of training, including short courses and work experience was raised in a number of submissions. The availability of credit which can be built up towards a higher level qualification, has the potential to encourage continuing education and was seen as particularly relevant to those not necessarily comfortable with the idea of a university degree, or not well equipped to undertake one.

Recommendation

R9: That contribution of generic undergraduate public health degrees to the public health workforce be assessed and monitored over the life of Phase 3 of the PHERP. This should be with a view to possibly incorporating support for such degrees into the Program. This should incorporate an investigation of the consequences of the availability of such degrees for the content of Masters level courses.

Recommendation

R10: That the Australian Vice Chancellors Committee be encouraged by the Commonwealth to establish a national system of credits so that the many forms of public health education and training can contribute towards formal qualifications.

RESEARCH AND RESEARCH WORKFORCE DEVELOPMENT

The findings of the Health and Medical Research Strategic Review (page 16) gives a clear path forward for public health in Australia through a major new effort in priority-driven or, for the purposes of this Review, broadly defined public health research.

If it were not for PHERP, Australia's performance in public health research would have been far behind its current position even though the evidence produced by this Review has shown a great deal of the PHERP investment has gone into public health workforce capacity development. Bibliographic analyses show that public health research in Australia does very well by international standards in terms of rates of publication in impact journals and citation share (Wills Review, p. 21, Exhibit 2.0-3). This is despite other evidence that more than 75% of public health research publications do not end up in ISI journals (used for conventional bibliographic analyses), and public health publications appearing in first rank general journals do not get counted in public health share.

PhD commencements in the period 1987-98 in PHERP-funded institutions (Table M) show a substantial increase between the periods 1987-93 and 1994-98, although numbers from those not in receipt of Phase 1 PHERP funds may not have been included in 1987-93 totals. In 1998, 113 students nationally were enrolled in a PhD program. The number of MPH enrolments is more than three times this number. Excluding NCEPH and ACITHN, NSW has 172 enrolments (47%), Victoria 61 (17%), South Australia 41 (11%), Western Australia 57 (15%), and Queensland 39 (11%).

Table M: PHERP institutions PhD commencements 1987 – 1998.

University/Centre	1987-93	1994	1995	1996	1997	1998	1994-98	1987-98
Sydney	24	8	5	9	10	6	38	62
New South Wales	28	6	6	12	12	13	49	77
Newcastle CCEB	14	3	4	7	4	9	27	41
NCEPH	26	8	7	13	12	7	47	73
ACITHN	49	16	23	13	13	17	82	131
Monash	11	2	9	6	3	5	25	36
Melbourne	0	0	6	4	6	2	18	18
La Trobe	0	0	0	0	0	10	10	10
Deakin	*	*	1	2	1	6	10	10
Flinders	*	1	2	0	1	7	11	11
Adelaide	16	4	2	4	1	2	13	29
Western Australia	2	4	1	7	6	3	21	23
Curtin	*	*	7	7	6	5	25	25
James Cook	2	3	3	3	6	4	19	21
Griffith	*	1	2	2	0	2	7	7
Queensland	10	4	9	3	3	10	29	39
QUT	0	0	4	4	10	5	23	23
<i>Total</i>	<i>182</i>	<i>60</i>	<i>91</i>	<i>96</i>	<i>94</i>	<i>113</i>	<i>454</i>	<i>636</i>

NOTE: * indicates data either not applicable or not available. These data were provided by DHAC and have been collated from activity and available annual reports. They are indicative only, as not all universities have provided data and or have been consistent in their reporting. University of NSW has reported on completions prior to their receiving PHERP funding. Numbers may vary from those provided at interview and presented in Table C.

With public health research and researcher training, a tension between 'balancing a national focus with regional requirements' was recognised by Kerr White in 1985 (p. 16), something that applies both to research and workforce issues. For such reasons Kerr White recommend support for two national centres, NCEPH and ACITHN.

NCEPH was seen as the means to address the national need for an elite workforce by attracting high quality students to ultimately 'train the trainers'. This was to be achieved through the provision of attractive stipends. A range of other postgraduate scholarships and fellowships (some offered through NHMRC) was recommended to attract high quality people. Kerr White recognised, what was often repeated in 1998, that public health pays poorly and that increased qualifications do not necessarily mean attracting higher economic rewards. As he put it 'there is little incentive to enter the public health field for any save those with a high degree of altruism, a strong aversion to clinical medicine or a determination to work in the public sector' (p. 30).

Public health research in Australian universities is currently hampered by a lack of sufficient NHMRC supported doctoral and post-doctoral students. Evidence provided relating to NHMRC personal scholarship support for PhD students in public health shows an inadequate level of commitment, with only 1 in 6 PhD scholarships being awarded for research in public health. Too few students are applying for PhD scholarships, and too few well-qualified applicants are available to take currently provided postdoctoral awards. The reasons for this are discussed on page 14.

The two national Centres funded under the PHERP arrangement have both performed well, but require further development and resolution of structural (NCEPH) and resourcing issues (ACITHN and NCEPH). In relation to these national Centres, the following recommendations are made:

RECOMMENDATIONS regarding ACITHN

- R11.1: ACITHN should further develop its national profile as a national centre with training opportunities for the brightest students from all states of Australia.**
- R11.2: Through flexible delivery and joint ventures, some of the educational products of ACITHN should be made available throughout Australia.**
- R11.3: ACITHN should develop collaboration with others involved in international health activities such as the Macfarlane Burnet Centre, Griffith University and others, including joint research and development programs, and educational activities.**
- R11.4: The oversight and review of ACITHN research performance could possibly become a shared responsibility with NHMRC (as for other block-funded health and medical research institutes), subject to adequate safeguards against erosion of public health interests.**
- R11.5: Funding for ACITHN should be continued at current levels, but subject to a comprehensive external scientific review of its research effort before the end of 1999.**
- R11.6: The case for shared funding with NHMRC should be examined in relation to those components of the Tropical Health Program that fund bench scientists.**

RECOMMENDATIONS regarding NCEPH

- R12.1: NCEPH should pursue its mission as originally outlined to become a national flagship in epidemiology and in population health.**
- R12.2: NCEPH needs to develop more of a national presence and act as a national resource for epidemiologic and population research. This might include, amongst other things, the provision of short courses and other educational opportunities utilising flexible modes of curriculum delivery, in collaboration with other universities where appropriate.**
- R12.3: The oversight and review of NCEPH research performance could possibly become a shared responsibility with NHMRC (as for other block-funded health and medical research institutes), subject to adequate safeguards against erosion of public health interests.**
- R12.4: Funding for NCEPH should be continued at current levels, but subject to the following:**
 - a) ANU be required to match the Commonwealth contribution through PHERP on a 'cash' basis, and failing this that a national tender be called to house NCEPH. A transition period of up to 2 years should be allowed to permit the University to reach this level of contributory funding.**
 - b) ANU or other auspicing body be required to provide NCEPH with full academic rights and access to productivity-related resources and benefits, as any other academic department would enjoy.**
 - c) NCEPH adhere to the principal recommendations of the Brennan Review, namely the development of substantially greater research focus, considerable strengthening of its epidemiologic productivity, abandonment of MPH/GDPH and professional doctorate courses, and enhanced provision of high level coursework for its research PhD students.**
 - d) NCEPH make a contribution to research training of public health PhD students throughout Australia by, for example making coursework available and providing support/development for supervisors.**

RESEARCH CAPACITY DEVELOPMENT

In the light of previous emphasis on MPH output and evidence from many sources about the need for a new effort in public health research capacity development, some modifications of the existing PHERP arrangements and some innovations are required. The following recommendations are based on strong arguments being put to the Review panel by many that greater flexibility in PHERP contracts is required to enable centres with higher research capacity and ambitions to further develop and contribute to the national research effort. Innovations that relate to research in other locations and collaborative efforts in health priority areas are described in the subsequent Section of this report. The following recommendations relate to PHERP Program development in relation to research capacity.

RECOMMENDATION

R13: PHERP contracts with consortia and individual universities should be flexible to permit, by negotiation between the Commonwealth and the contractor, variable requirements for MPH, PhD or DrPH student outputs depending on the capacity and local needs of the contractor, and on the requirements of the Commonwealth.

RECOMMENDATION

R14: A system of nationally competitive, portable institutional Public Health Research Enhancement Grants should be established to the value of \$25,000 per full-time PhD student per year payable to the University of enrolment. Approximately 15-20 per annum payable for up to 3 years (conditional on successful progress) should be awarded based on quality of the applicant, quality of the proposed program, and the national priority of the subject of the PhD research. This money should be used by the department to contribute to research staff positions, research infrastructure, or other research capacity but not to the project itself for which other funding will be necessary if required. Personal stipends for the students will be required from NHMRC or other external agency.

PUBLIC HEALTH PRIORITIES

As outlined in and recommended by the Wills Review, a more priority-based system for health research funding in Australia is needed (see page 16), and there was considerable agreement that research supported through PHERP should be 'national priority sensitive'. A number of strategies were considered by the PHERP Review to use enhancement funding to boost research and development in strategically important areas, and to boost national leadership through collaborative research. In addition, many representations were made to the Review panel as to which priorities were most crucial in this regard. The success of PHERP-funded Centres and of the CRC concept (Centres for Research Cooperation) together with NHMRC plans to proceed with a similar concept to be known as Health Research Partnerships provides considerable incentive for the Commonwealth to seek advancement in this regard.

There is wide recognition among health professionals and within the general community (see ACCOS, 1998, p. 195-6), that something needs to be done to tackle the association between low socioeconomic status and poor health. Strong cases were made in particular for a major new effort to address research into the determinants and possible modifiers (interventions) of health differentials, or inequities in health especially from a developmental perspective (human health and development). In other words, to develop a research program which would make a serious effort to understand the determinants of future health, particularly in relation to those factors which are socially mediated such as poverty, socioeconomic status, adverse perinatal and early childhood factors, residential location, geographic and social isolation, and occupation.

Aboriginal public health research is clearly a top national priority. The Strategic Research Development Committee of the NHMRC has been concerned about this (see NHMRC Guidelines on Ethical Matters in Aboriginal and Torres Strait Islander Health Research, 1991). Also the Office of Aboriginal and Torres Strait Islander Health Services has collaborated with NACCHO in developing an appropriate research framework. While many of the problems faced by indigenous Australians are unique within the country, many have salience for developing countries, thus as the NACCHO submission to the Review points out, 'quality research in Australia to improve Aboriginal health outcomes has international significance'. The broad principles supported by NACCHO which should guide such research include: involvement of Aboriginal communities in the research development; that it be practically based and outcomes oriented, interventionist, rather than observational; further evidence-based decision making; relevant to primary health care; address social structural factors; and lead to sustainable interventions

RECOMMENDATION

R15: Indigenous health research, broadly defined and focussed on interventions and social context should remain a high priority for all PHERP-funded research support, whether it be through Research Centres, Public Health Research Enhancement Grants, or State Programs.

A powerful argument for establishing a concentrated effort in occupational health and safety was made to the Review. Since the virtual abandonment in 1996-97 of a serious and systematic approach to this major source of mortality and morbidity in Australia, the need for a more integrated and concerted effort has been highlighted. More than 3,000 deaths and over \$27b in costs are conservatively attributed to workplace-related injury and illness. Only isolated and poorly coordinated efforts are being made to describe aspects of this field let alone finding, providing and evaluating preventative interventions.

Similarly strong evidence was presented for the need for population approaches to oral health (see ACOSS, 1998, p. 200-203), environmental health, food safety, and injury. Since NHMRC's Strategic Research Development Committee has identified injury prevention as a major research objective, some funds have been put aside for a new effort which will require funding partners from Commonwealth and State governments and also industry.

RECOMMENDATION

R16: Under the banner of national health research priority, new national flagship Centres, Health Research Partnerships or other substantial research collaborations (which have dissemination of findings as a key objective) should be initiated in the priority areas such as :

- **Food Safety**
- **Human Health and Development (as defined above)**
- **Occupational Health and Safety**
- **Oral Health**
- **Environmental Health**
- **Injury Prevention**

NHMRC RELATIONSHIPS

In the light of the Wills Review recommendations for major structural change to NHMRC, and the proposed new approach to substantially expand Australia's national effort in priority-driven research, there is a need for more urgent than ever for public health priorities to become clearly enunciated and implemented. Since the merger of the Public Health Research and Development Committee with the Medical Research Committee to form the new Research Committee, public health research development has been stabilised but not yet further advanced. Elsewhere in this Review, evidence of substantial under-funding by NHMRC of public health research, research centres, career researcher fellowship support, and training scholarships has been delineated (page 14). Imaginative proposals for innovations such as health research partnerships (network grants), fractional career fellowships and postdoctoral awards, and drop-in/drop-out fellowships have been developed by Research Committee and endorsed by the Wills review. However, substantial ground has yet to be made up (and new funds identified) to redress current shortcomings, let alone progress public health research.

It is imperative that all the professional divisions of DHAC join in advancing the public health research agenda. Because NHMRC has been so dominated by investigator-initiated processes for funding research and researchers, those responsible for policy development and implementation and for service delivery have seen NHMRC as somewhat irrelevant to the 'main game'. If there is a re-orientation of NHMRC to priority-driven research, it is crucial that a mechanism and structure that satisfactorily engages members of the health industry (including governments) is found.

Whatever form for the proposed Priority-driven Research Committee (or function) is finally decided upon by the government, meaningful development of capacity to provide scientifically rigorous evidence upon which to base research priorities must occur. Because of the inadequately resourced level of staffing within NHMRC, and given the limited ability of 'volunteer' committees to address major work programs, the role of producing this scientific base in an ongoing way should be sufficiently resourced and embedded in an appropriate and probably independent environment. The British innovation in establishing a unit for Research and Development within the Department of Health and National Health Service, initially directed by Sir Michael Peckham (now Director of the School of Public Policy, University College, London) is a possible model for such a function, although it might better be housed outside government. (Black, 1997).

THE PHERP MODEL

The Kerr White vision, reinforced by Salmond needs little modification. However, White probably underestimated the time required to develop sufficient public health workforce and research capacity in Australia. The reasons for this relate partly to Australia's unresolvable problem of a relatively small and dispersed population over a vast geographic region, a deficit of sufficient concentrations of high level expertise especially for research development, and failure as outlined in the Wills Review to marshal all the appropriate forces and resources to adequately develop public health research.

Without the PHERP investment from 1987, one can only guess at how desperate the situation might have been now. As will be outlined below, the strength of the second phase of PHERP funding has been collaboration and efficiencies through consortium developments within state-based programs, coupled with a number of other innovative approaches to public health program design and delivery, particularly to serve those most in need.

COLLABORATION AND THE MPH PROGRAMS

The vibrancy of the collaboration model was evident in many submissions. However effective collaboration has been achieved only through commitment and considerable time and effort. With the experience of successful collaboration behind the program, some difficulties should be able to be mitigated in the future. The continued sharing of information through the PHERP Network regarding successful and efficient methods for collaboration is to be encouraged. The Network has a role to play also in addressing those aspects of university administration that impede collaborative arrangement for course delivery.

As indicated by many who made submissions, there is scope for further development of collaborative effort both within current collaborating groups and particularly through new collaborations. A number of universities are already extending their use of the collaborative model to national and even international levels. Because of its flexibility and efficacy, the model has potential for other areas of education. Collaboration has addressed the problem of achieving 'critical mass', The collaboration model has allowed universities, by pooling their resources to draw on wider expertise than is available to any one university and to reduce duplication.

The following are key strengths and weaknesses of consortium arrangements that were raised:

Strengths

- Allows universities to take advantages of each others strengths in particular disciplines
- Allows each university to focus on and expand their own specialty disciplines
- Reduces duplication of content
- Reduces duplication of teaching staff
- Provides students with the opportunity to be exposed to a number of experts
- Enhances overall quality of the educational program
- Facilitates and encourages further collaboration in research and teaching
- Provides leverage to achieve support from industry and other organisations
- Enhances interaction with state health departments and other stakeholders, including industry
- Has acted to support partnerships for the improvement of public health
- Has facilitated and encouraged interaction between academic staff and workers in the health field.

Weaknesses

- Administrative arrangements are more complicated requiring increased coordination
- Can lead to a reduced expertise in areas which are needed for other teaching, eg of medical students. (Extended collaborative arrangements have the potential to overcome this.)
- Access to PHERP funding may act as a disincentive for the provision of funding by other organisations, such as NHMRC.
- Negotiations between and within individual universities can be very difficult and at times involve bitter struggles
- The contribution of each university is not always of equal quality
- The issue of equity between universities has not been well addressed by PHERP arrangements, though Phase 2 was an improvement on Phase 1.
- That a number of equity issues in relation to funding have not been successfully addressed, and though Phase 2 improved this, further extension of the collaborative arrangements is necessary.
- Regional workforce issues may not be as effectively addressed when courses are confined to a few universities.

- The contribution of each university is not always based on the strength of that university.

Recommendation

R17: That collaboration remains a central feature of the program and that it is extended to achieve a range of other goals for public health education and research (as indicated in other recommendations), and, where potentially more effective and efficient, include new partners without regard for state boundaries.

The approach to achieving critical mass favoured in PHERP Phase 1 concentrated courses and resources within a few universities, with only four MPH programs of the 10 in the country being funded. This approach is still favoured by some making submissions to the Review. The collaborative structure fostered by PHERP Phase 2 however, has involved more universities with the effect of broadening and deepening the scope of public health education and research in Australia. A collaborative structure means that public health education can be made available to students within their own regions, while addressing the issue of quality. As already discussed, this has a number of advantages in Australia because students are accustomed to commuting to a local university rather than relocating to attend a specialist course. Also this tends to fit with students demographic characteristics as most are older, in jobs and with family responsibilities. As well, the involvement of more rather than a few universities also increases the feasibility of developing a wide range of specialties.

Recommendation

R18: The fundamental importance of public health knowledge to all communities makes its wide availability a public good. It is therefore recommended that where there is substantial potential for strengthening a program, PHERP continue to absorb more institutions into PHERP consortia, or develop new ones, without regard to state boundaries, to enable the improvement of quality and access.

FUNDING FOR COLLABORATION

The way in which PHERP funding has been deployed is heavily influenced by its history, even though both Kerr White and Salmond recommended that this should not continue to be the case. Kerr White anticipated eventual integration of the PHERP funded public health education programs into the normal university funding systems. Salmond too, anticipated this, saying of the situation in NSW 'A convincing case cannot be argued for continuation of the protected funding' (1992, p. 25). Salmond recommended the funding to the original 'protected' universities be phased out after the establishment of a mechanism for assessing workforce needs. The PHERP funds would then be administered by each State on a competitive basis (p. 8). He recommended Commonwealth funding be maintained for ACITHN, NCEPH and James Cook University (p. 8).

The issue of equity is of relevance to funding at a number of levels. In terms of geographic equity, we find that currently the output of graduates from PHERP funded organisations is unevenly spread across the country. Although there is no formal information on the precise public health workforce needs, it is clear that that some regions are less well catered for than others.

The University of Sydney has the longest history of public health education. From 1932 a graduate diploma of public health was available though only to medical graduates (Gifford, 1988). With the long history of public health education it is not surprising that a major PHERP investment was made there, nor that PHERP in NSW is producing by far the most graduates.

The output varies considerably for the other states and Territories (see Tables C, L, and M). Even though Monash University was funded for its MPH program in PHERP Phase 1 (though at a modest level), the output of graduates has been small. The number of Victorian graduates will increase in future as the VCPH program comes to maturity (first graduates in 1998). Tasmania and the Northern Territory so far have not been directly funded for an MPH program. The relationship between program funding and population distribution is most distorted for New South Wales and Victoria (Table N).

Table N: PHERP allocations (\$000s) to state consortia (NCEPH and ACITHN not included), 1997-98 (Provided by DHAC, see Appendix 1).

Programs	PHERP \$	% of total	% of pop'n*
New South Wales	2,506	44.4%	34%
Victoria	1,044	18.5%	25%
Queensland	940	16.7%	19%
Western Australia	574	10.2%	10%
South Australia	574	10.2%	8%
Tasmania	-	0%	3%
Australian Capital Territory	-	0%	2%
Northern Territory	-	0%	1%
TOTAL	5,638	100%	

*Based on 1996 Australian Bureau of Statistics census.

There is currently also an inequitable intra-Centre distribution of funds in Sydney, Adelaide and Perth between the universities that were in the original PHERP funding round and those that entered a collaborative arrangement in 1995. Historical reasons and the fact that these universities do not receive adequate support from their own university's DETYA funding were submitted to the Review as reasons for continued inequitable funding. This is counter to the objectives of the PHERP funding which is enhancement and stimulation of developments, not maintenance of basic programs which should be the responsibility of the universities. While the originally funded departments do undoubtedly provide valuable public health education and research, the lack of effective leverage of university funds, which could underpin further developments as well as the inequity that results, need to be addressed.

As well as the need to redress the imbalance between States and within Centres, an issue raised by a number of submissions was meeting rural needs. Our recommendations to increase and improve the flexible delivery of courses aims to address this. The absorption of more universities from regional Australia into collaborative arrangements would also increase the Program's capacity to address this issue.

Equity of PHERP funding is an issue also in relation to other priority groups. The Program has directly focused on the indigenous public health workforce though, as discussed under Indigenous Health below, more needs to be done. Meeting workforce needs in a manner most appropriate for Australians with low socio-economic status, given their very poor health status, is also a major issue. A submission to the Salmond Review from the University of Western Sydney pointed to the need to provide training within this health deprived region in order to attract appropriate students to provide for the workforce needs of the population of the region.

The same point was made to this Review. And it was pointed out that the University already has close ties with a range of local agencies that would be keen to be involved in public health training. This would provide a two-way benefit, for the communities and the education program, in something of a similar manner to that embedded in the indigenous workers program at JCU. Investigation of collaborative arrangements with other universities servicing similar populations, (eg Griffith's Logan campus, or VUT which services Melbourne's western suburbs), is important for future development.

Recommendation

R19: Workforce program funding under PHERP should ensure a more even distribution across the states, to ensure equity of access to public health educational opportunities for all Australians.

Recommendation

R20: Inequities of funding within the Centres should be dealt with in any future contracts. A staged transition period should be planned in order not to derail the current Program.

Recommendation

R21: Future PHERP State program contracts with auspicing universities or other institutions should ensure an initial absolute requirement for at least equal matching in cash support for PHERP funds progressing to 1:1.5 PHERP to University contributions by the end of PHERP phase 3. Such agreements should be rigorously monitored and enforced with termination of funding or similarly severe sanctions for non-compliance. Appropriate in-kind contributions (library access, space, and other infrastructure) should also be required from host institutions.

Recommendation

R22: That during PHERP Phase 3 mechanisms for assessing workforce needs be developed and used as a basis for changing the basis of funding for PHERP Phase 4.

Recommendation

R23: That the cooperation of the ABS and the AIHW be sought to gain more systematic information about the nature of the public health workforce to inform the assessment of workforce needs and priorities

Recommendation

R24: That consideration be given to including more rural and regional universities in PHERP Phase 3 collaborative arrangements

Recommendation

R25: That consideration be given in PHERP Phase 3 to collaborative arrangements that support universities with a commitment to working with populations with low socioeconomic status.

QUALITY OF PHERP-FUNDED PROGRAMS

Monitoring and improving the quality of public health workforce and research training has been the subject of the PHERP Quality Enhancement Program (QEP) funded by the Commonwealth and contracted to be managed by the Public Health Association. This Program has only just commenced, and some of the reviews are cited above under the discussion of individual programs. Not all universities had had peer reviews under QEP at the time of this Review.

The Program itself has not yet therefore been subjected to formal review. In using those reviews that had been carried out to assist the PHERP Review, we noted varying levels of critical appraisal of evaluated programs, and the absence of agreed standards against which programs could be evaluated. We were left with an impression that without sanctions, there was no assurance that this program would lead to better educational outcomes. The need for building 'teeth' into this process was emphasised by some of those centrally involved in the execution of the QEP. Further suggestions were made about the need for a formal accreditation process, appropriately reinforced by ability to control the flow of funds should courses not achieve satisfactory performance. However, the resource, contractual, and logistic implications of such a proposal have not yet been examined, and we are unable to recommend adoption at this time.

Recommendation

R26: The PHERP Quality Enhancement Program should be formally evaluated after 3 years with the specific purpose of determining whether there has been a measurable impact on course quality improvement. Such a review should include consideration of the desirability and feasibility of formal accreditation procedures. A formative component of this review could commence prior to the end of the 3-year period.

COURSE STRUCTURES

Flexible delivery

Australia has a long history of distance education with major achievements particularly in the school education area. Since the 1980s, as tertiary education has become accessible to a larger proportion of the population, and life long learning has become a more central concept, greater emphasis has been placed on distance education for tertiary students. Certain universities were designated as specialists in distance education after the Dawkins reforms. These developments are clearly detectable in relation to public health education, and there has been a gradually increasing availability of distance education.

The Public Health Association of Australia's *Directory of Public Health Training 1992-3*, has a separate section of its index devoted to distance learning. The entries consist of: two undergraduate degrees, 9 post-graduate diplomas and 6 Masters level courses and involves 8 universities. Even though the 1996-7 version of the *Directory*, does not include as many universities as the earlier version, it is clear that the number of universities offering public health degrees by distance mode has increased. This was found by an audit of PHERP-supported courses in 1997. Of 400 subjects listed, about one-third were available in distance mode (Higginbotham and Plaizier, 1997). Evidence presented to the Review by the funded University and submissions from non-funded institutions indicate the trend has continued.

The nature of the distance education offered to public health students is changing from the days of mainly written material, with contact between teacher and student predominantly by post, usually supplemented by block residential teaching. The lead universities are making use of electronic communication systems and a greater variety of educational forms and students can access source material via the internet. Also the value of some teaching techniques originally associated with distance education, such as block teaching, are being recognised as also efficacious for non-distance education. This constant development of teaching methods in line with educational and technological development and student needs is essential if public health education is to meet quality requirements.

Because students are relatively immobile, flexible mode delivery of courses facilitates access across the country. Clearly such courses are ideally suited to collaboration between universities. This allows expertise to be drawn upon without geographic restriction, facilitating access to high quality degree programs and short courses without regular attendance at a university. It also increases the potential uptake for specialist courses. The early success of the corporate MPH offered to employees of the Commonwealth Department of Health and Aged Services (Victorian Public Health Consortium and The University of Queensland) shows the potential of this degree structure. Because the cost of the development of such a course is high, collaborative effort is particularly important not only to ensure students have access to a range of expertise, but also to defray the costs. Some universities, including Flinders, UNSW and CCEB in Newcastle are well down the track in developing distance or flexible mode courses.

As well as meeting student needs, distance education has the capacity to mitigate a number of problems that have been fundamental to public health education in Australia. These are critical mass and the marshalling of high quality expertise. By offering courses in distance mode the student market is effectively expanded. This was recognised by Salmond in relation to the University of Newcastle in his 1992 Review. Here he applauded the development of distance mode to allow access to a wider 'catchment area' (p. 25). This has extended to offshore areas, which allows Australia to make an increased contribution to the Asia Pacific Region, as well as to the rural and remote areas of Australia. As well as opening up access to critical levels of demand, distance teaching lends itself to collaboration without any spatial restrictions. Thus high quality courses in specialist areas can more readily be offered.

Recommendation

R27: That through PHERP funding strategies, flexible methods involving increased collaboration be encouraged, in order to provide generic and specialist courses of the highest quality which can reach a maximum number of students across Australia and internationally.

R28: That in developing specialist courses, attention be paid to multi-disciplinary specialisation, through for example joint degrees in public health and areas such as agriculture, law, economics, anthropology, information technology, philosophy/ethics, communications, genetics, international relations etc.

Corporate MPH Program

The Corporate MPH Program is not funded under the PHERP arrangement but is cited here as an example for possible future developments within PHERP. Essentially, following an open tender process, the Division of Population Health within DHAC contracted 5 universities (Deakin, Latrobe, Melbourne, Monash and Queensland) to provide as a consortium a program for Commonwealth staff leading to an MPH. In its 18 months to date, 93 students have enrolled. Most are Canberra-based, but some are from state offices of the department. The program is delivered in flexible mode with distance and block elements involving state-based staff travelling to Canberra to deliver the program. Although not yet formally reviewed, early indications and feedback from students suggest this innovation has been a substantial success.

This type of multi-state, multi-university collaboration operating through flexible delivery and providing block sessions where the teachers travel to the students has obvious appeal for many potential applications, especially for those working in the acute health and primary health care service sectors.

Recommendation

R29: That future PHERP collaborations consider the Corporate MPH developed by DHAC as a potential model for facilitating access of students to public health training, particularly those in acute health and primary health care service sectors.

EVIDENCE-BASED HEALTHCARE

The rapid transition to a pervasive culture of evidence-based healthcare (a.k.a. evidence-based medicine) within the health system worldwide has been embraced in Australia. Ironically, it was public health and clinical epidemiology in particular that bred this transition but it is the acute health sector where its application stands to gain most from resource efficiencies and improvements in care practices. The irony is further manifested in that training in the principles of evidence-based healthcare still takes place largely from within departments of public health, most of them funded under PHERP. There remains tremendous unmet need for such training, for clinicians in hospitals, for community-based specialist and general practitioners in health centres and the community, and for those working in public health in all of its settings. In the absence of major developments to provide such training elsewhere, it seems efficient and logical to further develop training in evidence-based healthcare in the PHERP-funded institutions and to actively recruit students from all sectors of the health industry. Such training should be flexibly offered and available in forms from short courses through to specialised training at PhD level.

Recommendation

R30: PHERP-funded centres should provide appropriately flexible courses in evidence-based healthcare targeting all sectors of the Australian health industry.

NATIONAL FACULTY

Although unable to specify how such an entity would work in the current university climate, numerous submissions were made regarding a possible National PHERP Faculty or other more formalised umbrella than the current PHERP Network. Some could not see how further formalisation of the Network could achieve more than the Public Health Association could. Others felt that issues of cross-accreditation of courses between universities and overcoming competitive barriers to sharing of curriculum materials could best be achieved through a funded and formal structure such as some models in the USA (Centres for Disease Control network of prevention research centres) and Europe (European Schools of Public Health Network). Co-operative research potential facilitated by a national faculty/network and electronic links rather than necessarily physical links were suggested.

There are already numerous examples of national collaborations by PHERP-funded centres, and plans for several more. None the less we concluded that while there is a useful and possibly even greater role for a vigorous PHERP network, the case to formalise this beyond current arrangements is not yet strong. Certainly the dimensions of such a development are not yet clear.

THE CONTRIBUTION OF UNIVERSITIES TO PUBLIC HEALTH RESEARCH AND TRAINING

The proportion of PHERP contribution to the total teaching and research (T&R) budget of the department's varied between 4% for Curtin University and 75% for the University of Sydney (Table C). The top 4 in terms of PHERP proportion (Sydney 75%, Newcastle 53%, Adelaide 52%, and Melbourne 50%) were all from departments within medical schools. As discussed elsewhere, the withdrawal of public sector funding from tertiary education in general has had a profound effect on the way universities do business. There is evidence that PHERP funding has permitted some universities to shift their focus away from rather than toward public health in the knowledge that someone else will look after that funding need. This is absolutely counter to the

original and, as we argue, continued justification for supplementary funding for public health development in Australia. And yet, withdrawal of this funding would undoubtedly result in possibly irreversible damage to the excellent foundation that the PHERP investment has contributed.

For this reason, we argue that continued funding on the basis of satisfactory program performance is still required. But, through the way in which this funding is provided and through the type of contracts that are written with auspicing universities, future PHERP funds **must** require university cash contributions of at least a similar amount, and possibly more. PHERP funding should be seen as funding for innovation and program development and not as a continuing source of core infrastructure which is the responsibility of universities. Should universities be unable or unwilling to comply, serious consideration should be given to making those PHERP funds available through tender for program delivery in the same geographic location, or to shifting the funds to an area of greater priority.

There was substantial evidence of poor adherence by some universities to requirements for data provision relating to matters of contract monitoring. Future contracts will need to be much stronger in this connection, and require regular provision of data relevant to monitoring auspicing universities' compliance. Failure to provide data on time or failure to comply with contracted responsibilities should result in immediate cessation of payments until compliance is achieved.

RECOMMENDATION

R31: Future PHERP contracts should be more rigorously entered into by the Commonwealth to require compliance by auspicing universities with all provisions including cash contributions to departments, provision of infrastructure, access to research quantum and other basic department rights, and provision of required data on time for monitoring purposes.

STATE HEALTH DEPARTMENT RELATIONSHIPS

The level of state government health department engagement in public health workforce training is generally high throughout Australia, but the degree of engagement with PHERP-funded consortia varies. In New South Wales and Victoria, sophisticated training programs for health department employees have been developed.

In New South Wales, the Public Health Officer Training Program was established in 1990. Trainees are well paid, must have done an MPH, and must spend 6 months of the 3-year rotational program in a rural setting. Over 100 applicants compete for 2-4 new positions per year.

NSW Health also contributes \$350,000 annually to The Centre for Health Economics Research and Evaluation (CHERE) in order to have them assist in the training of small numbers of their staff over 3 years in health economics. This program had produced 7-8 graduates at the end of 1998. In addition, NSW Health contributes to the course in environmental health at The University of Western Sydney specifically for the training of Aboriginal environmental health officers.

Staff from the NSW Division of Population Health reported that they expected by 2006, they would require a doubling of the current public health workforce. MPH training provided by PHERP universities in NSW was regarded very highly, and there was a desire to get more

clinicians exposed to such training. PhD and DrPH training was recognised as important, but NSW Health wants a continued strong emphasis on MPH training.

NSW Health wants to further engage public health education by having greater involvement in teaching (with joint appointments), and particularly in having opportunities to influence the research agenda towards contemporary issues of strategic importance to state health. Officers from this agency cited such issues as “the health implications of marginalisation, rolelessness, unemployment and poverty, and the need for social infrastructure development”.

Unlike NSW Health, The Department of Human Services (DHS) in Victoria has had a major role in bringing together the 4 universities to establish and maintain the Consortium for Public Health (see page 32). DHS has contributed the salary of a part-time manager, based currently at Deakin University (\$27,000 p.a.) to oversee the administrative arrangements for the MPH program across the consortium members.

DHS has outsourced the management of its Public Health Trainee Scheme to Latrobe University. Having commenced in the late 1980s, and now costing about \$732,000 per year, this scheme enrolls 6 trainees per year for a 2-year paid rotational experience. Trainees are well paid and are expected to have completed or be in Part 2 of an MPH program. Under La Trobe University direction, trainees will now be able to enrol for a Masters in Health Science (Public Health Practice), and extend to a DrPH in the future.

It is estimated that only 15% of Public Health and Development Division staff of Victoria's DHS have MPHs, and like their counterparts in NSW, it is felt that there is a future large demand for MPH training.

The Queensland Centre for Public Health is supported by a Queensland Health-funded Centre Manager to the value of \$80,000 (see page 28). Queensland Health wants to see more impact on the content of the MPH programs in relation to their own state health priorities.

In Western Australia, the Health Department of WA does not contribute directly to the Western Australian Centre for Public Health. An application to HDWA for an executive officer salary to assist program management was turned down. However, HDWA does fund the Chair of Public Health at UWA, a Chair in Aboriginal Health at Curtin, a clinical epidemiology unit at UWA, and part-funds UWA's Road Accident Research Unit and its Health Services Research Centre. HDWA did have a community medical officer training program, but it has been disbanded.

A major restructure of the South Australian Health Commission (now the Department of Human Services) has made planning for future involvement in the South Australian Centre for Public Health difficult. The Department contributes \$368,000 to the Centre (to staffing at the University of Adelaide). At present the new Department has no public health workforce policy. Officers of the Department recognise the strengths of the University of South Australia in the area of environmental toxicology and would like to see their involvement in a future development of the South Australian Centre for Public Health. This University is also developing expertise in rural and remote health.

The ACT Government does not contribute funds to NCEPH.

INDIGENOUS HEALTH

As was pointed out by Salmond in 1992, it is clear that 'Aboriginal and Islander health should be a significant element in the developing public health networks' and that 'it is essential that the local indigenous people be involved directly in the setting up of any public health network'

(p.19). The involvement of local Aboriginal organisations is essential to the establishment of effective programs. Currently the National Aboriginal Community Controlled Health Organisation (NACCHO), represents around 100 Aboriginal community controlled health services. NACCHO is well placed to maintain an over-arching role regarding the manner in which PHERP can best contribute to the improvement of Aboriginal health. As a peak national body, it is also well placed to facilitate interaction between PHERP institutions and local Aboriginal community organisations.

The health of Aboriginals and Torres Strait Islanders remains problematic. Thus, as has been recognised throughout the life of PHERP, this remains an issue of the highest priority for the Program. Education of an appropriate workforce and the facilitation of appropriate research are crucial. While PHERP has been aware of this and addressed the issue to some extent, there is much to be done.

PHERP funding and other support from the Commonwealth has made an excellent contribution to date through, for example innovative specialised indigenous programs at James Cook University, ACITHN, NCEPH (the MAE program for indigenous students) and others. The PHERP Review graduate and student survey (see page 43) suggests that 2.4% of previous graduates were Aboriginal compared to 3.4% of currently enrolled students.

One recipient of PHERP Specialty Program funding was the Menzies Centre Darwin where an MPH program focussing on indigenous health was commenced in 1994. This program was reviewed very positively by the PHERP Specialty Program Review (see page 41), although we had some concerns about the available numbers and time of staff for teaching and the lack of collaboration with other PHERP Centres potentially able to offer very good resources through collaborative arrangements.

In the Darwin program there have been 6 graduates to date, and 10 enrolments in the 1998 induction. The retention rate of 84% has been high by any standard. However, there are as yet no indigenous students. There are plans to address this with the development of undergraduate and other non-degree based training to prepare potential Aboriginal students for masters level training. Regrettably there has been little collaboration beyond the Darwin Clinical School in these achievements or plans for the future. Competitive relationships between Flinders University and the Northern Territory University, for example, seem to have prevented a planned memorandum of understanding from being signed to date. Other potential collaborators, include (though not necessarily restricted to) James Cook University and The Western Australian Centre for Public Health.

A strong argument was also made for provision of personal support for indigenous students to permit them to travel to PHERP Centres for block mode teaching and for library and computer access and generally for subsistence support in the absence of available employment whilst studying. It was beyond the scope and resources of the current Review to fully investigate the full range and level of support available for Aboriginal and Torres Strait Islander public health students, and the gaps in this, but further examination of this issue seems well justified.

RECOMMENDATION

R32: That funding be maintained for those PHERP programs that have developed special programs to enhance the indigenous Australian workforce.

RECOMMENDATION

R33: That funding be provided to enable the Menzies Centre Darwin and Northern Territory University to continue and develop their MPH program in indigenous

health in collaboration with other suitable PHERP partners to ensure efficiencies and adequate breadth and depth of human and curriculum resources.

RECOMMENDATION

R34: That such a new collaboration should include provision for training to open up pathways into higher-level public health training for indigenous people, including into undergraduate courses and other non-degree based training.

RECOMMENDATION

R35: That the adequacy of and potential for provision of personal support for indigenous students of public health be examined in collaboration with relevant Commonwealth agencies and Aboriginal and Torres Strait Islander organisations.

RECOMMENDATION

R36: Indigenous health should be regarded as a priority area in consideration of the award of Public Health Research Enhancement Grants (see Recommendation R14).

THE NATIONAL PUBLIC HEALTH PARTNERSHIP

The NPHP was established in 1997 and comprises senior public health representatives from all governments in Australia as well as from the NHMRC and the Australian Institute of Health and Welfare. This body partly addresses an issue noted by Kerr White (1986, p. 15) when he pointed to the lack of an 'organised national forum in which the diverse, and increasingly complex, issues surrounding policies and practices that bear on health and disease can be critically examined and debated and from which the results can be widely disseminated to the public, politicians and professions'. The membership of the partnership and its structure are very much more limited than was envisaged by the Kerr White recommendation for a national forum however. It may be that his ideas for this forum should be carefully reconsidered if the Partnership, after it has time to find its feet, is not in a position to fulfil this broad national role.

Salmond saw a somewhat different role for a national network but was also concerned about the gap at the national level, noting a lack of 'an effective public health infrastructure in which there is a systematic networking of resources' (1992, p. 7).

The NPHP made a submission to the Review, which appended the outcome of a national consultation process. This, not surprisingly, covered many of the points made by a range of submissions to this Review. Also attached was a document relating to the NPHP's Strategic Directions. From this document it is clear that since its inception the Partnership's major focus has been on broad principles and general issues of process, particularly in relation to information development and national strategies. A paper on 'research and development and national action' is to be released early in 1999. A promising direction that the Partnership seems to be moving towards is more systematically examining workforce issues. Given the lack of solid information in this area, and the urgency of achieving a better-informed understanding, this is a welcome direction. It would certainly be very profitable for public health in Australia were the NPHP to devote attention, in conjunction with the ABS, to establishing procedures for identifying and monitoring the characteristics of the public health workforce and the establishment of appropriate national strategies for developing flexible and responsive workforce capacity.

None the less it may be that the current composition of the NPHP is not ideal to fulfil the broad, but strategic, national role envisaged by both Kerr White and Salmond. If pressures associated with state and federal interests impede efforts to deal with 'the big picture' then an alternatively structured body might be preferable, and should be considered.

If we combine the ideas of Kerr White and Salmond, a more effective national structure might be developed. For planning in relation to the most major issues, it would be worthwhile revisiting the forum that Kerr White envisaged for his recommended 'Academy of Health'. He saw this as made up of individuals, not representatives, with 60% being health professionals and 40% from associated disciplines and from the lay public (1986, p. 19), though his proposed structure seems rather more elaborate than is necessary now that public health is rather better established in Australia. Salmond acknowledged a similar need to focus on the big picture, when he suggested that the 'problem is not so much one of a shortage of resources or of people with ability, technical skills and energy as it is of providing a convincing vision about what the public health future could be' (1992, p. 18).

If a more broadly based body were set up, this would still leave a role for a body representing all governments in Australia but leave it with a more explicitly practical agenda. This would more closely resemble what Salmond encompassed as 'to effectively and efficiently oversee or undertake health surveillance for defined populations, plan and implement policies which promote and maintain health, and ensure the evaluation of existing health services' (1992, p. 18), as well as the accreditation of workforce qualifications. This is not necessarily far from the intended role for NPHP, as outlined to the Review.

RECOMMENDATION

R37: That the NPHP facilitate the development of an on-going mechanism for monitoring the public health workforce (possibly in collaboration with the Australian Bureau of Statistics and the Australian Institute of Health and Welfare) and identifying future needs and how these can be met. Particular attention should be paid to the development of agreed but dynamic definitions of the public health workforce, and include the monitoring of the contribution of the expanding range of courses at both undergraduate and graduate levels which are relevant to public health (see also Recommendation 9).

WORKFORCE SKILL BASE

The PHERP Review received submissions from many individuals and organisations regarding areas of public health workforce or research expertise that are deficient in Australia, and which retard national attempts to progress public health. A number of such deficit areas were identified, although the means to correct these shortages were not always apparent. Those listed here are not the only ones mentioned, but appear to the Reviewers as being the most seriously deficient.

Biostatistics

A number of representations were made to the Review Committee regarding the parlous state of the skilled biostatistician workforce. Over the past decade, PHERP-funded training has helped produce good numbers of individuals with basic biostatistical skills, but Australia is subject to the same shortage of specialist biostatisticians seen elsewhere in the world. The Department of Public Health at The University of Western Australia has begun to address this problem by planning to offer vacation research scholarships and honours year scholarships to mathematics undergraduates. Biostatisticians from that department also teach a biostatistics course in the Department of Mathematics. Others have suggested special government support for honours undergraduates from departments of mathematical statistics to be offered in biostatistics. Exposing talented statistics students to public health problems at an early stage of their career seems a good option for capturing their attention for later career development in public health.

RECOMMENDATION

R38: A working party be established to examine ways by which Australia's supply of biostatisticians can be enhanced. This working party should include representatives from both within and outside the public health workforce. Depending on the outcomes of this process, special PHERP innovation funds should be considered as a means to support increasing the pool of biostatisticians in Australia.

Health Policy, Health Economics, and Health Services Research

Australia has a dearth of concentrations of expertise in health policy and health services research, and only the beginnings of a basic resource for health economics. While several universities have individuals who to a greater or lesser extent conduct research and teach in these areas, only one or two centres make any claim to a special interest and capacity.

This lack of capacity persists at a time when the evidence base for decision making is increasingly (and quite properly) required. Major decisions involving health program resource allocation are frequently still made in the absence of any empirical base or formal policy analysis. Previous attempts by the Commonwealth to support centre-based activity have met with mixed success, due in part at least to the shortage of highly skilled researchers in these areas. Programmatic research examining health service organisation and performance has been stimulated in the acute health field with the implementation in Australia of diagnosis related groups (DRGs) and performance-based funding for the hospital sector. However, there has not been a similar increase in research activity in relation to health systems at all levels as a whole, and particularly not in regard to public health.

RECOMMENDATION

R39: Through the program of public health priority funding, PHERP should allocate funds to the further development of health policy research, health services research, health systems research and health economics possibly as a funding partner in an NHMRC Health Research Partnership.

Injury

The national Health Strategies Committee, NHMRC's Strategic Research Development Committee and the Ministerial National Injury Prevention Advisory Committee have all identified injury research and injury workforce development as major national health priorities. The need for a substantial stimulus for injury research has been argued above (see Recommendation R16 59). In relation to public health practitioner and research workforce development, few PHERP-funded programs give any significant attention to injury in their PhD or MPH courses. While generic public health workforce skills and research techniques are important for those who will work in this field, specialised training and orientation is required.

RECOMMENDATION

R40: PHERP-funded programs should recognise the importance of injury prevention in the development of masters and doctoral curricula.

11. Summary of Recommendations

PRINCIPAL RECOMMENDATIONS

Build on PHERP success (P. 8)

R1: Based on substantial evidence of the outstanding success of PHERP to date, it is recommended that overall funding should be increased to permit enhancement of the nation's public health research capacity while continuing to build on the successful workforce development achieved by the Program.

Expand PHERP as an enhancement model (p. 9)

R2: It is further recommended that there be a continuing transition of PHERP from being principally a source of infrastructure to, in addition, providing a vehicle for funding innovation and development in public health education and particularly for achieving an increased emphasis on developing public health research capacity.

GENERAL RECOMMENDATIONS

MPHs still needed (p. 52)

R5: No deliberate reduction in the student intake into MPH degrees is warranted.

HECS places, MPHs and DrPHs (p. 53)

R6: In order to ensure that the attraction of the MPH for workforce education is not diminished, negotiations by DHAC should proceed through DETYA to ensure that MPH and DrPH student places are fully HECS-eligible based on the 'public good' principle, and are offered as such by universities.

Graduate mix and contract flexibility (p. 58)

R13: PHERP contracts with consortia and individual universities should be flexible to permit, by negotiation between the Commonwealth and the contractor, variable requirements for MPH, PhD or DrPH student outputs depending on the capacity and local needs of the contractor, and on the requirements of the Commonwealth.

Extend Program Consortia (p. 62)

R17: That collaboration remains a central feature of the program and that it is extended to achieve a range of other goals for public health education and research (as indicated in other recommendations), and, where potentially more effective and efficient, include new partners without regard for state boundaries.

Program Consortia and New Partners (p. 62)

R18: The fundamental importance of public health knowledge to all communities makes its wide availability itself a public good. It is therefore recommended that where there is substantial potential for strengthening a program, PHERP continue to absorb more institutions into PHERP consortia, or develop new ones without regard for state boundaries, to enable the improvement of quality and access.

Equitable PHERP funding (p. 64)

R19: Workforce program funding under PHERP should ensure a more even distribution across the states, to ensure equity of access to public health educational opportunities for all Australians.

Contracts More Equitable (p. 64)

R20: Inequities of funding within the Centres should be dealt with in any future contracts. A staged transition period should be planned in order not to derail the current Program.

University Contributions (p. 64)

R21: Future PHERP State program contracts with auspicing universities or other institutions should ensure an initial absolute requirement for at least equal matching in cash support for PHERP funds progressing to 1:1.5 PHERP to University contributions by the end of PHERP phase 3. Such agreements should be rigorously monitored and enforced with termination of funding or similarly severe sanctions for non-compliance. Appropriate in-kind contributions (library access, space, and other infrastructure) should also be required from host institutions.

Assessment of public health workforce needs (p. 64)

R22: That during PHERP Phase 3 mechanisms for assessing workforce needs be developed and used as a basis for changing the basis of funding for PHERP Phase 4.

Role for ABS and AIHW in public health workforce assessment (p. 64)

R23: That the cooperation of the ABS and the Australian Institute of Health & Welfare be sought to gain more systematic information about the nature of the public health workforce to inform the assessment of workforce needs and priorities.

Rural and regional university involvement in PHERP (p. 64)

R24: That consideration be given to including more rural and regional universities in PHERP Phase 3 collaborative arrangements.

Support commitment to disadvantaged populations (p. 64)

R25: That consideration be given in PHERP Phase 3 to collaborative arrangements that support universities with a commitment to working with populations with low socio economic status.

PHERP Quality Enhancement Program (p. 65)

R26: The PHERP Quality Enhancement Program should be formally evaluated after 3 years with the specific purpose of determining whether there has been a measurable impact on course quality improvement. Such a review should include consideration of the desirability and feasibility of formal accreditation procedures. A formative component of this review could commence prior to the end of the 3-year period.

Increase collaboration (p. 66)

R27: That through PHERP funding strategies, flexible methods involving increased collaboration be encouraged, in order to provide generic and specialist courses of the highest quality which can reach a maximum number of students across Australia and internationally.

Joint degrees in public health and other disciplines (p. 66)

R28: That in developing specialist courses, attention be paid to multi-disciplinary specialisation, through for example joint degrees in public health and areas such as agriculture, law, economics, anthropology, information technology, philosophy/ethics, communications, genetics, international relations etc.

Corporate MPH Program as a model for PHERP (p. 67)

R29: That future PHERP collaborations consider the Corporate MPH developed by DHAC as a potential model for facilitating access of students to public health training, particularly those in acute health and primary health care service sectors.

Evidence-based Healthcare (p. 67)

R30: PHERP-funded centres should provide appropriately flexible courses in evidence-based healthcare targeting all sectors of the Australian health industry.

Contracts with Universities (p. 68)

R31: Future PHERP contracts should be more rigorously entered into by the Commonwealth to require compliance by auspicing universities with all provisions including cash contributions to departments, provision of infrastructure, access to research quantum and other basic department rights, and provision of required data on time for monitoring purposes.

National Public Health Partnership in public health workforce monitoring (p. 72)

R37: That the NPHP facilitate the development of an on-going mechanism for monitoring the public health workforce (possibly in collaboration with the Australian Bureau of Statistics and the Australian Institute of Health and Welfare) and identifying future needs and how these can be met. Particular attention should be paid to the development of agreed but dynamic definitions of the public health workforce, and include the monitoring of the contribution of the expanding range of courses at both undergraduate and graduate levels which are relevant to public health (see also Recommendation 9).

INDIGENOUS HEALTH

Make a priority of Indigenous Health Research (p. 59)

R15: Indigenous health research, broadly defined and focussed on interventions and social context should remain a high priority for all PHERP-funded research support, whether it be through Research Centres, Public Health Research Enhancement Grants, or State Programs.

Programs and Indigenous Health (p. 70)

R32: That funding be maintained for those PHERP programs that have developed special programs to enhance the indigenous Australian workforce.

Menzies Centre Darwin Collaboration on Indigenous Health (p. 70)

R33: That funding be provided to enable the Menzies Centre Darwin and Northern Territory University to continue and develop their MPH program in indigenous health in collaboration with other suitable PHERP partners to ensure efficiencies and adequate breadth and depth of human and curriculum resources.

Pathways into public health training for indigenous Australians (p. 71)

R34: That such a new collaboration (R32) should include provision for training to open up pathways into higher-level public health training for indigenous people, including into undergraduate courses and other non-degree based training.

Personal support for indigenous public health students (p. 71)

R35: That the adequacy of and potential for provision of personal support for indigenous students of public health be examined in collaboration with relevant Commonwealth agencies and Aboriginal and Torres Strait Islander organisations.

Indigenous health as a continuing national health research priority (p. 71)

R36: Indigenous health should be regarded as a priority area in consideration of the award of Public Health Research Enhancement Grants (see Recommendation R14).

SKILL DEVELOPMENT**Train more biostatisticians (p. 73)**

R38: A working party be established to examine ways by which Australia's supply of biostatisticians can be enhanced. This working party should include representatives from both within and outside the public health workforce. Depending on the outcomes of this process, special PHERP innovation funds should be considered as a means to support increasing the pool of biostatisticians in Australia.

Fund development of health policy, health services & health economics research (p. 73)

R39: Through the program of public health priority funding, PHERP should allocate funds to the further development of health policy research, health services research, health systems research and health economics possibly as a funding partner in an NHMRC Health Research Partnership.

Emphasise injury prevention in public health courses (p. 73)

R40: PHERP-funded programs should recognise the importance of injury prevention in the development of masters and doctoral curricula.

CENTRES AND COOPERATIVE RESEARCH EFFORTS**ACITHN (p. 22, 57)**

- R11.1: ACITHN should further develop its national profile as a national centre with training opportunities for the brightest students from all states of Australia.
- R11.2: Through flexible delivery and joint ventures, some of the educational products of ACITHN should be made available throughout Australia.
- R11.3: ACITHN should develop collaboration with others involved in international health activities such as the Macfarlane Burnet Centre, Griffith University and others, including joint research and development programs, and educational activities.
- R11.4: The oversight and review of ACITHN research performance could possibly become a shared responsibility with NHMRC (as for other block-funded health and medical research institutes), subject to adequate safeguards against erosion of public health interests.
- R11.5: Funding for ACITHN should be continued at current levels, but subject to a comprehensive external scientific review of its research effort before the end of 1999.
- R11.6: The case for shared funding with NHMRC should be examined in relation to those components of the Tropical Health Program that fund bench scientists.

NCEPH (p. 20, 57)

- R12.1: NCEPH should pursue its mission as originally outlined to become a national flagship in epidemiology and in population health.
- R12.2: NCEPH needs to develop more of a national presence and act as a national resource for epidemiologic and population research. This might include, amongst other things, the provision of short courses and other educational opportunities utilising flexible modes of curriculum delivery, in collaboration with other universities where appropriate.
- R12.3: The oversight and review of NCEPH research performance could possibly become a shared responsibility with NHMRC (as for other block-funded health and medical research institutes), subject to adequate safeguards against erosion of public health interests.
- R12.4: Funding for NCEPH should be continued at current levels, but subject to the following:
- a) ANU be required to match the Commonwealth contribution through PHERP on a 'cash' basis, and failing this that a national tender be called to house NCEPH. A transition period of up to 2 years should be allowed to permit the University to reach this level of contributory funding.
 - b) ANU or other auspicing body be required to provide NCEPH with full academic rights and access to productivity-related resources and benefits, as any other academic department would enjoy.
 - c) NCEPH adhere to the principal recommendations of the Brennan Review, namely the development of substantially greater research focus, considerable strengthening of its epidemiologic productivity, abandonment of MPH/GDPH and professional doctorate courses, and enhanced provision of high level coursework for its research PhD students.
 - d) NCEPH make a contribution to research training of public health PhD students throughout Australia by, for example making coursework available and providing support/development for supervisors.

New Research Centres or Collaborations in National Health Priority Areas (p. 59)

- R16: Under the banner of national health research priority, new national flagship Centres, Health Research Partnerships or other substantial research collaborations (which have dissemination of findings as a key objective) should be initiated in the priority areas such as :
- Food Safety
 - Human Health and Development (as defined above)
 - Occupational Health and Safety
 - Oral Health
 - Environmental Health
 - Injury Prevention

WORKFORCE DEVELOPMENT**Need for Quality coursework for PhD and DrPH students** (p. 54)

- R7: That high quality coursework subjects be developed to service the candidates of both the PhD and the DrPH. These should draw on the most highly qualified experts across the country, be available in flexible mode and recognised by all universities.

Development of Quality coursework for PhD and DrPH students (p. 54)

R8: That PHERP funding be made available for the necessary developmental work for this and for negotiating an administrative system acceptable to universities that will facilitate such national collaboration.

Public health for undergraduates (p. 55)

R9: That contribution of generic undergraduate public health degrees to the public health workforce be assessed and monitored over the life of Phase 3 of the PHERP. This should be with a view to possibly incorporating support for such degrees into the Program. This should incorporate an investigation of the consequences of the availability of such degrees for the content of Masters level courses.

National system of course credits (p. 55)

R10: That the Australian Vice Chancellors Committee be encouraged by the Commonwealth to establish a national system of credits so that the many forms of public health education and training can contribute towards formal qualifications.

RESEARCH CAPACITY DEVELOPMENT**Postdoctoral and career scientist funding by NHMRC (p. 15)**

R3: NHMRC postdoctoral and career funding opportunities for public health scientists should be increased substantially for both full-time and part-time researchers, as one of several important steps to grow a critical mass for public health research.

NHMRC PhD support (p. 15)

R4: The pool of public health PhD scholarship applicants should be increased through expanding Australia's research infrastructure, and the number of available NHMRC-funded scholarships should also be increased so as to both maintain standards and lift the numbers of funded students.

Competitive PhD support as new Public Health Research Enhancement Grants (p. 58)

R14: A system of nationally competitive, portable institutional Public Health Research Enhancement Grants should be established to the value of \$25,000 per full-time PhD student per year payable to the University of enrolment. Approximately 15-20 per annum payable for up to 3 years (conditional on successful progress) should be awarded based on quality of the applicant, quality of the proposed program, and the national priority of the subject of the PhD research. This money should be used by the department to contribute to research staff positions, research infrastructure, or other research capacity but not to the project itself for which other funding will be necessary if required. Personal stipends for the students will be required from NHMRC or other external agency.

12. REFERENCES

Australian Council of Social Service (1998) *Budget 98: time for 20/20 Vision*, ACOSS Paper No. 98, Sydney.

Black, N. (1997) A national strategy for research and development: lessons from England. *Ann Rev Pub Health* 18:485-505.

Gifford, S. (1988) *Interim Report: Review of Post-graduate Health Training in Australia* Public Health Association of Australia and New Zealand, Monash University.

Higginbotham, N. and Plaizier, W. (1997) *PHERP Audit* University of Newcastle.

NHMRC Guidelines on Ethical Matters in Aboriginal and Torres Strait Islander Health Research, 1991.

Public Health Association of Australia and New Zealand (1988) *Public Health Training: Review of Post-graduate Health Training in Australia 1988*, PHANZA, Canberra.

Public Health Association of Australia and New Zealand (1991) *Directory 1992-1993: Public Health Training in Australia* PHAA, Canberra.

Public Health Association of Australia and New Zealand (1995) *Directory 1992-1993: Public Health Training in Australia* PHAA, Canberra.

Rotem, A. (1995) Editorial *Australian Journal of Public Health* vol.19 no. 5: 437-8.

Rotem, A., O'Connor, K., Bauman, A., Black, D., Dewdney, J., Hodgkinson, A. (1995) *The Public Health Workforce, Education and Training Study*, AGPS, Canberra.

13. Appendices

APPENDIX 1: PHERP CONSORTIA, ASSOCIATED UNIVERSITIES AND INSTITUTIONS

Consortium	Associated Universities and Institutions	1996 Funding	1997-98 Funding	1998-99 Funding
Sydney Public Health Consortium	<ul style="list-style-type: none"> University of Sydney University of NSW 	\$2.0m	\$2.088m	\$2.121m
Centre for Clinical Epidemiology and Biostatistics	<ul style="list-style-type: none"> University of Newcastle 	\$0.4m	\$0.418	\$0.424m
National Centre for Clinical Epidemiology and Population Health – (NCEPH)	<ul style="list-style-type: none"> Australian National University 	\$1.2m	\$1.253m	\$1.272m
Victorian Public Health Consortium	<ul style="list-style-type: none"> Deakin University La Trobe University Melbourne University Monash University 	\$1.0m	\$1.044	\$1.06m
South Australian Centre for Public Health	<ul style="list-style-type: none"> University of Adelaide Flinders University of SA South Australian Health Commission 	\$0.55m	\$0.574m	\$0.583m
School of Public Health and Tropical Medicine	<ul style="list-style-type: none"> James Cook University of North Queensland 	\$0.5m	\$0.522m	\$0.530m
Queensland Centre for Public Health	<ul style="list-style-type: none"> Griffith University Queensland University of Technology University of Queensland 	\$0.4m	\$0.418m	\$0.424m
Australian Centre for International and Tropical Health and Nutrition (ACITHN)	<ul style="list-style-type: none"> University of Queensland The Council of the Queensland Institute of Medical Research 	\$1.8m	\$1.879m	\$1.909m
WA Centre for Public Health	<ul style="list-style-type: none"> University of Western Australia Curtin University of Technology 	\$0.55m	\$0.574m	\$0.583m
<i>Total</i>		<i>\$8.4m</i>	<i>\$8.77m</i>	<i>\$8.906m</i>

APPENDIX 2: CONSULTATIONS WITH KEY STAKEHOLDERS

Name	Organisation
Mr Andrew Podger	Secretary, DHAC
Dr Judith Whitworth	Chief Medical Officer, DHAC
Mr Peter Wills	Chairman, Health & Medical Research Strategic Review
Ms Elizabeth Furler	First Assistant Secretary, Population Health Division, DHAC
Dr Cathy Mead	Head, National Centre For Disease Control, DHAC
Mr Robert Wells	First Assistant Secretary, Office of NHMRC, DHAC
Ms Jenny Jefferson	GP Branch Health Services Division, DHAC
Ms Jan Southgate	GP Branch, Health Services Division, DHAC
Ms Anne Maree Hanratty	GP Branch, Health Services Division, DHAC
Ms Cathy Wall	Health Advisory and Workforce, NHMRC, DHAC
Ms Ann Donovan	Health Research, NHMRC, DHAC
Ms Kerry Webber	Mental Health Branch, Health Services Division, DHAC
Ms Rita Evans	Mental Health Branch, Health Services Division, DHAC
Ms Gabriela Talonix	Mental Health Branch, Health Services Division, DHAC
Leonie Young	Mental Health Branch, Health Services Division, DHAC
Mr Peter Rogers	Mental Health Branch, Health Services Division, DHAC
Ms Helen Evans	First Assistant Secretary, Office for Aboriginal and Torres Strait Islander Health, DHAC
Ms Michelle Mack	Office for Older Australians, Aged & Community Care Division DHAC
Ms Lana Racic,	Office for Older Australians, Aged & Community Care Division, DHAC
Ms Merryl Joyce	Accountability & Quality Assurance, Aged and Community Care Division, DHAC
Ms Claire Caesar	National Centre for Disease Control, Population Health Division DHAC
Mr Eammon Murphy	National Centre for Disease Control, Population Health Division, DHAC
Ms Tracey Cross	National Centre for Disease Control, Population Health Division, DHAC
Mr Kevin Buckett	National Centre for Disease Control, Population Health Division, DHAC
Mr Barry Ingate	National Population Health Planning, Population Health Division, DHAC
Ms Cheryl Wilson	National Centre for Disease Control, Population Health Division, DHAC
Ms Mary Sexton	National Centre for Disease Control, Population Health Division, DHAC
Ms Margaret Waight	National Centre for Disease Control, Population Health Division, DHAC
Ms Fidelma Rogers	National Population Health Planning, Population Health Division, DHAC
Dr John Scott	Manager of Public Health Services, Queensland Health
Ms Joan Kennedy	Project Officer, Office Of The Chief Health Officer Queensland Health
Dr Don Staines	Director Public Health Unit, Queensland Health

Dr Steve Clark	National Association of Rural Health Training Units
Professor Jake Najman	Department of Anthropology and Sociology, University of Queensland
Professor Andrew Glenn	Pro Vice Chancellor Research, University of Tasmania
Professor Terry Dwyer	Director, Menzies Centre for Population Health, Hobart
Professor Allan Carmichael	Dean, Faculty of Medicine, University of Tasmania
A/Professor Dennis Pashen	Director, Centre for Rural and Remote Health, Mt Isa, QLD
Dr William Hart	Chief, Health Intelligence and Disease Control, Dept of Human Services, Victoria
Dr Andrew Boyden	National Policy Officer, Royal Australian College of General Practitioners
Dr Vivian Lin	Executive Officer, Innovation & Support Unit, National Public Health Partnership
Dr Rob Moodie	Chief Executive, Victorian Health Promotion Foundation (Vichealth)
Professor John Mathews	Director, Menzies School of Health Research, Darwin
Dr Ross Bailey	Menzies School of Health Research
Dr Dorothy McKerras	Menzies School of Health Research
Dr Peter Sainsbury	Director, Population Health, Sydney Area Health Service, NSW Health Department
Professor Wayne Hall	Director, National Drug and Alcohol Research Centre
Ms Jeanette Baldwin	Manager of the National Diabetes Strategy, Diabetes Australia
Professor Stephen Leeder	Chair, Health Advisory Committee, NHMRC
Dr Jack Best	Chair, Strategic Research Development Committee, NHMRC
Professor Warwick Anderson	Chair, Research Committee, NHMRC
Professor Val Alder	Chair, Training and Awards Subcommittee, Research Committee, NHMRC
Mr Gordon Gregory	Executive Director, National Rural Health Alliance, Canberra.
Professor Paul Bourke	Head, Research, Evaluation & Policy Project, Australian National University
Ms Linda Butler	Project Officer, Research, Evaluation and Policy Project, Australian National University
Mr Steve Larkin	Chief Executive Officer, National Aboriginal Community Controlled Health Organisation
Dr Sophie Couzos	Public Health Officer, National Aboriginal Community Controlled Health Organisation
Dr Lyn Madden	Coordinator, Public Health Officer Training Program, NSW Health
Mr Steve Corbett	Head, Clinical Research and Policy, NSW Health
Professor John Kaldor	National Centre in HIV Epidemiology, and President, Australasian Epidemiological Society
Professor Fran Baum	President, Public Health Association of Australia
Ms Lynne Flemming	Executive Director, Public Health Association of Australia
Professor John Spencer	Social and Preventive Dentistry, University of Adelaide
Mr Jeff Fuller	Director of Public Health, South Australian Centre for Rural and Remote Health
Professor Jan Reid	Vice Chancellor, University of Western Sydney
Dr Richard Madden	Director, Australian Institute of Health and Welfare
Mr Tom Karmel	Head of Operations, Higher Education, DETYA
Professor Charles Watson	President, Faculty of Public Health Medicine, RACP
Professor John Mills	Director, Macfarlane Burnet Centre
Dr Mike Toole	Head of International Health, Macfarlane Burnet Centre

Dr Rob Simons	Manager, Professional Education & Training, NSW Cancer Council
Ms Jeanie McKenzie	Manager of Cancer Prevention, NSW Cancer Council
Mr Jim Dadds	A/Executive Director, Public Health Environment, South Australian Dept of Human Services
Mr Ian Caldwell	Director, of Environmental Health Branch, South Australian Dept of Human Services
Ms Ann Harding	Director, National Centre for Social and Economic Modelling (NATSEM)
Professor Christine Ewan	Pro Vice Chancellor Research, University of Wollongong
Professor Len Syme	School of Public Health, UCLA Berkeley, USA

APPENDIX 3: SUBMISSIONS TO THE PHERP REVIEW

Alcohol and Other Drugs Council of Australia, The

Andrew McNee MTH

Australian National University, The, National Centre for Epidemiology & Population Health (NCEPH)

AUS Health International

Australian Association of Health Promotion Professionals

Australian Centre for International and Tropical Health and Nutrition (ACITHN)

Australian Institute of Health & Welfare

Australian Institute of Health and Welfare Dental Statistics and Research Unit at the University of Adelaide

Charles Sturt University, Office of the Vice Chancellor, CD Blake AM

Committee of Deans of Australian Medical Schools (CDAMS), Chair Professor Derek Frewin

Curtin University of Technology, Western Australia, School of Public Health, Division of Health Sciences

Deakin University, Faculty of Health and Behavioural Sciences

Dietitians Association of Australia

Dr Coeli J Geefhuysen, Australian Centre for International and Tropical Health and Nutrition (ACITHN)

Edith Cowan University, Perth, Western Australia

Flinders University of South Australia, The, Faculty of Health Sciences, School of Medicine.

Griffith University, Faculty of Health Sciences, School of Public Health

Heads of Departments of General Practice

James Cook University, School of Public Health and Tropical Medicine

La Trobe University, Faculty of Health Sciences, School of Public Health

Macfarlane Burnet Centre for Medical Research, Melbourne, Victoria

Menzies School of Health Research, Northern Territory, Australia

Monash University, Accident & Research Centre

Monash University, Department of Epidemiology and Preventive Medicine

Mt Isa Centre for Rural and Remote Health

National Aboriginal Community Controlled Health Organisation Inc.

National Public Health Partnership (*Background Paper*)

New South Wales Nurses' Association

Newcastle University, Centre for Clinical Epidemiology and Biostatistics (CCEB)

Overseas Projects Corporation of Victoria Ltd Australia

Public Health Association of Australia

Public Health Education and Research Program Network

Queensland Centre for Public Health: University of Queensland, Queensland University of Technology and Griffith University

Queensland Health

Queensland University of Technology, Faculty of Health, School of Public Health

RMIT University, Public Health, Family and Mental Health, Professor C Morse

Royal Children's Hospital Research Institute & University of Melbourne Department of Paediatrics, A/Professor John Carlin

South Australian Centre for Rural and Remote Health

Territory Health Services

University of Adelaide, The, Department of Public Health

University of Melbourne, The, Department of General Practice and Public Health

University of New South Wales, The, Centre for Public Health

University of Queensland, Department of Social and Preventive Medicine

University of South Australia, Office of the Vice Chancellor and President, Professor Denise Bradley AO

University of South Australia, Division of Health Sciences

University of Queensland, Office of the Executive Dean, Faculty of Health Sciences

University of Sydney, The, Department of Public Health and Community Medicine

University of Tasmania, Vice Chancellor and Principal, Professor Don McNichol

University of Technology, Sydney, Dean of Science, Professor Tony Moon

University of Western Australia, The, Department of Public Health

University of Western Sydney Macarthur, Faculty of Health, Professor John McCallum

Victorian Consortium for Public Health: LaTrobe University, Deakin University,
Monash University and The University of Melbourne

Walter and Eliza Hall Institute of Medical Research, The

Women's Health Victoria

APPENDIX 4: PHERP REVIEW VISITS AND CONSULTATIONS

UNIVERSITY OF NEW SOUTH WALES

Professor Arie Rotem, Head of School Medical Education & Director of Centre for Public Health;

Mr Alan Hodgkinson, Lecturer of School Medical Education & Coordinator of the Masters of Public Health;

Professor Adrian Bauman, School of Community Medicine.

UNIVERSITY OF SYDNEY

Professor Stephen Leeder, Dean of Medicine;

Professor Don Nutbeam, Head of Department of Public Health and Community Medicine;

Professor Geoffrey Berry, Master of Public Health Coordinator.

SYDNEY PUBLIC HEALTH CONSORTIUM

Professor Arie Rotem, Chair of the Sydney Public Health Consortium

Professor Alan Hodgkinson, University of New South Wales;

Professor Adrian Bauman, University of New South Wales;

Professor Don Nutbeam, University of Sydney;

Professor Geoffrey Berry, University of Sydney.

UNIVERSITY OF QUEENSLAND

Professor Ken Donald, Head Of Department of Social and Preventive Medicine;

Dr Peter O'Rourke, Senior Lecturer & Coordinator of Public Health Program;

Ms Sandi Pirozzo, Lecturer.

AUSTRALIAN CENTRE FOR INTERNATIONAL TROPICAL HEALTH AND NUTRITION QUEENSLAND UNIVERSITY

Professor Ian Riley, Director, Australian Centre for International and Tropical Health and Nutrition;

Professor Don MacManus, Queensland Institute of Medical Research;

A/Professor Cindy Shannon, Director of the Centre for Indigenous Health, Education and Research;

Dr Geoff Marks, Director of the Nutrition Program.

QUEENSLAND UNIVERSITY OF TECHNOLOGY

Professor Brian Oldenburg, Head of School of Public Health;

A/Professor Don Stewart, School of Public Health.

GRIFFITH UNIVERSITY

Professor Anne Murray, Dean of Faculty of Nursing;

Professor John O'Gorman, Dean of Faculty of Health Sciences;

Professor Des O'Connell, Senior Lecturer School of Public Health;

Professor Eberhard Wenzel, Lecturer School of Public Health;

A/Professor Rod Simpson, Head of School of Public Health.

QUEENSLAND CENTRE FOR PUBLIC HEALTH

Professor Ken Donald, University of Queensland

Mr Peter O'Rourke, University of Queensland;

Professor Rod Simpson, Griffith University;

Professor Brian Oldenburg, Queensland University of Technology,

Chair of PHERP Directors Network.

Dr Stella Stevens, Centre Manager, Queensland Centre for Public Health.

UNIVERSITY OF ADELAIDE

Professor Derek Frewin, Dean of Public Health & Chair of the Committee of Deans of Australia Medical Schools

Professor Tony Worsley, Chair of Department of Public & A/g Chair SA Centre for Public Health;

Ms Janet Hiller, Senior Lecturer Epidemiology;

Ms Judith Rafferty, Convenor of Masters of Public Health/Graduate Diploma Public Health Program;

THE FLINDERS UNIVERSITY OF SOUTH AUSTRALIA

Professor Fran Baum, Head of Department of Public Health, Faculty of Health Sciences

Mr Colin McDougall, Senior Lecturer, Department of Public Health;

Mr John Palmer, Curriculum Consultant, Department of Public Health.

SOUTH AUSTRALIAN CENTRE FOR PUBLIC HEALTH

Professor Tony Worsley, University of Adelaide;

Ms Janet Hiller, University of Adelaide;

Professor Fran Baum, Flinders University;

Mr Colin McDougall, Flinders University.

MONASH UNIVERSITY

Professor Kerin O’Dea, Head of Nutrition and Preventive Medicine;

Professor John McNeil, Head of Department of Epidemiology and Preventive Medicine;

Professor Michael Abramson, Deputy Head of Department of Epidemiology and Preventive Medicine;

Professor Nick Saunders, Dean School of Medicine;

A/Professor Malcolm Sim, Director Post Graduate Education Program, Department of Epidemiology and Preventive Medicine.

LA TROBE UNIVERSITY

Professor Stephen Duckett, Dean of Health Sciences

A/Professor Heather Gardner, Head of the School of Public Health;

A/Professor David Legge, Teacher Master of Public Health;

Dr Rae Walker, Senior Lecturer & PHERP Program Manager.

UNIVERSITY OF MELBOURNE

Professor Hedley Peach Head; Head of Department of General Practice and Public Health;

A/Professor Stephen Farish, Post Graduate Coordinator, Department of General Practice and Public Health;

Dr Damien Jolley Senior Lecturer Masters of Public Health Coordinator, Department of General Practice and Public Health;

Dr Graeme Hawthorn Senior Lecturer & Member of the Health Program Evaluation Centre.

DEAKIN UNIVERSITY

Professor Lawrence St Leger, Dean Faculty of Health and Behavioural Sciences;

Ms Sheryll Kay, Coordinator Masters of Public Health.

VICTORIAN CONSORTIUM FOR PUBLIC HEALTH

Dr Rae Walker, La Trobe University;

Professor Lawrence St Leger, Deakin University;

Professor Hedley Peach, Melbourne University;
Ms Sheryll Kay, Deakin University;
Professor John McNeil, Monash University.

CURTIN UNIVERSITY OF TECHNOLOGY, WESTERN AUSTRALIA

Professor Jeff Spickett, Director Research & Graduate Studies, Division of Health Sciences.

UNIVERSITY OF WESTERN AUSTRALIA

Professor Mathew Knuiman, Head of Department of Public Health;
A/Professor Dallas English, Department of Public Health.

WESTERN AUSTRALIAN CENTRE FOR PUBLIC HEALTH

Professor Jeff Spickett, Deputy Director, Western Australian Centre for Public Health;
Professor Mathew Knuiman, University of Western Australia;
A/Professor Dallas English, Director, Western Australian Centre for Public Health.

THE NEWCASTLE UNIVERSITY

Professor Richard Heller, Director for the Centre for Clinical Epidemiology and Biostatistics.

JAMES COOK UNIVERSITY

Professor Ian Ring, Head of School of Public Health & Tropical Medicine;
A/Professor Peter Leggat, Deputy Head of School of Public Health & Tropical Medicine;
A/Professor Jacinta Elston, Head of Indigenous Health Unit;
A/Professor, Rick Speare, School of Public Health & Tropical Medicine;
Ms Maggie Grant, Lecturer, School of Public Health & Tropical Medicine.

**THE NATIONAL CENTRE FOR EPIDEMIOLOGY AND POPULATION HEALTH,
AUSTRALIAN NATIONAL UNIVERSITY**

Professor Bob Douglas, Director, National Centre of Epidemiology and Population Health;
Dr Wayne Smith, Fellow, National Centre for Epidemiology & Population Health;
Dr Dorothy Broom, Snr Fellow, National Centre for Epidemiology & Population Health;
Dr Beverley Siphthorpe, Fellow, National Centre for Epidemiology & Population Health.

APPENDIX 5: PHERP REVIEW RESOURCE GROUP

Dr Bruce Armstrong,
Cancer Control Information Centre, NSW Cancer Council

Professor John Catford,
Public Health, Department of Human Services Victoria

Professor Terry Dwyer,
Menzies Centre for Population & Research, University of Tasmania

Professor Christine Ewan,
Vice Chancellor's Office, University of Wollongong

Professor Sandra Gifford,
Faculty of Health and Behavioural Sciences, Deakin University

Dr Shirley Hendy,
Territory Health Services

Professor D'Arcy Holman,
Department of Public Health, University of Western Australia

Professor Lenore Manderson,
Tropical Health Program, University of Queensland

Dr Cathy Mead,
National Centre for Disease Control, Department of Health & Aged Care

Dr Rob Moody,
Victorian Health Promotion Foundation

Professor Brian Oldenburg
School of Public Health, Queensland University of Technology; Chair, PHERP Network

Professor Faith Trent
Faculty of Education, Humanities, Law and Theology, Flinders University

APPENDIX 6: OVERSEAS REFEREES

Professor Barbara Israel
School Of Public Health
University of Michigan

Professor Keith Barnard
Consultant to WHO
Formerly Institute of Public Health Leeds

Professor Michael Marmot
Department of Epidemiology & Public Health
London Medical School

Professor Ilona Kickbusch
Department of Epidemiology and Public Health
Yale University

APPENDIX 7: PHERP SURVEY QUESTIONNAIRES