AUSTRALIA’S BICENTENNIAL HEALTH INITIATIVE

INDEPENDENT REVIEW

OF

RESEARCH AND EDUCATIONAL REQUIREMENTS

FOR

PUBLIC HEALTH AND TROPICAL HEALTH

IN

AUSTRALIA

Report to
The Hon Neal Blewett MP
Minister for Health

by

Professor Kerr L White MD
January 10, 1986

Dear Minister

I am privileged to enclose "Australia's Bicentennial Health Initiative: the Independent Review of Research and Educational Requirements for Public Health and Tropical Health".

This has been a challenging and informative experience for me and I thank you for the opportunity to learn so much from so many. I hope the Review will prove helpful to the Government and the Australian people.

Sincerely yours,

Kerr L. White M.D.

The Honorable Neal Blewett, MP
Minister of Health
Parliament House
CANBERRA ACT 2600
# INDEPENDENT REVIEW OF RESEARCH AND EDUCATIONAL REQUIREMENTS
## FOR PUBLIC HEALTH AND TROPICAL HEALTH IN AUSTRALIA

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The Federal Government has announced a review of Australian public health and tropical health research and teaching requirements to be undertaken by an independent overseas reviewer.

The Terms of reference of the review are:

Having regard to:

- the recently established Australian Institute of Health and the implications of the Australian Institute of Health for the School of Public Health and Tropical Medicine at Sydney University
- the role of the National Health and Medical Research Council
- existing public health and tropical health activities in other Australian educational establishments, and
- the findings of the 1983 Report of the Inquiry into Commonwealth Laboratories (the Ross Committee) which relate to the educational and research functions of public health and tropical health

report not later than the end of November on appropriate arrangements for meeting public health and tropical health teaching and research requirements to the year 2000.
ACKNOWLEDGEMENTS

This review would have been impossible without the energy and enthusiasm of the many concerned Australians who participated. One hundred and sixteen written submissions were received—many of them substantial documents, carefully prepared. All have been read by me, many, several times, and each was summarised. One hundred and fifty-one people were directly interviewed and notes on all these interviews were summarised; casual meetings and short conversations were held with about another 50 or more individuals. The other enquiries and reviews over the past decade or more bearing on aspects of public health and more specially, relating to the Commonwealth Institute of Health (now the School of Public Health and Tropical Medicine) have been read, as well as numerous other Government and institutional reports and bulletins. Finally a one-day seminar in Sydney brought together sixty-five invited participants representing a wide diversity of institutions and viewpoints and the constructive debate that ensued was of great assistance. I record my thanks to Dr Sydney Sax who Chaired the meeting with grace and expertise.

My deep appreciation goes to the tireless, tactful and widely informed help of Mr Mick Reid, Private Consultant to the Commonwealth Department of Health. Without his superb organisational and managerial skills together with his vast network of colleagues and his knowledge of the field being reviewed, this exercise would have been impossible. Alison Turner worked indefatigably in arranging the submissions and doing special studies. Lesley James handled management details in Canberra and Sylvia Lynch, Joanne Blacka and Kathy Musitano skilfully typed the many drafts of the report.

The Secretary and Deputy Secretary of the Commonwealth Department of Health provided all the necessary backing and support required and their interest was deeply appreciated.

The limitations and errors in this review are my responsibility but I hope the overall outcome will prove constructive.

Kerr L White MD
January 10, 1986
INDEPENDENT REVIEW OF RESEARCH AND EDUCATIONAL REQUIREMENTS FOR
PUBLIC HEALTH AND TROPICAL HEALTH

SUMMARY OF RECOMMENDATIONS

I. AUSTRALIA'S BICENTENNIAL HEALTH INITIATIVE

As Australia prepares to celebrate its bicentennial, this should be an opportune time to build on past accomplishments in order to create a "healthier" future. The following set of recommendations should be seen as a "package". Some of the initiatives are already reflected in the priorities and initial re-organisation of the Commonwealth Department of Health, others have been undertaken by several universities and health departments in the States, still others have been discussed at conferences and in more detail by smaller groups and a few have been canvassed for a decade or more in various forums. In many ways there is little new in the essential elements. What will be new is their introduction as a collection of related initiatives designed to move Australia's health enterprise into the twenty-first century.

II. AUSTRALIAN ACADEMY OF HEALTH

RECOMMENDATION: To elevate the level of debate and provide timely consideration for the country's national health problems an Australian Academy of Health should be established. A Task Force should be appointed to draft legislation, procedures and a budget for creating a national membership body of about 150-200 individuals. Sixty percent of these would be health professionals, forty percent would be non-health professionals. A full-time President and staff would work with an unpaid Governing Council, Committees and Task Forces to examine and make recommendations on a wide variety of health problems and issues. The initial budget might be $1.5 million annually.

III. AUSTRALIAN INSTITUTE OF HEALTH

This innovative approach towards information-based policy analysis and decision-making is highly commendable. It has been given, however, an unusually broad mandate, inadequately defined responsibilities and ambiguous relationships to the Commonwealth and State Governments and to universities, varying time frames for reporting, and a current agenda inherited from disparate predecessor bodies. The substantial conceptual advances represented by the creation of the AIH should now be clarified and strengthened and to that end, the following three recommendations are made.
RECOMMENDATION: The AIH should be strengthened by giving it a more clearly defined role as the substantial policy analysis and "intelligence" group working directly for the Minister and Secretary. It should be in a staff, not a line, position and would work closely with the entities proposed in the next two recommendations. It should have a Director and staff of perhaps 6 to 8 professionals with appropriate support personnel. The initial budget should be $0.5 million annually.

IV. NATIONAL CENTRE FOR HEALTH STATISTICS

RECOMMENDATION: A new National Centre for Health Statistics to provide leadership and co-ordination of compatible and comparable Health Statistics Systems for the entire country should be established by legislation. The Centre would promulgate standards, conventions, terms, definitions, minimum data sets and classifications and should contract with States, the Australian Bureau of Statistics and survey organisations for data collection. It is especially important that cost, charges and financial statistics be linked with those measuring needs, resources, use and outcomes. The NCHS would publish substantive and methodological reports including an annual report entitled "Health Australia: 19--". The Centre should be, and be seen to be non-political, under the Commonwealth Department of Health for administrative purposes only, and serving the entire nation by reporting to the Australian Health Services Council. The initial budget might be $2.0 million annually.

V. NATIONAL CENTRE FOR TECHNOLOGY AND HEALTH SERVICES ASSESSMENT

RECOMMENDATION: A new National Centre for Technology and Health Services Assessment should be established by legislation. It would be responsible for developing methods and undertaking studies designed to assess the outcome of health services of all types including both individual and collective interventions. It would conduct health services research including cost-effectiveness studies of both new and current technologies, utilization of health, hospital and pharmaceutical services of all types. Particular attention should be paid to low-cost, high-volume diagnostic tests, procedures and prescriptions as well as to capital-intensive technologies. The Centre would not be responsible for testing the safety and toxicity of drugs but it would be responsible for studies of their patterns of use and their cost-effectiveness. The Centre should be, and be seen to be non-political, under the Commonwealth Department of Health for administrative purposes only, and serving the entire nation by reporting to the Australian Health Services Council. The initial annual budget might be $1.5 million annually.
VI. SCHOOL OF PUBLIC HEALTH AND TROPICAL MEDICINE

The consensus of the great majority of submissions and opinions expressed during interviews, and at the Sydney Seminar is that the School of Public Health and Tropical Medicine has outlived its usefulness. Multiple reviews over the past decade or more have been unable to help the school to define its mission, recruit permanent leadership or have an observable impact on contemporary health affairs in the country. Dual masters for funding, leadership and performance, ambiguous organisational relationships, rapid turnover of faculty, conflicts between goal-oriented and investigator-initiated research, incompatible mixes of students, use of the courses primarily for purposes of job advancement, unco-ordinated lectures by visiting office holders, variable academic standards, inability to attract many young students, an uneven research output, uneasy tension with the medical faculty, limited administrative support from the medical faculty, discordance between school priorities and perceived national problems are among the many manifestations said to be associated with the widespread perception of inadequacy. It is a sad litany and there is no point in attempting to apportion blame.

There are first-rate people in the school and their dedication during a protracted period of uncertainty is applauded. The talents of these highly skilled and committed individuals constitute a valuable national resource and opportunities should be provided for them as soon as possible in new venues where a fresh start is to be made. There are occasions in the lives of institutions and organisations when revitalisation and renewal are only possible under new auspices.

RECOMMENDATION: All the funds and resources currently devoted to the School of Public Health and Tropical Medicine should be redeployed for new institutional and organisational initiatives that further the goals of public and tropical health throughout Australia.

VII. INSTITUTIONAL ARRANGEMENTS FOR PUBLIC HEALTH EDUCATION

RECOMMENDATION: A new National Research Centre for Epidemiology and Population Health should be established at the Australian National University. A director who is preferably an epidemiologist with wet laboratory and/or clinical experience and managerial expertise should be chosen by the University on the basis of an international competition. The initial disciplines to be included on the Centre's faculty in addition to epidemiology should include health statistics, sociology, economics, nutrition and toxicology. The principal task of this research centre should be the graduate education to M.Sc and Ph.D levels of academic faculty in the major disciplines germane to public and tropical health especially epidemiology. An annual budget of about $2.0 million should be transferred from the Commonwealth Department of Health to the ANU vote and this
should be provided for six years. The initial budget would probably include about $1.0 million for a new building. The director and an initial staff of eight to ten faculty should have five-year term appointments to be followed by an external review and further renewals or tenure as circumstances warrant. ANU should incorporate the Research Centre's budget in its global budget after the initial six year period. Additional research funds should be sought from the NH&MRC's, Health Research Committee and its Health Development Committee, (see below) private foundations and voluntary agencies.

RECOMMENDATION: At least $4.0 million annually should be provided by the Commonwealth Department of Health to endow or fund chairs, senior lecturers' and lecturers' positions principally at three universities that provide both strong undergraduate and postgraduate education in public health or related fields, have recently had infusions of new funds or support and are prepared to give an MPH or preferably M.Sc or Ph.D degrees. The universities proposed initially are The University of Adelaide, The University of Sydney's new initiative at Westmead Hospital and The University of Newcastle.

RECOMMENDATION: At least $1.0 million annually should be provided by the Commonwealth Department of Health for salaries of faculty and support personnel at universities (other than those nominated above) and colleges of advanced education that provide strong undergraduate and post-graduate education in public health or related fields.

RECOMMENDATION: About 50 scholarships should be provided annually through a national competition arranged and assessed by the Health Development Committee (see below) of the NH&MRC. These should have a value of about $30,000 each annually and they would be used for support of training in the various disciplines germane to public health, including management. About $2.0 million annually might be needed for this initiative.

VIII. NATIONAL HEALTH & MEDICAL RESEARCH COUNCIL

RECOMMENDATION: The Medical Research Committee should change its title to reflect what it says it does and become the Health Research Committee (HRC). Of its seventeen members, it should have at least four of its total membership and at least two of its eight "medical researchers", who are experienced and competent scientists in one or more population-based disciplines e.g. epidemiology, biostatistics, health statistics, demography or sociology.

All Regional Grants Interviewing Committees dealing with population-based or field studies should have a majority of members from the population-based disciplines. Some of the HRC's Special Purpose activities but not the funds should be transferred to a new Health Development Committee (HDC). Any
Reference Laboratory functions should be the function of the National Health and Medical Research Division's Pathology Laboratories Branch and survey activities such as the Market Basket Survey should be transferred to the National Centre for Health Statistics. Peer review of investigator-initiated research should continue. A full spectrum of investigator-initiated activities spanning laboratory biomedical research through clinical research to population-based research and funded through projects grants, programs, units and institutional grants as well as fellowships should be maintained but a dedicated amount of at least 15% and preferably higher, and rising to about a third of all research over the next decade should be population-based. The total HRC budget is quite inadequate given Australia's resources.

RECOMMENDATION: The annual budget for a renamed Health Research Endowment Fund should be increased promptly to $70.0 million annually. If the HRC does not choose to change its name and more importantly, the composition of its membership and its Regional Grants Interviewing Committees, and set targets for population-based research, then 15% of its annual funds should be shifted to the Health Development Endowment Fund (see below) i.e. about $10.0 million.

RECOMMENDATION: A Health Development Committee (HDC) should be established with a dedicated Health Development Endowment Fund. The HDC should operate in a similar fashion to the HRC except that the majority of its members and at least six of the "researchers" should come from the public health and population-based disciplines. Rigorous peer review with external assessment and Regional Grants Review Committees should be used. This dedicated endowment fund should incorporate the RADGAC funds, the AIDS, alcoholism and other related funds. The focus should be problem-oriented, developmental projects submitted in response to "Requests for Proposals". The total amount might be in the order of $15.0 million annually.

IX. TROPICAL HEALTH, MEDICINE AND DISEASES

RECOMMENDATION: The Queensland Health Department should establish an Epidemiological Surveillance Unit based at the Townsville General Hospital or in the Commonwealth Pathology Laboratory. This Unit should be funded by the The Queensland Health Department and/or a tax on hotel rooms and/or meals with the case argued by the Tourist Commission for the area. This Unit would be responsible for determining the incidence and distribution of tropical and marine-based illnesses that afflict both the local population and tourists in North Queensland and it should develop evidence of the extent of these problems as well as clues to their causation and control.
RECOMMENDATION: The Queensland Institute of Medical Research might change its name to the Queensland Institute of Health Research and should be designated a major centre for tropical disease research with expanded block grant institutional support to permit employment of additional staff (possibly transferred from the School of Public Health and Tropical Medicine). A Satellite Unit of QIMR should be created and located at the Australian Institute of Marine Sciences in Townsville to undertake research into marine-based diseases.

RECOMMENDATION: The James Cook University Graduate School of Tropical Veterinary Sciences at Townsville should be expanded by strengthening immunology and epidemiology. These funds should be provided through the university administration from the CTEC and a high priority should be given to the development of this outstanding school which already enjoys a superb international reputation.

X. MANAGEMENT TRAINING

There are a variety of university schools and colleges of advanced education which train individuals for jobs in hospitals. The nature of their training is said to place major emphasis on running institutions such as hospitals more efficiently, in contrast to an emphasis on how these institutions relate to other components of the health care system, especially community health and general practitioner services, and on how to best organise services. It seems inevitable that Australia will follow the patterns in other developed (and developing) countries and organise health care resources within vertically integrated and balanced systems rather than along the lines of horizontal cartels. There will be a need, therefore, to train highly skilled managers who understand "regionalisation" in both its functional and geographic aspects.

RECOMMENDATION: The Australian Graduate School of Management at the University of New South Wales should be asked to add a Health Services Module to its MBA courses, perhaps staffed in part from the Westmead Hospital's Department of Community Health (or the new Research Centre of Epidemiology and Population Health at ANU). Special scholarships or fellowships with stipends at competitive levels should be provided to attract young clinicians and other able non-physicians such as economists who might otherwise be attracted to the private sector. The fellowships should be awarded through an annual national competition and about ten might be offered annually at levels of at least $30,000 a year provided through the Health Development Committee and its endowment fund. About $50,000 annually might be needed to support the Health Services Module. Those receiving fellowships might well be expected to spend two years in the Public Service, either at Commonwealth or State levels for every year of fellowship support received. The initial budget which would be part of the HDC's total fellowship budget and might be about $350,000 a year.
XI. TOWARDS ONE NATIONAL ACCOMPLISHMENT

As Australia moves towards its bicentennial, there should be at least one health improvement initiative that will be seen to have been successful. This can be achieved if the country sets its mind to it. Seat-belt legislation and compliance with the law are a case in point; Australia has led the world. If the following recommendation emerges from the Better Health Commission report so much to the good.

RECOMMENDATION: Australia should set as its bicentennial goal, in connection with this entire Bicentennial Health Initiative, the reduction of alcohol-related traffic accidents and deaths by 30%. This is a do-able task. The cost of this initiative might be $1.0 million annually.
1. **CONCEPTUAL FRAMEWORK**

1.1 Some argue that "medicine" is a subset of "public health" and others the opposite. Health and disease states are parts of a continuum. The fact that suffering individuals label their problems with one set of terms and that health professionals use other terms has little to do with the underlying realities experienced by those doing the suffering and footing the bill.

1.2 Health and illness arise in the home, the neighbourhood, at school and in the workplace. They are influenced by genes, food, a wide range of biological, physical, social and behavioural exposures and experiences to which individuals or groups of individuals respond. Inter-personal strife and faulty machines, together with exposure to a great diversity of micro-organisms, all evoke emotional, physiological and immunological responses which in turn find expressions as predispositions, illnesses and disabilities for which different concepts and terms are employed.

1.3 There is a continuum between the experiencing of amorphous symptoms and functional limitations to the most florid expressions of highly specific "diseases" managed in technologically elaborate hospitals. Another continuum exists from support systems in the community, through primary and secondary care to so-called tertiary care in large university medical centres. Similarly there is a continuum for the study of all these manifestations from the wet laboratory of the biomedical scientist to the clinician and on to the population or the community and vice versa.

1.4 Problems are studied where there is the best chance of finding an answer. These studies should have a bearing in the short-term or the long-term on health problems experienced by the public which finances the whole health care apparatus. One part of these three spectrums is not 'good' or 'bad', 'right' or 'wrong', 'hard' or 'soft' - all have their place and all deserve attention. Just as the biomedical and clinical perspectives now permeate the health care enterprise, so should the population perspective.

1.5 Australia needs not just more "public health" workers but more "population-based" thinking throughout the health sciences and the health services(1). That is what Australia's Bicentennia Health Initiative should be all about.
2. PROBLEMS AND ISSUES

2.1 The history of political, professional and scientific efforts to improve the health of the public i.e. all the people, is replete with widely divergent views on both the goals and the strategies to achieve them. To some the goals are determined by successive re-definitions of what has become socially and politically unacceptable, to others they are determined by a set of risk aversion strategies for perceived threats to the population, and for yet another group they are concerned with the optimum attainment of individual and collective potential for "well-being" to be measured in often unstated or abstract fashions.

2.2 It is not surprising, therefore, to find the fields of "public health" and "tropical health" characterised by mixtures of ideology, science, and ad hoc responses to assorted, often ephemeral, crises in health related matters. Confusion of both goals and objectives pervades the whole field - research, education and service. Nor is it little wonder that a wide diversity of definitions, priorities, practices and aspirations characterising educational, research and service institutions is to be found under the banners of "public health" and "tropical health". Clinicians too are serving the public's needs for better health and medical care and we could do well to proceed under the presumption that they are committed to making significant contributions.

2.3 This Review has heard multiple definitions of "public health" and of "tropical health". They encompass such laudable goals as exterminating cockroaches, on the one hand, to preventing nuclear war, on the other. Some boundaries would restrict the field to the monitoring of water and food sources and supplies, immunising children and the surveillance of communicable diseases. Others would extend the boundaries to include leadership and the capacity to determine the numbers and mixes of health professionals, institutions and services, development of guidelines for the organisation of services, and creation of methods for evaluating the impact of technology and services in relationship to their costs and to measures of the perceived needs of the public.

2.4 It is strongly argued, for example, that "public health is a discipline, characterised by multi-disciplinary interactions" or that it is a "combination of sciences, skills and beliefs". That many disciplines can contribute to improving the health of the public seems clear. The notion that "public health" per se is a "single discipline" is not widely accepted by most members of the broader scientific and health care enterprise. Nor are many of the goals and objectives of health
departs clearly understood by some elements in the community, particularly those who seek services to meet perceived needs, or who attempt to exercise political will in the interests of change. Although it should be recognized that, in many settings, the values and objectives of community representatives have more in common with many of the staff in health departments than they do with, say, those of many hospital specialists, this is far from universally true.

2.5 Seventy years ago the Rockefeller Foundation, on the basis of a hastily drafted document, decided to embark on a new approach to training medical officers of health who would undertake strategies for the control of environmentally based diseases and for the immunisation of populations against selected communicable diseases. To this endeavour was added a research component based on the German Institutes of Hygiene(1). The Foundation underwrote the Johns Hopkins School of Hygiene and Public Health and replicated it in London, Toronto, Tokyo and numerous other cities in Europe, Asia and Latin America. An alternative model in which the Harvard School of Medicine would provide training in a broadly defined field of "preventive medicine" for physicians, and the Massachusetts Institute of Technology would train sanitary engineers and others in the physical and natural sciences to work on "public health problems" was rejected. The history of both the intellectual and political basis for this decision has only recently been explored and is yet to be fully evaluated and published(3).

2.6 The net effect of this seventy-year old experiment has been that schools of medicine were deprived of the population-based perspective. In turn, clinicians learned little or nothing about the precursors of illnesses which people experience within their natural habitats where they live, eat, work, struggle for a better life and die. Nor do clinicians learn much about their patients' lives after leaving the hospital.

2.7 Separate schools of public health have operated apart from the mainstream of scientific medicine which has flourished over the last two generations. However, these Schools have been largely responsible for developing the principal scientific and quantitative methods for understanding group phenomena in populations and communities. Epidemiology, literally "the study of what is upon the people" was developed originally by the leading university clinicians of London in the middle of the 19th Century. As a consequence of the separation of "public health" from "medicine", epidemiology is now largely the province of schools of public health, and it has only recently been re-introduced into medical schools and especially into clinical departments where it originated. This presents many academics and clinicians with unfamiliar perspectives, methods and questions, and yet these are really only extensions of the scientific method to the study of groups of people, i.e. populations and communities, in addition to the study of molecular and cellular phenomena and of individual patients.
2.8 To all these considerations one must add a revolution of rising expectations. Equal access to health care has become a right and all essential services are assured to the entire population. It follows that governments and their health departments find themselves collecting and dispersing vast sums of money directed at "improving the public's health". Increasingly they are called upon not only to account for the money but to say what has been accomplished and whether the people's needs are being met. This notion of overall accountability and its correlates of population-based measurements and evaluations may appear quaint to some. Both those with a narrow view of "public health" as being concerned essentially with risks or threats from environmentally-based diseases, and those trained in clinical medicine with the mind-set that "doctors know best" are just beginning to appreciate the revolution which is under way.

2.9 Sir William Petty, a young physician and Oxford don, generally acknowledged to be the father of demography, economics, epidemiology, statistics and survey methods raised these matters three centuries ago in a brilliant treatise entitled "Political Arithmetic". The central argument that accountability for money spent in relationship to measurable benefits is essential for service professions and institutions remains unchanged. Our contemporary methods and technology for approaching these problems and the issues have made Petty's injunctions infinitely more practical.

2.10 One thing seems clear. On a global basis, a shift is under way from control of the entire health sciences and health care system from the supply side to control from the demand side. No longer can medical schools in most jurisdictions expect to train doctors to do "what they wish", nor can health departments ignore behaviourally determined disorders, or the health impacts of such environmental factors as food additives or visual and noise pollution. Whether it is through the World Health Organisation's "Health for All by the Year 2000" strategy, through private enterprise's reorganisation of the health care arrangements (in the United States initiated by four huge investor-owned corporations along the lines recommended for Britain in the Dawson Report of 1922(4)) or through the exercise of political will resulting in the remarkable changes in the Cuban health system during the past three decades, there can be little doubt that a "sea change" towards meeting the perceived needs of the people - the "market" to use commercial terminology - is underway.

2.11 It seems probable that Australia, as it approaches its Bicentennial, will wish to determine its own future in relationship to its own needs, its own "market" and its own "public" health problems. As an aid to considering possible future institutional arrangements, ten generic problems have been identified in the course of this Review:
There appears to be no 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.

There is no co-ordinated system of National Health Statistics capable of aggregation and analysis at all organisational and jurisdictional levels. Australia is behind other Western Countries in developing its national health statistics. There are serious impediments to doing analytical studies, to identifying risk groups, to undertaking small area comparisons and to assessing the impact of services, resource allocations and reimbursement schemes in relationship to measures of need and demand.

Only small proportions of the best young minds in, for example, medicine, sociology, economics, anthropology, demography, statistics, biology, engineering and, especially, management are recruited and retained for careers in public health.

There is strong emphasis in many settings on teaching about "public health" and "tropical health" through courses of lectures, rather than on learning through small group problem-solving, and independent investigation. There is a related emphasis on training rather than on education, as usually understood at the best universities and research institutes.

There is perceived to be inordinate exercise of power and an inadequate accountability for the resources used by the practicing clinical physicians within the health enterprise of the country.

The continuum that exists from the molecular and cellular through the individual or patient to the group, population or community is not appreciated fully by all the country's health sciences institutions and their faculties. In research, education and service it may be argued that one is not more or less important than the other two, nor is any one of the three, hard or soft. It is not the site of the study that matters but rather the credibility and utility of the findings. Examples of problem-solving institutional strategies accompanied by investigator-initiated studies within this broad paradigm are to be found at QIMR, the Menzies School of Health Research, the James Cook University Graduate School of Veterinary Tropical Science, the National Acoustic Laboratories, the Australian Radiation Laboratory, the Australian Institute of Marine Sciences and the Walter and Eliza Hall Institute of Medical Research.
The relative merits of decentralisation versus centralisation of research and education in the many disciplines contributing to improvement of the public's health are widely discussed. There is strong pressure to strengthen resources, particularly for the MPH degree, and for research in at least one of the universities in all the State capitals and in the nation's capital. There are also arguments for concentrating more resources in one national institution. In summary, it is a matter of balancing a national focus with regional requirements in contrast to the present arrangements which are considered to be distorted.

There are wide differences of opinion about the adequacy of the funding, the quality of research proposals, the methods of distributing funds, and the focus of responsibility and accountability for all forms of research and enquiry into the broad range of factors that impact on health and disease. The concerns extend across a wide spectrum of sites and an equally wide spectrum of skills and commitments.

There is a perceived dominance of the reductionist, mechanistic, so-called "medical" model, of health and disease, especially on the "supply" side of the health care enterprise. This is contrasted with the probabilistic, "psychosocial-biological" model which recognises the existence of networks of causal factors in the genesis of healthy and unhealthy states and one appreciated by a growing proportion of those concerned with the "demand" side. Some argue that conceptually, clinical medicine is now where Newtonian physics was before it was superseded by quantum physics.

There is said to be only modest appreciation by the public and the health professions of the pervasive beneficial and positive influences of the placebo effect and the Hawthorne effect (pioneered by Australia's own Professor Elton Mayo at Harvard University). Together these two ubiquitous therapeutic modalities are said to account for 40 to 60 percent of the benefits associated with nearly all interventions directed at both individuals and communities. It is argued that the placebo and Hawthorne effects may be the most powerful healing agents currently available and that they should be called by their right names and re-imbursed appropriately.
3. **AUSTRALIA'S BICENTENNIAL HEALTH INITIATIVE**

3.1 Some or all of the proposals stemming from this review could be considered and announced as Australia's Bicentennial Health Initiative. These should be seen as a constructive set of clearly defined and interrelated entities with specified objectives designed to mobilise Australia's many human resources to improve individual and collective health. The adversarial and confrontational posturing and overt conflicts that have characterised the Australian health care scene for the past decade or more appear outdated and counter-productive.

3.2 How can Australia best improve the quality and nature of the debates about health and health services? How can credible statistics and information be generated that all can use for any helpful purposes to enlighten and enliven debates? How can the country mobilise its talents, governments and universities to improve the public's health? How can efficacious, useful and usable interventions, scientifically based, be provided compassionately and effectively? How can reasonable proportions of the best young minds be recruited and retained to lead these initiatives and undertake these tasks? How can Australia's people demonstrate concretely that they have the political will and organisational capacity to achieve at least one clear cut goal that will substantially improve health? The comments and recommendations that follow are made with these objectives in mind.

4. **AUSTRALIAN ACADEMY OF HEALTH**

4.1 A national forum is needed for debating and developing recommendations for policies and practices that bear on the national health in the broadest sense of the term.

4.2 **RECOMMENDATION:** An Australian Academy of Health should be established. Initially a small interim task force should be appointed by the Minister to develop legislation, procedures and a budget for this new body. A group of perhaps 15-20, founding members, would elect additional members annually to a total of perhaps 150-200 members who would serve without remuneration (apart from travel expenses) for five-year terms, renewable for a second (or possibly a third) term on the basis of performance and contributions. There should be a full-time paid President who is an individual of substantial scientific accomplishment appointed for a five-year term. A part-time elected unpaid Governing Council and a full-time professional staff of perhaps 8-10 with appropriate support personnel would support the President and the members.

4.3 Members should consist of individuals (not representatives of universities, colleges, societies, organisations or other bodies). About 60% of these should be health professionals with two thirds of these physicians, including biomedical scientists, clinicians, medical
administrators and population-based scientists. The last third should be distributed among the other health professionals such as community health workers, dentists, nurses, nutritionists, pharmacists, public health workers (non-medical), social workers, and veterinarians, etc. The 10% component of non-health professionals should be composed of, for example, anatomists, anthropologists, biochemists, cell biologists, clergy, demographers, economists, immunologists, lawyers, managers, physiologists, psychologists, sociologists and involved lay persons.

4.4 This would be a working, not an honourific academy. Through well-balanced composition of the Committees, which might also co-opt non-academy members, and Task Forces, staffed from the full-time staff, the Australian Academy of Health would examine, critically, issues of national and perhaps local, as well as regional importance. Reports should be carefully reviewed and once released they should be widely disseminated and discussed.

4.5 The Academy would be free-standing with its own Governing Council and would not be under any form of direct or indirect government control. It should have continuing core funding for its President, its staff and adequate travel funds. Additional funds should be sought from private sources such as the Menzies Foundation and other philanthropic bodies so that the Academy would not be entirely dependent on government funds. Special studies might be funded by the proposed Health Development Committee of the NH&MRG, the proposed National Centre for Health Statistics, the proposed National Centre for Technology and Health Services Assessment (see below) and other Commonwealth and State Governmental units.

4.6 The Academy's agenda could be partly generated by its membership, and partly by requests for studies from the Commonwealth Department of Health and other Federal departments, from State Health Departments, professional colleges, community agencies, voluntary bodies and other external sources. The final selection of matters for study would be undertaken by the Academy's Program Committee.

4.7 Such an Australian Academy of Health, modelled in part after the Institute of Medicine in the U.S. National Academy of Sciences, should go a long way towards elevating the level of debate, reducing the confrontational crises which seem to characterise discussions about health and medical problems in Australia, and improving the quality and understanding of both the country's problems and the options and choices for their resolution.
5.1 AUSTRALIAN INSTITUTE OF HEALTH

This innovative approach towards information-based policy analysis and decision-making is highly commendable. It has been given, however, an unusually broad mandate, inadequately defined responsibilities and ambiguous relationships to the Commonwealth and State Governments and to universities, varying time frames for reporting, and a current agenda inherited from disparate predecessor bodies. It is difficult to see how the talents of the staff can be effectively employed unless they are more clearly defined and the several essential elements of the organization given specific mandates and new legislation. The substantial conceptual advances represented by the creation of the AIH should now be clarified and strengthened and to that end, the following three recommendations are made.

5.2 RECOMMENDATION: The AIH should be strengthened by giving it a more clearly defined role as the substantial policy analysis and "intelligence" group working directly for the Minister and Secretary and reporting to the latter or the Deputy Secretary. It should have a Director and staff of perhaps 6 to 8 professionals with appropriate support personnel. The Minister and the Secretary, together with the Director, should set the AIH's agenda. Although there could be an external advisory council this does not appear to be essential. The name of the unit might be changed to the Australian Institute for Health Policy Analysis (AIHPA) or the Health Policy Analysis Unit at some later date but this is not material.

6. NATIONAL CENTRE FOR HEALTH STATISTICS

6.1 RECOMMENDATION: A National Centre for Health Statistics, (NCHS) together with a National Advisory Committee on Health and Vital Statistics (NACHVS) should be established by legislation. The Director of the NCHS, advised by the NACHVS, should report to the Australian Health Services Council at least annually with two documents entitled "Health Australia: 19..." and "Problems and Progress with the Development of Health Statistics in Australia". In addition, the Director of the NCHS should report administratively to the Secretary or Deputy Secretary of the Department. The NCHS should be, and be perceived to be, a non-political, scientific centre serving the entire nation.

6.2 The NCHS should develop and promulgate conventions, standards, terms, definitions, minimum data sets, codes and classifications for the Nation's health statistics. Contractual arrangements with the States, the Australian Bureau of Statistics, and survey organisations should be entered into for one-time acquisition of parsimonious data sets.
suitable for aggregation and analysis at all agreed levels of geo-political, managerial and clinical concerns and decision-working. It is essential that costs, charges and expenditure data be linked with clinical data so that measures of needs, resources (facilities, equipment and personnel), use and outcomes and benefits can be related and analyzed.

6.3 The NCHS should publish periodic reports on substantive and methodological subjects which are widely disseminated, and arrange for data tapes to be made available for research with due regard to confidentiality of patients', institutions', and physicians' names.

6.4 The Director should be selected by international competition and a staff of 15 to 20 professionals and appropriate support personnel will be needed. The staff should include statisticians, health economists, clinical epidemiologists, demographers and social survey experts. The Advisory Committee should have about 12 to 15 members with a majority of experienced population-based scientists on it as well as bio-medical scientists, clinicians and representatives of consumers' and community organisations.

6.5 The first tasks of the NCHS should include:

6.5.1 Development of a conceptual framework in which health statistics are to be generated and disseminated with a view to informing choices and decisions at all governmental, institutional and clinical levels.

6.5.2 Construction of an inventory of all health and medical data sets currently available or proposed throughout the country, including estimates of their reliability, validity, coverage and utility.

6.5.3 Development of a ten-year plan for implementation, characterised by having both important and realistic national objectives.

These activities may well take up to two years but the overall plan should be ready for promulgation in connection with the Australian Bicentennial. The NCHS Staff should not be asked to undertake short-term statistical analyses during this preparatory period. The AIH should undertake such analyses.

6.6 Proposals for external, contractual or commissioned research and analytical studies, as distinct from data acquisition activities, should be referred to the Health Development Committee (see below) for refereeing and funding.
7. NATIONAL CENTRE FOR TECHNOLOGY AND HEALTH SERVICES ASSESSMENT

7.1 RECOMMENDATION: A National Centre for Technology and Health Services Assessment (NCT&HSA) with a National Advisory Committee on Technology and Health Services Assessment (NACT&HSA) should be established by legislation. The Director of the NCT&HSA, with advice from the NACT&HSA, should report directly to the Australian Health Services Council annually with a document entitled "Problems and Progress in Technology and Health Service Assessment". For administrative purposes the Director of the NCT&HSA should report to the Secretary or Deputy Secretary of the Commonwealth Department of Health but the NCT&HSA should serve and be perceived to serve the entire nation.

7.2 The NCT&HSA should be, and be perceived to be, a non-political and scientific body. The Director should be selected by international competition and a staff of 15 to 20 professionals and appropriate support personnel will be needed. The staff should include clinical epidemiologists, economists, health services investigators, operational research scientists, sociologists and statisticians. The Advisory Committee of about 12-15 should have a majority of experienced scientists with skills in critical appraisal of medical and health related evidence, including epidemiologists, economists, biomedical engineers, biomedical scientists, clinicians, sociologists and statisticians as well as ethicists and representatives of consumers' and community organisations.

7.3 The first tasks should include:

7.3.1 Development of the conceptual framework under which the Centre's analyses will be conducted, including attention to such matters as the nature and quality of the evidence to be assessed, the methods to be employed, the underlying values and assumptions bearing on determinations, conflicts of interests and publication and dissemination policies.

7.3.2 Construction of an international inventory of concepts and methods in current use, and of problems that have been and are being addressed in the entire field.

7.3.3 Development of a five-year plan with priorities for implementation based on a combination of measures of morbidity, efficacy, cost-effectiveness, capital and operating costs and volume of use. In this connection, attention should be given to the development and adaptation of concepts and methods for the measurement of health status, interventions, outcomes and benefits.
of all types. Efficacy and safety trials of drugs should be excluded but cost-effectiveness studies of these and other modalities of care and cure should receive a high priority. Both low-cost, high-volume procedures and prescriptions as well as capital-intensive proposals should be examined critically and findings should be couched in population-based perspectives that reflect national, state and institutional costs and expenditures in relation to measures of need and demand.

These initial activities may well take two years but the overall plans should be ready and several significant assessments should have been completed in time for the Australian Bicentennial.

7.4 Proposals for external, contractual or commissioned research and analytical studies should be channelled to the Health Development Committee (see below) for refereeing and funding.

8. SCHOOL OF PUBLIC HEALTH AND TROPICAL MEDICINE

8.1 The consensus of the great majority of submissions and of opinions expressed during interviews, and at the Sydney seminar, is that the School of Public Health and Tropical Medicine has outlasted its usefulness. Multiple reviews over the past decade or more have been unable to help the school to define its mission, recruit permanent leadership or have an observable impact on health affairs in the country. Dual masters for funding, leadership and performance, ambiguous organisational relationships, rapid turnover of faculty, conflicts between goal-oriented and investigator-initiated research, incompatible mixes of students, use of the courses primarily for purposes of job advancement, uncoordinated lectures by visiting office holders, variable academic standards, inability to attract many young students, an uneven and unfocussed research output, uneasy tension with the medical faculty, limited administrative support from the medical faculty, discordance between School priorities and perceived national problems - are among the many manifestations said to be associated with the widespread perception of institutional inadequacy. It is a sad litany and there is no point in attempting to apportion blame.

8.2 The recent Ross Report does not appear to have dealt with the root causes of the School's problems and I cannot see that a reshuffling of the organisational arrangements would have a perceptible impact.
8.3 There are first-rate people in the School and their dedication during a protracted period of uncertainty is applauded. The talents of these highly skilled and committed individuals constitute a valuable national resource and opportunities should be provided for them as soon as possible in new venues where a fresh start is to be made. There are occasions in the lives of institutions and organisations when revitalisation and renewal are only possible under new auspices.

8.4 RECOMMENDATION: All the funds and resources currently devoted at the School of Public Health and Tropical Medicine should be redeployed for new institutional and organisational initiatives that further the goals of public and tropical health throughout Australia.

INSTITUTIONAL ARRANGEMENTS FOR PUBLIC HEALTH EDUCATION

9.1 The resources currently used for training in public health and tropical health at the School of Public Health and Tropical Medicine should be redeployed in order to increase the probability of improving public health education in Australia. The Commonwealth Department of Health should not be involved in any further direct funding and administration of post-graduate education and training. The $4.0 million annually currently expended by the School of Public Health and Tropical Medicine, together with additional funds, should, over a reasonable period of time, be redeployed and invested in building a substantial and enduring educational structure that will make the "public" or "population" health perspective a dominant theme within the whole health enterprise, at least on a par with biomedical science and clinical practice. Indeed the objective should be to have all participants - bench laboratory investigators, clinical specialists and general practitioners, population-based investigators and practitioners, and health workers in diverse activities at the "coal-face" in the community - share a sense of common purpose and commitment to meet the perceived needs of individuals and populations.

9.2 RECOMMENDATION: The Australian National University should be asked to establish a new National Research Centre for Epidemiology and Population Health with the objective of becoming a "centre of excellence", embracing the population-based perspective in juxtaposition to the biomedical and clinical perspectives. This university already enjoys an international reputation and has standards of excellence of the highest order. It is essentially a graduate university and the proposed centre should focus on "teaching the teachers" and "training the investigators" to staff its sister universities both in Australia and abroad. These future academicians will require intensive, closely supervised experience in a research atmosphere which focuses on core disciplines, but their achievement of independent competence will come through completing a piece of credible research at the M.Sc. or, preferably, the Ph.D level.
9.3 This Research Centre should not attempt to provide course work and training by lectures leading to the MPH which is traditionally a vocational qualification and not an academic or research degree. The real need is to prepare first-rate scientists of academic stature who can teach the relevant disciplines and conduct independent research in the other universities of Australia.

9.4 Epidemiology is emphasised in this new Research Centre and in other university departments because it is almost universally regarded as the core discipline in public health, providing the scientific underpinning for the entire field. Australia will need from 75 to 200 epidemiologists by the year 2000 according to submissions prepared for this review. The task of the Centre is to develop top-flight epidemiologists with substantial skills and broad interests, as well as postgraduates in the other disciplines germane to public health. The faculty should consist of first-rate scientists in:

9.4.1 Epidemiology, in its broadest sense, as applied to communicable and non-communicable diseases, health services and behavioural problems. Initially there should be at least one professor and two lecturers in this field.

9.4.2 Statistics, including biometry, medical statistics and especially health and vital statistics. This discipline should have strong links to both mathematical statistics and demography.

9.4.3 Sociology, including survey methods, the sociology of medicine, sociology of medicine, and the organisation of health services. Medical anthropology could also be included.

9.4.4 Health Economics, including skills in both micro- and macro-economics and especially skills in cost-effectiveness, cost-benefit studies and flow-of-funds studies.

9.4.5 Nutrition, especially with respect to food and consumables and their links to agriculture food production, processing, marketing and advertising.

9.4.6 Toxicology, especially of environmental, occupational and food pollutants and additives.

9.5 This new National Research Centre for Epidemiology and Population Health should be established with the initial appointment of a Director who is an experienced epidemiologist, selected on the basis of a widely advertised international competition. The individual should preferably have wet laboratory and/or clinical competence since it will be important
to interact with both groups. Above all, however, a person is needed with vision, drive, a sense of quality and purpose and a track record of managerial skills to achieve the Centre’s objectives. The Director should set the tone and agenda for the Centre and, with appropriate university peer review, select an initial staff of professors, senior lecturers and lecturers. All these appointments, including the Director and senior staff, should be for initial five-year terms followed by external review and further five-year renewals, and possibly tenured appointments.

9.6 To establish the Research Centre, the ANU will need guaranteed funding for an initial six-year period or two triennia. The necessary funds could be transferred directly from the Commonwealth Department of Health to the ANU vote. In the first year about $1.0 million will be needed for staff and a second $1.0 million for a new building. The scope of the latter will depend on whether wet laboratories are to be included. Annual budgets of at least $2.0 million annually will be needed for the following five years at which time ANU might be expected to incorporate the Research Centre’s budget in its overall vote. ANU could also provide funds for further expansions through its regular governmental vote and research funds should be sought from the NHFMR and private sources. There is no logical reason why project grants and dedicated units funded by the Health Research Fund and/or the Health Development Fund should not be used to expand the work of the Research Centre.

9.7 Although postgraduate education and research should be the primary concerns of this Centre, it should also be prepared to give advice and undertake appropriate contractual research initiated by the Commonwealth, State and Local Governments, including the restructured Australian Institute of Health, the proposed Australian Academy of Health, the proposed National Centre for Health Statistics, the proposed National Centre for Technology and Health Services Assessment, the Health Development Committee and voluntary bodies.

9.8 The Research Centre should not be unduly encumbered by a separate governing body or an overall advisory committee, although the Director may wish to have such a group. If the right person is selected for leadership he or she will set the agenda and the periodic external reviews will be able to comment on the extent and quality of achievements.

9.9 The reason for recommending a "Centre", rather than a "School" is to allow the enterprise to evolve gradually as a strong, dedicated, highly regarded and financially secure entity and not to saddle it with either a history associated with other institutions or an excessive vocational teaching load. The Research Centre formula also permits cross fertilisation of ideas through interaction with a variety of colleagues in the
University concerned with research and graduate education relevant to this new field of endeavour. By such means the Research Centre may help to focus more of ANU's resources on the perspectives and problems that are relevant, in both the long-term and the short-term, to the health of the people of Australia and its geographic neighbours. Although most of the Research Centre's studies will be investigator-initiated and curiosity-based, they should take place in the context of a portfolio of clearly defined problem-oriented goals and targetted objectives that are responsive to important perceived needs in Australia, the surrounding region and internationally.

9.10 One argument advanced for not placing this new "centre of excellence" in Canberra is that the city is "too small" for population-based research. For years small towns like Chapel Hill, New Haven and Iowa City in the United States have had universities conducting first-rate population based research. In any event, "common diseases" are "common" and there are plenty of these in Canberra that could benefit from research. Similar to other elements of ANU it is possible that the Research Centre may well have field stations located in diverse parts of the country and overseas and it may develop collaborative associations with other research institutions and universities. It should be especially attractive for overseas postgraduate students funded by ADAB.

9.11 An additional advantage to siting the new "centre of excellence" at the ANU is the ready availability of excellent resources in the Research School of Pacific Studies, the Research School of Social Sciences, the John Curtin School of Medical Research and a number of dedicated Centres in each of the Schools directly concerned with health problems. Finally, the presence of this "centre of excellence" in close proximity to the Commonwealth Department of Health should promote the exchange of ideas and, under appropriate circumstances, personnel, thereby encouraging the Research Centre to focus on the nation's overall health problems and strengthening the capacities of the Department of Health.

9.12 Arguments against establishing the new Research Centre in Sydney stem from the unfortunate associations that surround the present School of Public Health and Tropical Medicine and even its building that plague its recent history. The concept of a Research Centre appears to fit more comfortably into the academic framework of ANU than it does at the University of Sydney and it would clearly be university-based rather than continue as a directly funded government research institute located in a university. The proposed transfer of funds directly from the Commonwealth Department of Health vote to the ANU vote is seen as a much simpler and cleaner arrangement than transfers through the CTEC. Finally, the University of Sydney has embarked recently on a new initiative at Westmead Hospital and it seems preferable to strengthen that Department rather than encourage a competing activity in the same university.
One of the responsibilities of the Research Centre for Epidemiology and Population Health would be to organise, with guest faculty from other universities and institutions, annual six- to eight-week intensive sessions on epidemiology and statistical principles and methods directed at improving skills in design, measurement and evaluation for a variety of constituencies. Several levels of education might be provided including core courses for those taking MPH degrees at universities in the several States, for those clinicians interested in improving their research skills and for other groups concerned with health services evaluation studies of different types.

This new Research Centre should not attempt to train managers or administrators, at least initially, since first-rate national graduate schools of management exist in other universities. Short courses in evaluation for managers, however, might be considered as time and resources permit and the Research Centre might assume responsibility for the Health Services Module proposed for the MBA program at the Australian Graduate School of Management at the University of N.S.W. (see below).

Turning to the requirements of the States, there is substantial confusion with respect to both the names and the activities of Departments of Community Health in Australia. These tend to be a mixture of epidemiology, miscellaneous activities associated with social and preventive medicine, community medicine, public health, environmental health, occupational health, geriatrics, rehabilitation and especially general practice.

**RECOMMENDATION:** The miscellaneous components in current Departments of Community Health and Social and Preventive Medicine or Community Medicine should be separated from these Departments and independent Departments of General Practice or Family Medicine should be established. The latter term is now being used in favour of general practice in North and South America and is emerging in Europe. The sometimes pejorative associations assigned to this vital component of clinical medicine by some specialists and the lack of a clear identity have hampered their development. These new Departments of Family Medicine will need substantial strengthening, especially through research using epidemiological and social science concepts and methods. Progress in preventive medicine, health promotion, behavioural health and community responsiveness to the population's problems can be substantially impeded or enhanced by the attitudes and performances of family physicians. It is largely by strengthening the primary care component of any health care system that it is possible to keep people out of hospitals and to contain costs, to say nothing of treating them early in the natural history of disease. This whole field might be the subject of a special enquiry.
9.17 RECOMMENDATION: The residual Departments of Community Health, Social and Preventive Medicine or Community Medicine should be re-named Departments of Epidemiology and Population Health. Because of the confusion over terms, definitions and objectives associated with the term "public health", it seems best to use a new term for a new initiative. More important, it is important that all undergraduates, postgraduates and faculty internalise the "population perspective" in their conceptual thinking and practice. In this sense "public health" is seen as part of the continuum that includes the biomedical sciences, the social sciences and clinical medicine.

9.18 Each of these Departments should have strengths in economics, epidemiology, sociology and statistics and should focus on one or more of the subject areas which are of importance to the population served such as: Aboriginals, ageing, alcoholism, clinical trials, community services, health services, nutrition, occupational and/or industrial health, reproductive health, school health, social health, substance abuse and toxicology trials etc. A critical mass of at least ten full-time faculty, of which three of four should be clinically competent, is an appropriate start. Most Departments should aim at having 25 full-time faculty by the end of the century.

9.19 RECOMMENDATION: At least $4.0 million annually and preferably more should be invested over the next six years by the Commonwealth Department of Health to endow or support chairs and senior faculty in the leading Departments in this field. About $2.0 million of this would include funds redeployed from the School of Public Health and Tropical Medicine. These funds should be dedicated for the use of the re-organized Departments, and their use only, for at least 30 years. All initial faculty appointments should be for five-year terms, and following external review, additional five-year appointments or tenure could be provided as each University determined for itself.

9.20 RECOMMENDATION: Priority for initial funding should be given to those universities with strong track records in both undergraduate and postgraduate programs, particularly for the MPH, M.Sc. (or equivalent) and Ph.D degrees. During the first three years of this initiative the University of Adelaide, the University of Sydney at Westmead, and the University of Newcastle should be selected for the first three $1.0 million endowments or funds for Chairs. Adelaide is nominated because it has organized an MPH program for 20 candidates commencing in 1986 (for which it had 68 enquiries during the first week) and because the South Australian Health Commission is funding two new faculty positions and support personnel, and will probably provide funds for incorporating The Foundation for Multidisciplinary Education and Community Health in the
Department. Other State Departments of Health should take cognizance of the lead provided by the South Australian Health Commission in its direct funding of the University of Adelaide program. Westmead is nominated because of the substantial resources provided for the resurgent Department of Community Medicine under new leadership and the track record of the new Chairman and professor in initiating new educational programs and learning methods with high standards. Newcastle is nominated because of its innovative undergraduate and postgraduate educational programs, its problem-based approach to learning, its population-based perspectives, its excellent epidemiology and statistics faculties and its track record in training both domestic and foreign M.Sc. and Ph.D graduates.

9.21 **RECOMMENDATION:** In addition to the first three $1.0 million endowments or funds for chairs a further sum of $1.0 million should be provided annually to endow or fund positions for senior lecturers and lecturers in the three universities selected initially.

9.22 **RECOMMENDATION:** At least $1.0 million annually should be provided by the Commonwealth Department of Health for salaries of faculty and support personnel at universities (other than those nominated above) and colleges of advanced education that provide strong undergraduate and postgraduate education in public health or related fields. During the final three years of this six year initiative, $3.0 million annually would be used to endow or fund additional chairs and other positions in these universities and colleges of advanced education on a competitive basis.

9.23 At the end of five years and an external review, the Universities should have a clear idea of the achievements of these Departments and each should have substantial permanent endowments for their continuing support. From this vantage point the universities should be able to seek additional funds from the CESC for expansion of the Departments. It would be expected that each of the Departments will obtain additional research and development funds from the Health Research Committee and the Health Development Committee of the NH&MRC (see below).

9.24 **RECOMMENDATION:** All funds for these new Departments of Epidemiology and Population Health should be awarded on the basis of peer review through the proposed Health Development Committee. The funds for this purpose would be redeployed, in part, from the Commonwealth Department of Health budget of $4.0 million currently supporting the School of Public Health and Tropical Medicine, to which additional funds of about $3.0 million annually should be added over a six year period.
9.25 The awarding of MPH degrees by at least one University in each State appears to be responding to a substantial unmet demand from those working in Health Departments or Commissions, from clinicians undertaking research, from physicians employed in occupational medicine and from a variety of non-medical health professionals in community settings. While these courses can be seen, in part, as vocational staff training and upgrading, they do not get at the heart of the need to attract at an early stage in their careers a larger proportion of the best young minds to work in the disciplines germane to public health.

9.26 **RECOMMENDATION:** Undergraduates in medicine, nursing economics, the social sciences and related fields should be encouraged to undertake short summer electives or research projects as an introduction to the opportunities and challenges associated with problems bearing on the public's health. It should then be possible to attract a proportion of these young people to undertake M.Sc. or Ph.D. postgraduate training in epidemiology, statistics, economics, sociology or a discipline bearing on public health, including some exposure to the full array of careers and prospects in the public as well as the private sector. In due course, it may be unnecessary to have MPH courses, since most or all of those working in health departments, universities, hospital administration, and in other relevant health care institutions will have been adequately trained much earlier in their careers.

9.27 Stipends and remuneration for those undertaking postgraduate training in the disciplines germane to public or population health both at the proposed ANU Research Centre for Epidemiology and Population Health and at other universities with Departments of Epidemiology and Population Health will need to be increased if first-rate candidates are to be attracted. The stipends will need to be related to career structures. Registrars training in clinical specialties can earn $30,000 to $60,000 per year during their training and those in "public health" have the prospect of earning $12,000 to $15,000 or, more frequently, nothing. 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. Because of the need to attract to this field first-rate candidates, from medicine as well as from other disciplines, who might otherwise be attracted to different private or public sectors, new arrangements and much higher training stipends or fellowships should be provided.

9.28 **RECOMMENDATION:** The Health Development Committee and its Health Development Endowment Fund should support Fellowships in disciplines germane to public or population health at a level of about $15,000 per annum for two year periods. Thirty fellowships per year is a reasonable start so that $0.75 million would be needed the first year and about $1.5 million the second
and succeeding years. There should be an annual national competition and once appointed the candidates should apply to the university of their choice. In six years 130 persons might be trained which is over five times the number with MPH's now employed in the upper echelons of the nation's health departments. A balance should be sought between clinicians and non-clinical physicians, statisticians, economists and sociologists etc.

9.29 RECOMMENDATION: Residences or Registrarships should be established in what is perhaps best described as "Community Medicine", as well as in "Clinical Epidemiology". The former involves work in a hospital-based ambulatory care centre or in a free-standing Community Care Centre, sometimes related to a hospital. The latter involves using epidemiological methods for measuring the burden of illness in the community, for studies of efficacy and cost-effectiveness, for health care evaluation, and for appropriate types of etiological studies by physicians with patient care responsibilities. About fifteen fellowships should be awarded in these fields annually.

9.30 These clinical residences should also have competitive stipends at least of $30,000 per annum for three years. Fifteen of these fellowships per year should be awarded based on a national competition organized by the Health Development Committee of the NHBMRC. The successful candidates should pick their own universities. This would amount to some $0.45 million for the initial year and then $1.0 million for the second and succeeding years allowing for some stipend increase. Again, this initiative should be reviewed at the end of five years and a decision made with respect to its continuation.

10. NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL

10.1 This body is a major advisory group on health matters for the Commonwealth Department of Health and the nation. It was the subject of an extensive review in 1984 and with three exceptions I am in agreement with that Review Committee's findings.

10.2 The NHMRC Council as proposed for January 1, 1986 appears to be under-represented from the fields of epidemiology, statistics and the social sciences. In addition, there appear to be only five women and no representative from the Department of Aboriginal Affairs on a 23 person committee; surely these are unintended distortions in the composition of a Council purporting to be concerned with the health of all Australians.

10.3 The scope of interest and responsibility of the Medical Research Committee spanning as it does biomedical research, clinical research and population-based research, including health services research, employing analytical or experimental designs, is not reflected in either its title or its membership.
10.4 RECOMMENDATION: The name of the Medical Research Committee should be changed to the Health Research Committee (HRC). Of the 17 members at least four, including at least two of the 'medical researchers' should be, and be known to be, highly competent investigators in a population-based discipline such as epidemiology, statistics, demography or social survey research. This is essential if public health and population-based research needs and proposals are to be addressed and assessed in a balanced and competent fashion.

10.5 All of the investigator-initiated projects, programs, units, institutional awards and fellowships should continue to undergo the rigorous peer review process which appears to function satisfactorily except for one change. Each Regional Grants Interviewing Committee should always have at least one population-based scientist on it, and each such Committee reviewing a population-based study or one involving field-work should have a majority of population-based scientists on it. Conversely there should always be a biomedical scientist and a clinician on each Regional Grants Interviewing Committee for a population-based project.

10.6 The nation's problems with health and disease are such that the Health Research Committee should set clearly enunciated targets for support of population-based research. Fifteen percent of the available annual funds seems a reasonable start with a gradual increase to a third over the next decade, assuming that the total available pool of research funds increases substantially. In this connection it was worth stressing that the current sum of research funds available to the MRC (HRC) are quite inadequate in the light of Australia's annual expenditures of $15,000.0 million annually on health.

10.7 RECOMMENDATION: The level of funds available for disbursement through the HRC should be increased promptly to $70.0 million a year through a Health Research Endowment Fund for investigator-initiated research. If the MRC's name, membership and commitment of funds are not changed, then it is recommended that about $10.0 million annually of the $70.0 million be moved to the proposed Health Development Endowment Fund.

10.8 RECOMMENDATION: A new Health Development Committee (HDC) with a dedicated annual Health Development Endowment Fund should be established. In addition to new funds for this Health Development Endowment Fund, those components of the RADGAC funds, AIDS, alcohol and related activities which are clearly identified as "development" funds should be placed under the aegis of this new Committee and incorporated in the single new endowment fund. It may also be desirable to move some of the "development" activities of the Special Purpose Committee of the HRC to the Health Development Committee but not any of the funds. The total sum available in this new Health Development
Endowment Fund initially should be $15.0 million. The HDC's composition should be analogous to that for the HRC except that at least nine of the seventeen members should have a public health or population-based perspective and at least six of the eight 'researchers' should be highly competent in population-based disciplines. All Regional Grants Interviewing Committees should have a majority of members with a population-based perspective including epidemiologists, statisticians, demographers, economists, survey specialists and sociologists as well as one or more biomedical scientists and clinicians. As in the case of the Health Research Committee all proposals should undergo rigorous peer review and assessment with external referees, in addition to interviews by Regional Grants Interview Committees.

10.9 The distinction between the Health Development Committee and the Health Research Committee, is that Requests for Proposals in response to suggestions received from bodies such as the proposed Australian Institute for Health, National Centre for Health Statistics and National Centre for Technology and Health Services Assessment, as well as the Australian Health Services Council, Committees of the National Health and Medical Research Council, and external bodies, would be circulated by the Secretariat of the HDC to prospective investigators and institutions. The studies and activities supported by HDC would be problem-oriented or goal-oriented rather than investigator-initiated.

10.10 There will need to be a considerable amount of interaction between the members of the new Health Development Committee, its staff, and prospective principal investigators in the nurturing of new projects and proposals. A certain number of 'seed' or 'evangelical' awards may need to be given to facilitate preparation of viable responses to proposals. In turn these may eventually lead to "research" in contract to "development" projects which may be funded later by the Health Research Committee.

10.11 Among the tasks the Health Development Committee should set for itself are the establishment of a series of Special Units attached either to universities or institutions for set periods of three to five years, followed by external review. Strenuous efforts should be made to identify individuals or small groups capable of developing these dedicated units for investigation of problems that have a direct bearing on the public's health and that use population-based methods. Accordingly it may be desirable to link the term epidemiology with a number of these. Examples might include: aboriginal health, ageing, behavioural health, genetics, immunology, perinatal health, primary care, rehabilitation, social health, substance abuse, toxicology or tropical health. Some of these may eventually emerge as units appropriate for funding by the Health Research Committee.
10.12 **RECOMMENDATION:** The NH&MRC should review carefully its current practice of not funding projects or other grants from universities (such as ANU) or bodies (such as CSIRO) which are funded by direct government votes. The present arrangement could stifle initiatives from many competent investigators and would certainly hamper the work of the proposed new Research Centre for Epidemiology and Population Health at the Australian National University.

10.13 The present Medical Research Committee has previously used its limited research funds to support activities only marginally related to research such as Service Reference Laboratories or ongoing statistical surveys such as the Market Basket Survey.

10.14 **RECOMMENDATION:** The support of any service Reference Laboratories should be moved to the National Health and Medical Research Division's Pathology Laboratories Branch in the Commonwealth Department of Health. Review of both the need for new Reference Laboratories and the adequacy of existing laboratories should be conducted by ad hoc committees of competent scientists and other representatives where appropriate. Commonwealth Department of Health funding of Reference Laboratories, in particular, and pathology laboratories, especially service laboratories, in general, should be matters for negotiation between the Commonwealth Department of Health and State Health Departments. Many, if not all, of the Reference Laboratories may be located in universities or research institutes, but once established they provide a service to the public and the medical profession as well as a research function, and the former component at least warrants direct operating support from either Commonwealth or State Health Departments.

10.15 **RECOMMENDATION:** The Market Basket Survey is essentially a statistical service (and an extremely important one), and as such should be transferred to the proposed new National Centre for Health Statistics. The Director of this survey should be advised by the Principal Nutritionist and an appropriate committee.

11. **TROPICAL HEALTH, MEDICINE AND DISEASES**

11.1 There is a consensus that the objectives of Tropical Health are virtually identical to those of 'public health' in tropical, as contrasted to temperate, regions. If education in public health focuses on generic problems and methods, then examples, problems and case studies from a variety of settings throughout the world could be employed for teaching. It seems probable that the new Research Centre for Epidemiology and Population Health proposed at the ANU will develop strong associations with the Research School for Pacific Studies and should, in due course, together with the Menzies School of Health Research, be an excellent site for training in public
health as applied in the tropics. Public health training for overseas students will continue to be provided in the various universities and colleges which have or are developing MPH or equivalent courses.

11.2 Tropical Medicine involves the recognition, diagnosis and management of diseases acquired by travellers and immigrants entering Australia from hot climates. Departments of medicine and/or infectious diseases in at least one medical centre in each State and in Canberra should have the capacity to cope with these clinical problems. It seems inappropriate to have only one dedicated national centre for these diseases which, in any event, are relatively few in number. It would be reasonable for one university to organise an annual short, intensive course for clinicians, including those in military service, to maintain their clinical skills, in managing these problems.

11.3 Tropical Disease Surveillance does merit development, especially in the northern half of Queensland. There is a need for rigorous education of physicians in the reporting requirements for all suspicious fevers and rashes of unknown origin and for related problems. More specifically, if Queensland's Health Department was regionalised as is the case in most other States, it might be possible to provide closer surveillance of these problems in the North of that State.

11.4 RECOMMENDATION: An Epidemiologic Surveillance Unit should be established in Townsville by the Queensland Department of Health to improve both early reporting and improved acquisition of health statistics on the incidence and distribution of tropical and marine-based diseases in this region. A system of Sentinel Practices based on a network of participating general practices, as used in South Australia, would further strengthen this service. Related but apparently serious problems in Northern Queensland include Box Jellyfish stings, ciguatera poisoning, coral reef cut infections and diving misadventures. These must constitute serious problems for the tourist industry when colourful brochures depict beautiful beaches but omit mention of the signs which essentially say "don't go near the water from October to April!" The Epidemiological Surveillance Unit proposed above should be funded by the Queensland Health Department with additional support from the tourist industry in the form of a hotel/or meal tax. The first task of this Unit would be to determine the extent of these problems and to generate clues to their control and possible eradication. This Unit could be located in the Townsville General Hospital or the related Commonwealth Pathology Laboratory.

11.5 Research in Tropical Diseases is already being conducted in a variety of places including the Australian National University, the Menzies School of Health Research, the Queensland Institute of Medical Research, the John Curtin School of Medical Research, the University of Western Australia and the Walter and Eliza Hall Institute of Medical Research.
Progress in the control and prevention of these diseases is most likely to be made in those broadly-based research institutions that are goal- or problem-oriented and have a full array of skills and interests ranging from the laboratory, through the clinical to the population or the field.

11.6 **RECOMMENDATION:** The name of the Queensland Institute of Medical Research might be changed to *The Queensland Institute of Health Research (QIHR)* and it should be designated a major site for research in tropical diseases but not to the exclusion of important work being conducted elsewhere. In particular, the Menzies School of Health Research and the Walter and Eliza Hall Institute of Medical Research should be recognised as major centres for research in selected aspects of tropical diseases. Research staff in tropical medicine from the School of Public Health and Tropical Medicine might be transferred to the expanded QIMR.

11.7 The NHMRC is said to be considering QIMR for block grant funding as a major national research institute. This should provide opportunities for expanding the scope and budget of the QIMR to include greater involvement in the diseases of the tropics including international work and for the establishment of the satellite unit proposed below.

11.8 **RECOMMENDATION:** The QIMR should establish a research Satellite Unit in Townsville located at the Australian Institute of Marine Sciences (AIMS). The problem-oriented approach employed at AIMS, the staff’s broad array of skills, again spanning the spectrum from the bench laboratory to the field, their high quality, the existence of a decompression chamber, an interest in marine-based health problems and the new leadership by the former Director of the Sir George Fisher Centre of Marine Studies and the School of Biological Sciences at James Cook University, augur strongly for locating this new QIMR Unit at AIMS. The problems to be tackled should include envenomation from marine stingers, ciguatera poisoning, coral reef cut infections and tropical physiology. The Unit should include a research epidemiologist and a biologist interested in these problems and it could be funded as part of the expanded NHMRC institutional grant being considered for QIMR. Alternatively the Health Research Committee or the Health Development Committee might establish a dedicated Unit in the short term.

11.9 Postgraduate Education in Tropical Disease Research is probably strengthened best by providing research based M.Sc. and Ph.D. degrees through collaboration between the University of Queensland and the QIMR for selected bright, young domestic and overseas candidates.

11.10 There is merit in expanding the budget of the excellent James Cook University Graduate School of Veterinary Tropical Science to include additional resources in immunology and epidemiology.
11.11 **RECOMMENDATION**: Additional funds should be sought by the university administration from the CTEC to build on the substantial achievements and first-rate international reputation of the James Cook University Graduate School and Veterinary Tropical Science. A high priority should be given to this initiative by the University.

11.12 The facilities of the Malaria Field Station on Horn Island which provide support to the Queensland Department of Health in malaria vigilance should be transferred from the School of Public Health and Tropical Medicine to James Cook University to be shared by JCU, QIMR, AIMS and the Queensland Department of Health.

11.13 The Australian Development Assistance Bureau should be encouraged to focus its fellowships for overseas candidates from countries in the tropics on the postgraduate education of bright, young academics through research directed at obtaining an M.Sc. or Ph.D. degree. This research could be either laboratory-based or population/field-based or a combination of the two. The QIMR, The Menzies School of Health Research, The Walter and Eliza Hall Institute of Medical Research, the University of Western Australia and, in due course, the proposed Research Centre for Epidemiology and Population Health at the Australian National University, should be first-rate institutions where such training is available.

11.14 The ADAB overseas fellowship stipends are considerably below those for domestic students of equivalent status and this appears to present many inequities which should be addressed promptly.

12. MANAGEMENT TRAINING

12.1 With about $15,000.0 million annually flowing through the Australian health care system, it is essential that first-rate managers - both medical and non-medical, be attracted and retained in the public service. It would appear that less than 5% of the management posts in the country's health departments are filled with individuals who have had formal training for their responsibilities. The several courses in health services administration, and particularly those at the School of Health Administration, University of New South Wales, are perceived, in many quarters, as failing to meet fully the needs for top level managers. Leadership and skills are required to deal with the horrendous problems of using the $15,000.0 million of health expenditures effectively and efficiently to meet the population's health needs. The institutions providing courses in health services might be assisted in re-ordering their programs.

12.2 **RECOMMENDATION**: A national review of postgraduate education in Health Services Management should be undertaken with attention paid to recruitment, retention, career structures and compensation.
12.3 **RECOMMENDATION:** In the meantime, since there is an urgent need to train a cadre of bright young managers, the Australian Graduate School of Management at the University of New South Wales should be asked to add a Health Services Module of perhaps 6-8 weeks duration to its regular MBA course. The Health Services Module could be organised either by the new Department of Community Medicine (or renamed Department of Epidemiology and Population Health) at Westmead Hospital, University of Sydney, or by the proposed new Research Centre for Epidemiology and Population Health at the Australian National University. This module could be taken before, after or concurrently, with the MBA course.

12.4 About ten candidates per year might be attracted to the course, half of them could be young physicians and half non-physicians with stipends of at least $30,000 per year for a total annual payment of about $0.3 million, and another $50,000 could be provided to pay for the health services module. These funds should be awarded through the Health Development Committee on the basis of an annual national competition. The selection of candidates should be done by the University in concert with the Health Development Committee. This might entail a budget of $0.35 million recommended annually for Population Health and Management Fellowships. Those receiving fellowships might well be expected to spend two years in the public service either at Commonwealth or State levels for every year of fellowship support received.

13. **COLLEGES OF ADVANCED EDUCATION**

13.1 Apart from physicians, the great majority of health professionals working at the "coal-face" in providing support, instruction, care and love to those doing the suffering and paying the bills are trained in Colleges of Advanced Education. An excellent example is to be found in the Division of Health Sciences in the Western Australian Institute of Technology. Other related institutions include the Lincoln Institute, Cumberland College, the South Australian Institute of Technology, and the Mitchell College of Advanced Education. These institutions should be supported with additional funds from the Health Development Committee in order to strengthen their teaching of community development, nursing, epidemiology, health services evaluation, health education and promotion, sociology in medicine, nutrition, and middle level management of health care institutions and services.

13.2 **RECOMMENDATION:** There should be one-time endowments or funds of a set sum of say $300,000 to $500,000 each to provide additional faculty for suitable Colleges of Advanced Education. These funds should be distributed on a competitive basis for six years, followed by an external review. It is
hoped that this effort would strengthen these highly important Colleges for training essential health workers with a broader population perspective in providing essential services. These funds should be part of the $1.0 million recommended for Faculty positions in State Universities or Colleges of Advanced Education (see 9.22).

14. CAREER STRUCTURES

14.1 The first need is to have people in academic organisational and institutional positions who are "role models". They will then attract others to do likewise. The recommendations above are designed to do this but clearly there will need to be career structures established with appropriately generous remuneration in health departments, hospitals, community health centres, universities and research institutions. The review did not examine either the pay scales or the career structures in detail but there is a widespread perception that they are inadequate to attract first-rate candidates. One may observe, however, that both the public and the private sector get what they pay for.

14.2 RECOMMENDATION: There should be a thorough review of career structures and salaries at national, state, local and institutional levels in the fields germane to "public health". The salary structures in the broad fields of "public health" and "health services" should be compared with remuneration in other service sectors in Australia and appropriate recommendations should be made to recruit and retain the best people.

15. TOWARDS ONE NATIONAL ACCOMPLISHMENT

15.1 As Australia moves towards its bicentennial, there should be at least one health improvement initiative that will be seen to be clearly successful. This can be achieved if the country sets its mind to it. Seat-belt legislation and compliance with the law are a case in point; Australia has led the world. If the following recommendation emerges from the Better Health Commission report so much to the good.

15.2 RECOMMENDATION: Australia should set as its bicentennial goal, in connection with this entire Bicentennial Health Initiative, the reduction of alcohol-related traffic accidents and deaths by 30%. This is a do-able task, It requires a full-time director, a high powered advisory board made up of three or four parents of teenagers killed in automobile accidents, representatives of the brewing, automobile manufacturing and insurance industries, clinicians who are trauma experts, one or two paraplegics injured in alcohol-related traffic accidents, the police, the media,
advertising agencies, health promotion authorities and others, all led by a distinguished citizen with a demonstrated track record of accomplishment. There should be national, State and local committees formed throughout the country and a massive campaign mounted. Weekly statistical reports using graphic TV and newspaper pictures of accidents and tours of trauma units should be widely disseminated. A speakers' bureau should be set up and audiovisual aids provided.

15.3 Success would show the public, the profession and the politicians, that better health can in fact be achieved. Granted this is a reduction in injury and suffering, not true enhancement of health, but it would surely be a step in the right direction.

16. **FINANCING**

16.1 It is estimated that about $15,000.0 million is expended on health services annually in Australia or about $1,000 per person. Of this about one third comes directly from the Commonwealth Government and more than another third flows through the State governments, hospitals and private insurance carriers. Additional funds come from voluntary agencies and personal outlays. The Commonwealth Department of Health spends directly $67.0 million annually on research, development, information and public health training or $4.70 per person annually. In addition, limited research funds may flow through the CTEC, ASTEC, CSIRO, the hospitals and private foundations.

16.2 By any comparison with most other western industrialised countries, and certainly by comparison with industry where 4%-6% of expenditures is spent on research, development and information, this fraction is quite inadequate given Australia's resources. Overall expenditures for research, development, information and new initiatives in public health training, should reach at least 1% of total health expenditures from all public and private sectors or initially at least $150.0 million annually of which $100.0 million should come from public service.

16.3 If Australia is to seize its Bicentennial opportunity to re-position resources, personnel and priorities, develop strategies for containing costs, provide access to first-rate services, and support research of all types to deal with contemporary health problems, and attract and educate the best young minds to accomplish these tasks, the country's investment should be increased.

16.4 The Commonwealth Department of Health's current expenditures for health research, development, information and public health education is about $67.7 million annually. This additional proposed amount of approximately $33.0 million to raise the level to $100 million annually represents only 1.5%
of the 1% Federal Medicare tax together with 1.5% of the value of premiums received by Health Insurance Funds. As a minimum, at least $100 million a year should be provided to support the following components of Federal health research, development, information and public health education:

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<th>Organization</th>
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<tr>
<td>Australian Academy of Health</td>
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<td>Australian Institute of Health</td>
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<td>National Centre for Health Statistics</td>
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<td>Health Development Endowment Fund</td>
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<td>Research Centre for Epidemiology and Population Health</td>
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<td>Faculty positions in State Universities and College</td>
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<td>of Advanced Education</td>
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<tr>
<td>Population Health and Management Fellowships</td>
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<tr>
<td>Towards one National Bicentennial Accomplishment</td>
<td>$ 1.9m</td>
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<td>$100.5m</td>
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REFERENCES


## APPENDIX 1

### INDEPENDENT REVIEW OF RESEARCH AND EDUCATIONAL REQUIREMENTS FOR PUBLIC HEALTH AND TROPICAL HEALTH

### SUBMISSIONS RECEIVED

1. Prof. S. Leeder, Department of Community Medicine, Newcastle University, Newcastle
2. Mr. D.A. Dixon, Policy Co-ordination Unit, Canberra
3. Dr. N. Gray, Anti-Cancer Council of Victoria, Melbourne
4. Brigadier W.O. Rogers, Directorate of Army Health Services, Department of Defence, Canberra
5. Dr. P. Lancaster, National Perinatal Statistics Unit, Sydney University, Sydney
6. Prof. R. Jeske, Faculty of Medicine, University of Western Australia, Perth
7. Dr. O. Christie, Department of Community Medicine, Melbourne University, Melbourne
8. Prof. A.S. Truswell, Department of Biochemistry, Sydney University, Sydney
9. Dr. B. Southgate, London School of Hygiene and Tropical Medicine, London United Kingdom
10. Dr. A. Adams, New South Wales Department of Health, Sydney
11. Dr. B. Feery, Communicable Diseases Committee, National Health and Medical Research Council, Canberra
12. Emeritus Prof. P. Karmel, Australian National University, Canberra
13. Dr. T.H. Hull, International Population Dynamics Program, Australian National University, Canberra
14. Prof. A. Brownlea, School of Australian Environmental Studies, Griffith University, Brisbane
15. Dr. G.A. Butcher, Department of Zoology, Australian National University, Canberra
16. Mr. W. Dix, Australian Institute of Aboriginal Studies, Canberra
17. Prof. D. Penington, Faculty of Medicine, Melbourne University, Melbourne
18. Dr A.J. McMichael, CSIRO Division of Human Nutrition, Adelaide
19. Dr N. Hicks, Department of Community Medicine, University of Adelaide, Adelaide
20. Dr R. Douglas, Department of Community Medicine, University of Adelaide, Adelaide
21. Emeritus Prof. D. Gordon, Department of Social and Preventive Medicine, Queensland University, Brisbane
22. Dr S. Sax, Research School of Social Sciences, Ageing and the Family Project, Australian National University, Canberra
23. Sir G. Nossal and Dr G.F. Mitchell, Walter & Eliza Hall Institute of Medical Research, Melbourne
24. Prof. I.C. Lewis, Faculty of Medicine, University of Tasmania, Hobart
25. Prof. W. Glover, Faculty of Medicine, University of Tasmania, Hobart
26. Prof. B. Emmerson, Department of Medicine, Queensland University, Brisbane
27. Mr R.C. Manning, Australian Development Assistance Bureau, Canberra
28. Dr. I. Shellshean, Townsville Consultants Group, Townsville
29. Dr F. Vanderfield, Royal Australian College of Medical Administration, Melbourne
30. Dr N. Thomson, Australian Institute of Health, Canberra
31. Mr P. Pfau, NH&MR Division, Commonwealth Department of Health, Canberra
32. Prof C. Kerr, School of Public Health and Tropical Medicine, Sydney University, Sydney
33. Students, School of Public Health and Tropical Medicine, Sydney University, Sydney
34. Prof. D. Dunbar, Commonwealth Tertiary Education Commission, Universities Council, Canberra
35. Prof. K.J.C. Back, James Cook University, Townsville
36. Dr R. Speare, Dr C. Hoogland, Dr L. Ashdown, Dr B. Reid, Townsville
37. Dr J.C. McNulty, Health Department of Western Australia, Perth
38. Dr P. Hindson, Department of Health Administration, Queensland Institute of Technology, Brisbane
39. Prof. H.E.H. Paterson, Department of Entomology, University of Queensland, Brisbane
40. Dr S.M. Pond, Department of Medicine, University of Queensland, Brisbane
41. Dr J.H. Hirshman, Australian Third World Health Group, Sydney
42. Dr A.M. Liebhold, Doctors' Reform Society of NSW, Sydney
43. Dr P. Merrifield, Health Care Committee, National Health and Medical Research Council, Canberra
44. Dr T.C. Beard, Low Sodium Advisory Service, Canberra
45. Prof. J.M. Ward, Sydney University, Sydney
46. Prof. I. Riley, Faculty of Medicine, University of Papua New Guinea, Port Moresby
47. Dr L.R. Smith, Australian Institute of Health, Canberra
48. Dr F. Stanley, NH&MRC Research Unit in Epidemiology and Preventive Medicine, Perth
49. Dr C. Kidson, Queensland Institute of Medical Research, Brisbane
50. Dr M. Liveris, Department of Health Sciences, Western Australian Institute of Technology, Perth
51. Prof. A. Basten, Clinical Immunology Research Centre, Sydney University, Sydney
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53. Mr A. Owen, Australian Community Health Association, Sydney
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Prof. M.L. Wahlqvist, Deakin Institute of Human Nutrition, Deakin University, Geelong

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Alderman M. Reynolds, Townsville City Council, Townsville

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Dr. C. Binns, Nutrition Committee, National Health and Medical Research Council, Canberra

Ms. J. Rogers, The Australian Nutrition Foundation, Sydney

Dr. M. Daube, ANZSERCH Western Australia, Perth

Ms. L. Bernstein, Dieticians Association of Australia, Canberra

Ms. S. Gifford, Australian Society of Medical Anthropologists, Melbourne

Dr. L. Geffen, School of Medicine, Flinders University, Adelaide

Prof. G. Schofield, Faculty of Medicine, Monash University, Melbourne

Dr. J.P. Chalmers, Medical Research Committee, National Health and Medical Research Council, Canberra

Central Executive, ANZSERCH, Canberra

Mr. S.F. Smith, Health Administration, Mitchell College of Advanced Education, Bathurst

Dr. R. Mercado, Nakajima Unisante, Manila

Prof. J. Biddulph, Faculty of Medicine, University of Papua & New Guinea, Port Moresby
74. Mr J.T.C. Brassil, National Occupational Health and Safety Commission, Canberra
75. Mr R.L. Hodge, National Heart Foundation of Australia, Canberra
76. Ms R. Andrews, Student Initiatives in Community Health, Sydney
77. Prof G. Palmer, School of Health Administration, University of NSW, Sydney
78. Prof. F. Schofield, Faculty of Medicine, University of Queensland, Brisbane
79. Prof B. Armstrong, NH&MRC Research Unit in Epidemiology and Preventive Medicine, University of Western Australia, Perth
80. Prof R.L. Doherty, Department of Health Sciences, University of Queensland, Brisbane
81. Dr J. Ahokas, Department of Applied Biology, Royal Melbourne Institute of Technology
82. Dr A.O. Lucas, Special Programme for Research and Training in Tropical Diseases, World Health Organisation, Geneva
83. Dr R. De Wilde, The Government of the Republic of Vanuatu
84. Prof G.R. Shellam, Department of Microbiology, University of Western Australia, Perth
85. Dr W.E. Fabb, Family Medicine Programme, The Royal Australian College of General Practitioners, Melbourne
86. Dr J. Wotherspoon, ANZSEARSeCH, Northern Territory, Darwin
87. Prof J.S.G. Biggs, Faculty of Medicine, University of Queensland, Brisbane
88. Prof. R. Campbell, Graduate School of Tropical Veterinary Science, James Cook University, Townsville
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<table>
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<tr>
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<tr>
<td>91.</td>
<td>Dr R. MacLennan, Queensland Institute of Medical Research, Brisbane</td>
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<td>92.</td>
<td>Dr I. Ring, Queensland Department of Health, Brisbane</td>
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<td>Department of Health, Honiara, Solomon Islands</td>
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<td>94.</td>
<td>Ms C. Fitzwarryne, Health Strategies Development Section, Commonwealth Department of Health, Canberra</td>
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<td>95.</td>
<td>Dr M. Alpers, Papua New Guinea Institute of Medical Research</td>
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<td>96.</td>
<td>Mr C. Perkins, Department of Aboriginal Affairs, Canberra</td>
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<td>97.</td>
<td>Prof E. Garcia, Institute of Public Health, University of the Philippines, Manila.</td>
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<td>98.</td>
<td>Ms J. Hall, Department of Community Medicine, Westmead Hospital, Sydney</td>
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<td>99.</td>
<td>Assoc Prof A.J. Dobson, University of Newcastle, Newcastle</td>
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<td>100.</td>
<td>Mr G. Prasad, The Ministry of Health and Social Welfare, Suva, Fiji</td>
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<tr>
<td>101.</td>
<td>Dr T. Fulop, Division of Health Manpower Development, World Health Organisation, Geneva</td>
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<td>102.</td>
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<td>104.</td>
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<td>105.</td>
<td>Dr D. Houghton, Northern Territory Department of Health, Darwin</td>
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<td>106.</td>
<td>Division of Social and Preventive Medicine, University of Western Australia, Perth</td>
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<td>107.</td>
<td>Dr V.A. Brown, Australian Federation of Consumer Organisations, NH&amp;MRC Canberra</td>
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<td>108.</td>
<td>Dr G. Trevaks, Division of Health Services, Victorian Department of Health, Melbourne</td>
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<tr>
<td>109.</td>
<td>Dr J. Williamson, Townsville General and Mater Hospital, Townsville</td>
</tr>
</tbody>
</table>
110. Dr. P. de Jersey, Townsville
111. Dr W.R. Phillips, Fairfield Hospital, Melbourne
112. Dr A. Cati, Ministry of Health and Family Planning, Republic of Kiribati
113. Prof. A. Wichienchaoren, South East Asian Ministers of Education Secretariat, Thailand
114. Prof J. Mathews, Menzies School of Health Research, Darwin
115. Prof R. Kalucy, The Flinders University of South Australia, Adelaide
116. Mr L. Goodman, Australian Diabetes Foundation, Canberra
APPENDIX 2

INDEPENDENT REVIEW OF RESEARCH AND EDUCATIONAL REQUIREMENTS FOR PUBLIC HEALTH AND TROPICAL HEALTH

INDIVIDUALS INTERVIEWED DURING THE COURSE OF THE INDEPENDENT REVIEW

Commonwealth Department of Health - Canberra

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<th>Name</th>
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<td>First Assistant Secretary NH&amp;M Division</td>
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<td>Dr A. Bauman</td>
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Dr G. Broadbent  
General Practitioner

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Dr G. Lillicrap  
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Dr L. Ashdown  
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Dr K. Harveyson  
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Dr T. Ryan  
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Dr P. Neary  
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Dr J. Grant
First Assistant Commissioner
APPENDIX 3

INDEPENDENT REVIEW OF RESEARCH AND EDUCATION REQUIREMENTS FOR PUBLIC HEALTH AND TROPICAL HEALTH

SEMINAR ON PUBLIC HEALTH AND TROPICAL HEALTH

CHAIRPERSON: DR S. SAX

25 NOVEMBER 1985 - SEBEL TOWN HOUSE SYDNEY

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