Economics and Indigenous Australian Health Policy

The current national Aboriginal health strategy has a focus on the development of effective and efficient health system responses to Aboriginal health needs. This has given rise to debates in the financing of Aboriginal health and the need for efficient services in the policy arena. Economic analysis and research can play a significant role in informing and guiding policy development and debate.

This collection of papers has been grouped according to the following format. Part I contains papers that address current issues and directions in Indigenous health policy. Part II examines funding and expenditure issues, whereas Part III presents papers on the different models suitable for resource allocation in Aboriginal health. Part IV consists of short case studies on priority setting in Aboriginal health, both from the perspective of the Aboriginal community and of the government. These are meant to inform the process of building a policy-relevant research agenda. Part V examines the development of capacity for research in Indigenous health economics.

Some of the papers in this collection highlight the level of funding of Aboriginal health relative to Aboriginal health needs. It is critical that resource allocation models should reflect the poor state of Aboriginal health and be able to capture other factors that impact on health. The need to focus on cost-effective services and lessons from priority-setting processes would certainly contribute to the development of a policy-relevant agenda. It is our hope that this monograph will contribute to this debate.
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The VicHealth Koori Health Research and Community Development Unit (VKHR&CDU), in collaboration with the Centre for Aboriginal Economic Policy Research (CAEPR) at the Australian National University, organised a workshop on economics and Indigenous Australian health in November 2001. The participants at the workshop included researchers, practitioners and policy makers with a background in Aboriginal health. The Commonwealth Office for Aboriginal & Torres Strait Islander Health provided funding for the workshop. This monograph, which draws together the papers presented at the workshop, is one of its outcomes.

There is general agreement in the published literature and policy documents that Aboriginal people exhibit the worst indicators of health status in Australia, yet the level of expenditure on Aboriginal health services does not seem to reflect the level of need (Deeble, Mathers, et al. 1998). This problem raises a critical question regarding the level of public investment / expenditure on Indigenous Australian health, and the type of funding required to develop an effective and efficient health system response to Aboriginal and Torres Strait Islander disadvantage in health.

Health economics research and analysis has a potentially significant role to play in guiding the reform of practice and service delivery in this field, which was why the VKHR&CDU and CAEPR organised a workshop with the following aims:

- To facilitate the development of a policy-relevant research agenda in Indigenous health with a specific focus on primary health care services.
- To bring together current and potential contributors to Indigenous health economics to foster exchange and develop a network of common interest.
- To support the development of a rigorous and relevant research agenda in Indigenous health economics by building links between analysts, practitioners and policy makers.

An editorial committee was appointed to oversee a blinded referee process for all the full written papers, which were subsequently modified prior to submission for this volume. The workshop was conceived and implemented in consultation with several people—we are extremely grateful to them for their assistance and advice.

Firstly, the Office for Aboriginal and Torres Strait Islander Health, in the Commonwealth Department of Health and Ageing, which both provided the funding that made this workshop feasible as well as assisted with the development of the workshop concept. We particularly acknowledge the support given by Mary McDonald who played a lead role in the workshop planning, and Dale Keehne for support in the administration and organisation of the workshop.

Secondly, we would like to thank CAEPR and Professor Jon Altman in particular for his involvement in the workshop planning.

Thirdly, we would like to acknowledge those staff at the VKHR&CDU and the Centre for the Study of Health and Society (CSH&S) who helped in one way or another in realising the successful completion of the workshop. In particular, Nicole Waddell’s organisation of the catering is much appreciated, as are the helpful comments and suggestions from Dr Kim Humphery, Ms Angela Clarke, Dr Priscilla Pyett and Dr Jenny Lewis during the conception and organisation of the workshop.

Professor Ian Anderson (Director, VKHR&CDU and CSH&S)
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## Glossary

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<th>Description</th>
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<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
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<tr>
<td>ACCHS</td>
<td>Aboriginal Community Controlled Health Service</td>
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<td>AHMAC</td>
<td>Australian Health Minister’s Advisory Council</td>
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<td>AHW</td>
<td>Aboriginal Health Workers</td>
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<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
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<td>ARIA</td>
<td>Accessibility/Remoteness Index of Australia</td>
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<td>ATSIC</td>
<td>Aboriginal and Torres Strait Islander Commission</td>
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<td>BP</td>
<td>Blood Pressure</td>
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<td>CAEPR</td>
<td>Centre for Aboriginal Economic Policy Research</td>
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<td>CCT</td>
<td>Coordinated Care Trials</td>
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<td>CCTIS</td>
<td>Coordinated Care Trial Information System</td>
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<td>CDHAC</td>
<td>Commonwealth Department of Health and Aged Care</td>
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<td>CDHFS</td>
<td>Commonwealth Department of Health and Community Services</td>
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<td>CHINS</td>
<td>Community Housing and Infrastructure Needs Survey</td>
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<td>CHIP</td>
<td>Community Housing and Infrastructure Program</td>
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<tr>
<td>CHPE</td>
<td>Centre for Health Program Evaluation</td>
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<tr>
<td>COAG</td>
<td>Council of Australian Governments</td>
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<tr>
<td>DAA</td>
<td>Department of Aboriginal Affairs</td>
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<td>DETYA</td>
<td>Department of Employment, Training and Youth Affairs</td>
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<tr>
<td>DHAC</td>
<td>Department of Health and Aged Care</td>
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<td>DHFS</td>
<td>Department of Health and Family Services</td>
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<td>DFACS</td>
<td>Department of Family and Community Services</td>
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<td>DFA</td>
<td>Department of Finance and Administration</td>
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<td>DMO</td>
<td>District Medical Officers</td>
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<td>DRG</td>
<td>Diagnosis Related Groups</td>
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<td>ERC</td>
<td>Expenditure Review Committee</td>
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<td>FACS</td>
<td>Family and Community Services</td>
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<td>FY</td>
<td>Financial Year</td>
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<td>GPs</td>
<td>General Practitioners</td>
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<td>HBG</td>
<td>Health Benefit Group</td>
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<td>HIPP</td>
<td>Health Infrastructure Priority Projects</td>
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<td>HIV</td>
<td>Human Immunoodeficiency Virus</td>
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<td>HMO</td>
<td>Health Management Organisation</td>
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<td>Healthcare Resource Group</td>
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<td>KWHB</td>
<td>Katherine West Health Board</td>
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<td>MBS</td>
<td>Medicare Benefits Scheme</td>
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<td>MYEFO</td>
<td>Mid-Year Economic and Fiscal Outlook</td>
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<td>NACCHO</td>
<td>National Aboriginal Community Controlled Health Organisation</td>
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<td>NAHS</td>
<td>National Aboriginal Health Strategy</td>
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<td>NATSIS</td>
<td>National Aboriginal and Torres Strait Islander Survey</td>
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<td>NCEPH</td>
<td>National Centre for Epidemiology and Population Health</td>
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<td>NHIMG</td>
<td>National Health Information Management Group</td>
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<td>NHMRC</td>
<td>National Health and Medical Research Council</td>
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<td>NHS</td>
<td>National Health Survey</td>
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<td>NTDHCS</td>
<td>Northern Territory Department of Health and Community Services</td>
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<td>OATSIH</td>
<td>Office for Aboriginal and Torres Strait Islander Health</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PBMA</td>
<td>Program Budgeting and Marginal Analysis</td>
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<td>PBS</td>
<td>Pharmaceutical Benefits Scheme</td>
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<td>PCE</td>
<td>Per Capita Expenditure</td>
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<td>PHC</td>
<td>Primary Health Care</td>
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<td>PHCAP</td>
<td>Primary Health Care Access Program</td>
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<td>RCT</td>
<td>Randomised Controlled Trial</td>
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<td>RFDS</td>
<td>Royal Flying Doctor Service</td>
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<td>RPBSC</td>
<td>Repatriation Pharmaceutical Benefits Scheme</td>
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<td>SAR</td>
<td>Service Activity Reporting</td>
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<td>STDs</td>
<td>Sexually Transmitted Diseases</td>
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<td>STIs</td>
<td>Sexually Transmitted Infections</td>
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<tr>
<td>THS</td>
<td>Territory Health Services</td>
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<td>VKHR&amp;CDU</td>
<td>VicHealth Koori Health Research and Community Development Unit</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WPHC</td>
<td>Well Person’s Health Check</td>
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1. Introduction

Developing strategies to address Aboriginal and Torres Strait Islander disadvantage in health is a significant national priority. To this end, there is an emphasis in current Indigenous health strategy on improving the capacity of the health system to respond, and placing a high priority on developing effective and efficient health system responses to this problem (e.g., NATSIHC 2003). In the policy arena, the evolution of such strategies has brought about debate on the financing of Aboriginal and Torres Strait Islander health and the definition of service delivery models with the potential to lead to health gain. Such a focus in policy suggests a potentially important role for health economics in this field. In this volume we have collated a set of papers drawn from a workshop that aimed to explore the intersection of the policy agenda in Aboriginal and Torres Strait Islander health and economics. In particular, it was intended that this process would assist in defining the contours of a policy-relevant research agenda in Aboriginal and Torres Strait Islander health.

The workshop, Economics and Indigenous Australian Health Policy, was sponsored by the VicHealth Koori Health Research and Community Development Unit (VKHR&CDU) in the School of Population Health at the University of Melbourne, in collaboration with the Centre for Aboriginal Economic Policy Research at the Australian National University. It was held in December 2001 with funding support from the Office for Aboriginal and Torres Strait Islander Health in the Commonwealth Department of Health and Ageing. The workshop brought together researchers, Aboriginal health advocates, health service providers and policy makers with a knowledge and interest in Indigenous health both to facilitate exchange and debate on work in progress, as well as to strengthen the nexus between research and policy development this field. The specific objectives of the workshop were to:

- Provide a critical forum in which to present policy-relevant Indigenous health economics research.
- Develop a focus on both rural and urban primary health care issues in Indigenous health economics.
- Build a network of researchers, policy makers and practitioners with an interest in Indigenous health economics.

Papers for the workshop were commissioned to ensure a comprehensive coverage of a workshop agenda that included the following sessions:
2. Institutional Arrangements for Aboriginal and Torres Strait Islander Health

Over the past decade, national strategy in Aboriginal and Torres Strait Islander health has consolidated an approach that first began to emerge in 1989 with the National Aboriginal Health Strategy (NAHSWP 1989). This has entailed a mix of health sector specific and inter-sectoral strategies. Health sector specific strategies have been focused on improving Aboriginal and Torres Strait Islander access to effective and efficient health services. In this context, priority has been placed on the development of the capacity of primary health services—including Aboriginal community controlled health services1—within a whole-of-health system framework. Peak bodies representing the Aboriginal community controlled health sector, such as the National Aboriginal and Community Controlled Health Organisation (NACCHO), have advocated for a holistic approach to service development (see Chapter 3). The implementation of strategies in Indigenous health has been premised on the principle that both Commonwealth and State levels of governments are ‘jointly responsible for responding to the needs of all Australians (including) Aboriginal and Torres Strait Islander peoples’ (CDHFS 1997). This principle of joint commitment underlies the agreement between the Commonwealth and State and Territory governments to support the current National Aboriginal and Torres Strait Islander Health Strategic Framework (NATSIHC 2003).

Specific institutional structures have been developed nationally to support the implementation of an Aboriginal and Torres Strait Islander health strategy, including:
• Multi-sectoral agreements (or framework agreements) that provide for the development of regional planning forums. Signatories to these agreements include: Commonwealth, State and Territory governments, the Aboriginal community controlled health sector, and the Aboriginal and Torres Strait Islander Commission.

• A performance measurement framework that includes national performance indicators for Aboriginal and Torres Strait Islander health (AIHW 1997); service activity reporting for Aboriginal community controlled health services (CDHA & NACCHO 2003); Commonwealth health portfolio indicators (CRCATH 2000; CDHA 2002), and reporting against key indicators of Indigenous disadvantage to the Council of Australian Governments (Productivity Commission 2003).

In this reform context, significant emphasis has been placed on the use of research and data to guide policy reform. The Commonwealth health portfolio has placed a high priority on developing evidenced-based health strategies and undertaking actions to improve the quality of data and research (see Chapter 2). It is acknowledged that there are significant problems in the quality and availability of Aboriginal and Torres Strait Islander health information data at a national level. Consequently, in 1997 the Australian Health Ministers Advisory Council endorsed the National Aboriginal and Torres Strait Islander Health Information Plan in order to address this deficit (AIHW 1997). Even though new data-sets will become available as the Australian Bureau of Statistics rolls out plans for an enhanced survey program in Aboriginal and Torres Strait Islander health, the problems that result from the inconsistent identification of Aboriginal and Torres Strait Islander people are unlikely to be resolved in the near future, if ever. Notwithstanding, there have been some significant improvements in data quality as Tony Barnes points out in his paper in this collection (see Chapter 17).

In parallel with these developments in health data, strategies have also been put in place to support the development of a policy-relevant research agenda in Aboriginal and Torres Strait Islander health. Since 1997 the National Health and Medical Research Council (NHMRC) has set up processes to develop a framework and methodology for priority-driven research in Aboriginal health (NHMRC 1998), and more recently released The NHMRC Road Map: A Strategic Framework for Improving Aboriginal and Torres Strait Islander Health through Research (2002). This document articulates broad research priorities for funding of NHMRC research in Aboriginal health and was developed in consultation with key stakeholders, including policy makers, service providers and Aboriginal community health advocates.

3. Economics and Aboriginal and Torres Strait Islander Health

3.1 Economic concepts

In the broadest sense, health economics provides a set of theoretical and methodological tools that can assist policy makers to set priorities in the allocation of health resources, and to optimise the efficiency and effectiveness of funded
programs and services. One of the fundamental premises of the discipline is that there are insufficient resources available to meet all the wants (or needs) of society as a whole. Consequently, allocation of health resources necessarily involves sacrificing some wants (or needs) for the sake of others (or ‘opportunity costs’). Methods in health economics have been developed to guide decision making in such contexts. For example, the decision to increase or decrease program expenditure can be informed by the analysis of the benefits and costs associated with a specific activity or intervention—a method called marginal analysis.

Efficiency and equity are critical concepts in economic thought. In the public arena the idea of efficiency is often passionately debated, partly because efficiency has become used in a way that suggests it is synonymous with cost cutting. However, within the theoretical terms of the discipline efficiency is achieved when the benefits of a program are maximised or the costs to society are minimised in achieving stated policy objectives (our emphasis, Drummond, et al. 1987). In policy areas, efficiency is a reasonably understood concept compared to equity, partly because equity policy objective is debateable and harder to model. The application of concepts such as efficiency and equity to health has only recently attracted critical debate in the field (Culyer, et al. 1992a, 1992b; Mooney, et al. 1991, 1992).

Equity provides a critical focus on the distribution of resources across society and/or on the fairness of the decision-making process. There are several different economic policy approaches to the concept of equity, with analysts variously defining it as equality of expenditure per capita, equality of health, equality of access for equal need, or equality of utilisation for equal need. The last two are the most commonly used policy definitions of equity in health economics (Mooney 1992).

In this context, health economics can play a pivotal role in developing the theoretical principles that inform the allocation of resources to health services for Indigenous Australians. In order to achieve this, critical attention needs to be given to the further definition and measurement of need. It is also important that analyses in this field grapple with the social organisation of Indigenous communities, and take into account how such concepts of equity and efficiency can be operationalised in the context of Indigenous values and preferences in health care. These issues need to be considered in the development of priority-setting methods.

3.2 What is need?

The stated objectives in the health sector often include optimising the health of the population—in this case the health of the Aboriginal and Torres Strait Islander population—among other government objectives. Theoretically, in order to achieve optimal levels of health in the community, the level of health need has to be known or at least measurable when the resources are being allocated between competing demands. The critical question that has to be answered is: what is meant by health need and how can it be measured? There are two main approaches to this idea in the discipline of health economics. Firstly, ‘need’ can be defined and measured using epidemiological outcome measures, such as mortality and morbidity rates. Alternatively, its meaning has been construed in terms of effectiveness, as in capacity-to-benefit or intervention impact (McDermott, et al. 1996). More focus, however, has been placed on the epidemiological measurement
of need, with correspondingly little emphasis on the definition of need in terms of effectiveness (the interventionist approach).

Under the epidemiological approach, one common method of the measurement of relative need uses standardised mortality rates (SMR). An advantage of this approach is that, relative to other methods, it is possibly the least susceptible to the problems of Indigenous data quality (notwithstanding the continued significant concerns about mortality data in some jurisdictions). However, there are several problems with this measure of need. Firstly, differences in SMR reflect historical, rather than current, differences in need (at least within the life-course of individuals). Furthermore, SMRs fail to reflect the full extent of ‘need’ in Indigenous communities as they do not take into account the impact of nonfatal illnesses on the provision of health care. For example, chronic illnesses such as diabetes, renal disease, chronic respiratory disease, and cardiovascular disease constitute a significant burden in Aboriginal and Torres Strait Islander communities yet are not captured by the SMRs. In addition, co-morbidities are common, and this has implications for the relative costs of health care. It has been demonstrated, for example, that per capita expenditure in health increases with the number of co-morbidities—for two conditions per capita expenditure increased six times; three conditions, ten times; and five conditions, sixteen times (CDHAC 2001). In this light it has been argued that the development of methods to incorporate standardised morbidity (illness) rates in the quantification of need has the potential to improve its epidemiological measurement (McDermott, et al. 1996).

On the other hand, the effectiveness—or capacity-to-benefit—approach to defining health need has been advocated, as this has the potential of incorporating the notion of health benefit into the measurement of relative need (McDermott, et al. 1996). This is especially important, as it cannot be assumed that all health interventions are beneficial to the health of all populations. However, methods based on this approach have not been sufficiently well described for many interventions (McDermott, et al. 1996), and so it is not widely used.

Finally, one of the problems with both of these approaches is the extent to which they take into account community preferences or priorities. Thus, Gavin Mooney and Shane Houston (see Chapter 8) modify the concept of ‘capacity-to-benefit’ in measuring Aboriginal need to involve community preferences. The concept of ‘capacity-to-benefit’ is weighted to take account of the relative disadvantage of different communities that might receive funding through this approach. They argue that Aboriginal definition of ‘need’ should not be restricted just to the size of a health problem but to include the following components:

- cultural security;
- physical wellbeing;
- good environment; and
- freedom from poverty.

Arguably, health gain is not possible if it involves actions that do no accord with the priorities or preferences of Aboriginal and Torres Strait Islander people and communities. One possible area of research for health economists would be to establish a basis for assessment of funding levels and expenditure patterns on Indigenous health against other community priorities. Another would be to find...
out what Indigenous Australians expect from a health service. Such work would assist in the development of funding and service models, as well as improving the validity of performance measurement processes including the use of performance indicators in Indigenous health.

3.3 Funding models and priority setting

Leonie Segal (see Chapter 9), and Gavin Mooney and Shane Houston (see Chapter 8), have undertaken the development of funding models that recognise Aboriginal people’s poor health and relative disadvantage in general. Segal describes a ‘population-based integrated health planning and funding model’, which she argues has the potential to facilitate greater equity of access for disadvantaged populations such as Aboriginal and Torres Strait Islander people. Mooney and Houston, in ‘Weighted Capacity to Benefit and MESH Infrastructure: An alternative approach to funding in Aboriginal Health’, present a new approach to resource allocation that takes into account differences in geographical locations and communities’ abilities to utilise new or incremental programs (‘value added’). They argue that their approach overcomes some of the existing problems in health funding systems, such as the objectives’ lack of clarity and the difficulties referred to above in the measurement of health ‘need’.

Notwithstanding the conceptual and methodological challenges in the measurement of Aboriginal health need, there are an increasing number of examples in which relative need has been used as a tool in developing alternative approaches to health financing. Relative need (based on SMR) has been used as the basis of weightings in funding models in some States—for example, New South Wales, Queensland and Victoria—to address the relative difference in Aboriginal and Torres Strait Islander health need (Jan & Wiseman 1996; McDermott, et al. 1996; Runciman, et al. 1996).

4. Program Financing and Service Delivery

Economic analysis has the potential to play a significant role in guiding the development of, and setting the priorities in, Aboriginal and Torres Strait Islander health programs such as acute care and primary health services.

4.1 Funding of Aboriginal and Torres Strait Islander health

There are a number of layers to the debate about Aboriginal health financing. In order to engage with these issues, it is important to understand the institutional structures and processes that are involved in the allocation of health resources. To this end, the paper by Mandy Fitzpatrick (see Chapter 10) provides an overview of the budget setting processes at the Commonwealth level, and describes the intersection of the Health portfolio with central agencies like Finance and Treasury. In this context, investments in Aboriginal and Torres Strait Islander health are often weighed against the potential health gain from Indigenous programs delivered in other portfolios. However, although there is a consensus that many of the determinants of Aboriginal health lie outside the influence of the health sector, there is relatively little empirical work that evaluates the impact of investments in education or housing, for example, relative to health sector
investments (Anderson 2001). Research that investigates the impact of investments on Aboriginal and Torres Strait Islander health, both health and non-health sector related programs, has the potential to inform these macro-financing processes.

Another layer to this debate is the relative allocation of resources between different Aboriginal and Torres Strait Islander communities and, in particular, between urban, rural and remote populations. This is a somewhat politically vexed issue, with some arguing that needs are significantly greater in remote regions where Aboriginal people have extremely limited choice in terms of service access. In contrast, it is claimed that, because of the greater availability of health and community services in urban areas, the needs of Aboriginal and Torres Strait Islanders living in these regions are comparatively less than those in remote communities. One problem with this line of argument is that it conflates service availability with access. Further, it assumes that the available services are appropriate to the needs of Aboriginal and Torres Strait Islander people both in terms of effectiveness and efficiency. The Commonwealth Grants Commission (see Chapter 7) was given the terms of reference to conduct an inquiry into Indigenous funding in order to develop measures of relative disadvantage that could be used to target resources towards those Aboriginal and Torres Strait Islander populations with the greatest need. In the end, however, the commission concluded that it was not technically feasible to develop measures and methods that could link need to funding levels, not only in health but across the entire range of relative program areas, such as housing, education and so on.

Narrowing our focus to health financing, there is a broad consensus that the structure of the Australian health care system acts as an impediment to Indigenous Australians’ access and use of quality health services. This view is supported by a body of health services research on the financing and expenditure in health that has been concentrated in particular, but not exclusively, on New South Wales, Queensland and the Northern Territory (Warchivker 1996; McDermott 1998; Scrimgeour 1996; Mooney, et al. 1998; Deeble, et al. 1998). In broad terms this research identifies problems in the expenditure on Aboriginal and Torres Strait Islander health care services that result from the structure of our health financing system. Some of these can be cast as more general problems that relate to the Federal structure of the Australian health system. Others, in particular, relate to the transparency of funding of Aboriginal health programs between Commonwealth and State/Territory governments, as well as to issues of cost-shifting between these different levels of government.

Other studies point to more specific problems, particularly an in-balance in the relative expenditure or utilisation of primary and acute care services. For example, Stamp et al. (1998) analysed acute hospital separation data and found that Aboriginal and Torres Strait Islander people, relative to other Australians, had a higher utilisation of ‘ambulatory sensitive conditions’. Ambulatory sensitive conditions are diagnostic groups that can be potentially reduced or eliminated from hospital care by high-quality appropriate primary health care services delivered under ideal conditions (Stamp, et al. 1998). In this study the age-specific acute hospital separation rates for ambulatory-sensitive conditions were 1.7 to 11 times higher for Aboriginal people.

Perhaps some of the most significant applied research in this field has been the two national expenditure studies in Aboriginal and Torres Strait Islander health that examined expenditure on Aboriginal health and health care by all sectors (private
and government), all levels of government and all programs, both mainstream and Indigenous specific. The first of these demonstrated that, for the 1995–96 financial year, total spending on health services for Indigenous Australians was about 2.2 per cent of the total Australian recurrent health expenditure, with overall health expenditure per capita on Indigenous Australians about 8 per cent higher than for other Australians (Deeble, et al. 1998). In 1998–99, the second national expenditure study (summarised in Chapter 6) estimated that $1245 million (2.6 per cent of health expenditure for all Australians) was spent on health services for Aboriginal and Torres Strait Islander people. This was equivalent to $3065 per person, compared with the $2518 per person estimated to have been spent for non-Indigenous people, a ratio of 1.22:1 (AIHW 2001: xiv). That is, for each dollar spent on health services for non-Indigenous Australians, $1.22 was spent on health services for Aboriginal and Torres Strait Islander people.

The national expenditure studies provide a detailed picture of patterns of expenditure on health services for and by Indigenous Australians. For instance, in 1998–99 the ratio of expenditure on Indigenous people in public hospitals relative to the non-Indigenous population was 2.07:1, and for community and public health services it was 5.12:1, (AIHW 2001: 10). On the other hand, expenditure per person through the Medical and Pharmaceutical Benefits Schemes (MBS and PBS) was 37 per cent of that for non-Indigenous people (AIHW 2001: xiv) Expenditure through the MBS and PBS contributed 23.9 per cent of total expenditures for non-Indigenous people, but only 7.3 per cent of total expenditures on health services for Aboriginal and Torres Strait Islander people (AIHW 2001: xiv). Similarly, Aboriginal and Torres Strait Islander per person expenditure on private sector services was only 23 per cent of non-Indigenous per capita expenditure (AIHW 2001: 9, Table 1.4). Overall, the ratio for total expenditure in primary health care was calculated at 1.27:1 (AIHW 2001: xiv).

4.2 Health service utilisation

The national expenditure studies point to problems in the financing of health services for Indigenous Australians, and challenge policy makers to develop reform strategies within the context of a complex financing environment. Even so, Mooney et al. (1998) argue that if the Commonwealth redeployed about 1 per cent of the health care budget, it could increase spending on Indigenous health services by about 50 per cent. This would have a significant impact on the health status of Indigenous Australians. Mooney, et al. (1998) strongly advocate for unequal per capita expenditure on Indigenous and non-Indigenous Australians in order to bring about equity (vertical equity). These and other issues in Indigenous Australian health raise critical questions for the reform of the delivery and organisation of Indigenous health care, and how health care can be financed in a way that leads to efficient and equitable solutions (Deeble, et al. 1998; McDermott 1998; Stamp, et al. 1998).

There is a growing body of work that has analysed the service data on acute care using the casemix classification system (Fisher, et al. 1998; Owens 1995; see also Anderson, et al. 2002). Ruben, et al. (1998), for example, examined data collected for children under ten years of age from the Royal Darwin Hospital between 1 July 1991 and 30 June 1996 in order to identify some of the correlates of length of stay. The study found that the length of stay for Aboriginal and Torres Strait Islander patients was influenced by variables such as whether the child was under two years
of age, whether they lived in a remote area and whether two or more co-morbidities were present. It has been identified in other studies (e.g., Read, et al. 1994) that the prevalence of co-morbidities is higher in Aboriginal patients than in non-Aboriginal patients. These tendencies to longer length of stay and greater complexity in presentations suggest a possible cost impact. Accordingly, the National Aboriginal and Torres Strait Islander Casemix study reported significant differences in the actual casemix adjusted costs per patient episode of about $1856 compared with $1558 for non-Aboriginal patients (Fisher, et al. 1998).

The development of an effective and efficient primary health care system for Aboriginal people is a national priority (NATSIHC 2003). There is a significant body of policy and research analysis that seeks to characterise the socio-cultural, geographic and economic barriers obstructing Aboriginal and Torres Strait Islander access to primary health care (McDermott, et al. 1996; Bennett, et al. 1995; Ivers, et al. 1997; Kunitz & Brady 1995; McDermott & Beaver 1996; Saggars & Gray 1991). It is also argued that poorly co-ordinated and linked services impact upon the quality of care that Aboriginal people receive. This is an issue that affects both the relationship between the primary and acute care sector, and the link between primary care services and community services in other related sectors. It also suggested that the quality of the link between primary clinical care services and population health or health promotion programs can be, in some instances, critical to health outcomes (DHFS 1997).

On the other hand, there has been significant innovation in service models. The Aboriginal community controlled health services, for example, provide a comprehensive primary health care service that integrates illness care with disease prevention, and inter-sectoral collaboration and advocacy for social justice with participatory processes, including governance by a board of management elected from the local community (Couzos & Murray 1999). While there is a growing body of research that examines the effectiveness of different service models, the focus on the economic aspects of health services research in such contexts needs to be strengthened. Richard Murray, for example, describes the context in which primary health services were provided in the Kimberley region of Western Australia, and argues that improvements in the quality of primary health care data was necessary to develop better funding models and institute quality improvement processes within services (see Chapter 14). Peter D’Abbs, et al. (see Chapter 13) report on their evaluation of the Aboriginal co-ordinated care trial in Katherine West (Northern Territory), and critique the evaluation framework for the four Aboriginal and Torres Strait Islander Coordinated Care Trials. They conclude that although the trials were widely considered to have been a success, national evaluation methodologies for Indigenous Australian trials need to be context specific.

The emphasis placed in national policy on models of primary health care that are community governed also point to a related research priority. There is a need for health services research in this field to document the expectations of Aboriginal and Torres Strait Islander communities in relation to primary health care interventions. This would assist in the development of service models that are culturally appropriate and of relevant outcome measures, performance indicators and performance measurement systems for primary health care interventions. Research with this focus would necessarily integrate health economics within a broader multi-disciplinary health services research strategy.
4.3 Priority setting in practice

Priority-setting economic methods, such as program budgeting and marginal analysis (PBMA), or health benefit groups (HBG), have been applied to the analysis of funding options at a service level. Carol Beaver’s paper (see Chapter 15), for instance, gives an overview of the application of economic methods to priority setting within the Territory Health Services, NT. This approach used a classification system based on ‘health benefit groups’ in order to map data from different parts of the health sector, across the continuum of care. A case study such as this illustrates the application of priority-setting tools in a policy context, concluding that, even given the limitation of the methods used, it provided for more transparency in decision making.

Economic tools have been used to assist decision makers in setting priorities in health for contexts in which Aboriginal and Torres Strait Islander people make up a significant proportion of the population. For instance, the Robyn McDermott and Phillip Mills paper (see Chapter 12) outlines the key criteria that were used in setting health priorities for Cape York and Torres Strait. These included public outrage, burden of disease, preventability, and identified national priorities. They argue that Aboriginal and Torres Strait Islander community input into the decision-making process is critical if intervention strategies are to be acceptable to communities, thereby improving the likelihood of success in the implementation of interventions.

From a policy perspective there is a need for more research and analytical work to inform the development of strategies to reform resource allocation and health financing in Aboriginal and Torres Strait Islander health. The development and application of priority-setting methods in Indigenous health contexts has the potential to guide decision making at service provision levels. In sum, an agenda of research and analysis with such a focus is critical to the development of an efficient and equitable basis for the funding of Aboriginal and Torres Strait Islander health services.

5. Research Capacity Development

The development of a policy-relevant research agenda in the economics of Aboriginal and Torres Strait Islander health requires a focus on capacity development. These issues were discussed throughout the workshop, even though they deserved more attention than was possible within the limitations of this particular event. Nevertheless, it was clear that the following were critical to the development of a policy-relevant research agenda in this field:

- A greater focus on Aboriginal and Torres Strait Islander health issues within the postgraduate coursework and higher degree by research programs that produce researchers in health economics. This focus needs to provide potential researchers with some of the broad content background relevant to Indigenous health. It is also important that potential researchers are given a critical understanding of the application of economic method and approaches to collaborative research in Indigenous health contexts.
- The establishment of mechanisms and processes to sustain the development of relationships between the policy/practice sector in
Aboriginal and Torres Strait Islander health and the research community. Input into setting research priorities and the effective dissemination of research findings requires the development of sustained relationships and opportunities for exchange.

- The development of sustained relationships will also be supported if policy makers or practitioners in Aboriginal health have an enhanced understanding of the concepts, theory and method used by economists in relation to health. A greater focus on economic issues within public health and related training programs (such as the Master of Public Health) may be one way to achieve this.

- Finally, improving the quality of health information and related population data is critical to the development of a robust agenda in Indigenous health economics. This issue is well canvassed in the paper by Toni Barnes (see Chapter 17), and its significance in this particular research field cannot be understated.

However, although the development of research capacity in the field of Indigenous health economics requires action on a number of fronts, the key priority should be to develop the skills, knowledge and interest of health economists in order for them to undertake research into the health of Indigenous Australians. Nationally, the number of economists who have developed a particular focus on Indigenous health is very small. To try to raise the number of health economists practising in Aboriginal health, the WA Department of Health funds a health economics cadetship program in Aboriginal Health supervised by Professor Gavin Mooney at Curtin University of Technology. But, unfortunately, even though the Commonwealth Department of Health and Ageing has a traineeship program, or cadetship, for health economists, as do the Victorian and NSW governments, there are no other cadetships specific to Aboriginal health economics.

More broadly, the development of the Aboriginal and Torres Strait Islander workforce in health is a national priority. The focus of the recently released national strategy is on developing ways to increase the participation of Aboriginal and Torres Strait Islander people in the health sciences (including training programs for Aboriginal Health Workers), and building the capacity of the non-Indigenous workforce in relation to Aboriginal and Torres Strait Islander primary health care services. This macro workforce strategy does not provide a particular focus on the development of research capacity. Strategies to develop the workforce capacity in Aboriginal and Torres Strait Islander health research will require further elaboration by stakeholders such as the National Health and Medical Research Council in collaboration with the policy/practice sector in this field.

Finally, some thought needs to be given as to how, at an institutional level, the capacity for a policy-relevant research agenda in Indigenous health economics can be nurtured and sustained. The paper by Jon Altman (see Chapter 16) describes the development of a research agenda in Indigenous economic policy and, in particular, the role of the Centre for Aboriginal Economic Policy Research in contributing to this. A number of issues raised in this paper have already been canvassed, including: being responsive to Indigenous public policy priorities, research methods that emphasise community-based fieldwork and collaboration, and an emphasis on rigorous empirical research that is often multi-disciplinary.
Learning from the success or otherwise of similar programs will assist the further development of capacity in the specific field of health.

6. Some Research Priorities

Much of the focus of discussion at the workshop, as is the case more generally, was on the role of economic analysis in guiding the development of a health system response to Aboriginal disadvantage in health. This reflects the focus in work developed to date. It does introduce some bias when we use the workshop process to map out research priorities. For instance, there has been relatively little research into the role of economic factors in producing poor outcomes in Indigenous Australian communities. The research agenda in the social determinants of Indigenous health is new, and it will be important that economic issues are integrated into this particular area of research.

Despite some potential gaps, it is possible from the workshop papers and the discussion that flowed from them to map out some broad themes for a policy-relevant research agenda in Aboriginal and Torres Strait Islander health. These themes include the following areas of economic research (which include health programs and services research).

1. Health systems research including research and evaluation work on:
   - financing and expenditure on Indigenous health cares services;
   - resource allocation and priority setting in Indigenous health; and
   - measurement of relative need.

2. Health program and services research that:
   - evaluates Indigenous health funding and service models;
   - develops methods for priority setting in Indigenous health contexts;
   - uses economic principles in the funding and delivery of health services both in the acute and primary care sectors;
   - applies economic analysis to inform the development of policy and strategy, particularly in relation to primary care services. (This addresses questions such as: To what extent can an investment in primary health care be related to health outcomes? Do we have any benchmarks or minimum standards on primary health care interventions that could be used for evaluation purposes?);
   - investigates Aboriginal and Torres Strait Islander community preferences in service delivery, and integrates the outcomes of this into other relevant research in this field;
   - looks into the relationship between economic factors and processes and Indigenous health outcomes; and
   - investigates and evaluates strategies to improve the capacity for a policy-relevant research agenda in this field. (For example, what are the particular factors that shape the ability to sustain collaborative projects? How can the outcomes of this research most effectively be communicated into the policy sectors, etc.).
Endnotes

1 Aboriginal Community Controlled Health Services (ACCHS) refers to a model of primary health care delivery in Indigenous Australian communities, in which the health service is under the control of an Indigenous community by way of a board of direction. It is a model of participatory, holistic primary health care in which illness care is integrated with disease prevention, intersectoral collaboration and advocacy for social justice (Couzos & Murray 1999).

2 Standardised mortality rates (SMR) are measures of mortality that have been adjusted to take account of the different structures of populations being compared in terms of sex, age and location.

3 Casemix is a method used by government to reimburse hospitals for the costs of treating patients based on the mix of cases that come through the hospital. These cases are based on groups of related diagnoses called DRGs.

4 PBMA is an approach to priority setting, which offers a pragmatic approach to examining how benefits, or health gains to the community may be maximised for a given budget covering a wide range of services and interventions. It makes use of a consensus-based approach (due process) from the behavioural sciences and the economics approach (technical process) to priority setting.

5 Human Benefit Groups (HBGs) operate across a spectrum of care, going beyond acute illness into the coverage of a whole population on a disease basis, providing a good chance for intervention at various stages to prevent progression to another stage. HBGs are information tools, which are an extension of diagnostic-related groups (DRGs) currently used in casemix funding mechanism.

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Indigenous Health Policy: Current Issues
Introduction

A key challenge both for health policy and health economics as a discipline is to ensure that decision making is based on evidence. Across the health system, however, the availability of relevant health economics research varies, and this is particularly the case in the area of Indigenous health. An important aim of this workshop is to contribute to the development of a strategic research agenda for health economics research capable of informing and influencing future policy development. As a first step in this process it is useful to reflect on some of the issues in Indigenous health and to understand the national policy agenda.

The Policy Context

Global health statistics released by the World Health Organization in June 2000 show that the Australian population, in general, is one of the healthiest of any developed country and has ready access to a world-class health care system. Other sources indicate that the Indigenous Australian population is one of the least healthy of all Indigenous populations within comparable developed countries (ABS 1997; Kunitz 1996; Statistics NZ & Te Tari Tatau 1997), and that Aboriginal and Torres Strait Islander Australians do not have the same level of access to appropriate health care as the general population (AIHW 2001, 2000, 1999).

Aboriginal and Torres Strait Islander people have a life expectancy around twenty years less than for non-Indigenous Australians, and death rates between two to four times higher (ABS & AIHW 1999). This means that 76 per cent of males are dead before they reach sixty-five years of age (ABS & AIHW 1999: 113).

It is also important to note that Aboriginal infant mortality has declined significantly in the past thirty years, from 150 deaths per 1000 live births in the Northern Territory in the 1960s to around 20 to 25 deaths per 1000 live births in 1991 (Miller & Tozillo 1996; Thomson 1991: 47). Couzos and Murray note that much of ‘the improvement in infant mortality has been gained through high hospitalisation rates’ (Franklin & White 1991). The main contributor to excess mortality in the 1960s was infant mortality rates and deaths due to acute infection. The decrease in these rates did not lead to a drop in overall mortality, however, because of a corresponding growth in high adult mortality rates, primarily due to high death rates from chronic diseases in middle age (Flick, et al. 2000: 344).

Four categories of condition account for two-thirds of all excess deaths among the Indigenous Australian population—circulatory diseases, respiratory diseases, injury, and endocrine diseases (CDHAC 2001: 10).
Indigenous people’s poor health status can be attributed to a mix of interrelated factors. Many of these result from their history of colonisation and include the impact of external locus of control, low socio-economic status (income, education and employment), low levels of social capital, and the pervasiveness of loss and grief. Indigenous people are also more likely to experience specific health risk factors, such as poor environmental health, poor nutrition, excessive alcohol consumption, smoking, and lack of physical activity (CDHAC 2001: 18).

In the same way that the causes of ill health are multiple and interrelated so, too, are the solutions. Action in areas such as education, housing, infrastructure, employment, economic development, land ownership, social welfare, and community capacity building can have impacts on improving health status. This is reflected in the approach taken by governments and service providers, which involves working in partnership, recognising and respecting the place Indigenous people have within Australian society and supporting Indigenous people to achieve their aspirations.

At its broadest level, the health system has a critical role in promoting and maintaining health, and both preventing and treating illness—no matter what its origins. An effective health care system is an essential component of the infrastructure that underpins the social and economic development of the community and the country. It is fundamental to ensuring the full social and economic potential of all its citizens (CDHAC 2001: 11).

The Australian health system, to a large extent, fulfils these roles for the general community. However, historically the system has not provided the level and quality of care required to treat the burden of illness in the Indigenous population in the same way that it does for other Australians. It also fails to provide adequate programs and services to promote good health and, consequently, to minimise poor health among Indigenous Australians.

Historically there has been a failure by mainstream services to provide appropriate and accessible health care to Indigenous Australians. From the 1970s onwards, however, there has been some action to address this situation with the development of Aboriginal Community Controlled Health Services (ACCHSs), which provide primary health care in some regions. ACCHSs have also made some changes to the way in which mainstream services and programs operate. In the mid-1990s, a more strategic approach to national action across the health system was initiated that built on earlier work. While progress has been made in Australia, it is recognised that there is still a long way to go if Aboriginal and Torres Strait Islander people are going to have equitable access to an effective health care system.

**Lessons from other Countries**

Comparative international research provides a number of lessons in the area of Indigenous health. This shows that the use of approaches that are consistent with that being applied in Australia have contributed to significant improvements for Indigenous populations in countries such as the United States, Canada and New Zealand (Kunitz 1996; Matheson 2000; Health and Welfare Canada 1992: 12–17). While in each country the local arrangements and conditions vary, it appears that concerted action across a broad range of portfolio areas (including health) over a long period of time has made a difference.
For example, basic health services have been provided to Native American Indians since the nineteenth century. In the 1950s the health of Native American Indians became the responsibility of the United States Public Health Service which introduced a more comprehensive and effective health service system (Kunitz 1996; <www.his.gov/AboutIHS/ThisFacts.asp>). At this time, substantial, sustained increases in funding and staffing allowed the health system to provide a full range of clinical and public health services to the Indigenous population. Services included not only clinical care but also other service areas generally provided by health departments, namely, the protection of water resources, disposal of sewage, public health nursing, epidemic investigations, and health education (Kunitz 1996). It is significant that, in the following years, American Indian mortality declined and life expectancy improved, from sixty years in the 1950s to 73.2 years in the late 1980s (Kunitz 1996).

Similar results were achieved in New Zealand from the early 1900s (Matheson 2000) and in Canada from the mid-1950s (Health and Welfare Canada 1992). In all cases health system action, which included the adoption of an accessible, comprehensive approach to primary health care, was a core part of overall action. Compared with these other countries, a focus on action that would improve health status commenced almost 100 years later in Australia.

**The Approach within the Australian Health System**

As stated earlier, a national approach to improving the performance of the health system in this area began in the mid-1990s. The approach was systematic, involving development of policy frameworks, mechanisms for planning and coordinating action, as well as performance monitoring. It involved partnership arrangements between governments and Aboriginal and Torres Strait Islander communities, and included representative bodies such as the National Aboriginal Community Controlled Health Organisation (NACCHO) and its affiliates, as well as the Aboriginal and Torres Strait Islander Commission.

Nationally this approach had an objective of improving health status through strengthening appropriate health care for Aboriginal and Torres Strait Islander people. It recognised that a whole-of-health-system response was required, which covered primary, secondary and tertiary health sectors. It also recognised that ACCHSs were an important part of the system and that further support was needed to enable the continued development of these services. In addition to this, action was needed to ensure that mainstream services were able to meet their responsibilities for providing appropriate and effective services to Aboriginal and Torres Strait Islander people. The approach also involves:

- development of evidenced-based health strategies that target areas of high excess morbidity or mortality;
- mechanisms to increase the size and skills of the health workforce to provide appropriate health care to Aboriginal and Torres Strait Islander peoples; and
- action to improve the evidence base through improvements in data and research.
The Commonwealth cannot do this in isolation. The complexities of the Australian health care system are well documented. They arise from our Federal system of government, the gradual evolution of the respective roles of Commonwealth and States, and a system characterised by a mix of both public and private funding and service provision. This necessitates collaboration across levels of government and engagement of both public and private providers. If we then include consideration of the determinants of health status—drawing in areas such as housing, education and employment—yet another layer of complexity is added.

This environment brings a number of challenges and some dilemmas. While there is a clear need to engage all sectors, the sheer number of these could lead to dilution of effort within the health sector. Current action is focused on strengthening collaboration and coordination at the national level, and across portfolios whose business impacts on health outcomes (e.g., housing, education, employment, family support). The Commonwealth is also working to engage key partners in collaborative agreements to ensure that national and respective State and Territory directions are consistent, that effort is combined and there is sustained action across all areas of the health system.

Commonwealth policies relating to the health of Aboriginal and Torres Strait Islander peoples are based on the principles of community empowerment and participation in the development and delivery of health care services. This enables Indigenous Australians, at both the individual and community levels, to influence local health services.

**Focus on primary health care**

Within this framework it is recognised that the primary health care system has a critical role and there is a strong focus within the Commonwealth on developing a more comprehensive and effective primary health care system.

Comprehensive primary health care is care that is delivered through a range of preventative, promotive, curative, and rehabilitative services (Anderson, et al. 2000: 10), and that uses community involvement and community capacity building strategies. Such an approach can also involve linkages with institutional structures beyond the health sector, including education, housing and food industries, in order to realise and sustain primary health care objectives. It may be provided by a stand-alone health organisation that supplies all the elements of comprehensive primary health care, or by a range of separate organisations or health professionals who, working collaboratively, provide the full range of comprehensive primary health care services in an integrated way (CDHAC 2001: 11–12).

There is evidence within Australia that, where it exists, a more comprehensive approach to primary health care is effective. Health is improving where there are local health services providing sound clinical and population health programs delivered in a way that actively engages individuals and communities in managing their health. Local health services have achieved a variety of positive outcomes such as:

- improved use of health services by people who are ill;
- reduced proportion of low birth weight babies;
reduced rates of infectious disease through vaccination programs and early identification and treatment;

• reduced levels of risk factors such as tobacco smoking, alcohol consumption and poor nutrition through education and facilitation of local action; and

• reduced progression to end-stage renal disease and death from cardiovascular disease through improved management of chronic illness (CDHAC 2001: 92–3).

The development of a more comprehensive primary health care system in Australia involves a two-pronged approach, which works to expand the Indigenous-specific comprehensive primary health care sector while at the same time improving the responsiveness of mainstream health programs to the needs of Indigenous people.

Joint regional planning, coupled with more detailed local planning, provides the information on which coordinated local health system development can be undertaken. Programs like the Primary Health Care Access Program (PHCAP) supply the mechanism by which new and existing resources, both from the Commonwealth and States/Territories, can be harnessed to reform service delivery networks to improve access by Indigenous people to effective and sustainable health services. With in-built processes for data generation, it can play a useful role within the broader health economics research agenda.

Coupled with approaches such as these, changes to financial arrangements at a national level can facilitate improved service delivery. Examples include financing mechanisms such as Section 100 arrangements under the National Health Act, which enable pharmaceuticals to be provided at the point of consultation in remote clinics, and the introduction of health assessment and care planning items under the Medicare Benefits Schedule (MBS) that support good clinical practices.

Role for Health Economics Research

Two things crucial to the ongoing efforts in improving the effectiveness of the health system are data to allow monitoring of progress, and effective and targeted research to guide ongoing policy development. These are vital to underpin effective and culturally appropriate service delivery, planning, policy development, and program design, and to monitor outcomes (AIHW 1997; Ross & ABS 1996; ABS & AIHW 1999; NHIMG & AIHW 2000; Bray 1999). This workshop, in bringing together the expertise and experience of key researchers, policy makers and practitioners, will play a pivotal role in increasing the contribution of health economics research to improving health outcomes for Aboriginal and Torres Strait Islander people.

Achievements to date

To help us move to where we need to be, it is useful to reflect on where we have been, and the 'state of play' of health economics today. Looking back over the past five years it is evident that a solid foundation for future work has been established. This work includes:
• Estimates of health expenditure. The report *Expenditures on Health Services for Aboriginal and Torres Strait Islander People* was commissioned by the Office for Aboriginal Health (OATSIH) and supported by the Australian Health Minister’s Advisory Council (AHMAC). Released in 1998, it examined health expenditure in the years 1995–96. A landmark document, it provided the first estimates of health expenditure for Indigenous people in Australia—or indeed in any industrialised country. The report refuted the then widely held belief that health spending for Aboriginal and Torres Strait Islander people was much higher than for the rest of the population. It showed that despite their significantly higher health needs, total spending for Indigenous Australians was only 8 per cent higher than that for non-Indigenous Australians. The second report, which examines the 1998–99 financial year, provides a valuable comparison with the findings of the first report. It also contains more detailed information on private sector expenditure, improvements to the primary health care expenditure data and an analysis of expenditure by region (AIHW 2001).

• Resource requirements. There have also been a number of studies that have grappled with the question of what level of resources would be required for effective health service delivery to Aboriginal and Torres Strait Islander people (Bartlett, *et al.* 1997; Bartlett & Duncan 2000; NACCHO Workforce Modelling Project Consortium 2000; AIHW 2000: 260; CDHAC 2000; Wakerman, *et al.* 1997). The studies vary in their approach to costing, from estimates based on measures of relative need and cost as benchmarks (relative to the general population), to costing service delivery based on what are considered appropriate models in particular locations. The resultant estimates range from 1.9 to 7.3 times the average resources required by the general population. This work was influential in informing a resource benchmark under the PHCAP of three times the national average for Medicare benefits payments, with differential rates for urban and remote areas reflecting different cost structures.

• Evaluation of health service delivery. There has been some work in evaluating the effectiveness of certain health services or programs. Some of this information is drawn together in the publication *Better Health Care* (CDHAC 2001), which looks at effective services and programs in the primary health care area. Further work commissioned by AHMAC is currently underway to draw together evidence from effective actions across a broader range of areas.

• Coordinated Care Trials. A significant contribution to our knowledge in this area has been made by the Aboriginal Coordinated Care Trials. The primary hypothesis of the trials was that care coordination for Indigenous peoples and communities, in conjunction with funds pooling, would improve individual and community health outcomes. However, it was recognised that there was little likelihood of any measurable change against the health status of trial participants during the trial period. Accordingly, intermediate outcome objectives were developed that focused on an assessment of the trials’ impact on those factors that are important determinants of health. The evaluation of the trials indicated that they provided enhanced access to services, improved appropriateness of
services, better coordination of organisational and financial arrangements, and improved individual and community empowerment. The evaluation also indicated that funds pooling and MBS/Pharmaceutical Benefits Scheme cashing out was an effective mechanism for providing flexibility in the way that funds could be used, and for encouraging service integration and overcoming access barriers. The trials also demonstrated the critical importance of investing in building the capacity of communities and organisations as a prerequisite to local health system reform. The National Evaluation Report found:

\[ \text{The trials demonstrated that the effectiveness of what we currently understand to be good clinical, public health, administrative and financial practice, can be realised if the reform agenda is driven through community organisations that are adequately resourced and supported. Irrespective of the amount of (additional) resources, the trials also demonstrated that account must be taken of the time required for organisations to build capacity.} \]

\(\text{(DHAC 2001: 27)}\)

- Improvements in national data collections. In recent years we have seen some progress towards the goal of building a reliable national data set on the health and welfare of all Aboriginal and Torres Strait Islander people in Australia:
  - The development and endorsement in 1997 of National Performance Indicators and Targets for Aboriginal and Torres Strait Islander Health has provided a framework and added impetus for collecting and reporting administrative data. This has provided a mechanism to measure annually the progress of all governments in improving Aboriginal and Torres Strait Islander health. The performance indicators were first reported against for 1998. The set of indicators has since been refined and covers areas ranging from health status to community involvement and social supports. However, significant data gaps mean that the majority of the categories were not able to be fully reported against in 1999, the most recent report available (NHIMG 2001).
  - Improved coverage and quality of the data on Aboriginal and Torres Strait Islander people is collected through the Australian Bureau of Statistics (ABS). The ABS has developed an enhanced survey strategy for Indigenous statistics including a new Indigenous Social Survey and an enhanced Indigenous sample in the National Health Survey program, funded in partnership with the Department of Health and Aged Care.
  - The improvements in administrative data following the Aboriginal and Torres Strait Islander Health and Welfare Information Unit’s work on assessing information in hospital separation data; improving identification in births and deaths data collections, and developing mechanisms to improve identification of Aboriginal and Torres Strait Islander people in hospital data and health records.
  - The availability, for the first time, of data on the activity, resource needs, staffing levels, and health service population for all Commonwealth-funded Aboriginal primary health care services. Since 1997, this data has
been collected annually through the Service Activity Reporting (SAR) data collection that OATSIH conducts in partnership with NACCHO.

- The availability, since 1997, of some comparative information about the utilisation of medical and pharmaceutical services by Aboriginal and Torres Strait Islander people and the general population has been collected through the Bettering the Evaluation and Care of Health (BEACH) program. This data is gathered through ongoing rolling surveys of general practitioners.

**A Future Framework for Indigenous Health Economics Research**

While some progress has been made, there are still many gaps in our knowledge in the area of Indigenous health. These gaps occur at all levels of the system and across all areas of activity. This lack of appropriate information hinders commitment to action and the utilisation of approaches that would be of most benefit in addressing differentials in health outcomes between Aboriginal and Torres Strait Islander people and other Australians.

A key objective of this workshop is to assist in the development of a framework to guide future research in this field. Clarifying the links between research, policy development and improvements in service provision will help establish priorities and goals to assist both researchers and funders. In the absence of such a framework research is likely to progress in a piecemeal fashion, without clear linkages into the policy, financing and service provision framework.

Some important work has already been done by the Aboriginal and Torres Strait Islander Research Agenda Working Group (RAWG) in identifying gaps in the broader Indigenous research agenda. The RAWG is a working group of the Strategic Research Development Committee, a principal committee of the National Health and Medical Research Council (NHMRC), and works to improve the targeting and effectiveness of Indigenous health research. RAWG has also been developing a strategic framework, the ‘Road Map’, to identify priority research themes, the principles underpinning them, and the environment necessary to support them. Broad knowledge gaps in Indigenous health identified by RAWG can be summarised as:

- patterns of risk, disease and death;
- factors and processes that promote resilience and wellness;
- previously under-researched Aboriginal and Torres Strait Islander populations and communities;
- the optimum means of delivering health services to Aboriginal and Torres Strait Islander people;
- non-health sector interventions that address determinants of health which lie outside the direct influence of the health sector; and
- improvements in research practice.

Health economics research informs two of these themes: the optimum means of
delivering health services to Aboriginal and Torres Strait Islander people; and non-health sector interventions that address determinants of health which lie outside the direct influence of the health sector. Broad areas of valuable research activity are outlined below.

(a) Health services research
Communities, health services and governments need information to inform decisions about resource allocation and the organisation of health services. Some ideas are listed below.

This information ranges from evaluation of the costs, benefits and relative effectiveness of different models of service delivery and organisation, through to information on the effectiveness of specific interventions.

Improved allocative and technical efficiency at the local level requires not only information on the relative effectiveness and costs of different interventions, but also information on overall costs and health benefits of intervening at different points in the health–illness continuum. Information on the differences in needs and service delivery costs by location would also be useful.

Work in this area could support development of robust evaluation mechanisms that could be used by health service providers to evaluate the effectiveness of their services and of specific interventions (e.g., a set of simple indicators of health status that could be collected and monitored locally).

(b) Health system research
Health economics research is an important input when identifying priority areas for action within the health system as a whole. This is not to say it is the only input. Clearly, priorities are set in the context of the overarching policy goal of improving the health status of Aboriginal and Torres Strait Islander peoples. Health economics assists at this level by providing information on the relative costs and likely impacts of different strategies to achieve the overall goal.

Research at the health system level is directed at the ‘big picture’ questions. What investments will be most effective in achieving our objectives? What structures will be most effective? What timeframes are required for change? And how do we achieve change? What levers are available to promote both technical and allocative efficiency within the context of culturally appropriate service provision? Some ideas are given below.

An improvement in the understanding of the current patterns of health service utilisation. This could include analysis of the financing mechanisms used for mainstream programs and their differential impacts on access for Indigenous and non-Indigenous people. Improving understanding of the factors that influence the demand side of service use and the cost of inappropriate patterns of service use. Also, understanding the costs of doing nothing and maintaining the current balance would be useful.

More information is need on the overall level of resources required for Indigenous health and the optimal balance between sectors (primary versus secondary and tertiary), service providers and location (e.g., relationship to prevalence of disease or cost factors). Exploration of financing mechanisms to improve the performance of, and linkages between, sectors and to support appropriate and effective models...
of service delivery is also important. An ongoing challenge in health financing is to address the difficulties inherent in siloed funding streams by creating incentives to improve the allocative efficiency of the system.

Engagement of mainstream health economics research is critical as it informs funding decisions for the whole of the population. For example, while it may not be cost-effective to screen for a particular condition in the population as a whole, the economics of screening shift when the condition is more common in the Indigenous population and the burden of disease is occurring in younger age groups. Capacity to benefit from given interventions may also vary between the Indigenous and non-Indigenous population.

(c) **Non-health sector interventions that address determinants of health**

Finally, there is a need for research that extends beyond the health system to consider the impacts of non-health sector actions, both positive and negative.

Given what we know about the determinants of disease, what should be our whole-of-government priorities?

For a community faced with urgent needs on a number of fronts, where do they first direct their energies? What impact is action having?

There may also be potential to examine the generational costs and benefits of the contributions of the different sectors to the health of communities (CDHAC 2001: 91). This could include broad areas such as health, education and community cohesion.

**Other Factors**

The RAWG ‘Road Map’ articulates several principles that should inform Indigenous research generally, and which are also relevant to the conduct of Indigenous health economics research. These include:

- A ‘whole-of-life’ view of health, where health is defined in accordance with the definition in the 1989 National Aboriginal Health Strategy as

  … not just the physical wellbeing of the individual but the social, emotional and cultural well-being of the whole community. This is a whole life view, and it also includes the cyclical concept of life-death-life.

  *(NAHS Working Party 1989)*

- Community involvement in the development, conduct and communication of research.

- Communication of research plans, progress and results. This should be an ongoing constructive dialogue between communities, researchers, services providers, and policy makers to ensure that the work of all parties is well informed and realistic. Without effective communication there is a risk that the research will not provide benefit to Indigenous participants or to Indigenous communities more broadly.

- Practical, relevant and ethical research that will be of value to Aboriginal and Torres Strait Islander people and their service providers. While adherence to
this principle should not preclude upstream strategic research, the endpoint should have clear practical applications.

- Enhanced development of the skills, knowledge and capacity of the Indigenous research workforce and also the capacity of Indigenous communities to participate in and value the research process.

It is also suggested that any research agenda take account of:

- the broad research priorities of governments, health departments, service providers, and communities;
- the benefits that can be achieved from the research;
- ways in which the mainstream can better take account of the needs of Aboriginal and Torres Strait Islander people within their research; and
- the need to continue improving data.

**Conclusion**

Health economics has an important role to play in informing the provision of effective health care for Aboriginal and Torres Strait Islander peoples. A framework setting out agreed priority areas for research would be a useful development and would assist in ensuring that the research effort is targeted to maximise its effectiveness. Such a framework should include areas of activity that range from the local through to the national levels, and cross-sectoral action to address the determinants of health. This workshop, in bringing together a range of expertise from government, academic and health service delivery backgrounds, will be an important step in establishing a policy relevant research agenda to take us forward.

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<www.his.gov/AboutIHS/ThisFacts.asp> published by the US Department of Health and Human Services.
These very preliminary comments on the previous paper by Mary McDonald *Critical Issues for an Indigenous Health Economics Research Agenda* have more than the usual caveats attached to them; not only are my comments made on the basis of a fairly preliminary reading of the paper, they are also based on a rather startling lack of knowledge on my part of Indigenous health. I blame this ignorance, perhaps unjustly, on my having been in Australia for a short time.

Having expressed all these reservations to the organisers of this conference, and having been reassured that a more ‘theoretical(!)’ contribution might be welcomed, I am, therefore, entering the fray with more enthusiasm than insight.

The paper that I have been asked to comment on, sets out a well thought-out framework for a research agenda for Indigenous health services research. The paper proposes the sort of health economics agenda that is really a ‘gold-standard’ in health system design. That is, it proposes to direct research along a number of fronts including:

- the evaluation of the costs and benefits of various health services; and
- the estimation of expenditure in health care.

The following ideas were stimulated by my reading of *Critical Issues for an Indigenous Health Economics Research Agenda* and will, I hope, provoke some debate.

**The Difficulties with Evaluation: Not All that Is Valuable Is Able to Be Valued**

Indigenous health systems are different, and the objective of a community-based health services in these situations is to build social infrastructure. Unfortunately, economics is not particularly good at evaluating ‘social networks’. For example, in the labour economics literature, it has been found that there are strong social network effects on such things as educational attainment and the take-up rate of social welfare programs in the United States (e.g., Bertrand & Luttmer 1998; Borjas 1995). In Bertrand and Luttmer (1998), it is interesting to find that ethnic groups with more speakers of their own language in their neighbourhood have a higher take-up rate of social welfare. That is, language and social networks are a sort of human capital that is being transformed into program participation.

The theoretical literature on neighbourhood effects and technology adoption has, I think, some interesting explanations for how the mechanism of social networks might work (Bala & Goyal 1998). Ellison, Glenn and Fudenberg (1993) refer to
social learning as the situation where individuals base their decisions on the experience of their neighbours. Suppose a new piece of technology is invented and ‘arrives’ in the backyard of every person in your neighbourhood. Each of you then experiments with this technology by repeatedly trying to do various things with it in order to learn whether it serves any useful purpose. Now, if you can observe the experimentation of your neighbour, then you will learn faster since you will have his results as well as your own to use when calculating what to try next. Moreover, if your neighbour can see his neighbour (whom you might not be able to see), and all individuals are ‘connected’ to each other, this society will learn very quickly. On the other hand, if each neighbourhood is isolated, then learning will be slow.

This sort of model can be used to analyse the issue of a community that has no reason to have any faith in the healing powers of ‘Western medicine’. The propensity of such a community to use Western health services depends on the success and/or failure that others in the same community have had with previous experiments involving medical technology. Learning will occur by observing others. Since the outcome of health care is uncertain, such a process of social learning will be extremely slow.

This means that ineffective health services—in the sense of services that do not deliver outcomes valued by the community—are more harmful in Indigenous communities than in a community with a strong faith in medical technology. For instance, it is often argued that up to one-third of current medical practice has either no effect on the health of patients or has a detrimental effect on patients. However, since Western societies tend to have a strong faith in medical science, a lack of evidence-based medical practice does not tend to shake the faith of Western communities.

There are a number of lessons that can be drawn from this social learning approach:

- more connected societies learn faster;
- early negative experiences are very harmful;
- early positive experiences have positive spill-over effects;
- social isolation inhibits learning; and
- ‘high-profile’ individuals who are observed by everyone may inhibit learning if they have initial bad experiences, or may encourage adoption if they have good initial experiences.

In such a setting, an ineffective health service is not just poor in terms of cost effectiveness, it might have long-term implications for the future credibility of all such services. Moreover, a service that builds social cohesion might have no measurable health outcome, but could improve the ability of the community to learn about the efficacy of health services. It also facilitates the delivery of public health messages. Such ‘infrastructure’ expenditure invariably appears to be a waste of money.

I am not claiming that we ought not to evaluate health services at all. However, evaluating ‘social’ cohesion and culture are not typically values that economists have experience with, although there is a literature emerging in the economics arena. It is, therefore, likely either to be overlooked or underestimated. If the
resource allocation process is then designed around an explicit prioritisation process, such an oversight could be extremely harmful.

Since a large part of health services to Indigenous communities is about building social infrastructure, it is counterproductive for economists to ask the question ‘is it worth it?’ before public health can answer the question ‘does it work?’.

My impression, from a cursory glance at Indigenous health policy, is that the effectiveness of programs are highly uncertain, and that cost effectiveness is, therefore, very imprecise. Economic evaluation has a time and a place—I am unsure whether for Indigenous health policy, the time has come.

**A ‘Rights Based’ Approach to Resource Allocation**

An alternative to an explicit prioritisation process as a resource allocation device is to calculate the ‘right’ amount to spend on Indigenous health. In particular, if the Indigenous community has equal right to health outcomes as the rest of society, then we ought to argue along the lines of ‘how much would it cost to bring Indigenous health outcomes up to the standard of all other Australians?’ Such a calculation may usefully reveal what money alone cannot buy.

**References**


Aboriginal Community Perspectives on Aboriginal Health Financing

CHAPTER 4

Introduction

This paper looks at recent developments in funding arrangements for Aboriginal health, and acknowledges positive developments in the area. However, it criticises and questions the slow pace of change. When the need is indisputable, and appropriate tools have been developed, can there be any logical reason why funding increases are incremental rather than fundamental?

This workshop intends to develop a ‘policy relevant research agenda’, and suggests a connection between achieving additional research findings and achieving additional funding. Research—well-targeted, community-initiated and controlled, and practically focused research—undoubtedly has its place in achieving better health outcomes for Aboriginal people. NACCHO is supportive of such research and has not only developed proposed areas for research but is moving forward its proposed research unit. However, the question must be asked whether it is a lack of research that is impeding more equitable funding for Aboriginal health.

How much research is needed to establish further the health inequality between Aboriginal and non-Aboriginal people? Which area of public policy development is based on complete knowledge of all possible research questions, and why should this criteria be applied to the field of Aboriginal health?

Recent History

Recent reforms in Aboriginal health can be dated from the transfer of responsibility for Aboriginal health from the Aboriginal and Torres Strait Islander Commission (ATSIC) to the Commonwealth Department of Health in 1995. The transfer was intended to provide Aboriginal health with greater access to mainstream health funds.

State and Territory Framework agreements—between Commonwealth, State, ATSIC and State-level community controlled health organisations—were intended to improve inter-agency communication and cooperation, and to enable the resourcing of peak bodies to represent the community controlled health sector at the State/Territory and national levels. Regional Aboriginal health plans have been developed across Australia through this joint planning process. Despite varying standards of consultation with the Aboriginal community controlled health sector (ACCHS), and consequently varying levels of commitment to them, these plans remain the only blueprint for advancing Aboriginal health at the regional level.

These reforms were steps in the right direction, but were slow to achieve real change on the ground. Two significant reports, the 1997 Keys Young report,
Market Research into Aboriginal and Torres Strait Islander Access to Medicare and the Pharmaceutical Benefits Scheme, and the 1998 report by Deeble, et al., 
Expenditures on Health Services for Aboriginal and Torres Strait Islander People (Commonwealth Department of Health and Family Services), were also influential. The Keys Young report looked at access to Medicare and the Pharmaceutical Benefits Scheme (PBS), and documented major barriers to Aboriginal access to these mainstream programs in all settings. It recommended a range of changes to the way the programs were administered but, ultimately, concluded that a fundamental shift was required to redress these inequities. It therefore recommended that a capitation model, where notional entitlements per head would be cashed out, be considered.

The Deeble report quantified the situation and found that in 1995–96, per person, Aboriginal people accessed Medicare funding at only about one-quarter of the rate of non-Aboriginal people, while Aboriginal access to the PBS was even lower, at only one-fifth of the non-Aboriginal rate.¹

NACCHO and the then Commonwealth Department of Health and Family Services agreed to develop jointly options for future funding arrangements, which would assist in improving the provision of health services to Aboriginal people. The project culminated in a joint health financing workshop, held in October 1998, which was a critical step in developing a NACCHO position on Medicare capitation funding for Aboriginal primary health care. Following further consultation with the membership, a proposal calling for the development of a capitation model that would deliver cashed-out Medicare funding to Aboriginal communities was finalised and submitted to government in December 1998. The proposal is included as Attachment A in the Appendices (see p. 193).

The proposal fed directly into departmental work that resulted in a 1999 budget announcement for the initiation of the Primary Health Care Access Program (PHCAP), which consisted of $78.8 million over four years for primary health care funding for Aboriginal communities. About half of the funds were allocated to the continuation of the four Aboriginal coordinated care trial sites, and the other half was for new services, with funding to be allocated on a capitation basis pegged to per capita Medicare spending. The allocation and use of the funds to specific areas was linked to the regional planning process, as overseen by the Framework Agreement partners.

Given the emerging national consensus on the scale of the problem, this was a disappointing result. Rather than a major injection of new funding into Aboriginal primary health care across the country, the funding for new services was sufficient for only a few areas. It was hoped that the benefits of the program would become evident and lead to significant increases in subsequent budgets. However, the 2001–02 budget announced only an additional $19.7 million each year, and this not to commence until 2003–04.

**Current Status**

The past ten years have seen significant steps forward in reform of funding to Aboriginal primary health care. PHCAP represented a major opportunity for realising these reforms on the ground. However, on current indications the PHCAP funds will target a total of twenty-three sites (in addition to the
coordinated care sites) comprising fifteen identified in round one monies (i.e., the 1999–2000 budget announcement), and a further eight sites (plus some work in the ACT) identified in round two, which will begin in 2003 (i.e., the 2001–02 budget announcement). Sites are funded on an allocation of a population of 2000 people, so leaving aside coordinated care trial sites PHCAP funds will target a notional population of 46,000. This represents a little more than 11 per cent of the Aboriginal population (using an estimated total population of 406,000 people).

Given that all primary health care services are under-funded, and that there are insufficient services in existence, the pace of change is painfully slow. It has also been the experience of the initial sites that the foundation work of negotiation and planning, which must underpin the implementation of PHCAP, is lengthy. If we are to see a national implementation of PHCAP this decade, the rate of change will need to be increased.

**What are the barriers to adequate funding for Aboriginal primary health care?**

Significant progress in developing the ‘machinery’ for improving Aboriginal health has been made in recent years. We know now the scale of inequality arising from Aboriginal people’s lack of access to mainstream health financing systems. The second health expenditure report, while indicating some level of increase in spending on Aboriginal health, points out that despite being three times sicker than other Australians, health spending on Aboriginal people is not much higher than for the rest of the population. According to the *Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99, Executive Summary*, the estimate of a ratio of 1.22:1 would be even lower if the higher costs of providing services in remote areas could be factored in.

In addition, we now have a Commonwealth-set benchmark for Aboriginal health funding.² Although there could be debate about the level of the benchmark, its adoption by the Commonwealth is undoubtedly a significant step forward. There is no logical reason why all Aboriginal communities should not be brought up to this baseline immediately—there is simply a lack of funds.

What the outcomes of this workshop could most usefully attend to is developing an understanding of how this situation can be allowed to develop and to be maintained. How can expenditure of funds on other matters be justified when Aboriginal people continue to die twenty years earlier than non-Aboriginal people?

A lack of research simply cannot be advanced as either a logical or moral rationale for the situation. Research can help direct the Aboriginal health dollar to be spent in the most effective way, but a lack of research is certainly no reason to withhold funds.

Indeed, any suggestion that funding decisions at the national level are evidence based is highly problematic. To give just one example, we have an anomalous situation regarding the targeting of dollars for combating harm from drugs. In 1998, 1023 Australians died from illicit drug use, while 19,019 died from tobacco use. Diseases caused by smoking took up 940,444 hospital bed days, compared to 95,182 caused by illicit drug use. Despite these figures, the Prime Minister announced in October 2001 a further $109 million in addition to the $516 million already spent under the ‘Tough on Drugs Strategy’, while the budget of $2.5
million allocated for tobacco control last year was reduced to zero in the latest Federal budget. We also have plenty of experience of funds being allocated to areas even where research is inconclusive or contradictory.

If it is not lack of research which is the major barrier to providing adequate funding for Aboriginal primary health care, what is it? Barriers that impede improved funding for Aboriginal health are likely to include:

- **Structural factors.** The Federal system and the sharing of responsibility for health between State/Territory and Commonwealth levels has long been identified as a significant barrier to improving Aboriginal health.

- **Lack of coordination.** Aboriginal health is influenced by many social determinants such as employment, housing and education. There are, therefore, many players outside of the health system that need to be working together before positive change can be made.

- **Political factors.** The three-year election cycle tends to encourage short-term thinking. This environment is not conducive to addressing long-term issues, such as Aboriginal health.

- **Area-specific factors.** Health is a highly competitive environment and the needs of acute care often take precedence over illness prevention and health promotion measures.

- **Societal trends.** Environments of rapid change, economic instability and the like can generate societal insecurity. The emergence of One Nation as a political force has demonstrated how these trends can lead to increased xenophobia, racism and conservatism.

- **National commitment.** Some issues, even those that may have significant impediments, galvanise action at a national level and achieve fundamental change. For example, significant reform to gun control was achieved in the wake of the Port Arthur massacre. Aboriginal health to date has not achieved that level of national consensus, and is often seen as an electorally unattractive issue.

These matters, and how funding decisions are actually made, need to be analysed so that strategies for addressing them can be developed.

**The Next Step**

Allocation of funding is a matter of vital interest to NACCHO. Our services are at the coal face and we realise only too well the urgency of the problem. For us as Aboriginal people, the morbidity and mortality statistics in these papers are not just numbers. They represent real people—our friends, our family members, our colleagues, and our leaders who get sick and who die before their time. That is why decisions about research and funding need close attention from Aboriginal people themselves. Fundamental priorities for research are likely to be as follows:

1. Investigation of the underlying structural, political and social influences on priority setting and funding allocations for Aboriginal health (as outlined above).
2. Development of better data on health expenditure. A specific survey needs to be designed and implemented, rather than relying on extracted data from sources not designed for the purpose of measuring Aboriginal health expenditure.

3. Determination of levels of funding required. The Commonwealth has determined a benchmark of double the average Medicare Benefits Schedule (MBS, often referred to as Medicare) usage in non-remote areas and four times the average MBS usage in remote areas, but these quantum need to be reviewed. It should be noted that the multiple of morbidity may not directly translate to the multiplier for base funding. For example, if Aboriginal people are three times as sick as non-Aboriginal people, it may be insufficient to spend only three times as much on Aboriginal health as non-Aboriginal health.

Once these threshold issues have been investigated and determined, second order research priorities would include the following:

1. Effective primary health care. Policy makers are confused around ways to evaluate primary health care interventions especially when funding is identified as Aboriginal related. (Similar questions do not seem to be asked for GP and divisional funding). Such investigation should focus on evaluation using intermediate measures—the evidence base for certain preventive interventions, early detection of chronic disease, measures of access to services—as changes in traditional indicators, such as health outcomes (mortality and morbidity), have a long lead time and are outcomes of factors that are largely outside the control of the health sector (e.g., housing and overcrowding, unemployment, etc.). Health outcomes are not dependent on health services alone. In evaluating a program, it is necessary to ask whether the program enables an environment for the provision of interventions that are accessible, available and acceptable and whether effective interventions can be delivered. The degree to which Aboriginal community empowerment or control has been augmented will influence health outcomes and are a measure of best practice. Health policy should recognise that community development and self-determination are key factors that impact on Aboriginal health. Surrogate measures of health outcome must include the degree of engagement with Aboriginal community controlled health bodies, measures of community development and indicators of self-determination, as is undertaken with First Nations populations in Canada.

2. The development of funding models for remunerating the role of GPs and allied health professionals in population health.

3. An analysis of the mainstream budget initiatives being channelled through practice incentive programs and Medicare, especially their cost effectiveness for Aboriginal people.

4. The identification and dissemination of innovative, cost-effective approaches within the community controlled sector (this is seldom funded within the ACCHS and, therefore, profile is low).
5. An analysis of the cost effectiveness and health benefits of ACCHSs that looks at broader or ‘spin-off’ effects, e.g., the much higher percentage of Aboriginal people employed in the ACCHS compared with mainstream models.

6. An assessment of the optimal balance of funding between physical health and social and emotional well-being, and the extent to which these interventions can and should be integrated.

7. An analysis of the trend towards segmented body-part approaches in funding for the ACCHS. Overall funding may have increased, but global funding to services has decreased. The inefficiencies in funds splitting should be examined.

8. An investigation of the role of the price of food in nutrition. Rural and remote areas suffer increased costs, particularly of fresh food items. Possible taxation, food price or transport subsidies to rural and remote areas, which can target fruit and vegetable supplies in particular, should be researched, as well as increases of wage/welfare rates to acknowledge the relative disadvantage of consumers living in remote areas and in Aboriginal and Torres Strait Islander communities.

9. Research into incentives for well persons’ health check (Aboriginal and Torres Strait Islander population) in primary health care. There are no financial incentives used as levers for the early detection of chronic disease as part of a well persons’ check to primary health care providers to Aboriginal populations. NACCHO has developed a detailed evidence-based proposal for financing ‘well persons’ health checks’ using the MBS as the incentive lever. However, other financial levers may be potential incentives, and these options should be investigated.

Endnotes

1 It should be noted that the second report on Aboriginal health expenditure, *Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99* (published in 2001 by Australian Institute of Health & Welfare and Commonwealth Department of Health & Aged Care, Canberra) indicated some increases in these rates. Aboriginal people accessed Medicare funding at an Indigenous to non-Indigenous ratio of 0.41, with access to PBS at a ratio of 0.33.

2 The PHCAP initiative in remote areas is benchmarked at four times the average use of MBS, and in non-remote areas at two times average MBS usage.


4 Under the National Drug Strategy, $27.3 million was allocated to school-based drug education, despite the fact that research regarding the impact of school drug education campaigns on drug use is conflicting.
References


PART II

Funding and Expenditure
CHAPTER 5

Background Issues

While the broad profile of ill health and excess mortality among Indigenous Australians is well documented, research on determinants remains relatively undeveloped. Nonetheless, sufficient insight exists to place an emphasis in the search for explanation on the compound effects of overall low socio-economic status, including low income. This is consistent with theoretical trends generally in social epidemiology in which biological pathways between psychosocial stress and ill health are seen as vital lines of inquiry (Berkman & Kawachi 2000; Kawachi, et al. 1999; Marmot & Wilkinson 1999). Within this paradigm, persistently low levels of life expectancy among Indigenous Australians would be viewed as a product of their entrenched position at the bottom of the socio-economic hierarchy.

Recent research along these lines has generated insights at three levels. The first is at the scale of discrete communities where the focus has been on measuring the effects of improved environmental health infrastructure and identifying institutional impediments to achieving this (Torzillo & Kerr 1991). At a more macro-level, the consequences of control over health policy and its delivery have been explored in the context of Australian federalism, and at a comparative international scale (Bartlett & Legge 1994; Hogg 1992; Kunitz 1990). Finally, the consequences of low socio-economic status for health status are increasingly being examined at both the individual and group levels (Deeble, et al. 1998; Gray & Broughton 2001; Hogg 1990; Hunter 1999, 2000, 2001). The present analysis falls firmly within the last category, although some overlap with the first is also achieved through examination of the relationship between income and health expenditure using micro-level data.

Healthy expenditure?

Previous analysis of the amounts spent on health services for and by Aboriginal and Torres Strait Islander people found that the per capita level was about 8 per cent higher than that spent for and by other Australians. Government health expenditure on Aboriginal and Torres Strait Islander people was found to be 47 per cent higher than on other Australians (Deeble, et al. 1998). To assess whether this represented an equitable allocation, it was noted that relative expenditure fell well short of implied levels of Indigenous need given that death rates for the Indigenous population were around three times the national average. By comparing government expenditure on Indigenous and other Australians in the lowest income group, the conclusion was drawn that Indigenous people were in receipt of expenditure equivalent to others in a similar economic position, but their worse
health status was not adequately reflected. In further pursuit of a ‘needs-based’ formula for resource allocation, comparative crude death rates have been applied as a proxy for morbidity to argue for an additional 27 per cent increase in total expenditures on Indigenous health (NCEPH 2000).

While excess mortality provides a rough indication of need, it offers no guidance as to the cost-effectiveness of resource allocation for treating differentially prevalent morbidity. Such an approach would focus on ‘capacity to benefit’ and, ideally, a formulation would be based on equal expenditures for the same medical conditions. However, as Deeble, et al. (1998: 52) point out, while such a calculation should be possible, it would not be the only criterion for allocating government expenditures since equality by medical need would be sufficient only if all services were publicly provided to all people without charge. This is not the case.

The amount of money spent on the health of each individual is comprised of expenditure by government (public health expenditure) and private health expenditure. It is an observed fact that the balance of these expenditures on individuals varies such that a positive correlation exists between income levels and the proportion of the population with private health insurance (Deeble, et al. 1998: 57). The significance of this observation is seen in the quite different income distributions of the Indigenous and non-Indigenous populations. In 1996, Indigenous family incomes were on average 32 per cent lower than for non-Indigenous families. Ipso facto, dependence on public expenditure for access to health services is greater among Indigenous people.

This paper asks the question: what is the relationship between income and health expenditure for the Indigenous and non-Indigenous populations? The analysis draws out differences in expenditure between the Indigenous and non-Indigenous population holding constant income level. This is important to the extent that income is seen as an indicator of ability to address the need for health expenditure.

Changes in the questions on the 1995 National Health Survey (NHS) mean that it is not possible to separate expenditure into private and public components and, therefore, the following analysis deals only with total health expenditure. In spite of this limitation, the analysis remains of policy value since there is no existing analysis of health expenditure by income for the Indigenous population.

**Data sources**

This paper presents an analysis of per capita health expenditure by income for Indigenous and non-Indigenous Australians based on the utilisation of a range of medical services as set out by questions asked in the 1995 NHS. This survey was conducted on a multi-stage area sample of private dwellings and a list sample of non-private dwellings (hotels, motels, etc.). Hospitals, nursing homes and convalescent homes were excluded from the survey, as were prisons, reformatories and single quarters of military establishments. A base sample size approximating one-third of 1 per cent of the population was initially chosen. Inclusion of the Indigenous status question on the survey form yielded a total of 1100 Indigenous persons. To enhance the reliability of data for the Indigenous population an additional 1100 Indigenous respondents were sought and obtained. In doing this, the Australian Bureau of Statistics (ABS) used a sampling methodology which ensured that Indigenous respondents were representative of the population from
which they were drawn. Thus, the total NHS sample includes 2168 people who identified as being of Aboriginal or Torres Strait Islander origin.

It is important to note that due to concerns about the quality of some of the responses from Indigenous participants who do not speak English at home, NHS estimates exclude Indigenous and non-Indigenous people living in those areas identified by the ABS as being sparsely settled, as in these areas non-English speakers predominate. In total, 539 records from survey participants in such areas were excluded, of which 461 were Indigenous. Thus, the final Indigenous sample upon which all NHS data contained in this paper are based amounted to the 1753 respondents in non-sparsely settled areas (Gray 1997). The weighted estimates for 1995 show that this Indigenous sample was representative of 82 per cent of the Australia-wide Indigenous population (ABS 2000b: 34).

As for utilisation data from the NHS, these include ‘out of hospital visits to General Practitioners (GPs) or medical specialists’, ‘other health professionals’, ‘admitted hospital patients’, ‘non-admitted hospital patients’, ‘prescription medications’, and ‘over-the-counter medications’. In establishing expenditures based on these data, consideration was given to the age and sex patterns of utilisation which were found to vary significantly. It should be noted that changes to NHS questions on the utilisation of health services mean that the estimates of hospital utilisation are very unreliable for the Indigenous population. In the 1990 NHS, hospital utilisation was measured over the twelve months prior to the survey, whereas in the 1995 NHS the reference period was only the prior two weeks. Given the small size of the Indigenous sample and the low frequency of hospital visits, there are insufficient cases to ensure statistical reliability. Note that when converting these utilisation data to estimates of national expenditure, the amounts spent on each health service reported in the NHS were obtained from the Australian Institute of Health and Welfare (AIHW) using a composite of administrative and supplementary survey data aggregated across different sources for varying geographic levels.

**A caveat**

By estimating health expenditure via the utilisation of medical services as reported in the NHS, an important, and often overlooked, element of public health expenditure is excluded from the analysis, i.e., spending on the provision of environmental health infrastructure. Despite a well-established link in the international public health literature between living conditions and population health, few Australian studies have detailed the relationship between specific environmental problems and particular illnesses among Indigenous Australians. One pioneering study in this field is based on identifying nine healthy living practices for one community in the Anangu Pitjantjatjara lands (Pholeros, et al. 1993). While this research indicated that improvements in environmental infrastructure can lead to specific improvements in health status, the key finding showed that this depends on ensuring that appropriate institutional arrangements are in place. In particular, it is essential that budgets make adequate provision for planning, design, supervision and maintenance of infrastructure and that these actually occur. Among the reasons for a lack of such arrangements in the past, confusion over myriad responsibilities for service delivery and marginalisation of environmental health issues in the policy system has been highlighted.
The major government response to such inadequacies developed out of the National Aboriginal Health Strategy (NAHS) in 1990, which recognised an essential link between improved health outcomes and the provision of housing and infrastructure to acceptable minimum standards. Accordingly, funding allocations in the initial years of the NAHS primary health and environmental health programs included amounts directed at housing and infrastructure services within the Aboriginal and Torres Strait Islander Commission’s Community Housing and Infrastructure Program (CHIP). However, a review of CHIP in 1994 identified a range of problems including a failure to address housing and infrastructure needs in a holistic way. Allied to this was the short-term nature of the program-based approach to funding, which required communities to structure housing needs to the CHIP program rather than the other way around.

Such criticism led to the establishment, in the same year, of the Health Infrastructure Priority Projects (HIPP) program to pilot new program delivery arrangements for the construction of Indigenous community housing and infrastructure in fifty-eight sites. This has subsequently expanded, and in 1998–99 a total of $103 million was allocated via NAHS/HIPP initiatives. Notwithstanding this environmental health expenditure, the 1999 Community Housing and Infrastructure Needs Survey (CHINS) found that fully one-third of the housing stock administered by Indigenous housing organisations in discrete communities remained in need of major repair or replacement (ABS 2000a: 3). While part of the difficulty here is catch-up—given the legacy of previous neglect—the question of equity in regard to the adequacy of this public expenditure on Indigenous health remains open.

**Equity issues: Comparing like with like**

The ability of income to translate into better health depends, among other things, on the extent to which spending affects different family members and the amount of resources left over after various expenditures. For example, if spending (either in health or other expenditure) enhances the well-being of all family members, then expenditure can be said to provide ‘public goods’ within the family. Alternatively, expenditure may provide purely private benefits for a particular family member, depending on whom the money was spent. Obviously, the relationship between income and expenditure depends crucially upon the proportion of public goods in household spending. Equivalent income measures control for the extent of consumption of public goods, which may vary with family size and composition. This was a feature of the previous analysis of Indigenous health expenditure that applied the Henderson measure of equivalent income to account for such issues (Deeble, et al. 1998).

In testing for equity in health expenditure, it is necessary to compare observed health expenditures for Indigenous people with outlays on health for other Australians in the same income group. One constraint on establishing a precise comparison in the Deeble, et al. (1998) analysis was the lack of data consistency. The problem was that information on Indigenous incomes was drawn from the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS), while data on non-Indigenous incomes was derived from the 1990 NHS.

In the present study, estimates of both Indigenous and non-Indigenous income and
health service utilisation are derived using data from the same source. This is possible for the first time because the 1995 NHS included a question on Indigenous status. The availability of a common source of data ensures that the following analysis has a higher level of methodological consistency than was previously possible. Perhaps, most importantly, the availability of Indigenous utilisation data from the 1995 NHS provides for the calculation of standard errors on the estimates, thereby enabling the significance of differences in expenditure by income to be tested. Once again, this represents an advance on previous analysis of expenditure by income.

The 1995 NHS data also provide income data adjusted using the ABS’s version of the simplified Henderson equivalence scales. Since any one of a number of equally plausible equivalence scales may be chosen, it is necessary to consider whether our results are affected by using alternative scales. The equivalence scales used in this paper therefore cover the full range of possibilities from all expenditure being on public goods (raw income) to the other extreme where all expenditure is on private goods (per capita income).

**Comparing Like with Like: Analysis by Income**

An essential step in comparing like with like is to adjust family income for family size and composition in order to take into account differences in the costs of living. This is particularly important when comparing the per capita health expenditure of Indigenous and non-Indigenous Australians by income level due to substantial differences in the size and structure of households between the Indigenous and non-Indigenous populations.

There is an ongoing and unresolved debate regarding appropriate equivalence scales for use in Australia (Saunders 1994). In the present analysis, the major challenge is to ensure that the distinctive circumstances of Indigenous people are taken into account in any reform of widely used equivalence scales (Altman & Hunter 1998).

Use of the 1995 NHS as a common data source for income equivalence and estimates of expenditure, enables the calculation of all-important standard errors on the estimates of health expenditure by income. However, this introduces certain constraints on the analysis and a discussion of these is provided.

**Estimating access to resources using equivalent income**

One important dimension of the capacity of Indigenous people and families to pay for health expenditure is family or household income. In order to calculate the resources available for improving health one must appreciate the overall demands on resources within a family or household. There is no consensus on how this should be done and several standard techniques exist to adjust family income to allow for the different number and characteristics of family members—that is, to apply an equivalence scale.

As indicated above, the NHS provides income data adjusted using the ABS’s version of the simplified Henderson equivalence scales. However, this is only one of several scales available and, as noted, there is an ongoing controversy about the precise specification of equivalence scales. This revolves around the nature and
extent of economies of scale in families or households—the smaller the proportion of expenditure on items which display economies of scale, the more justifiable it is simply to divide family or household income by the number of people it supports (Guobao, et al. 1996). When income levels are very low, a high proportion of expenditure is on food, basic clothing, cooking fuel and certain health expenditures. Given that each of these varies directly, and quite closely, with the number of people in the family it may make it appropriate to give each person a similar weight by focusing on per capita income. In contrast, where so-called ‘public goods’ (i.e., where a certain expenditure improves the well-being of all residents and not only the person consuming the resources) are important, such as in various categories of health expenditure, more account needs to be taken of potential economies of scale implicit in the equivalence scales. At the extreme, raw income measures implicitly assume that extra family members cost no more to maintain than the first person. While this assumption is obviously untenable it provides a useful bound on possible assumptions about economies of scale.

The point to note from this sensitivity analysis is that the relationship between health expenditure and income is likely to be distorted through measures of income which do not adjust for the number and age of people living off that income. The per capita equivalence scales overestimate the needs of larger families in comparison to smaller families (De Vos & Zaidi 1997). In contrast, the use of raw income underestimates the needs of such families. The equivalence scales used in this paper cover the majority of possible assumptions about household costs, ranging from there being no extra cost to additional persons living in the family to there being no economies of scale in people living together. Given the preponderance of larger families in the Indigenous population the analysis of Indigenous health expenditure may be particularly sensitive to the type of income measure used.

Another tension implicit in choosing the appropriate equivalence scale for Indigenous income units is that the definition of the appropriate unit of analysis is not obvious in the Indigenous context (Altman & Hunter 1998). The widely used Henderson equivalence scales may be appropriate for a nuclear family, but it is more difficult to rationalise their use when Indigenous households can be characterised as having: compositional complexity; porous social boundaries and large size; extended families resident in one or more dwellings; households being subject to considerable fluctuation; and small, multi-generational core(s), dissolving and reforming in developmental cycles (Altman, et al. 1997). Hunter and Smith (2000) have argued that focusing on households, rather than families, makes comparisons between Indigenous and non-Indigenous populations particularly problematic, especially when using the standard ABS definitions. Because of the conceptual difficulties in measuring income in a cross-cultural context, this paper uses a variety of equivalence scales on family income to capture the likely sensitivity of results to the underlying assumptions about economies of scale and access to resources.

The income measures are calculated for families (i.e., income units) using four equivalence scales: raw income, the Henderson scale, the new Organisation for Economic Co-operation and Development (OECD) scale, and per capita income. Raw income is simply the sum of income of family members. The other income measures adjust for the size and composition of families by dividing this raw income by their respective equivalence scale.
While Henderson’s scale has been the standard measure for equivalent income in Australia since the mid-1970s, there is increasing criticism of the robustness of the resulting estimates (Henderson 1975; Saunders 1994; Travers & Richardson 1993). Accordingly, two extra measures of equivalent income are included to explore the feasible range of access to resources. However, Henderson’s scale does have the advantage that it is the only one that attempts to control for extra costs incurred by working or looking for a job. This adjustment is likely to be particularly important when comparing Indigenous estimates to other Australians given the enormous disparity in employment rates between these groups (Taylor & Hunter 1998).

Another equivalence scale widely used in international studies of poverty is the OECD scale. This paper uses the new or modified OECD scale, which gives a weight of 1 to the first adult, 0.5 to the second and subsequent adults and 0.3 to all dependents (see De Vos & Zaidi 1997 for further details of the history of the OECD equivalence scales).

The last income measure used is per capita family income. This is calculated by dividing the raw income by the number of people in a family. The advantage of using these four income measures is that they cover the range of possibilities of economies of scale and access to resources. As discussed above, raw income and per capita income provide the extreme bounds of possible assumptions, with the Henderson and new OECD measures falling somewhere within these bounds. While the Henderson and new OECD scales probably provide more feasible estimates of access to resources, the sensitivity analysis needs to test whether our results are robust to all possible measures. Note that Figure 1, and all subsequent analysis, reports the equivalent income measures in descending order of implicit economies of scale: raw income, the new OECD scale, the Henderson scales, and per capita income.

Income quintiles for these four different measures of income were estimated from the 1995 NHS separately for the Indigenous and non-Indigenous components of the population (Figure 1, see next page). Each estimate is ranked according to its place in the overall distribution of the respective measures of equivalent income in the 1995 NHS. That is, the income quintiles used in this paper are measured for the Australian population using NHS 1995 data. Accordingly, the non-Indigenous distribution, which dominates the overall income distribution, is distributed evenly with 20 per cent being in each quintile.

In line with Deeble, et al. (1998), Figure 1 illustrates that Indigenous people are disproportionately concentrated in the low income groups. As this earlier study only reported the distribution of equivalent income using a simplified Henderson scale, it is useful to compare this with other income distributions. One obvious point to make is that the per capita measure of equivalent income is even more concentrated in the low-income group (at least, the bottom quintile). For example, per capita income is about 10 percentage points more likely to classify Indigenous families in the lowest quintile than the Henderson measure. On the other side, Henderson classifies over 10 per cent more of the Indigenous population in the bottom quintile than raw income. Notwithstanding this, the overall shape of the distribution is similar with most of the differences occurring in the first and second quintiles. The top two quintiles have very similar numbers of Indigenous families in all four income distributions.
Even though some of the overall income distributions in Figure 1 do not differ much for the various measures of equivalent income, there are substantial reclassifications of families between the respective scales. Large families are more likely to be in the high quintiles of raw income irrespective of living circumstances. While such families will tend to be reclassified in the lower income groups with the other equivalence scales (especially the per capita measures), other family types will be reclassified into higher income groups. The fact that Indigenous families are almost twice as likely to have a sole parent than other families with children complicates the comparisons between Indigenous and other Australian families (Daly & Smith 1998a, 1998b). The extent of reclassification of family income depends crucially upon the number of children in the family and the assumption made about the relative costs of children and adults for the respective equivalence scales (Hunter, Kennedy & Smith 2001).

Detailed analysis of the NHS income data indicates that there is substantial re-ranking of families or income units across income quintiles, with as many as one third of families changing income group when different equivalence scales are used (Hunter, Kennedy & Smith 2001). Given the substantial reclassification of income groups for both the Indigenous and non-Indigenous population, it would be surprising if the analysis of health expenditure was not sensitive to the choice of equivalence scales. Exploration of these effects provides for a more sophisticated treatment of income than was possible in Deeble, et al. (1998) and yields greater insight into the relationship between income and expenditure.

**Estimating Per Capita Health Expenditure by Income—Method and Data Issues**

**Method**
In principle the best way to obtain estimates of per capita health expenditure by
income is to collect individual level information on the usage and associated costs of medical services, income, Indigenous origin, age, and gender. Unfortunately, no such Australian data exist and we are, therefore, forced to combine estimates of utilisation rates of health services from the 1995 NHS with the average costs of medical services estimated from a variety of administrative and survey data sources.

The method used involves merging onto the 1995 NHS, at the level of each individual record, estimates of the average cost of medical services. This produces, for each individual in the NHS survey, estimates of the expenditure associated with the medical services they used in the two weeks prior to the survey. Using the estimated expenditure and information on each respondent’s equivalent income it is straightforward to estimate average per capita health expenditure for Indigenous and non-Indigenous Australians.

There are two sources of sampling errors associated with the estimates of per capita health expenditure. First, there is sampling error associated with the estimates of utilisation rates of health services from the 1995 NHS. Second, there are errors in the estimates of the average cost per medical service. The standard errors of the estimates of the utilisation rates are calculated using the ‘jackknife’ method. No information was available on the standard errors of the estimates of the average cost per medical service and, therefore, in the estimates presented in this paper these are assumed to be zero. Thus, the standard errors of the estimates of per capita health expenditure presented in this paper reflect only sampling errors and thus provide a lower bound estimate.

The method of estimation of per capita health expenditure by income differs in a number of respects compared to that used in previous analysis of this relationship. Deeble, et al. (1998) estimated total and government health expenditure by age and gender and then allocated this expenditure across equivalent income quintiles using differences in average rates of utilisation of health services for income groups. The analysis by income group was only done for the total Australian population. Overall Indigenous public health expenditure was then compared to the estimates for the total Australian population for the respective income groups. The argument was made that Indigenous people are predominantly in the lowest income group and that per capita health expenditure should be compared to government health expenditure on the lowest income group for the total Australian population.

Data

The 1995 NHS contains information on 53,751 Australians of all ages and is representative of those living in all areas. There is information on the rates of utilisation of a variety of health services but no information on the costs of these services. The NHS also contains information on income and a range of demographic variables. The following health services are included in the estimates of per capita health expenditure by equivalent income:

- out of hospital visits to GPs or medical specialists;
- other health professionals;
- admitted hospital patient;
- non-admitted hospital patient;
• prescription medications; and
• over the counter medications.

The range of medical services included in the estimates of expenditure is determined by the questions asked in the 1995 NHS.

As indicated above, the analysis of health expenditure by income uses four equivalence scales to derive separate measures of equivalent income:

• raw family income;
• Henderson;
• OECD (new); and
• per capita income.

Income quintiles for these four different measures of income were estimated from the 1995 NHS separately for the Indigenous and non-Indigenous components of the population. Each family’s income is ranked using the overall distribution of equivalent income in the 1995 NHS. Given that the number of Indigenous families in some of the higher quintiles is quite small, it is necessary to aggregate the top four quintiles to enhance the reliability of the estimates.

Where possible the estimates of cost per medical service are estimated according to Indigenous origin, gender and age group. The level of disaggregation in the estimates of cost per service varied according to what is feasible given the administrative data available (see Table 1, next page, for details of the level of disaggregation for each category of medical service). Where no disaggregation is possible it is necessary to assume that the cost per service is identical across age groups, gender and Indigenous origin. The medical services for which dissagregated cost data is available are admitted patients, visits to general practitioners and specialists, and prescription medications.

It is important to estimate cost per medical service by as detailed a gender, age and Indigenous origin breakdown as possible due to differences in the average cost per service by demographic characteristics. The importance of this is illustrated by the differences in the estimated costs per service for admitted patients, which vary from $478 per day in hospital for Indigenous males aged seventy-five plus years to $900 per day in hospital for non-Indigenous females.

The medical services for which disaggregated cost data is available cover 78.7 per cent of all health expenditures included in this analysis. The inaccuracies introduced by the aggregated nature of the estimates of over the counter medications, non-admitted patients and other health professionals will be relatively minor. It is worth stressing that no information was provided on the standard errors associated with the estimates of cost per medical service. The standard errors, for at least some of the service types, are likely to be quite large. For example, the cost per visit to a GP for the Indigenous population is based upon information from 2000 Indigenous patient encounters. This means that the number of patient encounters in each of the gender and age groups is small for the Indigenous population.
Table 1: Level of disaggregation of costs per medical service for each type of medical service

<table>
<thead>
<tr>
<th>Medical service</th>
<th>Level of disaggregation of estimates of cost per service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted patients</td>
<td>By Indigenous origin, gender and ten-year age groups</td>
</tr>
<tr>
<td>Non-admitted patients</td>
<td>Single estimate for population as a whole</td>
</tr>
<tr>
<td>Prescription medications</td>
<td>By Indigenous origin, gender and ten-year age groups</td>
</tr>
<tr>
<td>Over-the-counter medications</td>
<td>Single estimate for population as a whole</td>
</tr>
<tr>
<td>Other health professionals</td>
<td>Single estimate for population as a whole</td>
</tr>
<tr>
<td>General practitioners and medical specialists—out of hospital</td>
<td>By Indigenous origin and gender. For age groups 0–44 and 45+ for the Indigenous population and ten-year age groups for the non-Indigenous population.</td>
</tr>
</tbody>
</table>

Note: Unfortunately, it was not possible to disaggregate further the out-of-hospital estimates for the Indigenous population because it is based on a relatively small sample size.

As already noted, unlike the analysis for the Australian population as a whole presented in Deeble, et al. (1998), it is not possible to separate expenditure into the private and public components. There are several reasons for this, all associated with the quality of information available from the 1995 NHS. First, due to changes in the questions about rates of medical service utilisation between the 1989 and 1995 NHS it is not possible to estimate government health expenditure by equivalent income quintile. The main change is that the 1989 NHS asked about hospital utilisation in the previous twelve months, whereas in 1995 the NHS asked about hospital utilisation in the previous two weeks. This means that there are not enough reported visits to private hospitals to allow utilisation rates of private and public hospitals by equivalent income to be estimated.

Second, the proportion of expenditure on prescription medications that is privately funded versus the proportion publicly funded is determined by several factors. Prescription medications listed on the Pharmaceutical Benefit Scheme (PBS) receive a government subsidy. Prescription medications that are not listed on the schedule of PBS approved drugs receive no subsidy and, therefore, all costs are borne privately. Clearly, in order to estimate public versus private funding on prescription medications it is crucial to separate medications according to those listed on the PBS schedule and those not listed on the PBS schedule. This is not possible using the 1995 NHS because it classifies medications according to their Anatomical Therapeutical Category and this cannot be mapped onto PBS and non-PBS categorisation.

There are major advantages to the method used in this paper to estimate per capita health expenditure by income. First, it allows standard errors to be calculated for the estimates. This is absolutely critical when interpreting the estimates of health expenditure per capita for the Indigenous population for whom the sample sizes are small. Second, it gives an accurate reflection of per capita expenditure for the sample used rather than applying the rates to aggregate data. This, of course, means that the estimated per capita expenditure will differ from the estimates of aggregate expenditure.
**Per Capita Health Expenditure by Income and Indigenous Origin**

Our estimate of per capita health expenditure for Indigenous people living in non-sparsely settled areas is $2734, which is around $500 higher than the estimate of $2277 for non-Indigenous people. However, the estimates of per capita health expenditure are quite variable, particularly for the Indigenous population for whom the standard error on the estimate of per capita expenditure is $334. While the estimates for the non-Indigenous population are also variable, the standard errors are smaller ($50). This means that the estimate of per capita health expenditure on Indigenous people is not statistically different to the estimate for the non-Indigenous population (at the 95 per cent confidence level).

The high standard errors, particularly for the Indigenous population, result primarily from the unreliability of hospital data in the 1995 NHS. The relative rarity of hospital visits means that very few Indigenous respondents reported using a hospital in the two weeks before the survey. Consequently, standard errors on the hospital expenditure are extremely high and estimates of health expenditure including hospital expenditure are unreliable.

When hospital usage is excluded, per capita health expenditure on Indigenous people is estimated to be much lower than the non-Indigenous average ($930 and $1351 respectively). The standard errors are much smaller—$64 and $11 for the Indigenous and non-Indigenous populations respectively—and there is evidence that Indigenous health expenditure is statistically significantly lower than that for other Australians, at least for some categories of expenditure.

High variability in hospital utilisation rates, combined with the fact that hospital visits are, on average, much more expensive than other medical services, mean that this category of expenditure makes up a high proportion of total health expenditure. The high degree of variability in the hospital expenditure is a function of the fact that a very small proportion of the sample had visited a hospital for health-related reasons in the two weeks prior to interview. Some insight into this issue can be gained by looking at the numbers of the sample with health expenditure of more than $1000 in the two weeks prior to the survey. For the Indigenous population in the income quintiles 2 to 5, there are thirteen respondents who had health expenditure of more than $1000 in the two weeks prior to the survey and a maximum health expenditure of $9147. There is a similar pattern for the non-Indigenous sample, although the larger sample size means that the problem is much less severe.

Table 2, which presents the estimates of per capita expenditure by equivalent income quintile for the non-Indigenous population, highlights a number of important issues. First, there is a large amount of variation in estimated per capita health expenditure across the different measures of equivalent income. For example, the estimates of expenditure for the lowest quintile vary between $2735 using the raw family income, $2500 using the new OECD scale, $2316 using the Henderson equivalence scale, and $1892 using the per capita income scale. This dramatic variation in the estimates of expenditure by equivalent income for the different equivalence scales highlights the importance of the equivalence scale used and the need to conduct a sensitivity analysis for this type of analysis.
In general, the point estimates of per capita health expenditure show that expenditure has a negative relationship with equivalent income. For example, using the new OECD equivalence scale, for the lowest income quintile (quintile 1), per capita expenditure is estimated to be $2500. It is $1982 for the second income quintile, $1678 for quintile 3, $1511 for quintile 4, and $1467 for quintile 5. While expenditure is estimated to be larger for lower equivalent incomes for all of the equivalence scales, the standard errors are high meaning that care needs to be exercised when interpreting these results.

Whether there are statistically significant differences in health expenditure between income groups can be formally tested using the following:

\[
\text{test statistic} = \frac{E_1 - E_2}{\sqrt{SE(E_1)^2 + SE(E_2)^2}}
\]

where \(E_1\) and \(E_2\) are the estimated expenditure of income groups 1 and 2 respectively and \(SE(E_1)\) and \(SE(E_2)\) are the standard errors of the estimates of \(E_1\) and \(E_2\). In conventional hypothesis tests, the 95 per cent confidence interval of an estimate is the point estimate plus or minus 1.96 times the standard error. Therefore, in order for there to be statistically significant differences in estimated per capita expenditure the absolute value of the test statistic must be greater than 1.96.

For example, the new OECD scale expenditure estimates for income quintiles 3 and 5 respectively are $1678 and $1467, a difference of $211. The test statistic is 2.76, which is greater than the critical value of 1.96, and therefore we can conclude that there is a statistically significant difference at the 95 per cent confidence level. Similarly for the raw family income, the Henderson measure and per capita income, expenditure for income quintile 3 is significantly higher than for income quintile 5 with test statistics of 5.38, 1.97 and 8.08 respectively. Note that there are only three pair-wise comparisons in Table 2 for which income was not significantly negatively related to health expenditure: the differences between the fourth and fifth quintiles of Henderson and OECD income measures, and the difference between the first and second quintiles of the per capita income distribution.

Table 2: Per capita health expenditure ($p.a.) by equivalent income, non-Indigenous population

<table>
<thead>
<tr>
<th>Income quintile</th>
<th>Raw family income</th>
<th>Henderson income</th>
<th>NEW OECD</th>
<th>Per capita income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2773 (148)</td>
<td>2316 (133)</td>
<td>2500 (124)</td>
<td>1892 (96)</td>
</tr>
<tr>
<td>2</td>
<td>1930 (62)</td>
<td>1808 (69)</td>
<td>1982 (69)</td>
<td>2085 (57)</td>
</tr>
<tr>
<td>3</td>
<td>1627 (50)</td>
<td>1749 (64)</td>
<td>1678 (58)</td>
<td>1916 (50)</td>
</tr>
<tr>
<td>4</td>
<td>1552 (44)</td>
<td>1665 (41)</td>
<td>1511 (45)</td>
<td>1861 (49)</td>
</tr>
<tr>
<td>5</td>
<td>1261 (46)</td>
<td>1598 (42)</td>
<td>1467 (49)</td>
<td>1374 (45)</td>
</tr>
</tbody>
</table>

Notes: The standard errors of the estimates of expenditure are presented in parentheses.

Given the relatively small numbers of Indigenous respondents in the top income quintiles, the estimates need to be further aggregated to allow comparisons between Indigenous and other Australians. Table 3 presents estimates of per capita...
health expenditure by equivalent income for the Indigenous and non-Indigenous populations for two income groups: the first income quintile, and income quintiles 2 to 5 combined. By grouping quintiles 2 to 5 together the number of Indigenous respondents in the income groups was increased to an acceptable level.

Table 3: Per capita health expenditure (including hospital expenditure) by equivalent income and Indigenous origin

<table>
<thead>
<tr>
<th>Income quintile</th>
<th>Raw family income</th>
<th>Henderson</th>
<th>NEW OECD</th>
<th>Per capita income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous expenditure ($p.a.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3029 (786)</td>
<td>2404 (521)</td>
<td>2656 (627)</td>
<td>2114 (396)</td>
</tr>
<tr>
<td>2 to 5</td>
<td>2212 (406)</td>
<td>2434 (533)</td>
<td>2280 (443)</td>
<td>2689 (643)</td>
</tr>
<tr>
<td>Non-Indigenous expenditure ($p.a.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2735 (148)</td>
<td>2316 (133)</td>
<td>2500 (124)</td>
<td>1892 (96)</td>
</tr>
<tr>
<td>2 to 5</td>
<td>1597 (51)</td>
<td>1704 (54)</td>
<td>1660 (56)</td>
<td>1808 (51)</td>
</tr>
</tbody>
</table>

Notes: The standard errors of the estimates of expenditure are presented in parentheses. The per capita health expenditure is calculated across the same range of medical services used in Table 2. The qualification that it includes hospital expenditure is made to distinguish it from the next table, which excludes such expenditure.

Unfortunately, the standard errors are still large for the Indigenous population and it is not possible to draw any conclusions about the relationship between income and per capita expenditure. As with the overall estimates of Indigenous health expenditure, there is too much variability within income groups to identify whether genuine differences exist between the income groups.

The standard errors for the non-Indigenous estimates are also quite large. It is, however, possible to conclude that for the raw family income, Henderson and new OECD equivalence scales, expenditure is higher for the lowest income quintile than for higher income group (quintiles 2 to 5). There is no statistically significant difference between income groups for the per capita equivalence scale. On the surface, this differs from the overall results for the more disaggregated income breakdown, which found that expenditure fell for all of the equivalence scales. This is an important point because it means that the aggregation of income groupings may hide underlying differences in expenditure by equivalent income.

In Table 4, further estimates of per capita health expenditure for low- and high-income Indigenous and non-Indigenous Australians are shown, but this time excluding hospital expenditure. The standard errors are now much lower. Health expenditure is substantially less for the Indigenous population than for the non-Indigenous population. The finding that non-Indigenous health expenditure (excluding hospital expenditure) is higher than for the Indigenous population is consistent with findings from other analysis of NHS data which shows that Indigenous people are more likely to visit hospitals (outpatients and day clinics in particular) than go to a GP or specialist (ABS/AIHW 1999: 74).

For the non-Indigenous population, expenditure is estimated to be significantly lower for the higher equivalent income groups when using the OECD, Henderson
and raw family income equivalence scales. As in Table 3, there is no significant difference in expenditure across income groups for the per capita equivalence scale. This is probably driven by the fact that per capita scale changes the composition of families within the various quintiles. If large families have substantial economies of scale in health provision (i.e., they do not require as many services or as much health expenditure), then the fact that per capita scales tend to reclassify such families as low income will depress the expenditure in the bottom quintile relative to the other income groups. This hypothesis is supported by the observation that expenditure on Indigenous people in the bottom quintile of per capita income is actually lower than for other Indigenous people, albeit not significantly lower.

In spite of the fact that estimates of health expenditure on Indigenous people are generally lower for high-income groups, there is no statistically significant difference for any of the equivalence scales. However, the standard errors for the Indigenous estimates are still relatively large and one should be careful that the results presented in Table 4 are not interpreted to mean that in reality there are no differences. Notwithstanding, if the focus is on the Henderson scale (as it was for Deeble, et al. 1998), increasing the sample size is unlikely to render the difference significant given that there is very little difference in expenditure between income groups. Also, the fact that health expenditure is actually greatest in the high (Henderson) income group means that any significant statistic may not necessarily support Deeble, et al.'s hypothesis of the relationship between Indigenous income and expenditure.

Table 4: Per capita health expenditure (excluding hospital expenditure) by equivalent income and Indigenous origin

<table>
<thead>
<tr>
<th>Income quintile</th>
<th>Raw family income</th>
<th>Henderson</th>
<th>NEW OECD</th>
<th>Per capita income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous expenditure ($p.a.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1409 (185)</td>
<td>1175 (108)</td>
<td>1254 (147)</td>
<td>1021 (100)</td>
</tr>
<tr>
<td>2 to 5</td>
<td>1171 (112)</td>
<td>1197 (121)</td>
<td>1164 (106)</td>
<td>1249 (142)</td>
</tr>
<tr>
<td>Non-Indigenous expenditure ($p.a.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2527 (104)</td>
<td>2148 (92)</td>
<td>2283 (91)</td>
<td>1747 (72)</td>
</tr>
<tr>
<td>2 to 5</td>
<td>1494 (46)</td>
<td>1585 (49)</td>
<td>1526 (49)</td>
<td>1708 (48)</td>
</tr>
</tbody>
</table>

Notes: The standard errors of the estimates of expenditure are presented in parentheses. The per capita health expenditure excludes hospital expenditure to distinguish it from the previous two tables, which include such expenditure.

A re-examination of Table 3 reveals there is no significant difference between Indigenous and non-Indigenous health expenditure in the respective income quintiles (e.g., comparing people in the bottom and higher quintiles separately). However, if poor-quality hospital data are excluded in an attempt to reduce standard errors, then health expenditure on low-income Indigenous people is much lower than the expenditure on low-income non-Indigenous people and these differences are statistically significant (Table 4). For example, using the Henderson scale the per capita expenditure on Indigenous people in the first quintile is estimated to be $1175, which is around $973 less than the estimate of $2148 for non-Indigenous people in the same income group. The expenditure on higher
income Indigenous people is also uniformly lower than the expenditure on higher income non-Indigenous people.

Therefore, by excluding hospital data from the calculation, we find that the difference in health expenditure between high- and low-income groups for Indigenous people is less substantial than the expenditure differential between Indigenous and other Australians. Income appears to add little to the analysis of health expenditure; either because income is poorly measured or because improvements in income are a relatively recent phenomenon among Indigenous people. In addition to the probable lags in improvements in health, and hence health expenditure, another aspect of the latter is that the experience of rapid upward social mobility might have greater pathological impact for Indigenous Australians (Sibthorpe 1988). Notwithstanding the limitations of income as an instrument to measure overall health expenditure, Deeble’s (1998: ix) emphasis on analysing the relationship between public expenditure and income remains valid given that many government payments are means tested.

On balance, it appears that there is little or no difference in Indigenous expenditure across income groups. This result is in stark contrast to the non-Indigenous results in which high-income groups tend to have lower health expenditure. One obvious explanation for this difference between Indigenous and non-Indigenous populations is that while high-income Indigenous families appear to be as unhealthy as poorer Indigenous families (Hunter 1999), there is a strong relationship between income and health outcomes among other Australian families (NHS 1992). The penultimate section of this paper returns to this theme by exploring the evidence in the 1995 NHS on the relationship between income and health for both Indigenous and non-Indigenous Australians.

**Further Information on the Usage of Health Services by Equivalent Income**

As discussed above, the estimates of per capita health expenditure by income group have a great deal of sampling variability and, therefore, high standard errors. Thus, we are constrained in our ability to determine whether there are genuine differences in health expenditure by income and whether there are differences between the Indigenous and non-Indigenous populations.

In an attempt to overcome this uncertainty, further analysis of usage of health services by equivalent income groups was conducted by focusing on those who reported no usage in the two weeks prior to interview. This is motivated in part by the fact that estimated proportions of people by Indigenous origin and income group will have less sampling error and, therefore, be more stable than the estimated total health expenditure by Indigenous origin and income group (Table 5). Another advantage of this shift in focus is that it provides a direct measure of Indigenous utilisation of health services, albeit one that does not capture the intensity of usage of respective services.

For the Indigenous population, there is no statistically significant relationship between the usage of health services and equivalent income, irrespective of the equivalence scale used. A similar pattern is revealed for the non-Indigenous population. The only difference is that the proportion without health expenditure...
in the lowest income group is significantly larger than for the highest income group for the raw and per capita income measures. For example, using the raw family income groups, the proportion with no expenditure falls from 48.5 per cent for the lowest income quintile to 45.7 per cent for the highest income quintile.

Table 5: Estimated proportion with no health expenditure by broad group of equivalent income

<table>
<thead>
<tr>
<th>Income quintile</th>
<th>Raw family income</th>
<th>Henderson</th>
<th>NEW OECD</th>
<th>Per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Per cent of Indigenous pop’n</td>
<td>55.8 (4.3)</td>
<td>61.0 (3.8)</td>
<td>61.7 (3.6)</td>
</tr>
<tr>
<td>2 to 5</td>
<td>59.9 (5.3)</td>
<td>60.5 (4.6)</td>
<td>54.9 (5.7)</td>
<td>50.5 (6.7)</td>
</tr>
<tr>
<td>Per cent of non-Indigenous pop’n</td>
<td>48.5 (0.7)</td>
<td>45.1 (0.8)</td>
<td>47.3 (0.7)</td>
<td>51.0 (1.0)</td>
</tr>
<tr>
<td>2 to 5</td>
<td>45.7 (0.8)</td>
<td>45.9 (0.8)</td>
<td>46.0 (0.8)</td>
<td>45.0 (0.7)</td>
</tr>
</tbody>
</table>

Notes: The standard errors of the estimates of expenditure are presented in parentheses.

Note that there are substantial and significant differences between the Indigenous and non-Indigenous populations in the usage of health services. Low-income Indigenous people are much more likely than non-Indigenous people in the same income category to report not having used any health services (except for those classified using raw family income). The differential in usage of health services of Indigenous and other Australians is about 14 percentage points for the Henderson, new OECD and per capita scales, and is 7.3 percentage points for the raw family income scale. Given that less than 10 per cent of Indigenous people are aged fifty-five and over, compared to around 25 per cent of other Australians, demographic factors are likely to play a major role in explaining this differential. However, demographics cannot be the whole story because the proportion of older people (aged fifty-five years or more) in the bottom quintile of the per capita income measure is only marginally different between Indigenous and other Australians.

For the higher income groups, the estimated proportion of Indigenous people not using health services is also larger than for non-Indigenous people, but the differential is only statistically significant for the raw family income and Henderson scales. The relatively small differences between usage of health services between high-income Indigenous and other Australians (at least by this measure) is largely driven by the standard errors of the respective estimates with non-Indigenous estimates being more reliable.

To summarise, in contrast to the earlier analysis, the pattern of Indigenous usage (or lack of usage) of health services across income groups appears to be similar to that of other Australians. Given the apparently weak relationship between income and the proportion without health expenditure, differences in the relationship between income and expenditure for Indigenous and non-Indigenous population must be driven by the amount expended by those who spent some money on health.
Conclusion

As the information base for profiling Indigenous health outcomes and proximate causes is progressively expanded, the indications of high absolute and relative morbidity and mortality remain unchanged, as do reported levels of exposure to risk factors that are strongly associated with a variety of chronic, preventable and non-communicable diseases. From a policy perspective, one element of the health complex that lends itself most directly to intervention is the level of expenditure (both public and private) on health and medical services. Previous analysis of the distribution of such expenditure noted that total health spending per capita was higher for Indigenous Australians compared to the rest of the population, although less so than might be expected given the size of the gap in health outcomes. Because of the relatively low incomes of Indigenous people, this pattern of higher spending was seen as an indication of greater public expenditures on poor people rather than on rich, as notions of equity would suggest is appropriate.

While it has not been possible to distinguish public from private spending in the present study, it has been possible, using 1995 NHS data, to be more discriminating about the relationship between overall expenditure and income status. For the first time, total spending on Indigenous and non-Indigenous people in equivalent income groups is estimated. This reveals that no significant difference exists between total expenditure on Indigenous and non-Indigenous Australians in the respective income quintiles. However, if hospital expenditure is excluded, then Indigenous expenditure is significantly lower for respective income groups. That is, controlling for income, Indigenous expenditure (other than on hospitals) is much lower than for other Australians. Given the lack of any discernible change to the low-health status of Indigenous Australians during the 1990s, this supports, and even strengthens, the thrust of the argument by Deeble, et al. (1998) that an inverse care law applies—to those most in need, the least is given.

The fact that poor-quality data restricts what can be said with confidence about the relationship between health expenditure and income status for the Indigenous population remains an issue. For example, we are unable to estimate directly the relationship between government health expenditure and income. We are also forced to exclude from the analysis the 20 per cent of the Indigenous population who live in sparsely settled areas of Australia, the very group which available data suggest have the poorest health outcomes. Most importantly, conventional income measures appear riddled with measurement error, with many Indigenous families moving up and down the distribution depending upon which measure is adopted. Measurement error is itself a major factor working against identifying a systematic relationship between income and health input and outputs; indeed, even if it were possible, it would be folly to believe that any causal relationship could be established given uncertainty about the accuracy of Indigenous income status. Future research needs to clarify the role of measurement error in Indigenous income, and hence identify the extent to which income status can be usefully applied as an instrument for policy analysis.

As pointed out many times in the past, the collection of more reliable data is an essential prerequisite to improved analysis of equity issues in regard to health expenditure and health outcomes. From the analysis of NHS data it appears that improved reliability will depend on two developments—a larger augmented
sample adequate to the task, and a reduction in non-sampling error in sparsely settled areas. While these improvements do not in themselves guarantee the quality of the data, they should increase the power of the analysis to discern whether the differences (and similarities) between Indigenous and other Australians in this paper are real or apparent.

Endnotes

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References


Australian Bureau of Statistics (ABS) 2000a, Housing and Infrastructure in Aboriginal and Torres Strait Islander Communities Australia 1999, cat. no. 4710.0, ABS, Canberra.


PART III

Resource Allocation and Aboriginal Health
CHAPTER 6

Expenditure on Health Services for Aboriginal and Torres Strait Islander People 1998–99: Commentary

Introduction

The report Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99 (AIHW 2001) examines expenditures on the provision of health services to Aboriginal and Torres Strait Islander people by Australian governments and the private sector for the 1998–99 financial year. It follows an earlier report covering similar expenditures for the 1995–96 financial year by Deeble, et al. (1998). The 1998–99 report is colloquially referred to as the second report.

The first report provided detailed information about where and for what purposes this expenditure occurred, and although there were uncertainties with some data, the report did provide for the first time a comprehensive picture of a most important area of Australian health services use. The report also dispelled some myths about Aboriginal and Torres Strait Islander health services expenditure that were then current.

The second report builds on the achievements of the first. It repeats the analyses of the first report, in some cases with more refined methods. It also extends the analyses by examining health expenditures for Aboriginal and Torres Strait Islander people in remote regions of Australia as compared with more accessible regions.

Key Results

The task of measuring health resource allocation for Aboriginal and Torres Strait Islander people is a difficult one. This reflects the limitations of the data, which are often difficult to obtain and/or incomplete in nature. Significantly, the vast majority of Indigenous health expenditure is allocated through mainstream health programs, which generally only give an incomplete record of use of such services specifically by Aboriginal and Torres Strait Islander people. Medicare data, for example, do not include an Indigenous identifier. Inadequate or incomplete data have required the use of surveys and other estimation techniques.

Even such crucial information as the number of Aboriginal and Torres Strait Islander people in Australia is uncertain. In the second report the ‘low’ Australian Bureau of Statistics (ABS) estimate of the Aboriginal and Torres Strait Islander population was used. Uncertainties with data impact upon the estimates of hospital admission rates, expenditure and expenditure ratios. Thus, interpretation of the numbers in the second report should allow for these enumeration and statistical errors.

Despite their much poorer health status—on average three times worse than other Australians—total expenditures per person for health services for Aboriginal and Torres Strait Islander people are not much higher than for the rest of the
population. Total expenditures were estimated at $1245 million in 1998–99. That was equivalent to $3065 per person, compared with the $2518 per person estimated to have been spent for non-Indigenous people—a ratio of 1.22:1.

(This ratio is subject to the data uncertainties discussed above. For example, the ‘high’ population estimate is 8 per cent higher than the ‘low’ population estimate. If the ‘high’ estimate was used, the Indigenous/non-Indigenous health expenditure and morbidity ratios would decrease by about 8 per cent).

**Social and Economic Circumstances of Aboriginal and Torres Strait Islander People**

The health services expenditure data in the second report can only be understood in the context of the social and economic circumstances of Aboriginal and Torres Strait Islander people. These circumstances differ from the general population, and this significantly affects overall health status and consequent health care needs.

It is estimated that the total Aboriginal and Torres Strait Islander population in 1998–99 was 406,000 people. This represents 2.2 per cent of Australia’s total population. Of these, more than a quarter (27.5 per cent) reside in remote areas, compared with only 2.6 per cent of the total Australian population. Aboriginal and Torres Strait Islander people are much younger than other Australians.

**Economic status**

The incomes of Aboriginal and Torres Strait Islander people are much lower than those of the non-Indigenous population. The median weekly income of Aboriginal and Torres Strait Islander males aged fifteen years and over was $189, less than half that for non-Indigenous males ($415) (1996 Census). The difference between the medians for female incomes was less pronounced, 15 per cent lower, with Aboriginal and Torres Strait Islander females’ median income at $190, compared with $224 for non-Indigenous females (ABS & AIHW 1999). Aboriginal and Torres Strait Islander people had lower median incomes in every occupation group and at all levels of qualification.

**Health status**

Aboriginal and Torres Strait Islander people typically have the poorest health status of all Australians. Average life expectancy at birth is about twenty years lower than that of other Australians and the infant mortality rate in the Northern Territory, Western Australia and South Australia for 1995–97 was more than three times the rate for all Australian infants.

The infant mortality rate is a key indicator of a community’s health. The infant mortality rate for all Australians for 1995–97 was 6.05 infant deaths per 1000 live births for males and 4.95 infant deaths per 1000 live births for females (ABS 2000). The infant mortality rate for 1995–97 for Aboriginal and Torres Strait Islander people in those States that have relatively reliable mortality data—i.e. the Northern Territory, Western Australia and South Australia—was 18.7 infant deaths per 1000 live births for males and 17.3 infant deaths per 1000 live births for females. This is 3.1 times the rate for all Australian infant males and 3.5 times the rate for all Australian infant females (ABS 2000).
The proportion of babies born with low birthweight is much higher. In 1994–96, about 12 per cent of babies born to Aboriginal and Torres Strait Islander mothers were of low birthweight, compared with about 6 per cent of babies born to non-Indigenous mothers. Of the eighty-four maternal deaths in Australia for the period 1991–93, nine were Indigenous mothers and seventy-five were non-Indigenous mothers. This gave a maternal mortality rate per 100,000 births of forty-one for Indigenous mothers and ten for non-Indigenous mothers (NHMRC 1998).

Figure 2.1: Life expectancy at birth(c) for Aboriginal and Torres Strait Islander people and for all Australians, 1991–96

(a) Western Australia, South Australia and the Northern Territory
(b) New South Wales, Victoria, Queensland, Tasmania and the Australian Capital Territory.
(c) Based on changes in age structure between successive censuses.

Source: ABS & AIHW 1999

In the period 1991–96, life expectancy at birth for all Australians was 75.2 years for males and 81.1 years for females. In the same period, life expectancy for Aboriginal and Torres Strait Islander people was 56.9 years for males and 61.7 years for females (Figure 2.1). These life expectancies are comparable to those for all Australian males at the beginning of the twentieth century and Australian females in the 1920s (ABS & AIHW 1999).

The age-specific death rates for the years 1995–97 were higher in every age group for Aboriginal and Torres Strait Islander males and females than for Australians as a whole (Table 2.1). Within the age groups 35–44 and 45–54, Aboriginal and Torres Strait Islander people died at rates six to seven times higher than those experienced by all Australians.
Table 2.1: Age-specific death rates(a) for the Aboriginal and Torres Strait Islander population and the total Australian population, 1995–97

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Indigenous rate (b)</th>
<th>Australian rate (c)</th>
<th>Rate ratio (d)</th>
<th>Indigenous rate (b)</th>
<th>Australian rate (c)</th>
<th>Rate ratio (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1</td>
<td>1873</td>
<td>605</td>
<td>3.1</td>
<td>1731</td>
<td>495</td>
<td>3.5</td>
</tr>
<tr>
<td>1–4</td>
<td>114</td>
<td>38</td>
<td>3.0</td>
<td>102</td>
<td>27</td>
<td>3.7</td>
</tr>
<tr>
<td>5–14</td>
<td>60</td>
<td>18</td>
<td>3.3</td>
<td>29</td>
<td>14</td>
<td>2.0</td>
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<td>15–24</td>
<td>275</td>
<td>103</td>
<td>2.7</td>
<td>69</td>
<td>36</td>
<td>2.0</td>
</tr>
<tr>
<td>25–34</td>
<td>574</td>
<td>132</td>
<td>4.4</td>
<td>226</td>
<td>49</td>
<td>4.6</td>
</tr>
<tr>
<td>35–44</td>
<td>1107</td>
<td>172</td>
<td>6.4</td>
<td>627</td>
<td>89</td>
<td>7.0</td>
</tr>
<tr>
<td>45–54</td>
<td>1923</td>
<td>343</td>
<td>5.6</td>
<td>1288</td>
<td>215</td>
<td>6.0</td>
</tr>
<tr>
<td>55–64</td>
<td>3869</td>
<td>988</td>
<td>3.9</td>
<td>2566</td>
<td>559</td>
<td>4.6</td>
</tr>
<tr>
<td>65–74</td>
<td>5976</td>
<td>2805</td>
<td>2.1</td>
<td>4704</td>
<td>1525</td>
<td>3.1</td>
</tr>
<tr>
<td>75 and over</td>
<td>11,334</td>
<td>9086</td>
<td>1.2</td>
<td>8889</td>
<td>7074</td>
<td>1.3</td>
</tr>
</tbody>
</table>

(a) Rates are per 100,000. Based on year of occurrence.

(b) Data for deaths of people identified as Aboriginal and/or Torres Strait Islander for usual residents of Western Australia, South Australia and the Northern Territory combined.

(c) Data are for all of Australia, including deaths identified as of Aboriginal and/or Torres Strait Islander people.

(d) Aboriginal and Torres Strait Islander rate divided by Australian rate.

Source: ABS 2000

The Australian Bureau of Statistics reported from the 1995 National Health Survey (NHS) on a variety of health risk factors that were more predominant in the Aboriginal and Torres Strait Islander population than in the non-Indigenous population in the non-sparsely settled areas of Australia.

For example, among adults aged eighteen years or over, Aboriginal and Torres Strait Islander people were more likely (40 per cent) than non-Indigenous people (34 per cent) to report taking no exercise for sport, recreation or fitness in the two weeks prior to interview (ABS 1999). Based on self-reported measurements of height and weight provided in the 1995 NHS, Aboriginal and Torres Strait Islander adults aged eighteen years and over were about twice as likely to be categorised as obese as non-Indigenous people (ABS 1999). Aboriginal and Torres Strait Islander males and females were also more likely to be smokers; smoking was reported by 56 per cent of Indigenous males, and 46 per cent of Indigenous females, compared with 27 per cent of non-Indigenous males and 20 per cent of non-Indigenous females (ABS 1999).

Although a greater proportion of Aboriginal and Torres Strait Islander people in non-sparsely settled areas abstained from alcohol in the week prior to the NHS interview (41 per cent of Indigenous males and 60 per cent of Indigenous females compared with 34 per cent of non-Indigenous males and 54 per cent of non-Indigenous females), a greater proportion of Aboriginal and Torres Strait Islander
people were at a high level of risk with respect to alcohol use. The NHS classified 13 per cent of Aboriginal and Torres Strait Islander males and 3 per cent of Aboriginal and Torres Strait Islander females as being at a high level of risk, compared with 5 per cent of non-Indigenous males and 1 per cent of non-Indigenous females (ABS 1999).

**Need and the allocation of health resources**

Various socio-economic factors contribute to ill health (DHAC 1999). Drawing on information from the 1990 National Health Survey and the 1994 National Aboriginal and Torres Strait Islander Survey, the first report on expenditures on health services for Aboriginal and Torres Strait Islander people (Deeble, et al. 1998) examined government health expenditure per person for all Aboriginal and Torres Strait Islander people, and for all Australians by quintile of equivalent family income.

This analysis showed that total expenditures on health services were larger for poorer people than for the rich, which is in line with expectations, and that public expenditures were much larger for the poor than for the rich. For instance, in the lowest income quintile governments funded 77 per cent of total expenditure, whereas in the highest income quintile they funded 49 per cent.

Figure 2.2 represents the findings of the analysis. Estimated expenditure for all Australians is shown by quintile of equivalent family income in 1993–94 values. The total estimated per person expenditure for Aboriginal and Torres Strait Islander people is also represented.

When the relative incomes of Aboriginal and Torres Strait Islander people were taken into account, it was found that public health expenditures for Aboriginal and Torres Strait Islander people as a whole were similar to that for non-Indigenous people in the same income class. Both groups have relatively poor health status. However, the health of the Aboriginal and Torres Strait Islander population is considerably worse and, because it is at such a low level, the opportunities to improve it are considerable.

When addressing the greater ‘need’ for health services that Aboriginal and Torres Strait Islander Australians experience, compared with non-Indigenous Australians, a range of factors—including social, cultural and economic factors—needs to be considered. Acknowledgment should be given to the history of dispossession, alienation, ongoing poverty and disadvantage that confronts Aboriginal and Torres Strait Islander people. Understanding the educational, linguistic and lifestyle norms of Aboriginal and Torres Strait Islander people assists in providing more effective health care, as does understanding the geographical area where the service is being delivered. Factors such as income, education and social participation have been shown to play an important role in determining health status and are relevant to the delivery of health services and allocation of health resources.
Limitations

Any thorough analysis of health must extend beyond examination of the physical determinants of health status. A comprehensive definition of health by the former National Aboriginal Health Strategy Working Party (1989) identifies the other fundamental components of health as the social, emotional and cultural well-being of the whole community. However, in order to make the expenditure data within this report as comparable as possible with other national health data, a more limited definition of health is adopted in the Aboriginal and Torres Strait Islander health expenditure study. This definition limits the scope of the report, restricting analyses to activities primarily directed towards improving health and treating sickness and injury. Many other factors—such as levels of employment, income and housing—have a direct bearing on the health of a community, but activities to improve these factors are not classified as health activities in the national accounts framework used in the study. The conceptual limitations implied by this relatively narrow focus are important for readers to keep in mind, particularly when making comparisons of Aboriginal and Torres Strait Islander and non-Indigenous health.

Differing Patterns of Expenditure

There are significant differences in the patterns of expenditure. Aboriginal and Torres Strait Islander people were, on average, much higher users of publicly funded health
services than non-Indigenous people. Reflecting their significantly lower income level, Indigenous people used fewer privately funded services, such as doctors and allied health professionals in private practice, private hospitals and dentists.

Tables 1 and 1.2 and Figure 1.2 and 1.5 examine total expenditures and total expenditures per person, by area of administrative responsibility.

Table 1: Estimated health expenditures for Aboriginal and Torres Strait Islander people and non-Indigenous people, by program, 1998–99

<table>
<thead>
<tr>
<th>Contribution to total expenditures</th>
<th>Indigenous ($m)</th>
<th>Non-Indigenous ($m)</th>
<th>Indigenous (%)</th>
<th>Non-Indigenous (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through State programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admitted patient expenditure</td>
<td>453</td>
<td>10,096</td>
<td>36.4</td>
<td>21.8</td>
</tr>
<tr>
<td>Other through State program exp.</td>
<td>443</td>
<td>6850</td>
<td>35.6</td>
<td>14.8</td>
</tr>
<tr>
<td>Total through State programs</td>
<td>896</td>
<td>16,947</td>
<td>72.0</td>
<td>36.5</td>
</tr>
<tr>
<td>Through Commonwealth programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous specific C’wlth programs</td>
<td>121</td>
<td>10</td>
<td>9.7</td>
<td>.</td>
</tr>
<tr>
<td>Medicare/PBS</td>
<td>91</td>
<td>11,071</td>
<td>7.3</td>
<td>23.9</td>
</tr>
<tr>
<td>Other Commonwealth programs</td>
<td>69</td>
<td>6196</td>
<td>5.5</td>
<td>13.3</td>
</tr>
<tr>
<td>Total through C’wlth programs</td>
<td>281</td>
<td>17,277</td>
<td>22.6</td>
<td>37.2</td>
</tr>
<tr>
<td>Through local government programs</td>
<td>8</td>
<td>206</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Services through private sector programs</td>
<td>60</td>
<td>11,982</td>
<td>4.8</td>
<td>25.8</td>
</tr>
<tr>
<td>Total recurrent expenditure</td>
<td>1245</td>
<td>46,412</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: AIHW Health Expenditure Database

These tables and figures cover all expenditures, including those by individuals. Administrative responsibility rests with the level of government where decisions are made as to financing arrangements, the range of services to be provided and eligibility criteria. This way of presenting expenditure does not examine the mix of funding sources for each program, which is covered later.

The composition of expenditures through Commonwealth, State and privately administered programs was quite different for Aboriginal and Torres Strait Islander people from that of the rest of the population.

Of all expenditure on Aboriginal and Torres Strait Islander people, 72 per cent was through programs administered by State or Territory governments, almost twice the percentage for non-Indigenous people. Two-thirds of the State expenditure was for public hospital services, mostly for admitted patients.

Spending through Commonwealth programs accounted for 23 per cent of expenditures on Aboriginal and Torres Strait Islander people. Almost half of this was for Indigenous-specific services, mainly through grants to Aboriginal Community Controlled Health Services (ACCHS). The remainder represents the estimated Aboriginal and Torres Strait Islander share of outlays for nationwide health services. The differences between Commonwealth and State expenditure patterns are due to
the different roles of the two levels of government. The Commonwealth’s largest programs are community-wide and fund services to the whole population, usually through private providers. The States and Territories are major service providers to people who are disadvantaged by socio-economic status or location. All of those people, including many Aboriginal and Torres Strait Islander people, rely heavily on public hospitals and State-run community health services.

For Aboriginal and Torres Strait Islander people, the proportion of outlays on private sector services such as private hospitals, dentists and allied health professionals was extremely low. At 5 per cent, it was one-fifth of the percentage for other Australians and reflects the lower socio-economic status of Aboriginal and Torres Strait Islander people.

Table 1.2 and Figure 1.2 present the same information, but on a per person basis. Expenditure per person through State programs for Aboriginal and Torres Strait Islander people is $2205 per person out of a total health expenditure of $3065 per person. This is 140 per cent higher than for non-Indigenous persons—a ratio of 2.4:1. For Commonwealth programs the Aboriginal and Torres Strait Islander/non-Indigenous per person ratio is lower at 0.74:1. These differences reflect the different roles of the two levels of government discussed above.

Table 1.2: Estimated health expenditures per person for Aboriginal and Torres Strait Islander people and non-Indigenous people, by program, 1998–99

<table>
<thead>
<tr>
<th>Through State programs</th>
<th>Per person Indigenous ($)</th>
<th>Per person non-Indigenous ($)</th>
<th>Ratio Indigenous/ non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted patient expenditure</td>
<td>1115</td>
<td>548</td>
<td>2.04</td>
</tr>
<tr>
<td>Other through State program expenditure</td>
<td>1090</td>
<td>372</td>
<td>2.93</td>
</tr>
<tr>
<td><strong>Total through State programs</strong></td>
<td><strong>2205</strong></td>
<td><strong>920</strong></td>
<td><strong>2.40</strong></td>
</tr>
<tr>
<td>Through Commonwealth programs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous-specific Commonwealth programs</td>
<td>298</td>
<td>1</td>
<td>..</td>
</tr>
<tr>
<td>Medicare/PBS</td>
<td>224</td>
<td>601</td>
<td>0.37</td>
</tr>
<tr>
<td>Other Commonwealth programs</td>
<td>169</td>
<td>336</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Total through Commonwealth programs</strong></td>
<td><strong>691</strong></td>
<td><strong>937</strong></td>
<td><strong>0.74</strong></td>
</tr>
<tr>
<td>Through local government programs</td>
<td>20</td>
<td>11</td>
<td>1.78</td>
</tr>
<tr>
<td>Services through private sector programs</td>
<td>148</td>
<td>650</td>
<td>0.23</td>
</tr>
<tr>
<td><strong>Total recurrent expenditure</strong></td>
<td><strong>3065</strong></td>
<td><strong>2518</strong></td>
<td><strong>1.22</strong></td>
</tr>
</tbody>
</table>

Source: AIHW Health Expenditure Database
Figure 1.2: Estimated total expenditures through government and private sector programs for Aboriginal and Torres Strait Islander people and non-Indigenous people, per person, 1998–99

Source: AIHW Health Expenditure Database

Figure 1.5: Estimated total expenditures for Aboriginal and Torres Strait Islander people and non-Indigenous people, by area of expenditure, per person, 1998–99

Source: AIHW Health Expenditure Database
Funding of health expenditures

Table 1.3 looks at financing rather than administration. For non-Indigenous Australians, governments met about 68 per cent of recurrent health care costs, with the remainder being privately financed. For Aboriginal and Torres Strait Islander people the proportions were quite different. Governments funded just over 90 per cent of their health care costs and, as might be expected from their economic situation, private payments—whether through various types of insurance or out-of-pocket—met less than 10 per cent of total expenditures. Governments meet a similar proportion of health care costs for non-Indigenous people in low socio-economic groups (Deeble, et al. 1998). Overall, the ratio of Indigenous to non-Indigenous expenditures per person was 1.64:1 for public funding alone, slightly higher than in the 1995–96 figures of 1.52:1. The difference between the Indigenous to non-Indigenous expenditure ratio for government expenditures and the ratio for all health expenditures is explained by the much lower use of private services by Aboriginal and Torres Strait Islander people.

All of the State and Territory outlays were direct; that is, their outlays went through programs and/or authorities which they themselves administered. However, more than 50 per cent of the Commonwealth’s overall contribution was indirect, through its sharing of the cost of public hospitals and some other services under the Australian Health Care Agreements, public health funding agreements and other payment arrangements. When these payments by the Commonwealth to the States are included, the two levels of government contributed similar amounts to funding expenditure on services for Aboriginal and Torres Strait Islander people.

Table 1.3: Estimated expenditures per person, by source of funds, Aboriginal and Torres Strait Islander people and non-Indigenous people, 1998–99 ($)

<table>
<thead>
<tr>
<th>Source of funds</th>
<th>Indigenous</th>
<th>%</th>
<th>Non-Indigenous</th>
<th>%</th>
<th>Ratio Indigenous/other</th>
</tr>
</thead>
<tbody>
<tr>
<td>State government funding</td>
<td>1376</td>
<td>44.9</td>
<td>484</td>
<td>19.2</td>
<td>2.84</td>
</tr>
<tr>
<td>(of State government programs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C’wealth Government funding</td>
<td>163</td>
<td>5.3</td>
<td>366</td>
<td>14.5</td>
<td>0.45</td>
</tr>
<tr>
<td>Indigenous specific programs</td>
<td>298</td>
<td>9.7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicare/PBS</td>
<td>196</td>
<td>6.4</td>
<td>506</td>
<td>20.1</td>
<td></td>
</tr>
<tr>
<td>0.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Commonwealth programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payments to States</td>
<td>735</td>
<td>24.0</td>
<td>334</td>
<td>13.2</td>
<td>2.20</td>
</tr>
<tr>
<td>Total Commonwealth funding</td>
<td>1393</td>
<td>45.5</td>
<td>1206</td>
<td>47.9</td>
<td>1.15</td>
</tr>
<tr>
<td>Local government funding</td>
<td>15</td>
<td>0.5</td>
<td>9</td>
<td>0.4</td>
<td>1.67</td>
</tr>
<tr>
<td>Total government funding</td>
<td>2783</td>
<td>90.8</td>
<td>1700</td>
<td>67.5</td>
<td>1.64</td>
</tr>
<tr>
<td>Patient and other private payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Government programs</td>
<td>94</td>
<td>3.1</td>
<td>101</td>
<td>4.0</td>
<td>0.93</td>
</tr>
<tr>
<td>Commonwealth Government programs</td>
<td>40</td>
<td>1.3</td>
<td>141</td>
<td>5.6</td>
<td>0.29</td>
</tr>
<tr>
<td>Local government programs</td>
<td>5</td>
<td>0.2</td>
<td>2</td>
<td>0.1</td>
<td>2.21</td>
</tr>
<tr>
<td>Private sector programs</td>
<td>141</td>
<td>4.6</td>
<td>574</td>
<td>22.8</td>
<td>0.25</td>
</tr>
<tr>
<td>Total private funding(a)</td>
<td>281</td>
<td>9.2</td>
<td>819</td>
<td>32.5</td>
<td>0.34</td>
</tr>
<tr>
<td>Total health funding</td>
<td>3065</td>
<td>100.0</td>
<td>2518</td>
<td>100.0</td>
<td>1.22</td>
</tr>
</tbody>
</table>

(a) ‘Private funding’ includes funding from out-of-pocket payments by patients, health insurance funding and other funding sources such as workers’ compensation.

Source: AIHW Health Expenditure Database
Overall, when sources of funds are examined, the Commonwealth and State governments contributed similar amounts to health services for Aboriginal and Torres Strait Islander people—$1393m and $1376m. However, more than 50 per cent of the Commonwealth’s contribution was indirect through its funding of public hospitals and other State programs ($735m).

Expenditures through the major Commonwealth-funded health programs—Medicare and the Pharmaceutical Benefits Scheme—were much lower for Aboriginal and Torres Strait Islander people than for other Australians. Together they contributed only 7 per cent of total expenditures on health services for Indigenous people compared with 24 per cent of total health expenditures for non-Indigenous people. Per person expenditure on Aboriginal and Torres Strait Islander people through these two programs was 37 per cent of per person expenditure for non-Indigenous people.

Aboriginal and Torres Strait Islander people were much higher users of State-funded health services, in particular, admitted patient services in hospitals and community health services.
Selected expenditures, by jurisdiction

Table 1.5 shows expenditures per person, by jurisdiction and type of service, for the 80 per cent of expenditures for Aboriginal and Torres Strait Islander people that flow through State and Territory programs and the ACCHS.

<table>
<thead>
<tr>
<th>State/Territory</th>
<th>State Government admitted patient care</th>
<th>State Government other health services</th>
<th>Total State Government program expenditure</th>
<th>ACCHS (Commonwealth Government)</th>
<th>Total Commonwealth and local government programs</th>
<th>Total expenditure through government</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>945</td>
<td>884</td>
<td>1829</td>
<td>151(a)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Victoria</td>
<td>793</td>
<td>650</td>
<td>1443</td>
<td>392(b)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Queensland</td>
<td>1068</td>
<td>157</td>
<td>1103</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Western Australia</td>
<td>1516</td>
<td>1257</td>
<td>2773</td>
<td>439</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>South Australia</td>
<td>1434</td>
<td>916</td>
<td>2350</td>
<td>700</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Tasmania</td>
<td>836</td>
<td>809</td>
<td>1645</td>
<td>(b)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Aust. Capital Territory</td>
<td>1206</td>
<td>1226</td>
<td>2432</td>
<td>(a)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>1219</td>
<td>1989</td>
<td>3208</td>
<td>432</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total</td>
<td>1115</td>
<td>1090</td>
<td>22</td>
<td>287</td>
<td>711</td>
<td>2917</td>
</tr>
</tbody>
</table>

(a) Australian Capital Territory ACCHS funding is included with New South Wales.

(b) Tasmanian ACCHS funding is included with Victoria.

Regional variation

There are variations in the patterns of health expenditure between highly accessible and more remote areas. This is measured using the Accessibility/Remoteness Index of Australia (ARIA) scale of remoteness. Due to the limitations of the data, only 50 per cent of expenditures (admitted patient hospital services, Medicare/PBS benefits, and high-care residential aged care) could be included in this regional analysis. Other Commonwealth health services and State government community and public health services were not able to be allocated by region. It is, therefore, difficult to determine any overall trends in expenditure between regions.

ARIA is a system that classifies localities according to an indicator of the accessibility of services (distance from service centres) into the five categories of ‘highly accessible’, ‘accessible’, ‘moderately accessible’, ‘remote’, and ‘very remote’. The distribution of Aboriginal and Torres Strait Islander people across these regions is quite different from that of non-Indigenous people. In particular, the proportion living in remote and very remote regions is more than ten times that for other Australians. Given the accessibility criteria for ARIA classification, there should be an association between residence and service use. It would be expected to be both lower in total and different in composition in the remote and very
remote areas as compared with better served regions. This would clearly lead to spending on Aboriginal and Torres Strait Islander people being lower, given that more of them live in remote areas. However, if their health status differed across the regions, or the mix of services they used was more or less expensive than the average, this relationship might not hold.

Table 1.6 summarises the analysis in Chapter 7 of the *Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99 Report* (AIHW 2001) on regional differences.

- For Medicare and the PBS, outlays were lower in remote and very remote areas than in the more ‘accessible’ ones. This was also the case for non-Indigenous people but for this group there are age structure differences that partially explain the differences (Phillips 2001). Aboriginal and Torres Strait Islander people’s access to these selected programs was generally less than half that of other people in each region.

- Expenditure on ACCHS was highest in the remote regions. In the absence of information about the full range of services in each region it is difficult to draw conclusions about the reason for this distribution. It may reflect higher costs in remote regions, poor access to other services or historical factors.

- Aboriginal and Torres Strait Islander people in the remote regions have rates of separation from hospitals, and associated expenditure, more than twice that of Aboriginal and Torres Strait Islander people in the highly accessible region.

- Expenditure on aged care facilities for Aboriginal and Torres Strait Islander people in the remote regions is higher than in the more accessible regions.

Further analysis is required to understand the reasons for the difference in hospital separations and expenditure. Such analysis would separately identify the impact of the higher cost of delivering hospital services to the very remote regions.

With Medicare data, the uniform payment schedule does not allow examination of the relative costs of delivering medical services in remote areas as compared to more accessible areas.

Overall, for these selected health services, there is approximately twice the expenditure per person for Aboriginal and Torres Strait Islander people living in the remote and very remote areas compared with those living in the highly accessible areas. Of expenditures on Aboriginal and Torres Strait Islander people in remote areas, 75 per cent is on hospital services compared with 58 per cent in highly accessible areas.

In contrast to remote areas, and to the estimates of total expenditure, expenditures on Aboriginal and Torres Strait Islander people in the highly accessible areas are less than those for non-Indigenous people in the same area. This is significant in view of their poorer health status.

The analysis did show decreasing levels of access to Medicare-funded services and pharmaceutical benefits as remoteness increased.
In contrast, there was a growth in admitted patient expenditure with increasing remoteness. This was reflected in patterns of expenditure by State. States with a large proportion of Indigenous people living in remote regions generally had higher per person expenditures on hospital services. These higher hospital expenditures are partly due to the higher cost of providing services in remote regions. If the higher costs of providing services in remote areas could be factored in, the ratio of Aboriginal and Torres Strait Islander health services use to non-Indigenous services use would be lower than the expenditure ratio of 1.22:1. However, this would be partly counteracted by the lower costs of providing hospital services to people in moderately accessible areas (see AIHW 2001: p. x). The Commonwealth Grants Commission recognises the higher costs of service delivery in remote areas. Further research is needed in this area (McDermott 1995).

Table 1.6: Health expenditures per person on selected health services, Aboriginal and Torres Strait Islander people and non-Indigenous people, by ARIA region, 1998–99 ($)

<table>
<thead>
<tr>
<th>Area of expenditure</th>
<th>Highly accessible</th>
<th>Accessible</th>
<th>Moderately accessible</th>
<th>Remote and very remote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public acute-care institutions and private hospitals(a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td>660</td>
<td>953</td>
<td>1185</td>
<td>1690</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>704</td>
<td>794</td>
<td>879</td>
<td>709</td>
</tr>
<tr>
<td>High-care residential aged care (Commonwealth contribution only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td>61</td>
<td>55</td>
<td>21</td>
<td>76</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>150</td>
<td>123</td>
<td>86</td>
<td>43</td>
</tr>
<tr>
<td>Medicare (medical only)(b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td>157</td>
<td>156</td>
<td>143</td>
<td>84</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>367</td>
<td>289</td>
<td>275</td>
<td>197</td>
</tr>
<tr>
<td>PBS(c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td>55</td>
<td>58</td>
<td>51</td>
<td>23</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>152</td>
<td>117</td>
<td>112</td>
<td>89</td>
</tr>
<tr>
<td>OATSIH</td>
<td>212</td>
<td>227</td>
<td>98</td>
<td>386</td>
</tr>
<tr>
<td>Total Indigenous</td>
<td>1145</td>
<td>1449</td>
<td>1498</td>
<td>2259</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>1373</td>
<td>1323</td>
<td>1352</td>
<td>1038</td>
</tr>
</tbody>
</table>

(a) Excludes Queensland acute-care institutions.
(b) Excludes Medicare benefits for optometry and dental services.
(c) Excludes the Repatriation Pharmaceutical Benefits Scheme (RPBS).
Expenditures on primary and secondary/tertiary services

Primary health services are those provided to whole populations (community and public health services) and those provided in, or flowing from, a patient-initiated contact with a health service. Secondary services are those generated within the system by referral, hospital admission, etc.

For Aboriginal and Torres Strait Islander people, expenditure on primary health services comprised:

- allocated expenditures on community and public health services;
- all expenditures by ACCHS;
- estimates of all Medicare-paid general practitioner (GP) services to Indigenous people (and the diagnostic services ordered by them);
- estimates of all GP-ordered PBS drugs;
- 50 per cent of the estimated cost of hospital outpatient services; and
- half of the cost of transport for Aboriginal and Torres Strait Islander patients.

The remainder was classified as secondary/tertiary.

For non-Indigenous people, the same basic divisions were applied, although some of the proportions were naturally different. Administration and research were not divided for either group.
As in the first report (but contrary, perhaps, to some expectations) the overall ratio of Indigenous to non-Indigenous expenditures per person was somewhat higher for primary care services than for secondary/tertiary ones—1.27:1 compared with 1.19:1—and much higher for government programs—1.74:1 and 1.44:1 respectively (Table 1.7). This was despite the relatively high hospital admission rate for Aboriginal and Torres Strait Islander people.

There were (at least) three factors of significance here. The first was the very much higher use of both hospital outpatient and community health services by Aboriginal and Torres Strait Islander people. This is a category where non-Indigenous population use is largely limited to low-income groups.

Second, as might be expected, the use of transport services was high. Aboriginal and Torres Strait Islander patients accounted for nearly half the cost of the Royal Flying Doctor Service and the need for local transport was also high.

The third factor was the very low Aboriginal and Torres Strait Islander use of private dentistry, drugs and Medicare-paid medical services, particularly those of private specialists with all of their flow-on effects in terms of private hospitalisation and relatively high-cost, high-technology treatment. Low spending in these areas almost offset any pro-primary bias in government-run services for Aboriginal and Torres Strait Islander people.

These data do not give any indication as to the appropriate distribution between primary health care and secondary/tertiary health care services for Aboriginal and Torres Strait Islander people. The balance between primary and secondary/tertiary health care services required by, and culturally appropriate for, a young, low-income population may well be different from the balance that is required by, and is appropriate for, the general population. There is evidence that much Aboriginal and Torres Strait Islander mortality and morbidity is preventable and ‘that further consideration is needed to service delivery reform at all levels (i.e. primary, secondary and tertiary) in the health system and the distributions of funding’ (Stamp, et al. 1998).
### Table 1.7: Direct expenditures\(^{(a)}\) on primary and secondary/tertiary health services through Commonwealth, State and local government programs and the private sector, 1998–99

<table>
<thead>
<tr>
<th>Source</th>
<th>Total ($m)</th>
<th>Per person ($)</th>
<th>Total ($m)</th>
<th>Per person ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenous</td>
<td>Other</td>
<td>Indigenous</td>
<td>Other</td>
</tr>
<tr>
<td>Acute-care institutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admitted patient services</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Non-admitted patient services</td>
<td>62</td>
<td>1281</td>
<td>154</td>
<td>70</td>
</tr>
<tr>
<td>Mental health institutions</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>High-care residential aged care</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Community and public health</td>
<td>355</td>
<td>3137</td>
<td>874</td>
<td>170</td>
</tr>
<tr>
<td>Patien transport</td>
<td>22</td>
<td>115</td>
<td>53</td>
<td>6</td>
</tr>
<tr>
<td>Medicare and other medical</td>
<td>59</td>
<td>5773</td>
<td>146</td>
<td>313</td>
</tr>
<tr>
<td>PBS drugs &amp; appliances</td>
<td>22</td>
<td>3242</td>
<td>55</td>
<td>176</td>
</tr>
<tr>
<td>Total govt programs</td>
<td>521</td>
<td>13,549</td>
<td>1282</td>
<td>735</td>
</tr>
<tr>
<td>Ratio: Indigenous/other per person</td>
<td>1.74</td>
<td>1.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Expenditure on private sector services | | | | | | |
| Private hospitals | .. | .. | .. | .. | 10 | 4092 | 25 | 222 |
| Dental & other professional | 17 | 3928 | 42 | 213 | .. | .. | .. | .. |
| Medical (compensable, etc.), non-PBS medicines & appliances | 26 | 2731 | 66 | 149 | 5 | 609 | 13 | 33 |
| Total private sector | 43 | 6659 | 107 | 361 | 15 | 4701 | 37 | 255 |
| Ratio: Indigenous/other per person | 0.30 | 0.14 |
| Total govt & private | 564 | 20,208 | 1389 | 1096 | 638 | 24,258 | 1570 | 1316 |
| Ratio: Indigenous/other per person | 1.27 | 1.19 |

\(^{(a)}\) Administration and research not included.

Source: AIHW Health Expenditure Database


It is difficult to compare the figures in this report directly with those of the first report on 1995–96 expenditure, as there have been changes in both methodology and data availability. Nonetheless, after controlling for population growth and inflation, there are areas where it is possible to say with some confidence that there have been increases in funding and service provision.

On a per person basis at 1997–98 prices, the 1998–99 expenditures for Aboriginal and Torres Strait Islander people were 29 per cent higher than in the earlier survey and those for the non-Indigenous population were 10 per cent higher. How much of this relative change was a real change in both relative spending and service use?

It is difficult to know because the two reports, though conceptually similar, were in many ways quite separate attempts to estimate the same thing.
First, different data sources were sometimes used in the two reports. The hospital morbidity collection for admitted patients is, in principle, consistent, but it is subject to problems of under-identification that make it difficult to separate real changes from statistical artefacts with any certainty. In other services, the databases were different. The most recent estimates of Medicare and PBS outlays, for example, used a national survey of GP practice in lieu of the more limited, though more directed, surveys used in the 1995–96 report. Had that been available for the first report some figures would have been different.

Second, some of the methods of estimation and costing changed. Public hospital outlays were one such case. The first study adjusted Aboriginal and Torres Strait Islander Diagnosis Related Groups’ costs for differences in length of stay, whereas the calculations for 1998–99 added factors relating to higher cost intensity for Indigenous separations, and differentials in costs of hospitals within States.

Finally, the range of services for which there was some basis for estimating Aboriginal and Torres Strait Islander use widened. All of these changes make comparisons hazardous.

Table 1.8 separates, by program, changes in those expenditures where the indicators gave documented support for some ‘real’ differences (column 2), from those where different methodologies and different data sources make it impossible to separate real increases from changes in the estimation process (column 3). The two were of broadly similar importance. However, there were elements of ‘real’ increase in the second category, so that the true difference between 1995–96 and 1998–99, while clearly less than 29 per cent, was somewhat more than 15 per cent. That was significantly more than the 10 per cent per person increase in non-Indigenous spending.

Overall, the aggregate effect was small. The proportion of all Australian health expenditures going to Aboriginal and Torres Strait Islander people have increased from 2.2 per cent of recurrent expenditure in 1995–96 to 2.6 per cent in 1998–99. In the 1995–96 report, it was estimated that $178 million was spent through Commonwealth programs for health services for Aboriginal and Torres Strait Islander people (excluding grants to the States). The estimate for expenditures through Commonwealth programs in 1998–99 was $281 million. Differences in estimation procedures and the effect of sample error mean that the difference between the two amounts cannot be interpreted as growth in expenditure.

There have undoubtedly been some increases in real expenditures over this period. However, the extent of these is unclear. Approximately half of the change is due to documented increases in service delivery to the value of $55.1 million. This is described below. The remaining half is due to method changes, survey error and some real increases that cannot be quantified. The documented increase in health services expenditure per Aboriginal and Torres Strait Islander person of 20 per cent compares with a 10 per cent increase in real per person expenditure for non-Indigenous people.

Documented increases in service delivery include:

- Medical services delivered by ACCHS and State medical services increased by 135,000 GP services and 55,500 other medical services, for which Medicare benefits of about $5.3 million were paid in 1998–99.
- Health services expenditure through Indigenous-specific health programs, after adjustment for non-Indigenous use, increased by $35.5 million.
In addition to the above, in 1998–99 OATSIH paid $14.3 million to States and Territories for Indigenous-specific health services, such as for sexual health, Remote Communities Initiatives, Coordinated Care Trials, and for an ACCHS in the Australian Capital Territory. These payments were included in Commonwealth direct expenditure in the 1995–96 report (and so were double counted), but in 1998–99 were not double counted as they are counted only in State expenditure. Thus, to measure the true increase in expenditure between the two years, this $14.3 million needs to be added to the $35.5 million and $5.3 million above to ascertain documented increases in services. This gives a total of documented increases in expenditure on services delivered of $55.1 million.

<table>
<thead>
<tr>
<th>Type of program</th>
<th>Documented (real) change %</th>
<th>Additional changes: changes in methods, new data sources and real change %</th>
<th>Total %</th>
<th>Percentage of total expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>State &amp; Territory programs</td>
<td>12</td>
<td>9</td>
<td>22</td>
<td>72.0</td>
</tr>
<tr>
<td>Commonwealth programs</td>
<td>20</td>
<td>19</td>
<td>42</td>
<td>22.6</td>
</tr>
<tr>
<td>Other sectors</td>
<td>30</td>
<td>38</td>
<td>79</td>
<td>5.5</td>
</tr>
<tr>
<td>All programs</td>
<td>15</td>
<td>12</td>
<td>29</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Numbers in this table must be combined geometrically not added arithmetically—e.g. 15 + 12 does not equal 29, but \(1.15 \times 1.12 = 1.29\)

Directions for future research

The data we have produced is comprehensive by world standards. Most reports on Indigenous health expenditure are limited in scope, in that some only cover Indigenous-specific health programs and others only cover government-funded programs, whereas the Australian study encompasses all health programs across government and private sectors. But there is more that could be done, including:

- enhancement of metropolitan/rural/remote division of expenditures; and
- compiling and examining expenditure by age/sex group.

The fundamental limitation of the health expenditure work done so far is that it only describes expenditure on health services, it does not analyse the connection between health services and expenditure and health. Thus, one cannot deduce from this work what extra health services are needed in which areas in order for Aboriginal and Torres Strait Islander people to have the same standard of access to health services as the rest of the population. Nor does it indicate what health services are required to start to close the twenty-year gap in life expectancy between Aboriginal and Torres Strait Islander people and the rest of the Australian population.

Endnotes

1 The Northern Territory, Western Australia and South Australia are the only States with accurate Indigenous identification in death statistics in this period.
2 The ABS analysis does not include people living in the sparsely settled areas of Australia. This excluded 18 per cent of the Aboriginal and Torres Strait Islander population and 0.5 per cent of the non-Indigenous population.
References

Australian Bureau of Statistics (ABS) 1999, National Health Survey, Aboriginal & Torres Strait Islander Results 1995, ABS cat. no. 3101.0, Australian Government Printing Service (AGPS), Canberra.


Australian Institute of Health & Welfare 2001, Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99, AIHW cat. no. IHW 7, AIHW and Commonwealth Department of Health & Aged Care (DHAC), Canberra.

Deeble, J., Mathers, C., Smith, L., Goss, J., Webb, R. & Smith, V. 1998, Expenditures on Health Services for Aboriginal and Torres Strait Islander People, AIHW cat. no. HWE 6, Commonwealth of Australia, Canberra.

Department of Health and Aged Care 1999, Occasional Papers Series No.5: Health Policy and Inequality, Commonwealth of Australia, Canberra.


Phillips, A. 2001, in AIHW, Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99, AIHW cat. no. IHW 7, AIHW and DHAC, Canberra.

1. The Indigenous Funding Inquiry (hereafter Inquiry) had its origins in an election policy document released in September 1998 by the then Minister for Aboriginal and Torres Strait Islander Affairs, Senator John Herron, which said, among other things, that the government intended to:

- ask the Commonwealth Grants Commission to develop measures of relative disadvantage that could be used to target resources more effectively towards those groups within the Indigenous population that are in the greatest need.

2. The terms of reference for the Inquiry were received in late November 1999.

3. In February 2000, four part-time Commissioners (two of them Aboriginal) were appointed specifically to undertake the Inquiry. The final report was provided to the government at the end of March 2001, as required by the reference.

4. The reference asked the Commonwealth Grants Commission (hereafter the Commission):

- to develop methods of calculating the relative needs of Indigenous Australians in different regions for specific services (health, housing, infrastructure, education, training and employment);
- to take account of the expenditure on those services from all sources, especially by the Commonwealth, States and Territories;
- to the extent possible from existing data sources, calculate indexes of need; and
- to compare the results with the actual distribution of expenditure on those functions.

5. The reference said that, if possible, ‘regions’ should be interpreted as the thirty-five regions of the Aboriginal and Torres Strait Islander Commission (ATSIC) and the area of the Torres Strait Regional Authority.

Limits on the Inquiry

6. Throughout the Inquiry, many of the organisations and people the Commission met with argued strongly that addressing the large gap between Indigenous and non-Indigenous people was more important than redistributing existing levels of funding on the basis of differences in need between groups of Indigenous people. They said that the Commission should estimate the total level of resources required to provide Indigenous people with services comparable to those that were received by non-Indigenous people.
7. Despite the logic of those arguments, it was clear that the government did not ask the Commission to estimate the total resources required to remove Indigenous disadvantage. It asked it to ‘determine the needs of groups of Indigenous Australians relative to one another’.

8. However, the Commission did conclude that Indigenous people in all regions have high needs relative to the non-Indigenous population, and that it was important for governments to consider whether new methods of distribution should be applied to existing programs and funds. It noted that any change in methods of distributing existing resources meant that some regions would lose funding and others would gain and that large redistributions risk losing the benefits of investments made over long periods of time.

9. The terms of reference also asked the Commission to concentrate on health, housing, infrastructure, education, training, and employment services. Many participants argued that the Inquiry should consider other services, such as those related to culture and land, law and order, community services and welfare services. The Commission agreed that those services are important to the wellbeing of Indigenous people, that they impact on the key functions for the Inquiry, and that the need for them varies between regions. However, practical considerations prevented it from extending the range of services examined.

**Relative needs**

10. Circumstances of Indigenous Australians. The Commission found that the social, economic and cultural circumstances of Indigenous Australians differ greatly between urban, rural and remote locations, and between and within ATSIC regions. It also found that in all regions, and across all functional areas it examined, Indigenous people experience entrenched levels of disadvantage as compared to non-Indigenous people.

11. Measuring needs. Measuring the needs of Indigenous people in various regions relative to one another was a major requirement of the reference. When the Commission considered this issue it was confronted with many conceptual and practical issues, including questions as to whether needs should be measured in terms of:

   (i) the need for individual government services or at broader functional levels;

   (ii) inputs, outputs or outcomes; and

   (iii) per capita or total terms for each region.

12. It concluded that needs should be measured on the basis of outcomes per capita at the broad functional level. It reached this decision because:

   - outcomes avoid any implication that one program or process will work in all circumstances—that is, inputs and outputs are a means to an end;
   - outcomes allow consideration of whether the needs of Indigenous people are being effectively addressed;
   - outcomes are more consistent with the role of the Commonwealth in setting broad policy directions; and
   - per capita or per household measures better highlight relative needs.
13. However, the Commission was also aware that the per capita needs could vary between localities in a region and that decisions on appropriate resource allocation processes should be based on an agreed concept of equity—for example, is the aim to reduce regional disparities in needs or to improve the situation of all people.

14. The Commission encountered large problems in constructing regional indexes of relative needs, because of the well-known absence of comprehensive, comparable and up-to-date data. Much of the available data were not useful for the national perspective the Commission was asked to take—data were not available for all States or regions, and if they were they had differences that hindered regional comparisons. Even population data were contentious at the regional level; in our travels, every region except one argued that the Australian Bureau of Statistics (ABS) under-counted the Indigenous population.

15. The illustrative indicators the Commission calculated were mainly based on 1996 census data and some other national collections.

16. The indicators the Commission did measure consistently point to the highest needs per person (or per household) being in the remote ATSIC regions.

17. In the health areas, the indicators were based on mortality and hospital separation rates, as shown in Tables 1 and 2.

<table>
<thead>
<tr>
<th>Table 1: Age standardised death rates (per 100,000 people) for Indigenous Australians, 1994–98</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARIA Category</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Males Death rate</td>
</tr>
<tr>
<td>Ratio</td>
</tr>
<tr>
<td>Females Death rate</td>
</tr>
<tr>
<td>Ratio</td>
</tr>
</tbody>
</table>

Note: Data presented are for the residents of WA, SA and the NT

Source: AIHW National Mortality Database, 1994–98, Dept of Health and Aged Care
Table 2: Rate of hospital separations (per 1000 people) by RRMA for Indigenous Australians, 1996–97

<table>
<thead>
<tr>
<th>Rate Per 1000</th>
<th>Capital city</th>
<th>Other metro</th>
<th>Large rural</th>
<th>Small rural</th>
<th>Other rural</th>
<th>Remote centre</th>
<th>Other remote</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>99.93</td>
<td>97.85</td>
<td>230.89</td>
<td>278.45</td>
<td>297.49</td>
<td>n.a.</td>
<td>636.01</td>
<td>224.77</td>
</tr>
<tr>
<td>Vic. 125.54</td>
<td>126.62</td>
<td>246.79</td>
<td>437.46</td>
<td>375.73</td>
<td>n.a.</td>
<td>184.96</td>
<td>232.55</td>
<td></td>
</tr>
<tr>
<td>Qld 235.25</td>
<td>335.61</td>
<td>372.13</td>
<td>192.76</td>
<td>377.39</td>
<td>421.07</td>
<td>420.07</td>
<td>346.69</td>
<td></td>
</tr>
<tr>
<td>WA 424.62</td>
<td>n.a.</td>
<td>n.a.</td>
<td>374.49</td>
<td>420.53</td>
<td>604.76</td>
<td>584.27</td>
<td>508.56</td>
<td></td>
</tr>
<tr>
<td>SA 302.91</td>
<td>n.a.</td>
<td>410.16</td>
<td>745.53</td>
<td>386.22</td>
<td>n.a.</td>
<td>389.91</td>
<td>413.60</td>
<td></td>
</tr>
<tr>
<td>Tas. 13.9</td>
<td>n.a.</td>
<td>60.84</td>
<td>13.17</td>
<td>13.50</td>
<td>n.a.</td>
<td>28.99</td>
<td>20.03</td>
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<tr>
<td>ACT 139.59</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>100.00</td>
<td>n.a.</td>
<td>n.a.</td>
<td>139.15</td>
<td></td>
</tr>
<tr>
<td>NT 801.52</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>80.26</td>
<td>990.13</td>
<td>301.94</td>
<td>463.96</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>245.78</td>
<td>191.33</td>
<td>302.46</td>
<td>331.89</td>
<td>311.14</td>
<td>639.07</td>
<td>421.19</td>
<td>333.757</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ratio</th>
<th>NSW</th>
<th>0.30</th>
<th>0.29</th>
<th>0.69</th>
<th>0.83</th>
<th>0.89</th>
<th>n.a.</th>
<th>1.91</th>
<th>0.67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vic. 0.38</td>
<td>0.38</td>
<td>0.74</td>
<td>1.31</td>
<td>1.13</td>
<td>n.a.</td>
<td>0.55</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qld 0.70</td>
<td>1.01</td>
<td>1.11</td>
<td>0.58</td>
<td>1.13</td>
<td>1.26</td>
<td>1.26</td>
<td>1.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA 1.27</td>
<td>n.a.</td>
<td>1.12</td>
<td>1.26</td>
<td>1.81</td>
<td>1.75</td>
<td>1.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA 0.91</td>
<td>n.a.</td>
<td>1.23</td>
<td>2.23</td>
<td>1.16</td>
<td>n.a.</td>
<td>1.17</td>
<td>1.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tas. 0.04</td>
<td>n.a.</td>
<td>0.18</td>
<td>0.04</td>
<td>0.04</td>
<td>n.a.</td>
<td>0.09</td>
<td>0.06</td>
<td></td>
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<tr>
<td>ACT 0.42</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.24</td>
<td>2.97</td>
<td>0.90</td>
<td>1.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NT 2.40</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>0.24</td>
<td>2.97</td>
<td>0.90</td>
<td>1.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.74</td>
<td>0.57</td>
<td>0.91</td>
<td>0.99</td>
<td>0.93</td>
<td>1.91</td>
<td>1.26</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Source: AIHW, Hospital Morbidity Database, 1996–97

18. These indicators present a broad picture of relative health status that will be familiar. But, for conceptual and practical reasons, they are not totally appropriate to the measurement of outcomes or need for health care. Nor do they, by themselves, provide a reliable guide to the need for resources.

(i) Conceptual issues

- Indigenous people have a broad perspective of health status which is not fully reflected in morbidity and mortality data.
- Morbidity, as measured by hospital separations, reflects met, not unmet, need—an important distinction in the case of Indigenous people where there are access issues.
- Hospitalisation and deaths only indirectly reflect aspects of physical health status, such as the need for primary health services that are delivered outside hospitals.
- The indicators give the same weight to all deaths and hospital separations, but some conditions have a greater impact on health outcomes and some require more resources to deal with them.
(ii) Practical issues

- Data are not reliable below a broad geographical level. Mortality data are not reliable at the ATSIC region level in any State and are only reliable at the State level for Western Australia, South Australia and the Northern Territory. For those States, the data are available on the basis of remoteness using the ARIA classification.
- Identification of Indigenous people in the data is problematic.
- Morbidity data reflect the location of hospitals and access to services and are imperfect indicators of health status based on where people live. This is a particular problem when people travel long distances for treatment or relocate to where treatment is provided.

Index of Indigenous socio-economic disadvantage

19. During the Inquiry, there was a demand for a broad indicator that could summarise other more specific material. The Commission engaged the ABS to prepare an Index of Indigenous socio-economic disadvantage similar to its general socio-economic indexes. It was anticipated that the ABS would adopt statistical procedures similar to those used for the general indexes, but that the index would be tailored to the circumstances of Indigenous disadvantage and use a broader range of data (the general indexes are constructed from census data only).

20. The ABS did construct an experimental index using indicators of income, educational attainment, occupation, housing condition and health. Those indicators were based on information drawn from the 1996 Census, the 1994 National Aboriginal and Torres Strait Islander Survey and the National Perinatal Collection.

21. The resulting experimental index ranks ATSIC regions on the basis of general socio-economic disadvantage, but it does not provide any information about the absolute level of disadvantage or about the relative size of differences between regions in their disadvantage. The ranking of regions is shown in Figure 1.

22. This work was contentious for a number of reasons, including the following:

(i) it is a composite indicator where the outcome is affected greatly by the statistical processes and assumptions used in its preparation;
(ii) it does not take account of the important cultural dimension of disadvantage, which may have a very different geographic pattern than economic-based indicators; and
(iii) as a composite indicator it tells us very little about the need for particular services—indexes tailored to each service would be better.
23. The Commission was well aware of the limitations of the index. It was also aware that the general indicators of socio-economic disadvantage went through a lengthy developmental period involving debate and refinement, which could not be replicated during its Inquiry. Consequently, the experimental indexes are little more than a good basis for further debate on indexes for the Indigenous population, if other researchers or policy makers want to take them forward.

24. The Commission did not use the index in forming its conclusions, but the ABS results generally supported the thrust of the indexes the Commission prepared. It indicated that the more remote ATSIC regions tend to be those with the greatest level of socio-economic disadvantage. Comparisons in the ‘Supporting Material’ that accompanied the Commission report confirm the generally accepted view that many aspects of disadvantage—low education attainment, low employment, low income, poor housing circumstances—usually cluster together.
Measuring health needs

25. The Commission knew that the measurement of health needs was a difficult task for many reasons, including the different perspectives of Indigenous and non-Indigenous people on health need and the limitations of available data. It sought the assistance of the Office of Aboriginal Health in Western Australia to help it build a picture of Indigenous people’s health needs and access to services in various regions.

26. The rather ambitious aim of the project was to use Western Australian data to establish a process of measuring need based on readily available proxy indicators, and then apply the process to data for the other States. The project produced a model for measuring relative need that attempted to reflect many aspects of need, including:

- health status;
- capacity to benefit from health resources;
- impact of geographic location on costs;
- relative disadvantage; and
- capacity of communities to plan for and manage services.

27. The project also produced much interesting data on aspects of health status and service accessibility in Western Australia. However, it did not achieve the aim of generalising the model to other States.

28. The Commission concluded that, while the model developed by Western Australia faced many practical problems stemming from data deficiencies and the consequent need for judgment, it should be further examined. Since the model is the subject of other papers at this conference, it is not considered further here.

Linking Needs and Resource Allocation

29. The Commission also looked at the practical and conceptual issues in attempting to link needs with resource allocation processes and service delivery. These issues included the realities of service delivery arrangements, the limited role of the Commonwealth, the necessity for Indigenous people to be involved in decision-making processes, and conceptual issues of linking needs and resource allocation.

Service delivery arrangements

30. Although the Inquiry was primarily directed at Commonwealth Indigenous-specific programs, it became clear early in the process that it would have to cover a much wider field. Commonwealth Indigenous-specific programs are part of complex service delivery arrangements that cover many programs provided by the Commonwealth, State and local governments, private organisations and individuals. Any resource-allocation process must take account of the interactions between all these service providers and the inputs they each provide.

31. In the health field, public provision of services is largely a State government
responsibility, although the Commonwealth is the key funder and plays a role in developing national policy directions and priorities.

32. Figure 2 shows how the programs funded by the Commonwealth fit together. It highlights the multiplicity of Commonwealth programs, and emphasises that services to Indigenous people are provided through both mainstream services and Indigenous-specific services.

33. The Commission found that, generally, Indigenous people had much lower access to mainstream services than their high levels of disadvantage would suggest. In the health field, data prepared by the Australian Institute of Health and Welfare (AIHW) in its report Expenditures on Health Services for Aboriginal and Torres Strait Islander People, 1998–99, and summarised in Table 3, suggest that Indigenous people use mainstream programs in primary health care (MBS and PBS) at about 35 per cent of the rate of non-Indigenous people. Use of public hospitals by Indigenous people is a little more than twice that of non-Indigenous people. However, whether that higher use of public hospitals is consist with Indigenous people’s greater level of health need is unknown—the available indicators are drawn from data on hospital use and take no account of unmet need.

34. Some initiatives have been taken to address access problems in mainstream programs. In the health field these include changes in the range of benefits available under Medicare and the Pharmaceutical Benefits Scheme (PBS), changes in procedures associated with those programs, better targeting of other health programs and action to improve the cultural sensitivity of service delivery, especially in hospitals. While the AIHW report suggests these changes are having an impact, they fall short of the improvements needed to address the existing disadvantage of Indigenous people.

35. As a result, the Indigenous-specific programs, which are intended to provide targeted assistance to supplement the mainstream programs, are expected to do more than they were designed for and, as a consequence, focus less on the disadvantaged. Indigenous-specific programs in the health field are primarily shown in the ‘community and public health’ line of Table 3 (see p. 93).
### Figure 2: Overview of major Commonwealth programs, 1999–2000

#### PRIMARY HEALTHCARE

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice Incentive Program</td>
<td>$184m</td>
</tr>
<tr>
<td>Public Health Outcome Funding Agreement</td>
<td>$177m</td>
</tr>
<tr>
<td>Health Program Grants—an alternative to Medicare and PBS</td>
<td>$89m</td>
</tr>
<tr>
<td>Regional Services and Rural Health Support Education and Training</td>
<td>$29m</td>
</tr>
<tr>
<td>National Drugs Strategy</td>
<td>$15m</td>
</tr>
<tr>
<td>Medicare, $6900m (also acute care)—Section 19(2) arrangements with ACCHSs and State Services</td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical Benefits Scheme, $3400m—Section 100 arrangement to ACCHSs and State Services in remote areas</td>
<td></td>
</tr>
<tr>
<td>Co-ordinated Care Trials—4 are Indigenous specific (see below)</td>
<td></td>
</tr>
<tr>
<td>GP Immunisation Incentives</td>
<td>$38m</td>
</tr>
<tr>
<td>Commonwealth Hearing Services Program</td>
<td>$147m</td>
</tr>
</tbody>
</table>

#### INDIGENOUS SPECIFIC PROGRAMS RUN BY OATSIH

- Health service base funding, $83m
- Health Access, $2m
- Indigenous Coordinated Care Trials, $3m
- Remote services, $4m
- Substance misuse, $16m
- Mental Health, $10m
- Hearing services, $2m
- Specialist services $3m
- Sexual Health, $7m
- Eye Health, $4m
- Immunisation, $0.2m
- Staff training support, $2m
- Management support, $1m

#### ACUTE CARE

- Home and Community Care, $525m
- Residential Aged Care Services and Community Care Packages, $3141m
- Community Aged Care Packages program, $165m
- Aboriginal Aged Care Strategy, $15m

#### AGED & COMMUNITY CARE

- Australian Health Care Agreements, $5900m
- Royal Flying Doctor Service, $280m (also Primary Health)

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Source: Information concerning mainstream programs from DHAC Submissions, June 2000, and information concerning OATSIH programs from unpublished data supplied by OATSIH.
The role of the Commonwealth

36. Table 4 (see next page), which is drawn from the AIHW work, confirms that while the Commonwealth is a key funder of health services, most service provision is under State control or reflects private sector economic considerations. Consequently, the Commonwealth has limited direct influence on the extent to which the distribution of mainstream programs, including those funded through specific purpose payments to the States, reflects the relative needs of Indigenous people in different regions.

37. The Commonwealth, however, does exert indirect influence over the actions of State and non-government providers. It does so through its Indigenous-specific programs, its policy making role, and the development of partnerships and other collaborative arrangements aimed at improving co-ordination between governments and their agencies, and at providing Indigenous people with a greater role in making decisions that affect them. These initiatives have proceeded furthest in the health, housing and infrastructure functions.

### Table 3: Estimated government and private expenditure on health services, 1998–99

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Indigenous</th>
<th>Non-Indigenous</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>$pc</td>
<td>$m</td>
</tr>
<tr>
<td><strong>Government services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public hospitals—admitted patients</td>
<td>457</td>
<td>1125</td>
<td>10,278</td>
</tr>
<tr>
<td>Public hospitals—non-admitted patients</td>
<td>125</td>
<td>307</td>
<td>2562</td>
</tr>
<tr>
<td>Mental institutions</td>
<td>26</td>
<td>64</td>
<td>465</td>
</tr>
<tr>
<td>Residential high level aged care</td>
<td>40</td>
<td>99</td>
<td>3853</td>
</tr>
<tr>
<td>Community and public health</td>
<td>355</td>
<td>874</td>
<td>3137</td>
</tr>
<tr>
<td>Patient transport</td>
<td>43</td>
<td>106</td>
<td>577</td>
</tr>
<tr>
<td>Medicare and other medical(a)</td>
<td>73</td>
<td>179</td>
<td>8632</td>
</tr>
<tr>
<td>PBS medicines</td>
<td>25</td>
<td>61</td>
<td>3611</td>
</tr>
<tr>
<td>Administration and research</td>
<td>41</td>
<td>101</td>
<td>1324</td>
</tr>
<tr>
<td><strong>Total government</strong></td>
<td>1185</td>
<td>2917</td>
<td>34,439</td>
</tr>
</tbody>
</table>

| Non-government services                 |            |                |         |          |
| Private hospitals                       | 10         | 25             | 4,092   | 222      | 0.11    |
| Dental and other professional           | 17         | 42             | 3,928   | 213      | 0.20    |
| Other                                   | 33         | 82             | 3,963   | 215      | 0.38    |
| **Total non-government**                | 60         | 148            | 11,982  | 650      | 0.23    |
| **Total**                               | 1245       | 3065           | 46,421  | 2518     | 1.22    |

(a) Optometrical and Medicare dental included.

*Source: AIHW, Preliminary Findings of the Report on Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99, AIHW/DHAC, Canberra. (The table has not been amended to include the figures from the final report which was published in August 2001.)*
Table 4: Sources of funding government and non-government programs for Indigenous people, 1998–99

| Source: AIHW, Preliminary Findings of the Report on Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99, AIHW/DHAC, Canberra. (The table has not been amended to include the figures from the final report which was published in August 2001.) |

<table>
<thead>
<tr>
<th>Source</th>
<th>Indigenous $pc</th>
<th>Non-Indigenous $pc</th>
<th>Ratio Indigenous/ non-Indigenous</th>
</tr>
</thead>
<tbody>
<tr>
<td>State and local government</td>
<td>1390</td>
<td>504</td>
<td>2.76</td>
</tr>
<tr>
<td>Commonwealth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct: MBS/PBS</td>
<td>196</td>
<td>506</td>
<td>0.82</td>
</tr>
<tr>
<td>Other programs</td>
<td>455</td>
<td>290</td>
<td></td>
</tr>
<tr>
<td>Indirect (payments to States)</td>
<td>736</td>
<td>399</td>
<td>1.84</td>
</tr>
<tr>
<td>Total Commonwealth</td>
<td>1388</td>
<td>1195</td>
<td>1.16</td>
</tr>
<tr>
<td>Private</td>
<td>287</td>
<td>818</td>
<td>0.35</td>
</tr>
<tr>
<td>Total</td>
<td>3065</td>
<td>2517</td>
<td>1.22</td>
</tr>
</tbody>
</table>

38. While it is too early to determine whether these processes are reducing Indigenous disadvantage, they are increasing participation in the processes. This will help policies become more effective in targeting need, and in providing more culturally appropriate services that recognise the diversity of Indigenous people.

Comparing needs with existing patterns of resource allocation

39. Meaningful quantitative comparisons of the regional pattern of relative needs indicators and the existing regional distribution of expenditure were rarely possible because of the lack of expenditure data, especially for mainstream programs. The work of J. Deeble, C. Mathers, L. Smith, J. Goss, R. Webb and V. Smith in the report *Expenditures on Health Services for Aboriginal and Torres Strait Islander People for 1995–96*, and the updated report by the AIHW covering 1998–99, is the most complete information for any of the functions the Commission examined. However, the regional analysis in those reports covered only States and regions based on RRMA or ARIA, and not the ATSIC or similar regions that the Commission was asked to examine.

40. Based on qualitative comparisons of processes, the Commission concluded that some of the Commonwealth’s own-purpose Indigenous-specific programs in the health area are beginning to reflect relative needs. Overall, however, historical patterns or relative costs are the focus of funding distribution.

Conceptual issues in linking needs and resource allocation

41. Linking needs with resource allocation requires processes that take account of the many different programs and the different roles of each group of providers in the allocation and service delivery processes. Quantitative models cannot do this in a way that would be accessible to decision makers.

42. Even more problematic is the absence of any obvious and simple proportional relationship between measures of needs (defined in terms of outcomes) and the
funds made available to achieve those outcomes. Government funding processes do not fit well with the highly multi-dimensional nature of Indigenous need. For example, the Commission was told that most of the actions that could lead to improvements in the health outcomes of Indigenous people were outside the conventionally defined health field.

**Allocation processes**

43. The Commission concluded that a better alignment of funding with needs could not be achieved through formula-based allocation processes alone. Decision-making processes must be able to function in the real world where resources generally flow downwards from the Commonwealth and the States, but much of the information required for more effective decisions on allocation and service delivery flow upwards from the local level. It considered that data, particularly on regional differences in demand and unit costs, and judgment, especially that of Indigenous people, were vital inputs in the decision-making process.

44. The Commission proposed the following principles for improving decision making:

(i) the full and effective participation of Indigenous people in decisions affecting funding distribution and service delivery;

(ii) a focus on outcomes;

(iii) ensuring a long-term perspective to the design and implementation of programs and services;

(iv) ensuring genuine collaborative processes with the involvement of government and non-government funders and service deliverers, to maximise opportunities for pooling of funds, as well as multi-jurisdictional and cross-functional approaches to service delivery;

(v) recognition of the critical importance of effective access to mainstream programs and services, and clear actions to identify and address barriers to access;

(vi) improving the collection and availability of data to support informed decision making, monitoring of achievements and program evaluation; and

(vii) recognising the importance of capacity building within Indigenous communities.

45. It considered achieving equitable access for Indigenous people to mainstream services to be the highest priority. It also noted that for those communities where capacity building is lacking, a higher initial investment of resources will need to be made to provide a framework for the effective delivery of services and sustainable outcomes.

**Specific health conclusions**

46. This paper has used examples from the health field to illustrate the main findings of the Commission. The attachment at the end of this paper (see p. 97) is an extract from the Commission’s report outlining its specific conclusions relating to health services.
**Future Research**

47. The Commission was in no doubt that judgment will always play a large role in decision making on resource allocation, but it must be informed judgment. If governments are serious in wanting quantitative indicators to play a major role in shaping those judgments, more data and research are required.

48. In trying to take a regional perspective across the entire nation, the Commission encountered large data deficiencies that need to be overcome, even under the decentralised decision-making processes implied by the Commission’s conclusions. This creates many possibilities for research.

49. More comprehensive and comparable information is needed on what services governments provide, how they provide them and where they provide them, including:

   (i) descriptions of government programs and services, including outlines of how decisions on resource allocation are made—the Supporting Material volume of the Commission’s report contains some of this information but it needs to be updated and a more complete coverage of State government services would be desirable;

   (ii) data on use of health services—despite the efforts that are being made the data for some States and for regions in most States are unreliable; and

   (iii) build on the AIHW work to provide a regional disaggregation of the expenditure governments incur in providing services to Indigenous people.

50. Detailed discussion of the concepts underlying the multi-variable model of measuring Indigenous health needs and practical considerations of implementing it would also be worthwhile. Processes for identifying and measuring the relative needs of communities in relation to capacity building would be of particular interest.

51. Some of the arguments put to the Commission reflected different perspectives on equity. Some detailed consideration of Indigenous perspectives of equity, whether they differ from non-Indigenous perspectives and the implications of any differences could be worthwhile.

52. Further work on the index of Indigenous socio-economic disadvantage would also be useful. Such work could include the relatively straightforward task of updating it to include information from the 2001 Census. But, more importantly, it should look at ways of better reflecting health needs and of including some of the other dimensions of Indigenous disadvantage. Given the inevitable conceptual difficulties and the different uses such indicators could be put to, it may be desirable to develop several indexes aimed at reflecting, say, broad economic disadvantage and cultural and social disadvantage.

53. Finally, further research aimed at better understanding what drives changes in Indigenous health outcomes is required. Such research is essential because the Commission was often told that there are large interactions among needs, and because it concluded that decision making must systematically reflect the diversity among Indigenous peoples and the circumstances in which they live. It was also said that, in some cases, questions related to how, where and when
resources are used can be as important as the level of resources that is available. This research could cover:

- the interactions between services (how closely related are poor housing, education and health outcomes); and
- the interactions between the cultural and socio-economic circumstances of communities and the level of government inputs (why does a certain level of input produce higher or lower outcomes in various locations).

**Attachment**

**Main findings relative to health services**

1. The main findings relating to health services are as follows:

   (i) The health outcomes for Indigenous Australians are much poorer than for other Australians. The health status of Indigenous people in remote areas is poorer than that of Indigenous people in urban and rural areas.

   (ii) It is critical for the Commonwealth to increase Indigenous people’s access to Medicare and PBS.

   (iii) Over the past decade the Commonwealth has increased expenditure on primary health care and is continuing to expand programs in this area through a mixture of additional funds and by increasing access to Medicare and PBS. However, a further significant increase in these funds would be necessary to bring direct Commonwealth expenditure on Indigenous people to the Australian average.

   (iv) There is no evidence that any State, region or location has resources excessive to those required to address the health needs of Indigenous people.

   (v) On the evidence presented to us, the poorer health status of Indigenous people, and their greater reliance on the public health system, would justify at least a doubling of the average per capita government expenditure on non-Indigenous people.

   (vi) Total resources for Indigenous health are greater in urban areas than in rural and remote regions. This is similar to health financing for all Australians but does not match the pattern of needs for Indigenous health funding.

   (vii) In considering different ways to measure needs for primary health care, we encountered conceptual and practical difficulties that must be addressed if reliable measures of relative health need are to be developed.

   - The funds used to meet the needs of Indigenous people are not easily identified (especially for mainstream programs), making it hard to measure gaps in funding.

   - Reliable data to measure health status are not generally available for small areas, and reasonable information at State level is available only in some States.

   - Measures that are available may not assist with resource allocation decisions. Some data (for example, hospital separations data) reflect met need and only partially assist in the identification of unmet need and gaps in services.
• Needs may not be met because of systemic or other structural problems—for example, poor access to services. (Structural issues are difficult to factor into broad measures of need.)

• Local variation in needs and the different ways needs are met cannot be reflected in indicators.

• Links between changes in outcomes and the quantum of funds required to achieve them are not fully known.

(viii) Measuring needs for Indigenous people, a small group within the total population, is difficult. Progress is being made through detailed regional health planning to identify areas with poor access to services. In spite of the difficulties, further development of measures of need is required to assist decision making and to assist governments to direct funding to areas with the greatest access problems. We have suggested two approaches, a multi-factor model and a population approach, which should be further explored.

(ix) The most important factors that will contribute to improving access to, and the effectiveness of, primary health care services for Indigenous people are:

• working partnership arrangements and effective community control of services;

• the continual improvement of mainstream services and support for programs that address reasons for poor access to services;

• the expansion of community-controlled services based on regional health plans;

• a stronger focus on environmental health issues; and

• continued efforts to deal with workforce issues.

(x) Acute care services provide care to all Australians. Indigenous people use hospitals more than expected, partly due to poor primary health care services and because they present late in the disease process and tend to require greater care. Improved support services, such as patient transport and liaison officers, would assist Indigenous people gain a better service.

(xi) The Commonwealth’s ability to influence the regional distribution of acute care funds according to Indigenous need is limited.

(xii) Indigenous people’s desire to see elders remaining in communities can be assisted through a stronger emphasis on community-based care.
The Need for a New Approach

This paper deals with the question of resource allocation within Aboriginal health, the question of how best to allocate additional resources across different regions or Aboriginal communities. First used in a submission by the Office of Aboriginal Health at the Health Department of Western Australia to the Commonwealth Grants Commission Inquiry into Indigenous Funding (CGC 2001), the approach outlined could be used (but is not in this paper) on the broader issue of allocation between Aboriginal and non-Aboriginal health. It argues that the basis on which such resource allocation formulae normally function is less than ideal. This is, in essence, because such formulae tend to see the relevant issues in terms of the size of the problem rather than the capacity to benefit in the way that resources are allocated. Among other things, the new approach takes account of the idea of value added, that is, attempting to improve existing situations. If we are to try to ‘do better’, this entails firstly defining that good which is then to be improved. Consequently, in addressing resource allocation issues, the starting point of this new approach is the determination of what it is that the resources are to achieve, that is, the nature of the good.

Concentrating on ‘capacity to benefit’ might appear to give undue emphasis to concerns about efficiency as opposed to equity. While efficiency does matter, the capacity to benefit concept outlined in this paper is weighted to take account of the relative disadvantage of different communities that might receive funding through this approach.

It is also the case that, with respect to the allocation of resources geographically across different Aboriginal communities, some of these communities function better than others in terms of their respective abilities to use resources for new or incremental programs. Most resource allocation formulae do not take account of this differential across different regions or communities. It is considered to be a major advantage of this new approach that it does take this aspect, called ‘MESH (Management Economic Social and Human) infrastructure’, into account (more detail below).

In the next section, some of the problems with existing resource allocation formulae will be spelt out. Section 3 then addresses the question of the nature of the good that resource allocation in Aboriginal health might address. In Section 4 the approach of weighted capacity to benefit and MESH infrastructure is outlined followed by a brief conclusion in Section 5.
**Existing Resource Allocation Formulae**

Most of the resource allocation formulae that exist in health care can be traced back to the Resource Allocation Working Party (RAWP) formula devised for England in 1976 (DHSS 1976). For example, the Resource Development Formula in New South Wales (NSW Health Dept 1996) is a grandchild of that RAWP approach.

The essence of all such formulae is that the greater the health problems in a particular geographical region *ceteris paribus*, the greater should be the resources allocated to that region. Thus, if there are only two regions both with the same size and distribution by age and sex of population but one is, in some sense, twice as sick as the other, then the sicker region would receive more resources. Usually such formulae go on to argue that the resources should be twice as great to reflect the twice as great rate of sickness. This, we would suggest, is allowing the size of the problem to be the imperative in deciding upon resource allocation, the logic of which is difficult to comprehend.

While it would be reasonable to expect that a region with more health problems should receive more health care resources there is little reason to believe that this should be done pro rata. This, of course, must depend on what the objectives of the exercise are and also on the relative productivity of resources in the two regions. Here we are discussing the question of the allocation of *health* care resources and it is clear that some health problems are more amenable to health care interventions than others: some have more efficient health care interventions available, while some may be better addressed through housing, education or another social service. There are problems in assuming that the productivity of health care resources is in any sense a function of the size of the health problem. Certainly, to assume that that productivity is in direct proportion with the size of the problem is not logical.

Such formulae must be concerned with some objective. What is that objective? It may well be to maximise the health of the population. Allocating health care resources pro rata with the size of the health problem, however, is unlikely to achieve this end. It is thus unclear, at best, as to what the underlying objective is. Since most of these formulae are seen in terms of fairness or equity then it is reasonable to think that part of the objective relates to fairness. Yet, again, any equity objective lying behind such allocations is not clear. Just what good will such allocations of resources achieve?

It appears to be the case with these conventional resource allocation formulae that there is a largely epidemiological focus on the size of the health problem. Yet allocating pro rata with the size of the health problem in different areas does not translate into a mechanism that will lead to a maximisation of the health of the population, which, by and large, would appear to be the assumed good of many health care systems. For example, if health care resources are allocated proportionally to the size of the health problem, the fact that in one area there are many deaths from road accidents and few in the other, and in the former few from breast cancer and in the latter many, then the impact of health care spending across the two areas may well not be uniform. To make sense of this in terms of health maximisation requires that each area has the same effectiveness of interventions and the same costs of interventions for the health problems it faces. This is most unlikely. (For further discussion see CGC 2001.)
Another problem with these formulae relates to issues of measurement. Given the difficulties involved in finding appropriate measures for relative morbidity to determine how sick a community or region is, it is frequently the case that relative mortality is used instead. Clearly, and this has been investigated in detail in the literature, there are problems in assuming that morbidity and mortality move in direct proportion with one another. Frequently what is used in this context are standardised mortality ratios (SMR), which are mortality rates adjusted for the age and sex of the population. The assumption here is that if there is an SMR of 130 (the adjusted death rate is 30 per cent above average) in a region, then that region—other things being equal—should receive 30 per cent more resources per capita than is average, for example, across the whole country. Now to assume that this 30 per cent indicates that the problem is 30 per cent greater is not logical. We are dealing with two very different scales here and the relationship between them is most unlikely to be directly proportional. Nor, as indicated, even if that were accepted could we reasonably assume that it justified exactly the same proportional increase in resources.

While these issues of measurement are clearly problematic, the fact that such existing resource allocation formulae are not explicit about the good they hope to achieve is a more fundamental criticism. Consequently, when considering improving on these formulae in the next section, this will be our starting point.

The Nature of the Good

What good do we seek to achieve from the allocation of health care resources to different Aboriginal communities? One possibility is that we want to maximise the health of Aboriginal people. This is, in essence, an efficiency goal. It might be, however, that what we seek to maximise is something wider than health. For example, in certain instances we might seek to inform, to reassure, to treat with dignity, to treat with respect. While all of these can contribute to health, they might also be objectives in their own right and not simply instrumental in the pursuit of health.

It may also be that the nature of the good embraces some concerns with equity or fairness. Indeed, it is normally the case that so-called resource allocation formulae are concerned—to some extent, often indeed a large extent—with equity. This may be couched in different terms: for example, equality of health, equal access for equal need, or equal use for equal need. These are but three possibilities. It can also be useful to distinguish between distributive justice and procedural justice, where the former is concerned with the fairness of the distribution of outcomes, such as in equal health, and the latter is concerned with fairness of the procedures or the processes, such as in equal access for equal need. The distinction is also made between horizontal equity (the equal treatment of equals) and vertical equity (the unequal but equitable treatment of unequals). While there is considerable debate in the literature as to which particular definition of equity is the most appropriate we have not pursued this debate here, at least not directly. Underlying the philosophy of this paper, however, it is the view of the authors that the issue of equity within Aboriginal health should be determined according to the informed preferences of Aboriginal people when taking due account of the resource-constrained environment in which such decisions have to be made.
Any consideration of the nature of the good in Aboriginal health is likely to draw on some Aboriginal definition of need. Thus, for example, we have previously laid out with others (CGC 2001) that that definition of need includes four components: cultural security; physical well-being; good environment; and freedom from poverty. It will be immediately apparent that this is a wider, more holistic definition of health need than is customary in non-Aboriginal health services. Further details of these four components are unnecessary for this paper except perhaps with respect to cultural security. This has been defined by one of us (Houston 2001) as follows:

Cultural Security is a commitment that the construct and provision of services offered by the health system will not compromise the legitimate cultural rights, views, values and expectations of Aboriginal people. It is a recognition, appreciation and response to the impact of cultural diversity on the utilisation and provision of effective clinical care, public health and health systems administration. Cultural Security is about ensuring that the delivery of health services is of such a quality that no one person is afforded a less favourable outcome simply because they hold a different cultural outlook.

The way in which the nature of the good is conceived within the new approach to resource allocation is, in essence, a combination of these four factors but presented in somewhat different terms. It is again worth emphasising that how these factors are packaged will depend upon the preferences of the relevant Aboriginal people. Indeed, the development of this approach was worked out jointly with various key Aboriginal people mainly, but not solely, from the health care sector in Western Australia and beyond.

The first major component of this approach relates to the capacity to benefit as a form of need. It should be emphasised immediately that this is not looking at the issue of the size of the problem, as with the standard concept of need in resource allocation formulae, but instead is concerned with the question of improvement—that is, doing better—and working with whatever concept of good is agreed upon. It seems highly likely that a sizeable component of this capacity to benefit will be perceived in terms of capacity to improve health. There is, however, as indicated a wider view of health in Aboriginal culture than in non-Aboriginal culture. Further, there is no reason to believe that Aboriginal people will restrict the nature of this benefit to health alone—that remains to be tested. Certainly in surveys of the general population in Australia there is evidence that benefits from health care resources are not necessarily restricted to any conventional concept of health (Mooney 2000).

How further to measure capacity to benefit is not yet clear. In the context of work done by the authors and others for the Indigenous Funding Inquiry for the Commonwealth Grants Commission (CGC 2001), it was argued by key leaders in Aboriginal health in Western Australia that capacity to benefit was greatest where the health problems were caused by environmental factors or, perhaps more accurately since it may not be the same thing, where the most efficient interventions lie in environmental health. It was further argued that the second greatest marginal return was likely to be in social health, and thirdly, and finally, that the return would be lowest in trying to change individual behaviour that was having adverse effects on health.
It is clear that if this particular approach is to make headway then research is needed to allow us to measure capacity to benefit across different communities. While this is important in this specific context, it is also part of a wider recognition of the need for research into evaluating Aboriginal health interventions more generally. Currently, the extent to which we know what are the best buys in Aboriginal health is all too limited. To make advances in this is immediately relevant not only to this proposal for a new resource allocation formula, but also to priority setting with respect to the use of resources more generally that will promote and improve Aboriginal health.

The second component involves a weighting factor for this capacity to benefit. This reflects the idea that according to social preferences it may be the case that the value attached to nominally equal benefits will be different depending on who the recipients are. For example, people in poor health compared to those in relatively good health may have the equivalent health benefits weighted socially more highly. There is, in other words, a recognition that in terms of equity it is not necessarily the case that all benefits from health-care resources be weighted equally irrespective of the characteristics of the recipients. In the context of a formula for allocating resources across Aboriginal peoples in different communities then this weighting would reflect some element, yet to be determined, of relative disadvantage. This might be, for example, in terms of income, health, socio-economic status, or education. There are a number of possibilities. What should constitute ‘disadvantage’ in this context should be determined according to the preferences of the society. In this context we are dealing with the allocation of resources to different groups of Aboriginal people. It is then for Aboriginal people to decide what constitutes disadvantage. It is also for them to determine, according to their preferences, the relative weights to be attached to different degrees of disadvantage. As between Aboriginal and non-Aboriginal benefits of health care, in other surveys weights of between 1.2 and 2.5 have been suggested (Mooney 2000). Across Aboriginal communities it is anticipated that the weights might be lower.

Thirdly, there is what we have called ‘Management Economic Social and Human or MESH infrastructure’. This concept arose in recognition of the fact that not all Aboriginal communities are equally well placed to take full advantage of the resources allocated to them to build programs, for example, in diabetic health or in eye disease. It is difficult to pin down precisely what is incorporated in MESH. The concept arose in discussion with leading figures in Aboriginal health in Western Australia who recognised that some communities function better with respect to investing in programs than do others. MESH involves good management and requires the availability of resources, a socially well-functioning community and, ideally, good human resources, particularly in terms of leadership skills. Where each of these is present, the greater the likelihood that programs on specific health problems can be implemented efficiently. Where some or all of these elements are missing then resources may well be wasted or, at most, be used to lesser effect.

The reason for including MESH in the resource allocation formula is to reflect the fact that communities vary in their capacity to function and to manage resources well. If this element were not included then those communities that have a low capacity to benefit, because this kind of infrastructure is missing or is low, might never or seldom get adequate resources, even if they are disadvantaged...
communities whose capacity to benefit would be weighted positively to take account of that disadvantage. Consequently, it is argued that any allocation of funding overall should be conducted in such a way as to take account of two factors: first, the relative ability of the community to invest successfully in programs, that is, the capacity to benefit weighted according to some index of disadvantage; and, second, an element that allows communities with low MESH infrastructure to develop this. There are parallels here between running and capital costs, with the weighted capacity to benefit being like running costs and the MESH infrastructure being somewhat similar to the capital element.

Research into MESH is required at a number of levels. First, while with Aboriginal colleagues it was possible for everyone to recognise the existence of MESH and, perhaps more importantly, its non-existence in many communities, nonetheless research is needed to pin down this entity more precisely. Research is also needed to establish how best to build and develop MESH most efficiently where this is non-existent or inadequate. Yet further research is required to examine what the impact of MESH is on the capacity to benefit of a community. There is a sizeable research program here but one which we would submit it is essential to conduct. It also follows that there will need to be some discussion as to what proportion of overall MESH will be present in the total allocation of funding across different Aboriginal communities. It is, of course, possible to argue that monies for MESH should not come strictly from the health budget but should be ‘off the top’, since MESH will almost certainly be relevant to programs other than those solely concerned with health.

The final element of this proposed approach involves taking into account the relevant relative cost differentials across regions or communities. These relate primarily to access issues in terms of distance and cultural security.

Communities and regions will vary in terms of their geographical position and their remoteness, and may also differ in terms of cultural security. There is a need to build into any approach on resource allocation an allowance for these factors. Strangely, the issue of the impact of distance and remoteness on productivity, staff recruitment and staff attention to allow relevant cost factors for remoteness to be calculated has only been studied in a limited manner. In the CGC Report (CGC 2001) we have proposed the use of the notion of equally productive equally attractive (EPEA) positions. The idea here entails assessing what the effect is of distance, taking account, for example, of time spent in visiting clients in more remote areas. It also involves any additional costs that might arise in attracting staff to more remote areas and then retaining them. Some of these elements may be embraced through higher salaries, but it could be that more generous leave entitlements or professional training would be more efficient ways of both attracting and retaining staff in these areas. Again there is need for more detailed research into such issues.

With respect to cultural security this involves trying to ensure that Aboriginal people, because of cultural differences, face no greater access barriers to services than do non-Aboriginal people. It is the case that for many, especially in mainstream services but also in some specific Aboriginal services, barriers remain in terms of cultural appropriateness and the extent to which services are designed for Aboriginal people—and not just in terms of training staff in cultural awareness. For more detail of the issues of cultural security see Houston 2001.
Conclusion

Can this approach be operationalised? Clearly, that remains to be seen. We would argue, however, that it is important that the basis of such resource allocation formulae are sensible and reasonable and that the issues of operationalisation, measuring and quantification come later. We have, in the context of the Commonwealth Grants Commission’s Inquiry into Indigenous Funding, attempted to operationalise the formula for Western Australia (CGC 2001). The numbers that we have used are far more tentative than would clearly be ideal. Nonetheless, what we have achieved there suggests that the approach can be practically useful and that it is possible to make it user-policy friendly. It is also the case that we were able to present the results of this analysis to various key Aboriginal figures in Western Australia and to get their endorsement, not only of the approach, but of the resultant allocations for different regions within WA.

There is a substantial research agenda if we are to move this approach forward, research that will be advanced in the next period of time. What is particularly important in addition to any research looking at the usefulness of the approach is a recognition of the need to gain wider endorsement of the approach among Aboriginal people, and to ensure that the value judgments it requires are based on the informed preferences of the relevant Aboriginal people.

While this paper has been focused solely on the question of the allocation of resources across different Aboriginal communities or regions, clearly an important issue in its own right, it is apparent that the approach can also be used in examining the question of the allocation of health care resources between Aboriginal and non-Aboriginal people. The principles are the same; naturally the numbers and value judgments to be used will be different.

References


Synopsis

The primary resource allocation questions in the health sector relate, firstly, to the distribution of health care resources between populations and, secondly, to the allocation of resources between programs and services.

This paper looks at both aspects of resource allocation. It considers the rationale for an integrated population-based health services planning and funding model ‘single fundholding’, and describes a complementary priority-setting model designed to allocate resources between programs and services at the regional level.

A single regional fundholder model involves:

the bringing together of all the ‘health’ funds (scope to be determined) for the entire population of a region into a single planning and budget framework, to be managed by an agency made up of the constituent members. The fundholder has the sole responsibility for the planning and purchase of health services for the defined population. The budget is based on a population needs-adjusted formula.

The benefits of a regional single fundholder model derive from the incentives inherent in the model. These are:

Equity

- Funding according to a needs-adjusted capitation formula will contribute to equity of access.
- The budget allocation process as defined by a resource allocation formula is transparent and can be subject to challenge on technical grounds.
- At the regional level, there is a clearer responsibility for, and greater opportunities to address, distributional objectives.
- There are incentives to understand communities’ views about the role of the health sector, and to incorporate those views into a regional health services planning framework.

Efficiency

- The model creates a context in which funding facilitates, rather than obstructs, the provision of a seamless continuum of care.
- There are reduced incentives for cost shifting between levels of government, supporting decision making from a societal perspective—
rather than the perspective of a particular agency or funder. This also means that time now spent on cost shifting can be applied to more productive purposes.

- A more holistic approach to health services planning and funding is supported, allowing resources to shift between treatment and prevention and towards public health and health promotional approaches, where cost-effective.
- A regional funding model supports system-wide initiatives to promote efficiency, such as:
  - consumer empowerment and a shift in decision making from provider to the consumer;
  - single-entry systems and the use of common risk assessment tools to provide more appropriate and fairer access to specialised services;
  - the development of disease-based expert groups to promote best practice care, better care coordination and care planning; and
  - the establishment of mechanisms to monitor and address quality assurance across a region to improve quality of care and reduce adverse events.

**Long-term health services planning**

Long-term health services planning (of workforce, capital and services) is supported, given responsibility for the health of the regional population and commensurate control over an entire health budget.

**Holistic view of health**

The entire health service mix is the concern of the fundholder, supporting a holistic approach to the health of the community and the individual.

A population-based integrated health planning and funding model is, in theory, well placed to address many of the documented problems of the health sector in Australia. It is a particularly pertinent model for the resourcing of health care for Indigenous Australians because of:

- its capacity to achieve greater equity of access;
- its support for long-term/whole-of-life health services planning and health promotional and public health approaches;
- the possibility of incorporating a wide range of health and human services in the health services planning model;
- the possibility of engaging the community in health services planning;
- the opportunity for system-wide change and support for quality-assurance initiatives;
- the relatively low rate of private services which means that budget blow out through uncontrolled access to MBS and PBS is unlikely; and
- the inappropriateness of competitive models due to the limited supply of services or potential insurers.
The success of this type of model depends on an effective management team able to undertake the health services planning and purchasing role and implement a sound quality-assurance program. It also presumes a fair needs-adjustment formula that results in an appropriate level of funding. The key research question is how the promised benefits from adoption of a population-based approach to health funding and delivery can be realised. Elements of the model are incorporated in the New South Wales Area Health Authorities in relation to State services, which are funded through a needs-adjusted formula.

Health care reform for Indigenous Australians is already incorporating these concepts. Firstly, through the four Aboriginal coordinated care trials, but particularly the Katherine West and Tiwi Island Coordinated Care Trials. These represented an important attempt to implement a regionally based fundholding and health services planning model covering many, but not all, health services. These trials have been extended and included within the Primary Health Care Access Program. Under this program, several sites that have completed joint regional planning are funded to support the delivery of a comprehensive primary health care service, including clinical care, illness prevention and early intervention. The program is directed to the health needs of Indigenous people, with funding reflecting need and costs of service delivery.

The performance of this program will be of great interest and contribute to our understanding of:

- suitable funding formula;
- preferred management and administrative arrangements—and means to engage the local community;
- approach to priority setting to ascertain the optimal service mix;
- quality-assurance techniques to improve quality of care; and
- the role for and means of data collection, analysis and feedback.

The opportunity to extend the model to other regionally based sites and extend single fundholding beyond primary care to encompass the whole of health is an important research question.

**Resource Allocation in Australia: Key Issues**

i. The health system reform agenda

The fragmented nature of health funding and program-based delivery, which characterises the Australian health system, creates perverse incentives and has seen calls for the reform of health funding and delivery arrangements. Resource allocation decisions tend to be made on the basis of who bears the cost, rather than on what is best for the patient or citizen. Resources are wasted in the time and effort allocated to cost shifting and also through the adoption of less efficient and less appropriate services. Cost shifting is observed between levels of government, across program areas and between agencies and the community.

The fragmentation of funding and health care delivery also means a lack of coordination of services within a region and at the patient level. The result is
duplication of some types of services (such as investigative procedures and assessments), while gaps in service coverage also continue. Gaps are likely where Commonwealth and State governments fail to agree about responsibility for care, or where boundary issues are problematic (e.g. with dental health, sub-acute care, and patients with complex health needs, such as mental and physical illness). The health service mix is sub-optimal, with the situation exacerbated by care protocols that require resource shifts inconsistent with funding responsibilities. For instance, the increased role for allied health services in chronic disease management is inhibited by the lack of agreement about how to fund the expanded allied health requirement.

In the absence of a single fundholder, there is limited opportunity for truly comprehensive health services planning. Ideally, health services planning will cover all modalities of care and all disease stages—from the at-risk community to those with end-stage disease, the full range of health problems—and reflect whole-of-life health care needs. The existence of differing funding rules across program areas generates perverse incentives. For instance, the combination of capped funding for public hospital services and open-ended funding for private medical services, pharmaceuticals and private hospitals has seen a large reduction in the share of the health budget allocated to public hospital services, and an increase in spending on medical services and pharmaceuticals. This has occurred by default rather than in response to any evidence concerning the relative cost-effectiveness of the respective modalities.

The integrity of the public system may also be undermined though the incentives on private operators to divert less profitable cases to the public system, such as those needing high-cost critical care. This, in effect, increases the complexity and mean cost of managing public hospital patients. The rebate for private health insurance is contributing to this problem.

Furthermore, a large privately funded health sector is inconsistent with access to health services on the basis of need. In the absence of a needs-adjusted approach to funding, large differences in access to health services will continue to occur between regions. The consequence is excessive differentials in health outcomes by socio-economic status, ethnicity and region, and a notably poorer health status of Indigenous Australians. New South Wales is unique in allocating resources for State-funded health services on the basis of a needs-adjusted formula. This has been highly successful in achieving greater equity of access to these services across NSW. The extension of this model to Commonwealth-funded health services has the potential to contribute further to equity objectives and to efficiency objectives, as explained below.

A number of health system reform experiments have been implemented in Australia to address the fragmentation of funding and service delivery. The most prominent of these are the National Coordinated Care Trials (KPMG & Health Service Research Institute Monash University 2001) to pilot care coordination in
the context of single fundholding. These were focused on selected high-risk groups in the nine ‘mainstream trials’ and to whole populations in the Katherine West and Tiwi Island Trials. The Aboriginal trials, which have been subsumed under the Primary Health Care Access Program (OATSIH 2002) that has allowed these trials to continue, have also incorporated some important additional features, including a funding model designed to reflect relative need and costs. Other initiatives include the various primary care and rural health initiatives as well as more targeted initiatives.6

ii. Rationale for population-based health services planning and funding

There is ongoing debate about ideal health funding and delivery arrangements, much of which has been drawn together in a recent report by Segal and colleagues (2002a). There are many advantages of a population-based health services funding, planning and delivery model for Australia, which have been explored in a recent article by Segal and colleagues (2002b) and described below.

An efficient health care sector requires the proper function of both supply and demand to ensure meaningful and informed dialogue between consumers and producers. Patients and the wider community need to be able to determine and enunciate their health service needs, and the service system needs to be able to respond. This is inhibited on the supply side by pervasive market failure in health7 and exacerbated by the government role.

An effective consumer voice is inhibited by: i) the complexity of the relationship between the use of health services and health, such that trial and error is less acceptable because the consequence of a poor choice can be catastrophic; ii) the role of the provider as the patients’ agent is compromised by the competing interests on the provider; iii) the dominance of third-party payment; and iv) the importance of quality of care and difficulty for consumers in ascertaining this. Thus, health system reform must address demand as well as supply side issues.8

A plank of the Australian health care system, as enunciated under Medicare, is fair access to health care services. This is commonly interpreted to encompass: i) accessing health services according to need—the principle of horizontal equity; ii) a reduction in avoidable health inequalities; and iii) ensuring access to all to a defined set of core services. However, equity and access objectives cannot be addressed through income transfers. They must be addressed as part of health service delivery, due to the contiguous nature of demand and supply and the unacceptability of financial compensation for a poor health outcome. Funding arrangements need to support more equitable access to health services, and more equal health outcomes. Issues of equity and access can only partially be addressed by one level of government acting in isolation, which might partly explain the observed inequalities in access to health care across regions and sub-populations and the massive differentials in health outcomes. People with complex chronic conditions experience high out-of-pocket costs of care, and cost and other barriers still exist in relation to access by those from lower socio-economic groups to appropriate health services. Relative to their health status Indigenous communities consume fewer health care resources, especially primary care services, while use of in-patient services is relatively high, partly as a consequence.
Description of a population-based single fundholder model

Population-based health services planning and funds pooling is the subject of current debate both in Australia (e.g., Report of the Senate Community Affairs Reference Committee 2000) and overseas, and is seen as a vehicle for health system reform that will promote a more equitable and efficient health system. The broad elements of a population-based single fundholding model are illustrated in Figure 1. Key functions in the model are:

1. **Funders**—ideally to include the Commonwealth, State/Territory governments, local government, private insurers, and specialist insurers (such as transport accident and Workcover agencies). The funders have joint responsibility for:
   - developing the needs-adjusted formula for determining the regional health budget, and the national health budget (ideally covering public and private funds);
   - establishing core services to be delivered by the fundholder (e.g., defined in terms of services and/or types of need to be met); and
   - monitoring of quality-assurance processes, financial performance of fundholders and health outcomes.

2. **A regional budget**—determined by a needs-adjusted capitation formula, developed by the funder to cover ‘all’ health services and applied to the national health budget. Health service costs are presumed to be met largely from taxation, to ensure access according to need rather than capacity to pay, but with scope for co-payments and private health insurance to cover services not included in the ‘core set’.

3. **A single fundholder**—such as an area health authority or regional health board with responsibility for:
   - managing the regional health budget;
   - purchasing services from providers—informed by a health services planning and priority-setting task and supported through appropriate contractual arrangements incorporating suitable payment mechanisms;
   - implementing a quality-assurance process;
   - monitoring of financial outcomes, health outcomes of the population, provider quality, appropriateness of care; and
   - developing a process to achieve access and equity objectives.

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**Figure 1: Population-based single fundholder–health services model key elements**

<table>
<thead>
<tr>
<th>1. SOURCE OF FUNDS</th>
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<tbody>
<tr>
<td>Commonwealth Government</td>
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<tr>
<td>State/Territory Government</td>
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<tr>
<td>private insurers</td>
</tr>
<tr>
<td>agencies (e.g., TAC, Workcover)</td>
</tr>
<tr>
<td>Roles:</td>
</tr>
<tr>
<td>Establish — national and regional budgets, core service requirement</td>
</tr>
<tr>
<td>Monitor — quality assurance, health outcomes, financial performance</td>
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</table>

| 2. Risk adjusted capitation payments |
| **$** |

| 3. SINGLE FUNDHOLDER — |
| Regional Health Services Planning Group (one for each region) |
| Roles: |
| — planning |
| — funds holding |
| — budget management |
| — quality assurance |
| Purchase of services |
| **$** |

| 4. PROVIDERS |
| independent/employees of fundholder, private/public |
| Delivery of services |

| 5. Consumers/patients/citizens |
| Enrolled by virtue of residential location |
4. **Providers**—who can be either independent private contractors or employees of the fundholder.

5. **Citizens/consumers/patients**—who obtain services from providers.

An important feature of the single fundholder population-based model is the allocation of each citizen to an identified regionally based health authority/fundholder. Neither the citizen nor the health authority has any choice in this regard. The regional health authority has clear responsibility for the health of all residents within its region.

The population-based model represents an important departure from the competitive single fundholding models of managed care, common in the USA, or managed competition developed in the Netherlands (and promoted by Dick Scotton in Australia). These models are competitive in the sense that health plans compete for members. Under the competitive model, citizens have an incentive to choose a fund that will provide the services they require at least cost, and scheme managers have an incentive to enrol good risks (relative to capitation payment) and exclude poor risks. These perverse incentives are known as ‘risk selection’ or ‘cream skimming’. Cream skimming is possible, in part, because of the poor performance of needs-adjusted capitation models, with risk adjusters accounting for, at best, 10 per cent of variability in cost. Scheme managers also have additional information about individuals, which means that even with sound risk-adjustment models, risk selection is possible and commonly observed. This practice is inequitable and inefficient, as schemes seek to control costs by risk selection (Frank, *et al.* 1997) rather than achieving genuine efficiencies. It will also tend to undermine schemes not engaging in this practice, which are likely to be left with a high proportion of ‘poor risks’. Under managed competition, scheme membership costs are met from a central fund, rather than individual contributions, to support access to health care by all regardless of income and health status. While this model is superior in this regard to a fund based on individual contributions, it does not prevent risk selection, promoting research to improve the power of risk adjustment models. Furthermore, while in theory competition will promote efficiency by encouraging scheme managers to offer better packages of care at lower prices to attract scheme members, the evidence concerning the capacity of competition to fulfil this role is equivocal. Furthermore, under the competitive model, high rates of membership turnover are likely, creating a disincentive for preventive care or for health care that generates benefits downstream.

Under population-based regional models there is no possibility for risk selection and its distorting influences. The single fundholding model which draws together all health service funds and planning responsibilities at the regional level has several theoretical strengths in relation to efficiency, equity and implementation.

### Advantages of the population-based single fundholder model

#### Efficiency

**Whole-of-population and entire health budget coverage.** The inclusion of the entire population—the general community, those at risk, people with specific health problems, those who require intensive nursing support (living in the community and in residential care)—and control over the entire health budget provides the responsibility and opportunity to plan for and monitor interventions
across all modalities of care and stages. This includes public health and other services to prevent health problems emerging, screening and early diagnosis, management for newly diagnosed persons and those with advanced disease, as well as provision of end-stage and palliative care. Boundary issues can be addressed, as well as service integration and alternative care modalities at each stage, to plan for service provision to facilitate access to best practice care (where this is also cost-effective)\textsuperscript{9} for the region as a whole and sub-regions. In theory, planning across health and other human services sector should be facilitated.

The opportunity and incentive to incorporate health promotional and preventative approaches to care. The ongoing and clear responsibility for the health of a community provides an incentive and a capacity to consider the long-term implications of care. This should encourage investment in cost-effective population/public health and other initiatives to reduce disease incidence and rate of complications. This arises from the non-competitive nature of the regional model.

Potential to change the provider culture. Given the scope and scale of the regional model, to include all citizens of a region and by implication all providers, there is a potential to change provider culture; for instance, to promote the adoption of best practice care and a shift from a provider- to a consumer-focused system.

The opportunity and the capacity to develop and trial single-entry systems and joint assessment. Adoption of a regional fundholder model provides an opportunity to achieve greater consistency in eligibility criteria and fairer access to services. Currently, there are massive inequities between those able to access well-funded services and those who miss out. Potentially both duplication in assessment and testing would be reduced, and gaps identified and addressed, such as those who don’t quite fit current eligibility criteria.

Reduced incentives for cost shifting. There will be reduced incentives for cost shifting between levels of government but potentially it will remain between program areas, providers and the community. This still needs to be monitored and will be influenced by payment arrangements. It is also important that resource use and cost is tracked, which is relatively straightforward in a regional model but far more difficult in a model targeted at a particular patient group.

Avoidance of perverse incentives around selective enrolment. Defining eligibility by residence will avoid the possibility of persons opting out (e.g., those who currently over-consume health services and may not wish to come under closer scrutiny), or schemes selecting better risks.

Less risk of becoming merely an additional program. Under a total health system reform model there is less risk of the initiative becoming merely an additional program added to the already innumerable separate programs.

Equity

Development of equity principles. Adopting a regional health planning framework and a capitation formula provides the context within which to ascertain and incorporate the views of the community about the role of the health sector and, specifically, the concept of distributive justice. It is possible to adjust the funding formula to address gross health inequalities, for example, by increasing the weighting to standardised mortality ratios should that reflect community values.\textsuperscript{10}
Opportunity to address funding imbalance between sub-groups. Provided the region is of an adequate size and funding base, there is the opportunity to address the health needs of disadvantaged groups (e.g., by disease group, socio-economic status, ethnicity, health status). This may not be possible in a small targeted initiative, especially where the group in question is funded at an inadequate level and budget neutrality is required.

Technical aspects

Robustness in the funding formula/access to data. International experience with the development of risk-adjusted funding formula demonstrates this to be a highly complex task. Risk-adjusted capitation formula based on patient level data, as required under competitive models, are typically able to explain less than 10 per cent of the variance in health service use and cost (Van de Venn & Ellis 2000; Table 3). This provides opportunities for cream skimming but also a high risk of insolvency. Scheme enrolment, of an estimated 5000+ persons (Van de Venn & Ellis 2000), is indicated as well as other mechanisms to share risk. Regional models can use small area data to develop risk adjusters, which is normally available from standard data sets. It has been estimated that a population of 100,000 persons would ensure an acceptable match between actual and predicted expenditure on health services. Under a regional model it is easier to track health service use and cost data. This is because many data sets are already defined by postcode. The first round of coordinated care trials demonstrated the problem of tracking, with substantial but varying loss of data capture and double counting confounding the evaluation of the trials and the integrity of the funds pools.

Enrolment of participant group. Another technical issue associated with the adoption of the regional model relates to the matter of enrolment. If citizens are included by virtue of residence, the matter of eligibility and the task of enrolment disappears. Decisions must still be made about the scope of programs to be covered, and there may be a requirement for informed consent if individual files are to be developed incorporating patient level health service use, cost data and other individual level data. But analyses can also proceed on the basis of information gathered for the group as a whole, in which case informed consent is usually relevant.

iii. Performance of capitated/single fundholding models

The performance of alternative health funding and delivery arrangements, with attention to the comparison between competitive and non-competitive models, is analysed by Segal, et al. (2002), and covered in recent reviews by Van de Venn & Ellis (2000), Rice & Smith (1999) and Peacock, et al. (2000). Much of the evidence in the literature derives from experience in the USA with managed care, which may be associated with lower costs, although this conclusion is confounded by risk selection. Evidence on quality is equivocal. While most studies suggest little difference for certain vulnerable groups, notably the mentally ill and frail elderly, a reduction in access to services is indicated. Indigenous Australians might also expect to be disadvantaged under a managed care type scheme.

Non-competitive model—Veterans Health Agency (VHA), USA

There are few examples of non-competitive fundholding models and even fewer with comprehensive reporting of scheme details and performance. An exception is
the system operated by the Veterans Health Agency in the USA, which provides health services to several million war veterans. Under this scheme, which has been comprehensively reformed in recent years, twenty-two health service regions (VISN—veterans integrated service networks) were established for the integrated planning and purchasing of health services for veterans (Kizer, et al. 2000). Regions receive funds based on the Veterans Equitable Resource Allocation Formula (VHA 1998), a risk-adjusted capitation model.

Each region typically supports seven to ten Veterans’ Affairs (VA) medical centres, twenty-five to thirty ambulatory care clinics, five to eight residential care facilities, and ten to fifteen counselling centres, providing direct care to approximately 200,000 veterans per year. Regional managers have performance contracts to promote accountability and are part of a system-wide quality of care and efficiency initiative. Greater use of primary care services was a focus. This was achieved through 302 new ambulatory care centres, establishing new counselling centres and allocating all veterans to a primary care physician. A comprehensive quality-assurance program was also commenced which included: i) the development of quality of care indices—a Prevention Index, a Chronic Disease Care Index and a Palliative Care Index—to monitor outcomes and promote better quality care; ii) a National Surgical Quality Improvement Program, involving the development of quality indicators and benchmarks for adverse events and monitoring of outcomes at all VA hospital facilities (Khuri, et al. 1998). Initiatives to improve outcomes in poorly performing hospitals were achieved through collaboration between health policy makers, health services researchers and surgeons at VA facilities; and iii) the Quality Enhancement Research Initiative (QUERI) involving eight separate multi-disciplinary expert disease planning groups to enhance quality of care in relation to conditions common among veterans. VA also funds a large research program to support policy development, with more than 100 ongoing research and implementation projects just within the QUERI framework.

These initiatives have seen a substantial improvement in health outcomes. Between 1994–95 and 1997–98 a 30 per cent reduction in thirty-day post-surgical morbidity and a 9 per cent reduction in thirty-day post-surgical mortality was reported (Kizer, et al. 2000; see Table 1). There was also a 36 per cent reduction in inpatient admissions, while caring for an additional 700,000 veterans. A large improvement in the Prevention, Chronic Disease and Palliative Care Indices was also reported.

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<thead>
<tr>
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<tbody>
<tr>
<td>Chronic renal failure</td>
<td>25.6%</td>
<td>18.6%</td>
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</tr>
<tr>
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<tr>
<td>Angina</td>
<td>4.0%</td>
<td>3.2%</td>
<td>−20%</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>1.9%</td>
<td>1.7%</td>
<td>−10%</td>
</tr>
</tbody>
</table>

Table 1: One year risk adjusted death rates in VA patient cohorts—9 key disease groups
Other factors contributing to improved outcomes were:

- the Performance Management Program, instituted in 1995, which included performance contracts with VHA managers;
- the Strategic Healthcare Groups to support improvements in public health, geriatric care, mental health (Shortell 1996; Miller 1996); and
- the Pharmacy Benefits Management Group to review drug purchases, which changed prescription behaviour achieving savings of $654 million in drug purchases between 1995–96 and 1999–2000. Other programs designed to reduce costs of care were less successful.

The adoption of risk-adjusted funding model shifted funding from areas with excess inpatient capacity to areas experiencing a growth in veteran numbers (Gao, et al. 1998; Glehart 1996; DVA 2000).

At the same time, cost of care was reduced, in part, through a shift from inpatient to ambulatory and primary care. VHA clients seeing a primary care clinician went from less than 20 per cent in 1994 to 90 per cent in 1997, and ambulatory visits went from 25 to 38 million (DVA 2000a). Surgery performed on an ambulatory basis increased from 35 per cent in 1995 to more than 75 per cent in 1999. By late 1999, VA closed 28,886 of its 52,315 acute care hospital beds. There was also a small reduction in the number of residential care beds (Kizer, et al. 2000). Annual VA health expenditure decreased from $5479/patient in 1994–95 to $4105 in 1999–2000 (constant dollars). The cost of the basic care package for a VA patient is less than that paid by Medicare to private HMOs for a similar package of care (Kizer, et al. 2000), despite the nature of the VA population (high levels of homelessness and drug and alcohol abuse). VHA hospitals have been found to be more efficient than private hospitals (Hollingsworth, et al. 1999).

An important lesson from the VA model is that single funding holding, while facilitating health services planning and quality improvement initiatives does not ensure this occurs. Prior to the recent initiatives, the VA system was grossly inefficient. What was important was a management structure and accountability system to encourage managers, the research community, providers, and consumers to adopt behaviour that promotes improved quality of care and efficiency. The role of VA as provider and major employer was also important in facilitating change. It is not clear that this result could have been achieved in the context of a largely fee-for-service health funding model.

A set of factors can be identified that were central to the improved performance of the USA Veterans’ Affairs system. These factors are of relevance to Australia, and to improving health care to Indigenous Australians, and are shown in Box 1.

**Box 1: Key conclusions from VA Model: Factors central to improved health system performance**

- Funding to regions on a risk-adjusted capitation basis can achieve a more equitable distribution of resources between regions.
- The application of risk-adjusted capitation funding at the regional level is straightforward and unlikely to generate perverse incentives in the absence of competition for fund-members.
• The shift from a centralised but anarchic system, driven by individual providers, to a regional health services planning model, supported by central initiatives, with accountability achieved through performance contracts with regional managers can drive quality improvements.

• The development and implementation of a comprehensive quality assurance process is critical to ensuring quality of care and access to services in the face of capped budgets, but also may directly contribute to budget savings through reduction in inappropriate service use, and through a reduction in the rate of disease progression.

• The direct provision of health care by the fundholder has clearly facilitated change. Specifically in being able to employ staff directly on salary, rather than relying on individual service provision via fee-for-service arrangements and with the absence of a private sector, the capacity to drive change is clearly enhanced.

The NSW Area Health Service model

The NSW Area Health Service model is another example of a (partial) population-based health services funding and planning system. Regions receive funding on a risk-adjusted capitated basis, defined by the current resource allocation formula. Fundholding and health services planning, occurs at the regional level for most NSW government-funded health services.

The primary reason for adopting a needs-adjusted formula was to achieve greater equity in the distribution of health care resources. The model was also designed to promote efficiency by moving away from an historic funding base, which has the effect of rewarding regions for excessive expenditures in the past. The maldistribution of health care resources was substantial when the move to the funding formula was made in 1990. Mean per capita expenditure, adjusted for age and sex, varied from $376 per person in Southwest Sydney to $730 per person in Eastern Sydney (Gilbert, et al. 1994), excluding high-level tertiary services likely to have an extra-regional profile. This differential has now been almost entirely eliminated.

The Resource Distribution Formula uses small area data to predict health service need and utilisation as a function of key independent variables. The components of the formula and the way they are incorporated have changed over time.

The 1998/99 formula has nine distinct components: population health, oral health, primary and community services, outpatients, emergency department, acute inpatient, mental health, rehabilitation and extended care, and teaching and research. High-level tertiary services have also been funded separately to retain the integrity of specialist clinical units. Each component is determined separately, with risk adjustment a function of independent variables relevant to the particular category, covering as appropriate demographic variables, socio-economic indicators, cost drivers and other factors (such as adjustment for private health insurance status). The formula has resulted in the redistribution of funds between regions, to achieve more equal access to health care across NSW. It has also promoted health services planning at the regional level, with numerous examples across NSW, such as the transitional care facility established in the grounds of the Royal Newcastle Hospital. A current study to compare the performance of the NSW, Victorian and Queensland public hospital sector will be most interesting (Gibberd, Peacock, NHMRC research grant).
Australian Coordinated Care Trials (CCT)

The Australian CCT represent another example of a single fundholding model, and is exceptional in the use of a randomised control trial evaluation method at several sites. However, apart from the Northern Territory Trials (see below), which were population focused, others were targeted at high-risk populations and were small in size (mostly less than 1500 persons), so the relevance to population-based reform is limited.

The major mechanism for behaviour change was the employment of care coordinators to establish and implement patient care plans. Pooling of funds also occurred, which saw substantial changes in the health service mix in some trials. This, however, seems to have been achieved more through a failure to attain cost neutrality—that is, via increasing spending—rather than through a shift in resource use.

The challenge of introducing major reform in a short timeframe has proved substantial, and a longer timeframe over which to fine-tune the initiative and to gather evidence should have been allowed. Still, some preliminary conclusions can be drawn about the CCT model. Firstly, as would be expected from the literature, development of a risk-adjustment formula for a defined high-risk group proved difficult, with substantial differences between projected spending and actual spending, especially apparent in the Southern Health Care Network CCT (Segal, et al. 2000). Whether improved outcomes can be achieved without increasing the cost of care is not yet clear, although results from the first round of trials are not encouraging.16 On the other hand, it is possible that for high-risk/high-need populations, as were enrolled in these trials, the objective was never realistic. It is predicated on the assumption that this patient/citizen group has sufficient access to health care resources relative to need, which may be false.

Primary Health Care Access Program/Aboriginal Coordinated Care Trials

Health care reform for Indigenous Australians is already incorporating elements of population-based single fundholding. This has occurred, firstly through the four aboriginal coordinated care trials, and particularly the Catherine West and Tiwi Island Coordinated Care Trials. These represent an important attempt to implement a regionally based and thus population-based fundholding and health services planning model, covering many but not all health services.

The evaluation of these trials report strong progress towards the achievement of goals, especially in relation to participation of the community in decision-making and the provision of a more coordinated approach to the delivery of health care. Improvements in health outcomes are however yet to be demonstrated, (Dept Health & Ageing 2002).

These trials have been extended and included within the Primary Health Care Access Program. Under this program, several sites, which have completed joint regional planning are funded to support the delivery of a comprehensive primary health care service—including clinical care, illness prevention and early intervention. The Program is directed to the health needs of Indigenous people. Funding is designed to take account of differential costs of care, to ensure regions with high costs of care are not disadvantaged. Substantial improvements in access to primary care are expected, with the aim of improving health outcomes, and reducing the need for tertiary services. However, cost neutrality is not a premise of this program.
This program represents an important initiative, founded on sound principles, and can be expected to yield valuable lessons concerning how to improve health system performance and the health of communities. Over time it will be desirable for the program to be modified in response to lessons gained.

v. Priority setting in the context of single fundholding model

Priority setting is a health-planning task concerned with achieving the optimal mix of health services. The specific objective is to identify desirable resource shifts, those health services that should be expanded and those that should be contracted, based on relative cost-effectiveness defined from a societal, not an agency, perspective. The benefits obtainable from shifting resources between programs and services is clear from the massive differentials in cost-effectiveness ratios that are observed for different health interventions.

Various models of priority setting have been developed. A recent review completed for the Department of Health and Aged Care has recommended the adoption of the Health Sector Wide Disease Based Model (Segal & Chen 2001). This model is supportive of population-based fundholding in providing a suitable framework for health services planning.

Key model features are:

- a health sector-wide population-based framework;
- the staging/segmentation of the analysis through the study of health problem/disease areas;
- the adoption of comparative marginal cost-benefit ratios as the decision criteria;
- comprehensiveness in identification of possible intervention options;
- classification of interventions into disease stage and by relevant target groups;
- the use of an expert panels to assist in specification and selection of intervention options, definition of program objectives and to support adoption of recommendations; and
- the use of published evidence to establish cost-benefit ratios.

The research tasks are divided into four stages: i) Preliminary phase to gain an understanding of the disease/health problem area being analysed, and to establish an advisory panel; ii) Select options for review through the literature review and consultation with the advisory panel. Ensure options cover all target groups, disease stages, all plausible health delivery settings, philosophy of care, and modalities; iii) Conduct cost-effectiveness or cost-utility analyses to compare all interventions, drawing on published evidence on effectiveness. Rank interventions, based on cost-effectiveness, but incorporating other objectives; and iv) Develop recommendations to draw conclusions about desirable resource shifts. Establish the resource shifts that will make the greatest contribution to a net reduction in the disease burden.

An important advantage of a regional fundholding model is the opportunity it provides to develop and implement a population-based health services planning
vi. Overview

A population-based integrated health planning and funding model is, in theory, well placed to address many of the documented problems of the health sector in Australia. It is particularly pertinent for the resourcing of health care for Indigenous Australians because of:

- its capacity to achieve greater equity of access;
- its support for long-term/whole-of-life health services planning and health promotional and public health approaches;
- the possibility of incorporating a wide range of health and human services in the health services planning model;
- the support for engagement of the community in the health services planning task;
- the opportunity for system-wide change and support for quality-assurance initiatives; and
- the relatively low rate of private medical services available, which means that budget blow out through uncontrolled access to MBS and PBS is unlikely.

The success of this type of model depends on an effective management team able to undertake the health services planning and purchasing role, and able to implement a sound quality-assurance program. It also presumes a fair needs-adjustment formula that results in an adequate level of funding (for instance, as provided for under the Primary Health Care Access Program). This model is certainly more appropriate than any of the competitive fundholding models, such as managed care or managed competition. The weaknesses of the competitive models will be more pronounced in the setting of remote communities where the postulated benefits of competition are not realisable due to the limited choice of services and insurers. Maintaining current arrangements is also unsatisfactory, not just because of disincentives on efficiency, but because of the failure to achieve a fair distribution of health care resources.

The key research question is how the promised benefits from adoption of a population-based approach to health funding and delivery can be realised. Elements of the model are already incorporated in the Primary Health Care Access Program and the NSW Area Health Service model, which are funded for State services on the basis of a needs-adjusted formula. Dialogue is required around the key model attributes: i) the funding formula; ii) the preferred management and administrative framework; iii) the approach to priority setting; iv) quality-assurance techniques; and v) the role for, and means of, data collection, analysis and feedback.

While in theory many of the benefits of this type of model are potentially achievable through a quality-assurance program, the introduction of a needs-adjusted capitation formula is necessary to ensure that a fair level of funding is available to meet the health needs of Indigenous Australians.
Endnotes

* This paper draws on research undertaken by Dr Segal in recent years, at the Health Economics Unit, Faculty of Business and Economics, Monash University. The support of the university, the Commonwealth Department of Health and Ageing, which funded research into capitation funding models, and the NSW Health Department, which supports research into regional fundholding and health services planning models, is gratefully acknowledged. The paper has also benefited from the pertinent comments of an anonymous reviewer.

1 There are also more limited single fundholder models, such as those restricted to a disease group, age group (such as the elderly), an insured population, or a particular modality of care.

2 Appropriate membership should reflect scope of the services to be covered and include, at least, an Area Health Service (where relevant), the State or Territory Health Department, the Commonwealth Department of Health and Aged Care, consumer representation and possibly relevant interest groups, such as NACCHO, Divisions of General Practice.

3 Between 1984–85 and 1999–2000 the public hospital share of recurrent health expenditure fell from 38.3% to 28.6%, while the share of medical services, pharmaceuticals and private hospital increased from 31.9% to 39.5% (AIHW 2000: Table S40; AIHW 2002: Table A.12).

4 Duckett and Jackson (2000) report private sector costs 12% higher than those in public hospitals. Richardson, et al. (2000) report far greater procedure rates (+100 to +200%) for patients with private health insurance. It is also observed that countries with a larger privately funded health sector spend more on health care. The USA with private funding of health at 55% allocates 15% of GDP allocated to health care.

5 Within a decade of introduction of the formula, disparities across regions have been reduced from variations of up to 50% relative to the needs adjusted budget to less than 10%.

6 Such as the NSW Aged Care/Acute Care Interface initiative, exemplified in the Hunter Area Health Service transitional care model (NSW Dept of Health Govt Relations Branch 2001).

7 See, for instance, Segal (1998) for a discussion of market failure in health, which arises from aspects intrinsic to health, such as imperfect information (about the relationship between health and use of health services), externalities (benefits extend beyond the patient/individual such as with vaccination or harm minimisation program), public health attributes (inability to exclude persons from consumption), problems with the role of provider as the patients’ agent. Further distortions are created by funding arrangements, such as the subsidy to medical services and pharmaceuticals through the PBS and MBS, which promotes the medicalisation of health care, but not on other clinical services.

8 For a discussion on the importance of addressing demand side issues, see Segal (1998) on patient empowerment and health system reform.

9 This could, for instance, be developed around the major disease/health problem categories, such as cardiac, cancers, respiratory, diabetes, mental health, musculoskeletal. Planning would need to encompass assessment of need for allied health and nurse education services, as well as medical (primary and specialist and tertiary), community-based care, post-acute, rehabilitation and residential care.

10 This is a feature of the NSW formula and of the funding formula for acute care and psychiatric services in the United Kingdom (Carr-Hill, et al. 1994). For a discussion of the possible role for a regional-based funding formula for Australia in relation to the achievement of equity and access objectives see Peacock and Segal (2000).

11 Martin, et al. (1998) estimate that using a needs-adjusted formula based on small area data, for an enrolled population of 100,000 persons, there would be a 0.12% risk that actual expenditure were more than 10% greater than predicted.

12 Participants in managed care schemes tend to be less sick than those covered under traditional indemnity insurance, or those withdrawn from managed care schemes.
The Palliative Care Index measures whether severely ill patients are enrolled in home based primary care programs, have explicit plans for pain management, and have access to hospice program and the necessary psychosocial or caregiver support’ (Feussner, et al. 2000).

QUERI (Feussner, et al. 2000) was introduced in 1998 covering chronic heart failure, ischemic heart disease, mental health, substance abuse, stroke, diabetes, spinal cord injury, HIV/Aids. For each condition a multi-disciplinary team drawn from clinicians, researchers and policy makers is responsible for developing and implementing a strategic plan by: i) identifying best practice care/management; ii) describing current practice and variation from best practice; iii) interventions to promote best practice; iv) assessing the relationship between best practice care and patient outcomes and quality of life (Demakis, et al. 2000).

This reflects improvements such as an increase in vaccination for influenza and pneumonia from 28% and 26% respectively in 1995–96, to 76% and 77% respectively in 1999–2000. Or in relation to chronic disease management, for persons with diabetes there was a significant increase in patients having a retinal exam and at least annual HbA1c (from 47% to 67% and 51% to 93% respectively).

KPMG, Public Health Institute 2001—Total costs, including mainstream services, care coordination, administration and management were consistently higher under the new model of care, with no evidence of improved health status. The process for creating the funds pool was also found to be problematic.

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The Commonwealth budget is the government’s major annual economic statement. It is through the budget that the government of the day presents to the parliament its proposed fiscal strategy and policy priorities. The budget is presented to parliament as the second reading speech of the Appropriation Bill No.1.

The process through which the budget is formulated is a cyclical activity covering the full year. The precise nature and timing of the activities undertaken each year are determined, to some degree, by the economic and political circumstances existing at the time.

This paper outlines the key features of the budget process through which the government determines its spending decisions. The budget process covers decision making in all portfolios including health, education, defence, family and community services, and the environment. As such, the budget process for Indigenous health is the same as for other areas where the government may choose to take funding decisions.

**Establishing the Fiscal Strategy**

The customary first step of the Commonwealth’s budget process has been consideration of the fiscal and economic outlook. This includes consideration of expected economic developments and their implications for the government’s fiscal position. The establishment of the fiscal strategy early in the process effectively identifies the economic parameters that underlie the consideration of budgetary proposals.

**Senior Ministers’ Review**

The preparation of a May budget usually commences in October/November with a meeting of senior ministers. The senior ministers’ meeting considers the fiscal strategy and broad priorities for the upcoming budget.

Prior to the meeting, all ministers are invited to outline their policy proposals for the forthcoming budget. These proposals are considered during the Senior Ministers’ Review and decisions are made on which proposals should be developed further.

During January and February, ministers and departments continue to develop and refine policy proposals. The policy proposals are then formally documented in Portfolio Budget Submissions.
The government also invites submissions from individuals, business and community groups on their views regarding priorities for a forthcoming budget.

**Expenditure Review Committee**

The Expenditure Review Committee (ERC) is a sub-committee of cabinet comprising five to six ministers, including the Prime Minister, the Treasurer and the Minister for Finance and Administration. ERC normally meets in March and, on the basis of the government’s broad budget priorities, makes decisions about which proposals will receive funding and the level of funding that will be provided.

Portfolio ministers present to ERC the spending proposals in their areas of responsibility. Their Portfolio Budget Submission details new funding requests for proposals and areas where savings can be made within an agency’s area of responsibility. Prior to ERC consideration, the submissions must be provided to the Department of Finance and Administration (DFA) for agreement of the costings. Submissions are also circulated to other relevant departments for ‘co-ordination comments’ before being lodged with the Cabinet Office.

The ERC uses information from the Portfolio Budget Submissions and briefs prepared by the DFA when prioritising new policy proposals. While the DFA plays a key role in the analysis of the proposals, other co-ordinating agencies may also brief their ministers on the proposals.

After the ERC process is complete, the Cabinet meets to consider ERC’s recommendations and to agree formally to the contents of the budget to be presented to parliament. The period between this cabinet meeting and the presentation of the budget by the Treasurer is used to finalise the budget estimates and prepare budget documentation.

**Mid-Year Economic and Fiscal Outlook and Final Budget Outcome**

Approximately six months after the budget, the government produces a Mid-Year Economic and Fiscal Outlook (MYEFO). This provides an update on the budgetary position. At around the same time, the additional estimates process is undertaken, which enables portfolios to reassess funding requirements and, if necessary, submit requests for additional funding for the current year.

The final stage in the budget process occurs three months after the end of the financial year when the Final Budget Outcome documents are tabled in parliament. This is required under the Charter of Budget Honesty Act 1998 and provides information on the government’s fiscal outcomes for the financial year.

**Information Needs**

There are many factors ministers will consider before a new policy proposal is approved. Firstly, the responsible minister needs to consider that the policy is a priority against other funding needs in their portfolio.

Secondly, the ERC rigorously evaluates the merits of policy proposals. Policies compete for funding both within the portfolio and across all portfolios.
Ministers consider the nature of the problem that the policy is attempting to address and the outcome that may be achieved with additional spending. For example:

- What is the ‘problem’?
- What is causing the ‘problem’?
- Is the issue a Commonwealth government responsibility or that of the State or local government?
- Can the government effectively address the problem and how might this be best achieved?
- What is the desired outcome?
- Does the government currently have in place programs to achieve the desired outcomes and are those sufficient?

To answer these questions, it is useful for ministers to know how the area is changing over time (for example, recent trends), how many people are affected and in what way. Ministers also want to know where there are other policies or program in place that are designed to achieve a similar outcome and, if so, be provided with some assessment of current performance against the funding that has been allocated to the program. Extending a current successful program, for example, can be an easier decision than a proposal that is effectively ‘new’ and untested. In any case, ministers are likely to support policy proposals that are backed by rigorous analysis (including appropriate quantitative analysis).

Once ministers are satisfied that a policy proposal will generate positive and tangible outcomes, they then consider whether the proposal is cost effective and seek to assess its relative merits against alternative proposals in other portfolios. Essentially this is an assessment of the priorities that will be allocated some of the limited resources available to meet the government’s policy platform.

Ministers attempt to assess whether the additional funding provided to one policy is likely to lead to greater improvements in outcomes than if it were allocated to another policy; in other words, where the allocation of additional funding is likely to make the most difference. A further consideration is whether responsibility for the issue rests with the Commonwealth or State government.

As well as addressing relative outcomes, ministers pay particular attention to expected absolute outcomes from the proposal. Ministers’ understanding of the effectiveness of current programs and policies plays an important part in decision making as does knowledge of the nature of the ‘problem’ being targeted.

At this stage, it is important that ministers are advised about what the additional funding is ‘buying’ in terms of expected improvements in outcomes. This includes the expected outcome from the policy proposal at quite a micro level against the status quo. In this context, simplifying the problem or overstating the potential can often be counterproductive in convincing ministers of the merits of the proposal. Ministers may be more inclined to support funding for a proposal that is detailed and seeks outcomes at least cost, than one which is designed to meet a global funding formula with broad outcome goals that may be difficult to measure.
**Issues for Indigenous Health**

Treasury considers that addressing Indigenous health issues is a high priority, both within the health portfolio and across all portfolios, and has attempted to understand the nature of the problem and the current policies in place to address Indigenous health issues. The additional funding provided, not only in the 2001–02 budget but over a number of budgets, indicates the importance the government places on Aboriginal and Torres Strait Islander health issues. Furthermore, the shift in responsibility for Indigenous health to the health portfolio, has enabled greater integration with the overall national health agenda.

Research can provide valuable information about the causes and effects of Indigenous health problems, which can then be used to inform policy makers. In particular, research can inform us of the differences between remote and urban health issues and the importance of housing, education and employment to improving Indigenous health outcomes. Research could also contribute through measuring the effectiveness of current initiatives and identifying areas for improvement.
PART IV

Building a Policy-Relevant Research Agenda:
Priority-Setting Case Studies
ROBYN McDERMOTT

Why more Money Alone Is not the Answer: The Need to Improve Effectiveness in Indigenous Primary Health Care

Summary

Chronic diseases (CD) are dominating health services utilisation in Australia, and disproportionately among Indigenous people. International and local evidence shows that primary health care (PHC) services can achieve improved outcomes in CD management by structuring PHC work differently (Renders, et al. 2001). This does not appear to be occurring in many Indigenous PHC services in North Queensland, where preventable hospitalisations for diabetes and related conditions remain high, despite a relatively heavy investment in PHC. Improving outcomes is not merely a matter of increased investments. PHC services need to be managed for improved outcomes.

Introduction

The rapid health transition experienced by Indigenous Australians in the past forty years has seen the decline of acute, mainly infectious diseases of childhood, and a sharp rise in injury and chronic disease (diabetes, heart, respiratory, and renal disease, mainly among young adults) as major causes of morbidity and mortality. Whereas much acute childhood illness appears to be addressed adequately through vaccination and medical rescue, effective prevention and management of chronic conditions rely on a highly organised approach to PHC. This organisation should include the three dimensions of community involvement, evidence-based clinical systems and supportive management policy and practice. The high and increasing prevalence of chronic conditions coupled with the apparent failure of PHC gives rise to a large excess of preventable hospitalisations for chronic conditions among Indigenous people, where little health gain is achieved for a relatively large expenditure. Much of the debate to date in Indigenous health economics has focused on equity of resource allocation for health care. However, recent work in North Queensland suggests that at least as much attention needs to go towards improving the quality and reach of existing primary health care (including prevention) for chronic disease if outcomes are to improve.

Three studies in North Queensland sought to shed some light on the epidemiology, clinical effectiveness (including the use of ‘expert’ clinical systems and quality improvement) and economics (current expenditure) of type 2 diabetes (T2DM) among Indigenous people.

The first, the Well Person’s Health Check (WPHC) aimed at identifying (and later addressing) individual and community risk for chronic diseases (STIs, diabetes, renal and heart disease). From 1998 to 2001, twenty-six communities took part and
more than 3000 Indigenous adults underwent a general health check, with community participation rates between 40 per cent and 96 per cent.

The second study (McDermott & Northcott 2001) looked at current health system investments (FY 1999–2000) in three districts (Torres, Cape York and Cairns: Total population about 150,000) along the diabetes care continuum (prevention through to tertiary treatment of end-stage complications) in different risk groups, including Indigenous people.

The third study, Randomised Cluster Trial of Diabetes Care in the PHC Setting in the Torres Strait (McDermott, et al. 2001), established the effectiveness of low-cost, simple, locally managed systems to improve diabetes care and prevent hospitalisations among known diabetics.

A detailed description of methods is found in the respective publications. Taken together, these studies point to the need for better management of existing resources (improving technical efficiency), coupled with a portfolio approach to health investments (improving allocative efficiency), to improve population-level outcomes in chronic diseases.

**Results**

### 1. Epidemiology

How many people have diabetes and other risk factors in the three districts?

Age adjusted prevalence of diabetes and risk factors among Torres Strait Islanders and Aboriginal groups was extrapolated from the Well Persons Health Check (McCulloch, Tulip & McDermott 2001a, 2001b) and, for non-Indigenous people, from the Cairns AusDIAB study. The ‘high-risk group’ for T2DM includes those over the age of fifty, Dyslipidemia (fasting total cholesterol >5.5mmol/l and Triglycerides >1.1mmol/l), impaired fasting glucose (ADA criteria) and/or body mass index (BMI)>25. Age-adjusted estimates for each district were extrapolated from census ERP data for 1999. Groups 3 and 5 are existing diabetics (Group 3 is early uncomplicated diabetes and Group 5 has established complications: blindness, end-stage renal failure, heart disease, limb amputations). Group 4 represents numbers of acute hospital events among diabetics (Table 1).

<table>
<thead>
<tr>
<th>District</th>
<th>1 General population</th>
<th>2 High-risk group</th>
<th>3 Early presentation group</th>
<th>4 Group at risk of acute event</th>
<th>5 Established complication group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cairns</td>
<td>136,295</td>
<td>72,317</td>
<td>4630</td>
<td>5259</td>
<td>629</td>
</tr>
<tr>
<td>Cape York</td>
<td>7672</td>
<td>4157</td>
<td>346</td>
<td>439</td>
<td>93</td>
</tr>
<tr>
<td>Torres</td>
<td>9216</td>
<td>4584</td>
<td>563</td>
<td>744</td>
<td>181</td>
</tr>
<tr>
<td>TOTAL</td>
<td>153,183</td>
<td>81,058</td>
<td>5539</td>
<td>6442</td>
<td>903</td>
</tr>
</tbody>
</table>

The proportion of diabetics in each district reflects age and ethnic composition. The proportion of ‘complicated’ diabetics in each district varies according to ethnic...
composition, duration of the diabetes ‘epidemic’ in the respective populations, and, to a great extent, the effectiveness of the PHC service in preventing complications. Thus Cairns District, with a small Indigenous population, has the lowest prevalence of T2DM and the lowest proportion of diabetics with established complications. Torres District has the highest (Table 2).

Table 2: Ethnic composition and T2DM prevalence in three districts

<table>
<thead>
<tr>
<th>District</th>
<th>% Torres Strait Islander</th>
<th>% Aboriginal</th>
<th>% Indigenous</th>
<th>Estimated prevalence T2DM (%)</th>
<th>% T2DM with established complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cairns</td>
<td>2%</td>
<td>5.7%</td>
<td>7.7%</td>
<td>5259/136,295 (3.9%)</td>
<td>12%</td>
</tr>
<tr>
<td>Cape York</td>
<td>3.8%</td>
<td>40%</td>
<td>43.8%</td>
<td>439/7672 (5.7%)</td>
<td>21%</td>
</tr>
<tr>
<td>Torres Strait</td>
<td>73%</td>
<td>7%</td>
<td>80%</td>
<td>717/9216 (7.8%)</td>
<td>25%</td>
</tr>
</tbody>
</table>

This is reflected in the hospitalisation pattern for T2DM in each district, where Cairns has the lowest admission rate compared to community prevalence and Torres District has the highest (Table 3). A higher proportion of admissions in the Torres District were for ‘preventable’ complications of T2DM, mainly infections, lower limb amputations and renal disease.

Table 3: T2DM related admissions (as a percentage of total admissions) and district prevalence, 1999–2000

<table>
<thead>
<tr>
<th></th>
<th>Cairns Base Hospital</th>
<th>Weipa Hospital (Cape York)</th>
<th>Thursday Island Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>% T2DM Admissions (a)</td>
<td>2.0%</td>
<td>3.2%</td>
<td>7.2%</td>
</tr>
<tr>
<td>District T2DM age-adjusted prevalence (b)</td>
<td>3.9%</td>
<td>5.7%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Ratio a:b</td>
<td>0.5</td>
<td>0.6</td>
<td>0.9</td>
</tr>
</tbody>
</table>

2. Health investments in diabetes in North Queensland

A costing study was done for FY 1999–2000 in 3 Districts looking at expenditure across the diabetes care continuum, where health promotion is aimed at the whole population, prevention includes targeted programs (screening, brief interventions etc) aimed at the high-risk group, primary care is provided to diagnosed diabetics without established complications (secondary prevention), acute care includes all inpatient episodes for all diabetics (excluding dialysis), and continuing care is outpatient or community care for those with established complications, including dialysis (McDermott & Northcott 2001). Table 4 shows per capita expenditure for FY 1999–2000 in three districts.
As expected, there is higher per capita expenditure (PCE) in hospital and continuing care than for prevention and health promotion. There is great variation between districts for PCE in every HRG. Part of the excess PCE in the Torres District relates to cost structures, however, this analysis does not include patient travel. Worth noting is the very high PCE on PHC in the Torres District (14 times higher than Cairns and 2.3 times higher than Cape York Districts, Table 4), which seems to have little impact on diabetes-related hospitalisations (Table 3).

3. Improving diabetes management in the PHC setting

An increasing body of evidence suggests that these hospitalisations for diabetes complications can be prevented by better targeted PHC programs (Stamp, Duckett & Fisher 1998; Bindman, Grumbach & Osmond 1995). Many evidence-based guidelines had been produced but the challenge was to find a locally appropriate way to implement them. In 1999, a twelve-month randomised cluster trial of a simple recall system for diabetes care was started in the Torres Strait Health District. The intervention was a simple card-based recall system managed by local health workers with basic training in diabetes care. The system aimed to improve early detection and primary management of weight, blood glucose, renal disease, blood pressure, peripheral neuropathy and foot ulcers, infections, and eye problems. The trial design included twenty-one communities, with eight randomly selected for the intervention, over a twelve-month period. Both intervention and control communities received a diabetes outreach service equally over the trial period. At the end of twelve months, a follow-up clinical audit of diabetics on the registers showed an improvement overall in diabetes care, but that intervention sites had improved the most (21 per cent greater improvement than control sites) and that diabetics in intervention communities were 40 per cent less likely to be hospitalised with a diabetes-related condition than in control sites (relative risk 0.6, 95 per cent confidence interval 0.41–0.86). There was a 32 per cent reduction in diabetes-related hospitalisations in intervention sites (McDermott, et al. 2001).

This study suggests that great gains can be had by improving the quality of primary health care in remote communities and that this can be done simply, utilising local Indigenous staff more effectively and with few additional resources.

Conclusion

A reorganisation of Indigenous primary health care services from an acute care model to one that supports chronic disease management systems (population-
based services supported by patient registers, expert systems, recall systems and effective communication of health information to clients and community groups), and promotes effective prevention, is essential if outcomes are to improve in North Queensland. Managing this change will require more resources in the short-term.

References


The Torres Strait and Northern Peninsula Area (NPA) Health Service District of Queensland Health (the District) serves about 11,000 people from the tip of Cape York to the Papua New Guinea (PNG) border. It has two small hospitals and nineteen primary health care centres on the NPA, Central and Outer Island groups. The Torres Strait ‘Protection Zone’ is subject to the Torres Strait Treaty between the Commonwealth, Queensland and PNG Governments. This treaty allows movement of people, but not fruit, vegetables or animals, between parts of PNG and the Torres Strait. The region is moving towards greater political and administrative autonomy with the creation of the Torres Strait Regional Authority. Due to ongoing economic problems, and subsequent declining investment in health in PNG, the Torres District Health Service is providing large and increasing numbers of services to PNG nationals.

In 1993 the District embarked on a population-based health strategy under the guidance of the Torres Strait Health Council (Queensland Health 1993). This strategy has reoriented the health service from individual-centred clinical services to focus additionally on population-level outcomes. To date, three major public health problems have been addressed: Japanese Encephalitis or JE (1994), Diabetes (1996) and HIV/STIs (1999).

The process of priority setting is not explicit, but is a function of at least five criteria:

1. Public outrage. This factor is particularly important with the emergence of new infectious diseases with high case-fatality rates, even though actual numbers of cases may be small. Equally, it can apply to other issues identified by the community as priorities, even though the epidemiological impact may be slight.
2. Burden of disease. This is a combination of prevalence, chronicity and morbidity.
3. Current cost to the health service and to the community. This is related to (2) above, and becomes important when chronicity leads to high hospital use and poor quality of life, e.g. dialysis, blindness and amputations associated with Diabetes.
4. Preventability. There should be a strong evidence base for interventions.
5. Identified national priorities. This last criteria is important as Commonwealth support for new interventions is often crucial in both policy and financial terms.
JE has a high case-fatality rate but affects relatively few people. It has a very high outrage score and is preventable with an expensive vaccine, plus effective vector control. Diabetes is so widespread and well established that it causes little outrage but places a huge and increasing burden on health, and other, services. Sexually transmitted infections (STIs) cause little outrage but are responsible for a large burden of excess and preventable infertility and pelvic inflammatory disease; they also potentially increase population susceptibility to HIV (and, therefore, high outrage). There is strong Commonwealth support for an Indigenous sexual health strategy (Department of Health and Family Services 1997) (Table 1).

<table>
<thead>
<tr>
<th>Problem</th>
<th>Outrage</th>
<th>Burden</th>
<th>Cost</th>
<th>Preventability</th>
<th>National Support $</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>JE</td>
<td>***</td>
<td>*</td>
<td>*</td>
<td>***</td>
<td>**</td>
<td>10</td>
</tr>
<tr>
<td>Diabetes</td>
<td>*</td>
<td>***</td>
<td>***</td>
<td>**</td>
<td>*</td>
<td>10</td>
</tr>
<tr>
<td>HIV/STIs</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>***</td>
<td>10</td>
</tr>
</tbody>
</table>

A strategy attached to each public health priority was devised at a ‘summit’ where community and expert opinion was synthesised into a local implementation plan. This plan takes account both of the scientific evidence and of the local cultural, political and economic realities. It is a combination of intersecting community, public policy and health service responsibilities (Table 2).

<table>
<thead>
<tr>
<th>Problem</th>
<th>Community Action</th>
<th>Public Policy</th>
<th>Health Services</th>
<th>Cross-border Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>JE 1994</td>
<td>Domestic pigs, horses removed from houses</td>
<td>Control of mosquito vectors and animal reservoirs</td>
<td>Mass vaccination program (outer islands) and periodic surveillance</td>
<td>PNG/Irian Jaya probable source of mosquito vectors, bird carriers and animal reservoirs</td>
</tr>
<tr>
<td>Diabetes 1996</td>
<td>Socially patterned behaviours (nutrition, exercise and smoking)</td>
<td>Improved food supply, food cross-subsidy, improved sporting infrastructure; Smoking regulations in public buildings</td>
<td>Early detection and management with standard clinical guidelines and recall and reminder systems</td>
<td></td>
</tr>
<tr>
<td>HIV/STDs 1999</td>
<td>Community education about safe sex, STI checks, etc.</td>
<td>Condom availability, needle exchanges</td>
<td>Reducing prevalence of STIs using screening and treatment clinical guidelines, contact tracing, staff education, confidentiality</td>
<td>High incidence of HIV and other STDs in PNG, poor health infrastructure in PNG; Cross-border travel</td>
</tr>
</tbody>
</table>

The elements of localism are critical to the acceptability (and success) of health planning. Each of these public health problems includes a significant contribution from traditional practices or taboos. In the case of Japanese Encephalitis, important viral reservoirs were domestic pigs, traditionally kept close to the family house. Control measures involved culling pigs in some islands and removing them from housing areas in others. This was done after community meetings where the risks and benefits were discussed.
In the case of Diabetes, the traditional perception of ‘fat equals prosperous which implies healthy’ remains a barrier to behavioural change. A preference for high-fat food and the traditional hospitality obligations of feasting are also barriers to change. Tobacco smoking is part of normative postwar behaviour, where currently 70 per cent of young adult men in the Torres Strait are smokers.

Religious and cultural taboos surrounding public discussion of sexual behaviour, safe sex and STI control mean that locally devised education strategies are essential.

**Progress so Far**

The most complex of the three strategies is the plan for Diabetes prevention, early detection and management. Since the Meriba Zageth Diabetes Strategy was devised in 1996 (Torres Strait and Northern Peninsula Area Health Council 1996) there have been two meetings of the Health Council and senior health providers to review progress. The most recent review in 1999 found that the plan for improving clinical services was on track. However, similar progress with prevention programs was not seen (Table 3).

<table>
<thead>
<tr>
<th>PROGRAM / STATUS</th>
<th>No Action</th>
<th>In progress</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco control program pilot</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving the food supply</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘Gutbusters’ adapted locally and implemented</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy weight program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved physical infrastructure for exercise promotion</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved school nutrition pilot</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gadin Kai Kai (local food production)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes education resources</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community nutrition promotion</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise promotion</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breastfeeding promotion</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Detection and Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early detection (community and opportunistic screening)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital works, including housing for new clinical staff, and ‘step-down’ facility (inpatients)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of quality of current services</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recruitment of specialist staff for outreach services</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical information, recall and reminder system</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial of best practice in diabetes care</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff education (diabetes educators, podiatry, etc.)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recruitment of at least two women doctors</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training of Indigenous health professionals (medical)</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Why is this so? Clinicians are powerful in the health system, both from the point of view of commanding resources and having a relatively strong evidence base for most clinical programs. In Marxist terms, they ‘control the means of production’. By contrast, prevention programs often have a smaller evidence base, frequently involve the non-health sector as leading agents, its proponents are less powerful in the health system, programs are more diffusely targeted, and the effects are often not seen for long periods of time. Evaluation is often complex and ‘success’ might be a moving target.

What can be done? One possible approach to improving investment in primary prevention is to make explicit the current investments by the health service across the health care continuum, for a disease like Diabetes, then estimate how marginal investments upstream would affect outcomes. This is the approach described in the ‘health benefit groups’ model (Zhao & Beaver 1999), first suggested by British economists in the early 1990s. For Diabetes, the matrix would look like Table 4, where the left-hand column represents populations at different levels of risk and the top row represents stages in the care continuum for Diabetes, from primary prevention to end-stage management. As we move from primary prevention (upper left) to management of end-stage disease (lower right), the cost per unit benefit increases dramatically, and outcomes (e.g., quality of life and survival on dialysis for Indigenous people) are generally poor. The rate of hospitalisation for Diabetes-related conditions is already rising dramatically in the Torres Strait (Tropical Public Health Unit 1999). Investments in better primary clinical care should decrease marginally the hospitalisation rate for preventable complications for those already with disease. Investments upstream in primary prevention would be expected to reduce incidence, or at least slow the rate of increase in incidence, of Diabetes.

In summary, the process of priority setting is essential in effectively addressing the major threats to the health of the public. However, where prevention programs compete with clinical programs for resources within the same strategy, clinical care often has first call (see Table 3, previous page). Effective mechanisms have to be devised to ensure a more rational investment across the care continuum to maximise health outcomes. The health benefit framework is one way of making these investment choices more explicit.
Table 4: **Health benefit group matrix: Diabetes**

<table>
<thead>
<tr>
<th>Population Group</th>
<th>Characteristics</th>
<th>Primary Prevention</th>
<th>Early Detection</th>
<th>Management</th>
<th>Example Outcome Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Risk</td>
<td>General population</td>
<td>Behavioural, structural and social determinants, obesity prevention, improved nutrition</td>
<td>GDM screening, annual adult checkup</td>
<td>Healthy weight programs, better childhood nutrition</td>
<td>Reduced incidence of obesity, GDM, IGT</td>
</tr>
<tr>
<td>At Risk</td>
<td>High-risk ethnic groups, BMI&gt;25 High Lipids IGT</td>
<td>Targeted health promotion, structural and social interventions</td>
<td>Screening, voluntary testing, opportunistic testing, periodic checkups</td>
<td>Brief interventions (GPs), weight reduction, diet</td>
<td>Reduced incidence of obesity, GDM, IGT and diabetes</td>
</tr>
<tr>
<td>People with diagnosed diabetes</td>
<td>Polyuria, infections, etc. or screen-detected cases</td>
<td>Diabetes ‘workup’ and ongoing routine primary care</td>
<td>Diabetes ‘workup’ and ongoing routine primary care</td>
<td>Brief interventions (GPs), care plans (EBM)</td>
<td>Brief interventions (GPs), care plans (EBM) Reduced complications and hospitalisation</td>
</tr>
<tr>
<td>People with diabetes requiring acute inpatient care</td>
<td>People with diabetes admitted to hospital for a diabetes-related condition</td>
<td>Clinical guidelines and QA</td>
<td>Clinical guidelines and QA</td>
<td>Reduced case fatality</td>
<td></td>
</tr>
<tr>
<td>Complications requiring high level, continuous care</td>
<td>Eye disease, renal failure, CVD, high BP, lower limb amputations, etc.</td>
<td>Regular review, blood pressure control, etc.</td>
<td>Clinical guidelines and QA</td>
<td>Improved Quality of Life (functioning) Reduced mortality</td>
<td></td>
</tr>
</tbody>
</table>

Notes: BMI body mass index; BP blood pressure; CVD cardio-vascular disease; EBM evidence-based medicine; GDM gestational Diabetes Mellitus; IGT impaired glucose tolerance; QA quality assurance

**References**


Zhao, Y. & Beaver, C. 1999, Algorithm of Health Benefit Groups Grouping, paper presented to 11th Casemix Conference in Australia, Cairns.

Tropical Public Health Unit, Queensland Health 1999, *Health Indicators for the Torres Strait*, Queensland Health, September.
For those concerned with improving Indigenous health services in Australia, especially in rural and remote areas, the four Aboriginal and Torres Strait Islander Coordinated Care Trials (CCT) that took place between 1997 and 2000 are of interest on at least two counts: firstly, for the innovations introduced under the banner of the trials, and evidence regarding the impact of those innovations; and, secondly, because of the considerable resources that the Commonwealth government devoted to evaluating the trials. In this paper we draw upon the experiences we gained in evaluating one of these trials—in the Katherine West region of the Northern Territory—to present some observations both about outcomes of the trial itself and about lessons to be learnt for future program evaluations.

The Aboriginal CCT program was an offshoot of the ‘mainstream’ CCT program, which in turn evolved from the Commonwealth government’s response to a discussion paper prepared in 1995 for the Council of Australian Governments (COAG). (Although it was officially designated as an Aboriginal and Torres Strait Islander CCT program, no trials were conducted in the Torres Strait Islands. For convenience, therefore, we shall refer to the program simply as an Aboriginal CCT program.) The COAG paper had argued that health services for patients with chronic and/or multiple conditions could be provided for more effectively and efficiently through a system of funds pooling and care coordination (Commonwealth Dept of Health and Family Services 1995). The Commonwealth agreed to fund a number of trials in which these principles were tested. Nine ‘mainstream’ trials were funded as well as four Aboriginal Coordinated Care Trials.

The Aboriginal trials were administered separately from the mainstream program and, while they too incorporated the principles of funds pooling and care coordination, they also shared three distinctive features of their own, namely:

- a commitment to Indigenous community control;
- a whole-of-population focus (whereas the mainstream CCT targeted clinical populations); and
- in the case of remote area trials—additional funds in the form of a capitation-based ‘cashout’ of MBS and PBS benefits over and above existing expenditure (whereas the mainstream trials were designed to be revenue-neutral). This last decision reflected the Commonwealth government’s acknowledgment that the MBS/PBS system which serves most Australian health consumers is effectively unavailable in remote localities, where there are neither doctors nor pharmacies through which
to channel claims. For the purposes of the two Northern Territory Coordinated Care Trials, the combined MBS/PBS cashout was set at $536.40 per person per annum, said to correspond to the average expenditure on Australians generally (KPMG Consulting 2001a).

Of the four Aboriginal trials, one took place in Western Australia and involved the Perth-based Derbarl Yerrigan Health Service and a number of service providers in Bunbury, and another was centred in Wilcannia, New South Wales. The remaining two were located in the Northern Territory: one covering the Tiwi Islands north of Darwin, the other an area of some 162,000 square kilometres (twice the size of Tasmania) stretching from the Western Australian border eastwards towards the town of Katherine (KPMG Consulting 2001a).

The Katherine West region contains several large Aboriginal communities and smaller outstations, a number of cattle stations, and the small township of Timber Creek. The southern-most community, Lajamanu, is approximately 890 kilometres from Darwin. The population in 1996 was estimated by the Australian Bureau of Statistics to be 2800, but community profiles prepared by the Northern Territory Department of Health and Community Services (NTDHCDS) suggest that the true figure is in excess of 3000. Some 85 per cent of the regional population are Aboriginal, drawn from ten language groups. Primary health care in the region is provided through eight community health centres. At commencement of the trial these centres were staffed by nine Aboriginal Health Workers (AHW) and seven nurses. There were no resident doctors in the region, medical services being provided by visiting District Medical Officers (DMO).

Both the Katherine West and Tiwi Island trials were conducted by Aboriginal-controlled regional health boards: in the Tiwi Islands the health board pre-dated the trial, while the Katherine West Health Board (KWHB), on the other hand, was created especially for the trial. The ‘program logic’ (McClintock 1990) underpinning the Katherine West trial (and, for that matter, the Tiwi Islands trial) can be summarised in terms of two propositions:

- Community control together with funds pooling (augmented by the MBS/PBS cashout) together with care coordination would lead to improved health services.
- Improved health services would, in turn, lead to improved health outcomes.

The propositions are depicted graphically in Figure 1 below.

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**Figure 1: Program logic underpinning Katherine West Coordinated Care Trial**

![Diagram of program logic](image-url)
Community control in the Katherine West trial was to be provided by the establishment of Katherine West Health Board, a body incorporated under the Commonwealth Aboriginal Councils and Associations Act (1976). Under the terms of the Act, all adult Indigenous residents of designated communities are eligible to become members of the association, and in this capacity are entitled to vote for a pre-determined number of representatives of their communities to sit on the board. The board in turn employs a director and other administrative and professional staff.

The funds pool comprised two parts: monies that would, in the absence of the CCT, have been spent by NTDHCS on health services in the region; and the MBS/PBS cashout. The NTDHCS funds pool was initially based on the 1997–98 budget. However, during the trial it became apparent that actual expenditure by NTDHCS (and subsequently the health board) on health centres was significantly higher than the 1997/98 budget allocation. As a result, NTDHCS agreed to modify the funds pool for health centres by basing it on average actual expenditure over the two years preceding the trial, minus significant one-off costs such as large termination payouts. In its final form, the NTDHCS funds pool for the live phase in Katherine West comprised $1.56 million per annum, while the capitation-based MBS/PBS cashout provided an additional $1.64 million per annum.

Care coordination was introduced by way of two related measures:

- the development of evidence-based protocols or care plans for the management of selected preventive population health checks and for identified chronic diseases, prepared especially for the NT trials by a team that included clinicians and an experienced Aboriginal Health Worker; and

- the introduction of a new computer-based client record and recall system (known as CCTIS: Coordinated Care Trial Information System) into community health centres. The new system incorporated the care plans and generated prompts for scheduled items.

The so-called ‘live phase’ of the Katherine West CCT commenced on 1 July 1998 and, following a number of extensions, terminated on 31 March 2000. The succeeding period from 1 April 2000 to 31 December 2001 was officially designated by the Commonwealth government as a ‘transition phase’. During this time, both the Commonwealth and NTDHCS agreed to maintain funding commitments at live phase levels to enable the health board to keep functioning while the Commonwealth digested the findings of evaluations and decided upon its future course of action.

Even before the live phase had ended, the Katherine West trial had become widely praised as a success, a status that received official endorsement in a recently released Commonwealth government publication entitled Better Health Care: Studies in the Successful Delivery of Primary Health Care Services for Aboriginal and Torres Strait Islander Australians (OATSIH 2001), where the health board is cited in a case study.

In this paper, we argue that the Katherine West CCT was indeed a success in three important respects. However, we also contend: (a) that success was a product of a number of developments and contingencies that had not been envisaged within the
The dimensions of success, each of which is discussed briefly below, were as follows:

- the KWHB became an effective mechanism for asserting Aboriginal control over purchasing and the provision of health services in the Katherine West region;
- funds pooling and the addition of MBS/PBS cashouts generated new and expanded health services in the region; and
- the trial brought about improvements in clinical practice, as measured in a series of clinical audits.

The establishment of an Indigenous-controlled body, such as a health board, does not, in itself, guarantee that Indigenous people will be able to exercise control over the purchasing and/or provision of health services. In this instance, we concluded from our evaluation that it did so, a result that we attributed to three main factors:

- the continuing emphasis, which lasted throughout the live phase, on training and educating board members in matters to do with the trial, especially financial management;
- the diligence of the health board staff in not attempting to usurp the board’s decision-making powers, as so often happens in organisations ostensibly under Aboriginal control; and
- the continuing high level of involvement displayed by board members, and reflected in the high level of attendances at board meetings.

The main changes in levels of provision of existing services were:

- employment of four additional nurses in health centres;
- success in attracting a number of trained Aboriginal Health Workers back into the workforce (intermittent only);
- employment of administrative officers in three health centres;
- KWHB’s take-over of management of four health centres in the trial area (Kalkarindji, Daguragu, Yarralin, Pigeon Hole) in the course of the live phase;
- an increased number of visits to communities by district medical officers; and
- additional dental services to communities.

While the additional funds created by the trial enabled the KWHB to purchase additional health services from NTDHCS, the experiences of both parties during the live phase indicated that additional funds, while a necessary condition for extra services, were not necessarily a sufficient condition. In a number of instances, NTDHCS was unable to provide additional services for which KWHB had agreed to pay. This was an important constraint on the provision of health services in a remote region such as Katherine West.
A number of new health service initiatives were also introduced as a result of the trial, namely:

- the employment of resident doctors in two communities;
- an aged care program at Mialuni (Amanbidji);
- dog control programs in major communities;
- a mobile primary care unit (cattle stations and some outstations);
- a mobile clinic service (East Kimberley Medical Service); and
- the establishment of health committees in communities.

To gauge the impact of measures designed to improve care coordination, four clinical audits were conducted throughout the live phase and the succeeding transition phase. In these, two stratified random samples of consenting trial participants were selected: one a general population sample (N=108) used to gauge the provision and recording of services against recommendations specified in the relevant population care plan; and the second a sample of diagnosed diabetics (N=70) used to monitor services delivered against those recommended in the diabetes care plan. In addition to the service level indicators, some intermediate health status indicators were recorded in the diabetes audit, such as levels of blood pressure and blood glucose.

The audits revealed an increase throughout the live phase in levels of service delivery measured against guideline recommendations, although the rate of improvement was not sustained through the transition phase. A number of factors appear to have contributed to the fall-off, in particular health centre staffing shortages at one major community during the transition phase, high staff turnover at other centres, and inadequate training in activities relating to care coordination. The trends are depicted in Table 1 and Figure 2 (see next page).

Notwithstanding these improvements, the audits also revealed continuing grounds for concern. In particular, the care plan audit revealed low levels (i.e., <= 33% of those recommended) of services such as counselling and/or advice about exercise, smoking and alcohol, while the diabetes audit found control of blood pressure and blood sugar to be generally poor.

| Table 1: Proportion of total recorded service delivery as scheduled by care plan group, Katherine West Trial |
|-------------------------------------------------|----------------|----------------|----------------|----------------|
| Care Plan group                               | Baseline | 6 months | 1 year | 2 year |
| 0–3 years                                      | 45%      | 42%      | 58%      | 53%      |
| 4–5 years                                      | 57%      | 55%      | 57%      | 65%      |
| 16–49 years                                    | 26%      | 33%      | 44%      | 29%      |
| 50+ years                                      | 34%      | 37%      | 44%      | 48%      |
| Diabetes                                       | 34%      | 35%      | 40%      | 27%      |
If we consider the totality of changes summarised above, it is clear that they were made possible by the extra funds, new ideas and other resources made available by the CCT program. To that extent, these outcomes should be viewed as trial outcomes. To see them as direct products of trial inputs, however, would be to present a grossly distorted account overlooking:

- a number of necessary additional factors;
- important constraints and opportunities that arose by virtue of the social and geographical context within which the trial took place; and
- outcomes of the complex interactions that occurred between trial participants and these contextual factors.

Perhaps the most important manifestation of these three factors was the transformation that took place in the nature of the trial itself during the live phase. At the outset, KWHB was established as an Indigenous-controlled fund-holding body, which would purchase health services on behalf of residents of communities represented by the board, either from the traditional service provider, NTDHCS, or from alternative providers. That is to say, the health service model created by governmental prescription, rather than by the communities or their representatives, was based on the principles of a purchaser–provider-funder model.

Well before the end of the live phase, the health board had reshaped this model and its own role by taking over management of four health centres in the communities. It had also announced its intention to take over remaining centres in the months following the live phase, thereby becoming a provider as well as a purchaser of health services. This it did largely because the board decided that, as long as it relied on NTDHCS to provide primary care services that the board nominally purchased from NTDHCS, little would change in the clinics. Day-to-day control over clinical practices would remain where they had always been—with
NTDHCS. At the same time, the board’s decision to take over management of the health centres exposed it to another feature that by then had emerged: namely, the inadequacy of the primary health care component of the funds pool.

The nature and extent of the shortfall lie outside the scope of this paper, except to note that it arose because the NTDHCS funds pool was calculated initially on budgeted rather than actual expenditure. So long as NTDHCS retained the role of primary care service provider, it carried the risk of any excess of expenditure over funds pool. Once the health board became the service provider, however, this was no longer the case. Not surprisingly, the discrepancy between expenditure on health centres and the amount provided in the funds pool generated protracted negotiations between NTDHCS and the health board—which fortunately resulted eventually in a mutually acceptable outcome.

The board’s shift from being a purchaser to a provider of health services was not limited to primary health care centres. Frustrated by what it saw as inadequate services in the area of environmental health and nutrition, the board decided to appoint its own officers in both of these areas. Even more significantly, it began to delineate its own longer term vision for health services in the Katherine West region, a process that culminated in a document entitled Year 2000 and Beyond (KWHB 1999), and an accompanying implementation plan in which the board set sequential targets for itself in the areas of clinical services, public health services and community development (KWRHBAC 1999).

By now, the bundle of innovations that had started life as a Coordinated Care Trial had become something very different. The processes through which it did so, it should be noted, placed enormous demands upon many individuals, especially in the KWHB and NTDHCS. Many of these demands were neither anticipated nor budgeted for in the trial design, nor—in terms of some of the intangible demands on people’s energy, perseverance and goodwill—could they have been adequately anticipated. But they, too, constitute an important outcome of the trial, one that other would-be innovators would be unwise to ignore.

It would be possible to say much more about the trial itself, and for those interested we suggest you read the national evaluation report (KPMG Consulting 2001a) and our local evaluation (d’Abbs, et al. 2000). The latter is available from the Menzies School of Health Research website (www.menzies.edu.au). In the remainder of this paper, however, we turn to the implications of these events for the evaluations of the trials.

**Evaluating the Coordinated Care Trials**

The evaluation framework prepared in advance of the trials did not, in our view, provide an adequate conceptual or methodological basis for monitoring and responding to the contextual and processual aspects of the live phase, some of which we have discussed above. To see why this was so, we need to retrace some of the steps through which the evaluation framework evolved.

Prior to the Aboriginal CCT commencing, the Commonwealth government engaged the consultancy firm Coopers and Lybrand. Together with the Monash University-based Centre for Health Program Evaluation, Coopers and Lybrand developed an evaluation framework based on a quasi-experimental design utilising
‘control’ communities that would not receive the benefits of funds-pooling or other CCT-related innovations. The model attached considerable weight to statistical power and rectitude and can, perhaps, be seen as a valiant attempt to construct a scientifically sound design in a real-world context where—given the economic, clinical, cultural, political and ethical realities—such an imperative was neither relevant nor achievable.

Not surprisingly, the Commonwealth abandoned the model without trying it out, and turned subsequently to another consultancy firm, KPMG Consulting, in search of an alternative national evaluation framework. KPMG, in response, dropped any pretence at a quasi-experimental design, and explicitly acknowledged the importance of qualitative as well as quantitative data. However, it too remained true to the prevailing evaluation logic—that is, the deductive logic of hypothesis testing—by offering instead a pre-test/post-test design built around a single ‘primary’ hypothesis and twelve ‘secondary’ hypotheses, which the data collection and analysis procedures outlined in the plan were to test (KPMG Consulting 2001b).

The primary hypothesis postulated:

\[
\text{that coordination of care for Aboriginal and Torres Strait Islander peoples and communities, where care is accessed through individual and/or community care plans, and funds pooled from Commonwealth, State and joint programs, will result in improved individual and community health outcomes, taking into account the four dimensions of health}
\]

(KPMG Consulting 2001a: 39)

The Commonwealth’s evaluation strategy also provided for a second level of evaluations, to be known as local evaluations, with one commissioned for each trial. These latter were to provide data as requested by the national evaluator, but were also charged with monitoring and reporting in greater depth on the respective trials, and paying greater attention to distinctive contextual factors. Although local evaluators had to pay heed to the design and methodology of the national evaluation, they were not circumscribed by it.

In the event, the hypothesis-testing model that informed the national evaluation framework appears to have been of little value; so little, indeed, that the final national evaluation report does not even state most of the hypotheses, let alone attempt to test them. Rather, it alludes to them in passing. For example, in foreshadowing a discussion about the impact of the trials on access to health services, the report points out:

Service access relates to three of the secondary hypotheses. They are:

- **Secondary Hypothesis 4**—the level of access to appropriate primary health care and other health care services.
- **Secondary Hypothesis 5**—Involvement of Aboriginal Health Workers and service providers in the trial.
- **Secondary Hypothesis 7**—The advocacy role of community organisations, Aboriginal Health Workers and of health service providers in their interaction with other service sectors. (KPMG Consulting 2001a: 161 [all Secondary Hypotheses in italics in original]).
Stated in this form, of course, these three phrases are not hypotheses at all, but rather indicators of variables deemed to be important as determinants of access. The notion of ‘hypothesis’ here, we suggest, is serving a vestigial symbolic function, rather than a genuine methodological one.

Indeed, the report’s authors explicitly acknowledge their abandonment of the hypothesis-testing model early in the report by informing us that, subsequent to the development of the national evaluation framework, KPMG gave further consideration to the hypotheses and formulated a revised conceptual framework whereby the key components became six ‘domains’ in which changes wrought by the CCT might be expected to lead to improved health outcomes. These were access, appropriate services, organisational capacity, funding, administration, and individual and community empowerment. The authors of the report go on to state: ‘The national evaluation was undertaken within the context of each of the six domains... rather than being driven by “testing” of the individual hypotheses’ (KPMG Consulting 2001a: 40). And, indeed, the rest of the report makes no reference to testing hypotheses.

The point in describing these shifts in the design and execution of the national evaluation is not to criticise any of the parties involved. In developing a national evaluation framework, KPMG (and no doubt Coopers and Lybrand before them) was obliged to meet the requirements of a number of stakeholders, and one of those requirements was to design a hypothesis-testing evaluation. What subsequently appears to have happened, however, judging by the structure and content of the final national evaluation report, is that as the national evaluation team set about its task it discovered that a combination of contextual factors, unanticipated contingencies and deficiencies in the available data effectively stripped the hypotheses of most of whatever explanatory power they might have had. In order to tell its evaluation story, the national evaluator was forced to find both other concepts and narrative devices.

What we have witnessed, then, is a long, somewhat tortuous progression from a quasi-experimental evaluation design, via a pre-test/post-test design that attempted to employ the deductive logic and methods of hypothesis testing, to the final product: an informative, but essentially descriptive account, in which process and context are every bit as prominent as intervention and outcome, and in which the language of hypothesis-testing serves, as we suggested earlier, no more than a vestigial, symbolic function.

Is this just an interesting tale or a cautionary one? We argue that it is an important instance of the latter—that there are lessons to be learnt from these events that should not go unheeded if we are serious about harnessing the potential capacity of evaluation and other research to improve Indigenous health services. The first lesson to be drawn, we suggest, is the extraordinary power exercised in some sectors of government by certain ideas about what constitutes good evaluation. These ideas are grounded in a particular view of science and scientific research and, in particular, the symbolic weight to be attributed to particular scientific conventions. Only an insider in these sectors could assess to what extent the power of these ideas is related to consideration of their methodological or theoretical appropriateness, and to what extent, rather, it derives from the political credibility they are deemed to carry in the hurly-burly of negotiating and decision making that accompanies policy making in general, and funding decisions in particular.
A second lesson, we suggest, is that regardless of the source of their attractiveness, these ideas about what constitutes good evaluation are likely to lead their followers in unproductive directions. Quasi-experimental research designs, randomised controlled trials (RCTs) and other examples of sound scientific practice have their place, but that place is not everywhere. Research designs should be assessed not according to the degree to which they approximate a randomised controlled trial or experimental design, but rather on the basis of two criteria:

- their potential capacity to generate valid answers to the questions we should be asking; and

- their suitability with respect to the organisational arrangements and relationships among stakeholders associated with the intervention being evaluated.

Where any one of three conditions is present, we suggest that RCTs, experimental designs and deductive hypothesis-testing models may not be the most appropriate models. These conditions are:

- where the context in which an intervention occurs is too important to be relegated to the background, as it inevitably is in RCT and related designs;

- where many of the most important lessons to be derived from the intervention are likely to be a function, not of outcomes, but of the processes through which the intervention is implemented; and/or

- where the knowledge base upon which the intervention is based is neither comprehensive nor coherent enough to permit the derivation of theoretically grounded deductive hypotheses.

It is also questionable to what extent RCTs and related designs are compatible with program innovations that purport to promote community control, since an important component of such control is the capacity to influence the direction taken by evaluation, and to adapt to feedback generated by it.

We do not argue that RCTs and related designs are necessarily unsuitable under the above conditions or incompatible with community control of health services. What we are challenging is the assumption that such designs are invariably to be preferred. Further, our critique would suggest the need, under these conditions, for one or other of two approaches: either RCT-derived designs should be modified in order to make them more sensitive to contextual factors, or alternative models should be considered. In our local evaluation of the Katherine West CCT we used one such alternative, although it is by no means the only suitable option. We adapted Pawson and Tilley’s generative model of causality, in which intervention outcomes are viewed not as an expression of a statistical relationship between independent and dependent variables, but rather as a product of the interaction between an intervention and the context in which the intervention occurs. If that interaction permits then the input+context becomes what Pawson and Tilley call a ‘change mechanism’, just as, to cite an analogy used by them, striking a match will cause fire to break out but only in the presence of two contextual conditions: the presence of oxygen and of dry fuels (Pawson & Tilley 1997).

Methodologically, this approach to evaluation involves identifying, from the
implicit assumptions and explicit propositions that go to make up the ‘program logic’, those causal links through which trial inputs are expected to become change mechanisms, which in turn are expected to lead to trial outcomes. It also involves identifying those contextual factors that might be expected to interact with the trial inputs and affect the extent to which, and the ways in which, inputs become change mechanisms. Figure 3 depicts the result of this process in our evaluation.

Figure 3: Conceptual components of live phase evaluation

A key component in carrying out an evaluation using this model involves monitoring the reciprocal interactions between inputs and context, and the ways in which these interactions shape the emergence and effectiveness of change mechanisms. These are essentially processes rather than outcomes. At the same time, outcomes are far from neglected as our evaluation of the Katherine West trial demonstrated.

Summary

This paper began with a description of the Katherine West Coordinated Care Trial and a brief account of some key outcomes of the trial in the areas of community control, new and expanded health services and improvements in clinical practice. While these outcomes are widely considered to be evidence of the success of the trial, we have argued that: (a) their attainment was a product of additional factors and contingencies that were not envisaged in the original trial design; and (b) the part played by these factors and contingencies could not have been adequately monitored or understood within the framework of the national evaluation design formulated for this and other Indigenous trials.

The national evaluation design adopted for the Indigenous CCT was based on a pre-test, post-test, hypothesis-testing form. We demonstrate that the logic of hypothesis testing was not, in fact, pursued in carrying out and reporting on the evaluation. We go on to argue that this was because such a design and logic may not be suited to evaluating health service reforms where contextual factors are important, and/or where many of the key lessons to be derived are likely to be a function of processes rather than outcomes, and/or where the knowledge base
upon which the reforms are based is not sufficiently developed to allow for the derivation of theoretically grounded deductive hypotheses.

These circumstances, we argue, characterised the conditions under which the Katherine West CCT was implemented. Under such conditions, two approaches should be considered: either RCT-derived models should be amended to make them more sensitive to contextual factors, or alternative evaluation designs should be considered. We conclude the paper by giving a brief overview of one such alternative, namely the approach based on Pawson and Tilley’s ‘realistic evaluation’ model that we used in the local evaluation of the Katherine West CCT. In this approach, contextual factors are seen as no less important than inputs, and reciprocal relationships between the two are carefully monitored.

**Endnotes**

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Building a Policy-Relevant Research Agenda:
Economics and Aboriginal Primary Health Care, a Practitioner's Perspective

1. Overview

This paper provides a view on some Indigenous health economics issues from a Kimberley perspective. A view ‘from the ground’ can help contextualise the often abstract debate around needs assessment, application of resource models and determination of the value of health investments.

A brief overview of Kimberley population, health status and services is provided, followed by some analysis of regional health expenditure. The regionally agreed approach to primary health care is explored and an example of the problems faced by Aboriginal people in accessing mainstream services is presented.

The link between data and commitment of resources by government is discussed, with particular emphasis on primary health care service level reporting and the ideas behind the development of the Commonwealth government’s current Service Activity Reporting (SAR) instrument.

2. The Kimberley Context

2.1 Geography, population and patterns of disease

The Kimberley is a remote and climatically harsh region of Australia with a population dispersed across a vast area of some 421,130 square kilometres. There are six towns and approximately 180 discrete Aboriginal communities with populations ranging in size from small family groups to large communities of more than 700 people. There are also about fifty pastoral lease properties other than those owned by Aboriginal communities.

The non-Aboriginal population (numbering 21,559 in the 1996 census) is predominantly concentrated in the major towns—almost half in Broome and the bulk of the remainder in Kununurra and Derby. The Aboriginal population, estimated at 15,500 in the Kimberley Regional Aboriginal Health Plan (Atkinson, et al.), comprises 40 per cent of the regional population overall and 80–90 per cent of the population in Fitzroy Crossing, Halls Creek and Wyndham, and of remote stations and community settlements. Aboriginal people also make up the great bulk of the permanent residents of the region with more than 80 per cent enumerated in the same Statistical Local Area between census counts compared to about 20 per cent of the non-Aboriginal population. More than a quarter of the total Western Australian Aboriginal population live in the Kimberley.

Aboriginal people bear the overwhelming burden of disease in the Kimberley and are the major consumers of health services. Eighty per cent of total bed-days across
the six Kimberley hospitals (1993 to 1998) were for Aboriginal people, as were 65 per cent of all bed-days spent in Perth teaching hospitals by Kimberley residents. According to Royal Flying Doctor Service (RFDS) Western Operations data, Aboriginal people comprise 75–85 per cent of the patients for whom RFDS provided transport in the Kimberley in 1998–99. Aged standardised mortality rates for Aboriginal people in the Kimberley are three-fold higher than for the general population. This reflects higher acute infectious morbidity (pneumonia, gastrointestinal disease, suppurative skin disease), cardiovascular disease (ischaemic heart disease, renal disease) and injuries (accidental, MVA and other). Median age of death (1986–96) for Kimberley Aboriginal men was fifty-six and for women sixty-one years compared to seventy-two and seventy-nine years for WA non-Aboriginal men and women over the same period.

In turn, the burden of disease, of alcohol abuse and of contact with the criminal justice system among the Aboriginal population relate to poverty, crowding, lack of educational and employment opportunity, dislocation and discrimination. These dimensions of continuing disadvantage are comprehensively documented in the Kimberley Regional Aboriginal Health Plan report.

2.2 Existing health services

Existing primary and secondary health care facilities comprise:

- six public hospitals providing inpatient, outpatient and emergency care services;
- State-run community health centres with health program responsibilities (e.g. childhood immunisation, communicable disease control) in each of the six Kimberley towns;
- five town-based Aboriginal community-controlled primary health care services (all towns except Wyndham);
- State-run community clinics and nursing outposts (some visited, some staffed) in thirteen major Aboriginal communities;
- six Aboriginal community-managed remote community clinics;
- four Aboriginal community clinics with community nursing services provided by Sisters of Mercy; and
- a private general practice in Broome.

State health services are managed through Kimberley Health, the Western Australian Health Department regional health body. Kimberley Health also manages a number of specialised service units—Public Health, Regional Aged Care Services, a regional nursing home, North-West Mental Health Services, State dental services. The nearest tertiary referral hospital facilities are in Perth (2500 km south) or Darwin (1000 km north-east).

Aboriginal community-controlled health services are independent non-government primary health care services initiated, owned and managed by local Aboriginal communities. In the Kimberley, Aboriginal Community Controlled Health Services (ACCHS) jointly own a cooperative body, the Kimberley Aboriginal Medical Services Council.
3. Funding of Health Services in the Kimberley Region

3.1 Overall regional health expenditure

Funding both of hospital/secondary care and primary medical care in the Kimberley region is grossly inadequate with a significant under-expenditure by both State and Commonwealth governments. While there are also problems with health service delivery structures, and with maldistribution of health care resources, improvements will be marginal without a substantial injection of additional health funding.

A review of expenditure on health services in the Kimberley region was undertaken as part of the Kimberley Regional Aboriginal Health Plan in 1999.

Total expenditure through State community health and Aboriginal community-controlled health services in 1997–98 was $9.7 million. Hospital expenditure in the region for the same year was $28.5 million.

However, primary care-type services are also provided through hospitals. Based on information cited in the regional Aboriginal Health Plan, some $22.38 million or $605 per-person is expended on hospital-type services, and $16.3 million or $440 per person on primary care-type services (if about $500,000 of MBS expenditure through the one general practice is assumed).

3.2 Regional expenditure on Aboriginal health

Per-person expenditure on primary care-type services for Aboriginal people in the Kimberley was estimated as $810 per head in the Kimberley Regional Aboriginal Health Plan (pharmaceuticals expenditure included).

These figures should be compared with estimated per-person primary care-type expenditure of $805 for the general non-Aboriginal Australian population (medical services, pharmaceutical benefits scheme, community health services and hospital outpatients). The funds available to provide health care to Aboriginal people in the Kimberley is, therefore, about the same per head as for non-Aboriginal Australians living in cities and in relatively good health. Geographical isolation, small scattered populations, cultural barriers, the excess burden of disease—none of this is reflected in funding.

The plan argues strongly that expenditure on primary medical care for Aboriginal people in the Kimberley should be two- to three-fold higher than that for non-Aboriginal city-dwellers—at least $1200 per person in towns and $1800 per person in communities.

Estimated Aboriginal hospital expenditure of $1168 per person is about the same as State-wide Aboriginal per-person expenditure of $1147. In other words, geographical isolation and diseconomies of scale in the Kimberley are not reflected in additional hospital expenditure.

Inequities in funding inputs is reflected in service and health workforce gaps. The Kimberley Regional Aboriginal Health Plan identified that there was a current deficit of ten general practitioners, twelve additional community-based nursing staff and 100 Aboriginal Health Workers based on generally accepted models of population ratios for remote health service provision.
4. Structure of Health Service Provision

4.1 Primary health care

The Kimberley Regional Aboriginal Health Plan identified principles that should be applied to the provision of primary health care to Aboriginal people in the Kimberley to ensure accessibility, acceptability, affordability, appropriateness, and community participation.

Recommendation 26, agreed by all planning partners, involved shifting the provision of primary health care from the hospital to the community setting, both to address the above goals and to provide opportunities to access additional Commonwealth Medicare funding. Specifically, the recommendation identified Fitzroy Crossing, Derby and Halls Creek as towns where hospital District Medical Officer positions should be moved into Aboriginal community-controlled health services.

The primary care provided through State mainstream health services structures—comprising hospital outpatients with an acute care focus, operationally disconnected from ‘community health’ nursing outreach services—is out of step with contemporary best practice in primary care. There are inherent structural problems that result in barriers to gaining access to doctors for GP-type services and to a lack of opportunity for providing comprehensive integrated care through a health team that includes Aboriginal Health Workers. Kimberley hospitals currently lack the basic information systems that are required to manage continuing care—in particular, disease and patient population registers (especially important for chronic diseases such as diabetes or for targeted population screening).

4.2 Cultural safety of health services for Aboriginal people

There is anecdotal evidence and some qualitative research indicating that there are significant problems with the cultural safety of many mainstream health services for Aboriginal people. At best this can result in personal discomfort and late presentation of sick Aboriginal clients, and at worst overtly discriminatory treatment and unnecessary morbidity and mortality. In recognition of this problem, Aboriginal health reports and inquiries have repeatedly recommended cross-cultural training for non-Aboriginal staff working in areas with a substantial Aboriginal population (NAHS Working Party 1989: 100; Royal Commission into Aboriginal Deaths in Custody 1991: Recommendation no. 247). One recent exploration of the problem in the Kimberley provides a useful case-study to explore the issue of cross-cultural training and culturally safe health services.

While conducting qualitative research on barriers to cervical cancer screening in the Fitzroy Valley in 1996, the researcher, an anthropologist by training, documented attitudes and beliefs among hospital and community health staff regarding their Aboriginal patients, which were described in the following terms:

… despite declaring an interest in cultural difference and pursuing a philosophy which required the local Aboriginal population to take responsibility for their health, some hospital and community health staff were very poorly informed and intolerant about Aboriginal beliefs and practices, while sometimes being blind to the circumstances in which many health care clients live and misguided about the information they believed they conveyed to Aboriginal clientele. I witnessed minimal
Evidence of client advocacy and some health staff seemed to believe they had the right to contest the influence of indigenous culture when it conflicted with their own ideas of how that culture should find expression.

(Toussaint 1997)

The expressed views of health service staff, detailed in the report, illustrate many of the major barriers to addressing situations of endemic institutional hostility to Aboriginal people:

- A tendency for staff in these settings to see poor Aboriginal health status as being causally related to a lack of individual care and responsibility (and that Aboriginal people must be ‘taught’ about individual responsibility in their encounters with the health system—even if this translates to denying health care to the sick).
- A powerful sense of Aboriginal people as ‘other’—commonly indicated by frequent use of ‘they’ in a pejorative sense.
- A climate of fear and hostility in what is, for many non-Aboriginal professionals, a psychological ‘siege’ setting (a minority European working enclave, locked hospital doors, barbed wire, fenced staff compounds, no family support, heat, isolation, night noises).
- The marginalisation of Aboriginal staff and the undervaluing of their contribution.
- Inadequate technical knowledge about effective Aboriginal health care resulting in frustration, burn-out and victim-blaming (‘nothing works with these people’).

An important and surprising point is the resilience of an institutional culture such as this in the face of high staff turnover—the report noted a 250 per cent annual nursing staff turnover and a succession of sixteen doctors in the previous two years. This suggests that the attitudes are not the product of a few unusually bigoted individuals but rather something related to a structurally flawed setting.

Since the above report, Kimberley Health management has taken action to address these problems with the appointment of an Aboriginal health services manager who, despite internal resistance to change (e.g., circulation of petitions and approaches to the media by disgruntled staff), has achieved a reasonable measure of success.

The issue is the structural problems inherent in these remote cross-cultural settings. The recognition that culturally unsafe care results from structural problems is in keeping with changing views on health service provision in the cross-cultural setting. The trend is currently moving away from the traditional model of the ‘cross-cultural orientation’ of individuals in favour of ensuring a ‘culturally safe’ health care environment.

Aboriginal ‘cross-cultural orientation’ has often comprised a short induction in the basics of local Aboriginal customs, taboos, beliefs, language names, a little Aboriginal history, and an introduction to some ‘elders’. While this is of some value as part of wider learning experience, in isolation it has been described as ‘cultural voyeurism’ that may do nothing more than to produce ‘informed racists’ (Ramsden 1998).
The new thinking on cultural safety has been particularly well articulated in the nursing literature by Maori nurses (Polaschek 1998; Papps & Ramsden 1996). This literature turns the focus of training on to health practitioners to develop a better understanding of their own social conditioning (ethnocentrism, prejudice, stereotyping), as well as on to the structural setting in which health care is delivered (social context, institutional policies, power inequalities, the comfort zone with the familiar, anxiety, etc.) and the powerful impact of these factors on quality of care.

There is a need to restructure health services, to train all health professionals in principles of cultural safety and to engage the community through employment, in management and community oversight of services.

5. Data and Government Commitment

5.1 How to lever commitment

It has been noted that there seems to be ‘a certain kind of industrial deafness’ (Dodson 1995) regarding statistics describing Aboriginal health. Certainly, compelling evidence of the excess burden of ill-health has not galvanised government commitment to deliver commensurate health care resources.

An assessment of the history of Aboriginal health policy suggests that the forces against change should not be underestimated. The immovability of systems with respect to Aboriginal health is, on the face of it, remarkable. Governments have come and gone, departmental responsibilities reshuffled and names changed, there have been centralisation–regionalisation oscillations, fads in market-like reforms of health financing, numerous reports commissioned, all-of-government commitments and international covenants signed, and yet the fundamental systemic determinants of poor Aboriginal health status remain substantially unaltered. The description of the situation as a ‘paradox of innovation without change’ remains as apt today as it was more than twenty-five years ago when it was coined (Tatz 1974).

If detailed all-of-government partnership commitments of the scale of the National Aboriginal Health Strategy and the Royal Commission into Aboriginal Deaths in Custody can fail for want of political will (Anderson 1997), the effort needs to move from restating the problems and answers to finding better mechanisms that will ensure accountability.

In spite of this experience, there is a commonly held view that what is required is better data on the poor health status of Aboriginal people, more evidence of deficient health service capacity/quality and further analysis of current levels health investment. The ‘we need more data’ view holds that governments will act only if presented with more compelling evidence.

There are three main categories of ‘data needs’ in Aboriginal health care:

- Indicators to satisfy the funding body that a project is meeting a reasonable minimum level of performance against objectives (project performance accountability).
- Client-level data to assist the primary health care service with quality assurance (rates of screening of practice diabetic population, etc.) and plan population health interventions (e.g. trachoma rates by community).
• Health system performance information to inform government policy and further program development (especially to defend resource allocation).

• A health system performance indicator monitors the performance of governments in developing and implementing policies and programs. They generally measure:
  – health status;
  – access to and utilisation of health services;
  – health service outcomes (mostly not actual health status measures);
  – government commitment (measures of equitable allocation of resources according to need mostly); and
  – the social, environmental and economic factors that influence health (e.g. measures of crowding in trachoma-endemic communities, food access with diabetes).

To be useful, health system performance indicators need to be valid and reliable, and reveal important aspects of the effectiveness or implementation of the policy or program, or reflect general progress in the area of the policy or program. If these conditions cannot be satisfied, the data is usually not worth collecting.

The issue of governments gathering data on ‘health outcomes’ from health service providers—for policy, planning and evaluation purposes—has been discussed by the World Health Organization (WHO) in a document on development of national health indicators (Sapirie & Orzeszyna 1995).

The WHO notes that systems of data collection from health service providers tends to result in excessive requirements for data recording and reporting by service staff—data that is not used for the tasks they perform. Moreover, the quality of such data is often questionable and tends merely to accumulate at higher levels of the system, with little analysis or reporting. It was recommended that data collected for health policy purposes should be ‘use- and action-orientated rather than data- or information-led’. Systems of health data recording and reporting should ‘improve the provision of health care’ and the priority is for data to be generated and used at a local level to support enhancement of services.

While good data is certainly better than none, there is no solid evidence that it is a lack of data on un-met need for services that is responsible for government failure to commit the critical mass of resources required in Aboriginal communities. Research is urgently required on how to galvanise government commitment in Aboriginal health effectively.

5.2 Service level data: quality and accountability for outcomes in Aboriginal health

The development of funding-related program reporting for Aboriginal health services has a chequered history and has been authoritatively reviewed (Anderson & Brady 1995). As this paper notes, there is a tension between the use of performance indicators to assess efficiency/effectiveness for a given level of inputs versus the use of indicators to reveal something about the adequacy of resources in the first place—the policy balance between ‘managerialist’ and ‘redistributive’ priorities.

Following on from 1979 recommendations (House of Representatives Standing
Committee on Aboriginal Affairs 1979), and a poor start in 1986 that attracted strong criticism (NAIHO 1987), the Department of Aboriginal Affairs (DAA) advised Aboriginal health services in 1987 of a requirement to produce six-monthly service activity indicators to DAA as a condition of funding. (Indicators included the number of consultations with doctors, nurses and Aboriginal Health Workers, the number of ‘educational and preventative programs’ conducted and attendance at these programs, and the number of dental consultations.) In one bizarre case, funding was tied to the achievement of certain health gains (Moodie 1989: 502–09). The who, hows and whys of interpretation of this information was never clear, which probably reflected a preoccupation with process rather than objectives.

The Aboriginal and Torres Strait Islander Commission (ATSIC) initially continued with the DAA reporting requirements. In 1992–93, the service level reporting was omitted and national level data was required from health services (births, ‘deaths due to ill-health’, etc.). This was a clear nonsense as this information should have been collected by State government jurisdictions and, in any case, was poorly related to reasonable primary health care service outputs. Subsequently, ATSIC left it to services themselves to negotiate with the Commission’s project officers as to what information would be provided (which was often more of the same).

In 1995–96 the new Office for Aboriginal and Torres Strait Islander Health Services (OATSIHS) initially asked that services provide whatever information had been reported in previous years to ATSIC (1995–96), and that in 1996–97 there were no program reporting requirements. Framework Agreements in Aboriginal Health (signed from 1996–98) committed the State and Commonwealth governments to joint development of reporting mechanisms in partnership with ATSIC and the Aboriginal community-controlled health services.

Following on from difficulties with a service reporting questionnaire initially developed by OATSIHS in 1997, the National Aboriginal Community Controlled Health Organisation (NACCHO) developed a new draft and model that was further developed by a joint NACCHO/Departmental working group.

### 5.3 Service reporting and funding of Aboriginal health services

In parallel with service reporting developments, there have been efforts to develop more rational ways to manage resource allocation in Aboriginal primary health care than annual submission-based funding. A transparent, needs-based mechanism has been elusive. Research on a resource allocation formula—resources per head with a deflator applied to reflect burden of disease, diseconomies of scale, geographical isolation, and so on—was recommended in the National Aboriginal Health Strategy in 1989 (NAHS Working Party 1989: 74), and some work was undertaken on behalf of the National Health and Medical Research Council in 1995 (Mooney, et al. 1995). OATSIHS also attempted funding reform with a formula element at a service level with the so-called ‘re-basing’ of Aboriginal health service funding in 1995–96.

However, application of a resource allocation formula at an individual health service level is problematic. Pragmatic considerations dictate that in the absence of tangible benchmarks of need, a fitted mathematical model merely tends to confirm observed data points (with exceptions having to be made for outliers). Moreover,
the approach is hamstrung at a service level by problems with assessing population—arbitrary geographical boundaries, regular versus itinerant clients, roles of other health care providers, census under or over counting, etc.

Modelling rational resource allocation at a service level and reflecting global budget requirements were key considerations in the joint NACCHO/Commonwealth development of current Service Activity Reporting for Aboriginal primary health care services. The SAR development set out to achieve the following:

- provide broad indicators of quality (capacity and process) in Aboriginal primary health care;
- reflect the elements of primary health care work, which are both valued by ACCHS and its communities and which represent sound evidence-based practice;
- indicate resource needs at a service level and a macro level (the concept of a ‘reciprocal accountability’ for governments to provide the level of resources that are reasonably required to deliver core services); and
- gather selected strategic information to inform program and policy development.

The approach to modelling staffing and infrastructure needs based on demand (limited by population) is a departure from resource modelling based on weighted funding per head of population alone.

The approach has the advantage of resource needs being intuitive and tangible. Complexities in modelling staffing and infrastructure costs in different locations are avoided. Difficulties discussed with respect to agreement on population size are minimised. The relative service load related to itinerant clients is also estimated and can be used to inform an assessment of effective client population.

Importantly, the model provides a mechanism for incremental growth of an Aboriginal primary health care service based on a marker of service demand (within a limit based on population). Thus, the problems of services being frozen on historical funding levels, despite growing demand, can be avoided.

It is not intended that the staffing mix and infrastructure requirements be prescriptive, rather that resources which would allow provision of at least the indicated level of staffing and infrastructure should generally be made available. Moreover, the SAR process provides only indicators of resource need and is not a substitute for detailed local needs assessment.

6. Conclusion

The Kimberley experience illustrates many of the common themes in health service provision for remote Aboriginal communities: demonstrably inadequate global health care resources; over-reliance on hospital-type services for primary health care; cultural safety issues for health services that employ predominantly non-Aboriginal ‘itinerant’ staff; and failure of government policy in application of equity principles.

There are various views on how to lever change in Aboriginal health. While
collection and use of data on poor health status, deficient health service capacity/quality and inadequate health funding are important, there is no evidence that it has been a lack of such data that is responsible for government failure to commit the necessary resources and effort.

The World Health Organization has identified common problems in government-mandated data collection from health services: excessive requirements for data recording and reporting by service staff (which is not used for the tasks they perform); poor quality of such data; and accumulation of data at higher levels of the system with little analysis or reporting.

In Aboriginal health, government efforts at data collection/service reporting from Commonwealth-funded Aboriginal health services has had a chequered history. Following on from early mistakes, a model of Service Activity Reporting was jointly developed by NACCHO and OATSIHS in 1998. The new SAR includes structure and process indicators for ‘health service accountability’ and incorporates the concept of ‘reciprocal accountability’ of governments to provide a level of funding commensurate with need. Resource needs (in staff and infrastructure) are modelled on demonstrated client demand (within a population limit).

These more tangible measures of resource need help overcome the problems inherent in the application of an abstract resource allocation formulae at a health service level. Such formulae are better applied at a regional or jurisdictional level, and individual health service resource requirements have to be assessed within such a region on the basis of more tangible needs (doctors, Aboriginal Health Workers, nurses, consulting rooms, etc.).

Research on how to galvanise effectively government commitment in Aboriginal health is urgently required.

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Introduction

A perplexing problem for health economists is: ‘why don’t decision makers use economic models and methods to inform decision making more than they currently do?’ What interested me during studies at York University in the United Kingdom, and on my return to Territory Health Services (THS), was and still is: ‘what is the role of a health economist in the bureaucracy?’ While at York I asked Alan Williams (Professor of Health Economics, York University) what he thought. He said: ‘just go back and ask are there any key issues I could help with, maybe talk to the surgeons at the hospital and see if you can help them make decisions about use of theatres—see if they want to make any changes’.

When I returned to Territory Health Services, I recounted Alan’s comments to the then chief executive officer, Ray Norman. His response was to send me to the hospital to talk to the surgeons as they wanted to set up a day surgery unit. My role was to advise as to whether what was wanted was a good idea or not; to explore the costs and benefits rather than undertake a formal cost/benefit analysis. This set the environment for the next eight years, the work being more pragmatic than scientific in nature, more about bringing an economic perspective to the questions under consideration than formal academic studies.

What Has Economics Got to Do with Health Care?

‘Economics is the science of art of choice in the use of scarce resources’ (Mooney 1992); it is not about money, as most non-economists seem to think. Economists are only concerned with money in that it is the most commonly used and understood measure of value used in our society. Other societies have been known to use, and some still do, livestock as a measure of value—a good wife being worth five cows and a not-so-good wife two. The preoccupation of many in the health sector that economics equals concern about money, about saving money or cutting costs, is a major barrier to the acceptance of economic concepts and tools in the health sector.

Some two years before this, at a States/Territories planning meeting, a public health researcher with good credentials was heard to say: ‘I cannot see there would ever be any decisions I need to make that would require me to involve an economist’. One could argue that, while he may not need to involve an economist in his decision making, it is likely that most of the decisions he makes are economic in nature, i.e., how to allocate a scant resource, whether that be his time, his money or other people’s time and money.
Another interesting comment made to the author was: ‘No one really bothered about money when deciding what to do until we had an economist working with us’. It is interesting that decision makers, who every day are allocating or consuming scant resources, take so little interest in what things cost. I suggest that this is primarily because funding has been historical in nature, i.e., last years plus a bit more or less. However, since the advent of output-based funding in Australian hospitals it has become noticeable that hospital managers and senior clinicians are much more interested in cost than their contemporaries in other parts of the sector, where output funding is only beginning to reach.

What is not understood by most is that economists are not interested in costs per se but opportunity cost, the opportunity foregone when a specific action takes place. Economists are not interested in technical efficiency—achieving the outcome through the least cost alternative to save money—but in freeing up resources to be allocated to another use.

**The Northern Territory and Healthcare: Aboriginal Health the Key Issue**

Wide differentials exist between Aboriginal and non-Aboriginal Australians. In the Northern Territory of Australia the health status of indigenous persons, who constitute 27 per cent of the population, is the worst of any group in Australia. Of primary concern is the high prevalence of chronic disease, the incidence of which appears to be on the increase (Beaver, et al. 1997). For the 25–44 age group, admissions to hospital has increased by 32 per cent over five years. The majority of this increase has been for Aboriginal patients with respiratory system, endocrine, nutritional, and metabolic diseases. Diabetes is a common reason for presentation to health care services accounting for approximately 10 per cent of hospital bed-days. Diabetes accounts for almost 50 per cent of all people entering end-stage renal disease programs, and is a common cause of visual impairment and blindness.

The poor health status of Aboriginal people, combined with demographic and geographical conditions in the Northern Territory, means that the cost of providing care is substantially higher than it would be for a similar population numbers in south-eastern Australia, where the majority of the population live.

A study undertaken by the Health Economics Unit identified the following key factors as contributing to the higher cost of care in Northern Territory hospitals:

- remoteness of patient residential access;
- severity and complexity of conditions in Aboriginal patients;
- personnel costs higher that in other states; and
- diseconomies of scale and higher fixed service costs (Beaver, et al. 1997).

In 1995 an expenditure review was undertaken for primary health care services in different regions in the Northern Territory. At the same time a resource allocation formula was being developed. Given the findings of the expenditure review, application of the resource allocation formula would result in significant shifts in resources from urban areas to rural and remote communities (McDermott, Beaver...
& Zhao 1997). Another area of concern is whether Aborigines in the Northern Territory have fair access to hospital services. A study undertaken by McDermott, et al. found that while access had improved over a ten-year period, from 1979 to 1988, a substantial fall shortfall still existed (McDermott, Plant & Mooney 1996).

**Territory Health Services & Health Economics**

In 1994 a Health Economics Unit was established in THS and since then—even though the title of the unit has changed several times in response to internal reorganisations—the role and work has remained much the same. The key role of health economists in THS was, and remains, more about bringing an economic perspective to decision making rather than undertaking formal economic evaluations. Over the past few years there has been a concerted attempt to bring a more structured rational approach to decision making through use of economic concepts and tools—economic thinking being portrayed as an important part of decision making and not the key focus, economists as important members of the team and not the decision makers.

While the unit was required to undertake core activities—such as the development of an output-based funding model for the Territory’s hospitals and studies to inform the NT Treasury Department Commonwealth Grant’s Commission relativities reviews and Medicare Agreement negotiations—staff of the unit were also able to explore the role of economics as a tool to inform and support decision making in a number of key areas. Over time the results of a number of key activities led to the recognition of the need for, and the development of, a tool that could inform decisions across the health care sector.

**Developments over Time**

**Education programs**

In 1994 a number of workshops and seminars on health economics and health care reform were provided. Initially, the education programs focused on introducing participants to basic economic concepts, economic evaluation methodologies and the introduction of funder/purchaser/provider models in several countries. Gradually the teaching program became more focused on how economic concepts and tools could support decision making. The aim was to encourage and assist decision makers at all levels of the organisation to take a more economic perspective to every-day decision making.

**Priority-setting techniques**

A number of seminars and workshops were held to explore the relevance of priority-setting techniques, such as program budgeting and marginal analysis and option appraisal, to THS. The initial two-day workshop conducted by Gavin Mooney was well received, and over the following six years several discussion groups, seminars and pilot studies were requested by staff, primarily from the Public Health Division.
Introduction of casemix funding for Northern Territory hospitals

With the introduction of output-based funding for Northern Territory hospitals the power of quality data on utilisation and costs became abundantly clear. THS hospitals have excellent information on what they do, what it costs and why it costs what it does, and, as a result, are in an excellent position to negotiate funding. However, other areas—such as community health services, in particular primary care services in rural and remote communities, and health promotion services—while knowing what services they provide and what they spend, have very little data on what they do (products) and what it costs (or should cost). They are, therefore, in a less powerful position to negotiate for funding.

An area of concern during the early stages of the development of the funding model was to ensure hospitals were adequately funded to provide appropriate packages of care to Aboriginal patients, who more often presented with high levels of severity of illness than non-Aborigines. A study was undertaken to ascertain the extent to which variations in severity of illness and socio-economic status impacted upon costs (Beaver, Zhao, McDermid & Hindle 1998). Severity of illness was found to be the main factor in cost variations within diagnosis related groups (DRGs). Other key variables were Aborigine/Non-Aborigine ethnicity, rural/urban place of residence and hospital type (teaching or non-teaching). The findings were used to develop a cost weight adjustment factor for relevant DRGs. There is no formal classification system for packages of care outside of the hospital setting and no studies have been undertaken to determine the cost differential between providing the same packages of care in urban versus rural and remote settings. Consequently, managers in rural and remote communities are less well positioned to argue for increased funding to compensate for the higher cost of providing care to disadvantaged groups.

This leads to another key point: if allocative decisions are to be made based on what is the most appropriate mix of services then valid data on utilisation and costs across the care continuum, together with information on healthcare needs, is required. In response to this need THS is progressively implementing an integrated health care information system: population health, service and cost data from across the health sector can now be linked and analysed. Much of the early development work supported the Aboriginal Coordinated Care Trials in the Northern Territory.

A major challenge then became how to make sense of all this information on needs, service utilisation and costs. While the Australian National DRG classification system and related costing tools had proved a useful tool in the hospital sector, it became apparent that a classification model that allowed mapping of data from different parts of the sector in one information framework was needed. In 1995 Hugh Sanderson and Leonie Mountney (Sanderson & Mountney 1995) from the UK Casemix Office proposed such a model—the Health Benefit Group/Healthcare Resource Group (HBG/HRG) classification model. The model has been refined over time to allow for mapping of outcomes to data on healthcare need, service utilisation and costs.

Economic modelling—addressing questions of allocative efficiency

At the policy and service delivery levels a major challenge to effective governance is how to get evidence, how to use it and how to make sense of a complex, multi-
dimensional health care sector. Decision makers need access to an easily accessible, understandable and relatively cost-effective method for making sense of information for a broad range of health care and related service needs across the care continuum. In response to this need, THS undertook a project to explore the relevance of the HBG/HRG classification model to decision making in the Northern Territory (Zhao 1998; Beaver, Williams, Zhao & Weeramanthri 1998).

To address chronic disease prevention and management requires the provision of an appropriate mix of services across the disease development continuum. For this reason, a study was undertaken to explore issues of allocative efficiency with regard to the management of chronic diseases in the Aboriginal population in the Top End of the Northern Territory.

Table 1 demonstrates the calculation for diabetes. For the population of 13,390, 10,677 people were classified as not at risk of diabetes, 1988 were at risk of diabetes, thirty-eight were suspicious of developing the disease, seven were acutely ill with it, and 680 people with chronic diabetes never used acute services. Table 2 also lists the population projections of each HBG in five years (2001/02). The average costs by HRGs were estimated as $4, $7, $1707, $12,426 and $559 respectively for health promotion, prevention, investigation, acute care and continuing care.

<table>
<thead>
<tr>
<th>Diabetes</th>
<th>In Five Years (2001/02)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avg Cost/Person/Year ($)</td>
</tr>
<tr>
<td>Not At Risk</td>
<td>$4</td>
</tr>
<tr>
<td>At Risk</td>
<td>$7</td>
</tr>
<tr>
<td>Presentation</td>
<td>$1707</td>
</tr>
<tr>
<td>Acute Dis</td>
<td>$12,426</td>
</tr>
<tr>
<td>Chronic Dis</td>
<td>$559</td>
</tr>
<tr>
<td>Total</td>
<td>$584,464</td>
</tr>
</tbody>
</table>

| Savings          | $12,424                 | $15,151   | $15,420   | $15,420     | $15,420              | $15,420              | $15,420                   | $15,420                   |
| Costs            | $22,070                 | $32,629   | $32,629   | $32,629     | $32,629              | $32,629              | $32,629                   | $32,629                   |
| Saving:Cost Ratio| 0.44                    | 1.46      | 2.22      | 2.22        | 2.22                 | 2.22                 | 2.22                      | 2.22                      |
| Social Benefit (DALY) | 3.2  | 2837.8   | 3.2       | 4736.9      | 5510.3               |

HBG/HRG models for hypertension, diabetes, renal disease, chronic airways disease, renal failure and ischaemic heart disease were developed, and population health data, service utilisation and costs data analysed, and modelling work undertaken. The HBG/HRG model was also used as a base information model to explore projected future utilisation and cost trends in the Barkly Region to support planning for service integration (van Konkelenberg 1998).
While the work was developmental in nature, and a number of data quality issues arose, members of the THS Executive supported it as it was seen to provide a sound framework for informing decision making. It was agreed that as the introduction of the integrated information system progressed, and data availability and quality improved, the model would have more relevance. In 1999 further work was undertaken to develop a methodology for the analysis of investment strategies to address the increasing prevalence of diabetes in indigenous communities. This work was presented at a Commonwealth-funded seminar on strategic health care investment held in Sydney in August 1999 (THS & Commonwealth Dept Health & Aged Care 1999). A summary of the modelling work is shown in Table 2.

Table 2: Economic analysis of investment scenarios for diabetes (Northern Territory Aboriginal population)

<table>
<thead>
<tr>
<th>HBG pop.</th>
<th>Avg Cost/Person/Year ($)</th>
<th>96/97 Pop</th>
<th>No change in policy</th>
<th>Investment in prevention</th>
<th>Investment in investigation</th>
<th>Investment in acute care</th>
<th>Investment in continuing care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not At Risk</td>
<td>$4</td>
<td>41,312</td>
<td>45,812</td>
<td>47,058</td>
<td>46,157</td>
<td>45,812</td>
<td>45,812</td>
</tr>
<tr>
<td>At Risk</td>
<td>$7</td>
<td>7692</td>
<td>8588</td>
<td>7515</td>
<td>8588</td>
<td>8840</td>
<td>8588</td>
</tr>
<tr>
<td>Presentation</td>
<td>$1707</td>
<td>146</td>
<td>179</td>
<td>170</td>
<td>161</td>
<td>251</td>
<td>179</td>
</tr>
<tr>
<td>Acute Dis</td>
<td>$12826</td>
<td>27</td>
<td>33</td>
<td>32</td>
<td>30</td>
<td>33</td>
<td>40</td>
</tr>
<tr>
<td>Chronic Dis</td>
<td>$559</td>
<td>2632</td>
<td>3235</td>
<td>3073</td>
<td>2912</td>
<td>2912</td>
<td>3235</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>51,809</td>
<td>57,848</td>
<td>57,848</td>
<td>57,848</td>
<td>57,848</td>
<td>57,855</td>
</tr>
</tbody>
</table>

**HRG (total cost)**

| Health Promotion | $153,268 | $169,963 | $218,232 | $171,242 | $169,963 | $169,963 | $169,963 |
| Prevention | $51,764 | $57,798 | $50,574 | $86,697 | $59,493 | $57,798 | $57,798 |
| Investigation | $248,789 | $305,757 | $290,469 | $275,181 | $428,060 | $305,757 | $305,757 |
| Acute Care | $336,560 | $413,626 | $392,945 | $323,581 | $496,351 | $310,220 | $310,220 |
| Maintenance | $1,471,049 | $1,807,893 | $1,717,498 | $1,627,103 | $1,711,735 | $1,812,543 | $1,812,543 |
| Total | $2,261,430 | $2,755,037 | $2,669,717 | $2,532,488 | $2,698,246 | $2,801,604 | $2,656,281 |

**System Analysis**

| Savings | $85,320 | $222,549 | $56,791 | ($46,567) | $98,756 |
| Costs | $48,269 | $28,899 | $122,303 | $82,725 | $4650 |
| 5 years saving (NPV) | $214,433 | $559,328 | $142,733 | ($117,037) | $248,202 |
| 5 years investment (NPV) | $121,313 | $72,632 | $307,381 | $207,912 | $11,687 |
| Saving:cost ratio | 1.77 | 7.70 | 0.46 | -0.56 | 21.24 |
| Optimal investment share (saving:cost) | 1.26% | 5.51% | 0.33% | -0.40% | 15.19% |
| Societal Analysis DALY | 1028.7 | 1673.4 | 5831.6 | 11.8 | 25.7 |
| Daly (NPV, $'000) | 2528 | 6849 | 29,795 | 165 | 309 |
| Beneficost ratio | 20.8 | 94.3 | 96.9 | 0.8 | 26.4 |
| Optimal investment share (beneficost) | 1.53% | 6.94% | 7.14% | 0.06% | 1.95% |
| Total | | | | | |
| Optimal investment share (combined, 50/50) | 1.40% | 6.23% | 3.74% | -0.17% | 8.57% |

* HBG: Health Benefit Group; HRG: Healthcare Resource Group; DALY: Disability-Adjusted Life Years; NPV: Net Present Value

(Source: Territory Health Services & Commonwealth Dept. Health and Aged Care 2000)
Table 3 depicts a conceptual framework that can help us understand the relationship between different types of health and related information, the kinds of questions and decisions they can support and the modelling approaches they may elicit (Beaver, Morrison & Zhao 2000).

<table>
<thead>
<tr>
<th>Focus</th>
<th>Origin</th>
<th>Main information type</th>
<th>Examples of questions/decisions</th>
<th>Model types (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Population projections</td>
<td>ABS–NT Treasury</td>
<td>Population demographics</td>
<td>Trends, breakdown by various categories</td>
<td>Regional profiles</td>
</tr>
<tr>
<td>2. Health care needs assessment</td>
<td>THS</td>
<td>Prevalence, incidence and risk factors by client groups</td>
<td>Trends and changes by various categories and client groups</td>
<td>Causal pathways —— disease transition and progression</td>
</tr>
<tr>
<td>3. Community-based services</td>
<td>THS</td>
<td>Utilisation by provider and consumer type</td>
<td>Current utilisation and trends—effect of change of practice</td>
<td>Patient flows, resource utilisation levels costing models</td>
</tr>
<tr>
<td>4. Hospitals</td>
<td>THS</td>
<td>AR–DRGs — SNAP MHCASC ICD10 codes expenditure data</td>
<td>Current utilisation and trends—effect of change of practice</td>
<td>Patient flows, resource utilisation levels costing models</td>
</tr>
<tr>
<td>5. System organisation</td>
<td>THS</td>
<td>All of the above</td>
<td>Resource usage and resource allocation</td>
<td>Effectiveness, efficiency and system optimisation models</td>
</tr>
</tbody>
</table>

AR–DRGs Australian refined diagnosis-related groups (Beaver 2000: 13)

A key recommendation from the seminar held in Sydney was that support should be given to other jurisdictions to explore the relevance of the model outside of the Northern Territory. Currently, the Queensland Health Department and THS are undertaking a project to refine, and test the relevance of, the HBG/HRG model for diabetes for population groups larger than those explored in the early work undertaken in the Northern Territory.

The Strategic Investment Model

THS has developed a Strategic Investment Framework for informing policy development, resource allocation and purchasing decisions (Territory Health Services 2000). The framework is a decision-support tool that has five main stages to the work program:

- select health issue to be addressed;
- define aetiology and risk factors to identify key intervention points;
- identify priority health services, through exploration of costs and benefits and input from key-stakeholders;
- implementation; and
- monitor and evaluate.
The framework draws on lessons learnt over the preceding years. It utilises the HBG/HRG model as the base information model, priority-setting techniques, such as option appraisal, program budgeting and marginal analysis, and the use of economic modelling. This framework currently underpins a major project being undertaken within the department to inform budget negotiations.

**Conclusion**

The tools of economics provide structure and enhance transparency and, thus, accountability of decision making. It is recognised that models have their limitations. However, if these are known and acknowledged, then well-constructed models can play an important part in supporting and informing decision making. Senior public health professionals in the Northern Territory agree that economics has much to offer and that economic analysis provides a structured framework for exploring a range of issues. As suggested by Lave and Joshi, while there might not be agreement on the precise interpretation of results, most practitioners agree that techniques such as benefit cost analysis are useful in posing the right question and collecting and analysing relevant data (Lave & Joshi 1996).

**References**


PART V

Developing Capacity for Research in Indigenous Health Economics
The Task at Hand

I have been asked to provide a workshop paper on the establishment of a corpus of Indigenous economic policy research and to highlight some lessons from this experience for Indigenous health research. Such an exercise is based on the following:

- the assumption that a corpus of Indigenous economic policy research has been established and that I had something to do with it;
- that there is a need for research on economic aspects of Indigenous health research; and
- that lessons from Indigenous economic policy research can be transported to Indigenous health research, thus perhaps generating, over time, a corpus in this area of research.

In attempting to undertake this task, I make the following caveats:

- If a corpus on Indigenous economic policy research has been established, and it probably uncontestably has in terms of published research output, then this has been integrally linked to the establishment and subsequent productive longevity (to date) of the Centre for Aboriginal Economic Policy Research (CAEPR) at the Australian National University (ANU). CAEPR is a research centre that I established and head: its over-arching aim is to generate just such a corpus.
- I am probably better qualified to talk about the development of the CAEPR-generated corpus of research than on other research in the economic policy field, so I will concentrate on the CAEPR experience. I will note, though, that since its establishment in 1990 CAEPR appears to have increasingly dominated this field of research.
- I am less well qualified to talk about the transportability of the CAEPR experience to research on economic aspects of Indigenous health, but will try anyway. However, my comments are not intended to suggest that there is any ‘how-to-do’ research manual nor to make any judgments about what is going on in Indigenous health research.
- My disciplinary background is in economics and anthropology and I have never undertaken research specifically on Indigenous health. This is merely an ideas paper and needs to be recognised as such.

This presentation is timely for two reasons. First, CAEPR was reviewed last week (19–20 November 2001) for the third time since its establishment. Review time is
always a time for reflexivity and assessment. Second, in preparing for review, CAEPR generated a substantial submission to the committee, focused on the period 1996–2001. It has often struck me how important reviews are. But few people actually read our substantial submission, readership is probably limited to a few dozen people (unless, this time, we subsequently load it on our website). This presentation provides an opportunity to use some review material in a wider context and possibly for wider benefit.

To signpost what this paper will try to do, I will begin by providing a brief description of CAEPR and its development since 1990. I will then define and describe the CAEPR corpus before focusing on a number of issues mainly from the past five years that, to my mind, have been central to the continued development of this corpus on Indigenous economic policy and its ability to contribute to policy development. Next, I will look briefly at lessons that the CAEPR experience may be able to provide Indigenous health economics research, highlighting some similarities and differences between these two broad areas of research. Finally, I will say a little about some challenging issues that we all face as university-based researchers examining contemporary and complex Indigenous policy and applied research issues.

Lest there is any misunderstanding, let me say at the outset that the division made here between ‘Indigenous economic policy’ and ‘Indigenous health’ research is artificial and undertaken for analytical purposes only. These two broad fields should be inter-linked and if elements of the CAEPR-generated economic policy research corpus do not reflect this in some way it is seriously deficient. The CAEPR focus is on economic policy issues, but our researchers have also undertaken research, both specifically and indirectly, on economic aspects of Indigenous health. An example of such research was provided yesterday in the presentation on Indigenous income and health expenditure by John Taylor, Matthew Gray and Boyd Hunter.

Just to be fully transparent, and for the historical record, it should also be noted that CAEPR engaged Ian Anderson as a Visiting Fellow in 1994 and 1996 and that he has collaborated with CAEPR staff on a number of research projects (see Anderson & Brady 1994; Anderson & Sanders 1996; Schwab & Anderson 1998, 1999). The development and structure of the VicHealth Koori Health Research and Community Development Unit (VKHR&CDU) was partially modelled on CAEPR. Since the establishment of the Unit I have been on its Research Advisory Board. Active collaborative links have been forged between CAEPR and VKHR&CDU prior to the latter’s establishment and these have been subsequently expanded. A focus on Indigenous health and economics has been one of the strategic directions, among others, that the VKHR&CDU has planned to take, but the establishment of a corpus in this particular area has proved more difficult than originally anticipated.

**A Brief History of CAEPR**

I begin the substantive part of this paper with a brief history of CAEPR without too much detail and with apologies to those here who have heard it all before. CAEPR is a multi-disciplinary social sciences research unit established at the ANU in 1990. The Centre did not have a virgin birth: it grew from a combination
of two developments—one well known, the other little known. What is well known is that the Miller Committee of Aboriginal Employment and Training Programs concluded with a recommendation (no. 164) calling for the establishment of a Bureau of Aboriginal Economic Research (Miller 1985: 423). The Miller recommendation was for a public service bureau with internal research capacity and a program of funding external research projects; what eventuated some five years later, arguably with a strong link to the Miller recommendation, was a university-based research centre, CAEPR. What is less well known is that the ANU, where CAEPR was eventually established, agreed in its strategic planning round in 1986 to establish such a unit, partially in response to the Miller Inquiry. However, this initiative, which emanated from the then Research School of Pacific Studies, failed because it was contingent on cross-campus financial resourcing that never eventuated. It should also be noted that CAEPR staff recruited since 1990 also had academic and professional histories, although a few had not worked on Indigenous issues before joining CAEPR.

CAEPR’s core funding comes from the ANU, the Aboriginal and Torres Strait Islander Commission (ATSIC) and Department of Family and Community Services (DFACS), but it also earns additional money from other sources. CAEPR’s current mission, refined in a strategic planning workshop in 1999, is to contribute to better outcomes for Indigenous people by independently monitoring changes in socio-economic status, influencing policy formation and informing constructive debate. CAEPR aims to do this with research that combines academic excellence of the highest international standards with policy relevance, objectivity and realism. CAEPR’s vision is to be the national centre leading in research excellence on Indigenous economic and social policy. From the outset, CAEPR has been multi-disciplinary, initially combining the social sciences, economics, anthropology, and demography, more recently expanding with staff qualified in political science, geography, law, and health.

CAEPR’s approach combines five elements that have, in combination, become its unique hallmark over the past decade:

- its research is independent, rigorous, peer reviewed, often inter-disciplinary, and, whenever possible, empirically verified;
- its research goals are long-term, yet also highly responsive to Indigenous public policy priorities;
- its research methods emphasise community-based fieldwork and collaboration whenever possible;
- it avoids undertaking advocacy research for any interest group and its outcomes are transparent; and
- its output is consistently high and policy relevant, so that all its sponsors can be confident that they get good value for investment of scarce research dollars.

CAEPR’s ethos is to meet consistently, or if possible exceed, all stakeholders’ expectations with the quality, quantity, diversity, and policy relevance of research outputs. CAEPR’s profile has been markedly enhanced by its establishment as a university centre of the ANU from 1 January 1999. Advertising spiel over!
The growth of CAEPR has been incremental and carefully managed, often within the context of regular five-yearly independent reviews required by funding agreements. To date, the following three phases can be identified:

1. CAEPR I 1990–93: established in 1990, during this initial phase CAEPR was primarily funded by ATSIC and affiliated with the Department of Archaeology and Anthropology in the Faculty of Arts.

2. CAEPR II 1994–98: in this five-year funding period CAEPR consolidated as a stand-alone research centre within the Faculty of Arts and with enhanced ANU support.

3. CAEPR III 1999–2003: in this current stage, CAEPR was established as a university centre with its own strategic plan and enhanced ANU and national profiles. In 2001 CAEPR is reviewed with life after 2004 to be defined.

*From Humble Beginnings to a ‘Corpus’*

The definition of ‘corpus’ according to Collins Concise Dictionary suggests ‘a body of writing especially by a single author or on a specific topic’. The Concise Oxford suggests ‘body, collection of writing’. The CAEPR corpus probably sits more comfortably within the second definition. Coincidentally, I first heard the term ‘CAEPR corpus’ used by Tim Rowse a researcher who was engaged by CAEPR in 2000–01 to synthesise CAEPR’s publications. A draft of this work has recently been completed with the working title ‘The Rise of the Indigenous Sector’ (Rowse 2002). Rowse defines the CAEPR corpus as the body of work that is CAEPR published and badged (see Table 1), whereas arguably the CAEPR corpus could be all the material CAEPR staff and visitors have published, although some of this may not be on Indigenous economic policy research (nor are all CAEPR publications, of course, as noted above). At a minimum the CAEPR corpus is 257 publications (excluding annual reports). However, Rowse’s definition of the corpus included individual chapters in monographs, whereas in Table 1 each monograph is counted as only one publication. At a maximum the CAEPR corpus is 591 publications produced since 1990.

<table>
<thead>
<tr>
<th>Year</th>
<th>All Publications</th>
<th>CAEPR Badged</th>
<th>Year</th>
<th>All Publications</th>
<th>CAEPR Badged</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990**</td>
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<td>1996</td>
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<td>2000</td>
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<tr>
<td>1995</td>
<td>60</td>
<td>26</td>
<td>2001***</td>
<td>66</td>
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<td>TOTAL</td>
<td>237</td>
<td>112</td>
<td>354</td>
<td>145</td>
<td></td>
</tr>
</tbody>
</table>

* CAEPR badged publications include monographs, discussion papers, working papers (since 1999). All CAEPR publications include chapters in CAEPR monographs by CAEPR staff.

** From April 1990.

*** To November 2001.

Some observations can be made about the creation of the CAEPR corpus. First, the discussion paper and research monograph series was established in 1991. At that time I would never have imagined that they would still be running in 2001; after all, our initial contract was only until the end of 1992. But, with hindsight, the corpus produced has made an impact in many ways, not least because some of our analyses are now quite historical going back to the 1986 Census data (see e.g., Hunter & Gray 1999; Gray & Hunter 1999). From next year, CAEPR will be analysing a fourth set of census data, providing a published time series of fifteen years, despite oft-repeated reservations about data form and quality (see e.g. Altman 2000). This is one important basis for tracking change in the size of the Indigenous population, in its characteristics (especially within the CAEPR corpus, social indicators) and retrospectively rigorously assessing data quality (Hunter 1998; Gray 1998; Taylor 2000). These comparative analyses can be made at national, State/Territory, section-of-State and ATSIC regional council levels (earlier boundary changes aside).

Second, the establishment of CAEPR publications has allowed us to take control of the publication process ensuring that our research results are available on a regular, usually quarterly, basis. This control is very important in policy research, and in recent times we have also moved to publish an electronic working paper series and to make our discussion papers freely available on our web site. But such instant publication of research results comes at a price: almost all CAEPR publications (except refereed conference papers in edited volumes) do not attract so-called DETYA (Department of Employment, Training and Youth Affairs) points and so do not earn CAEPR and the ANU research quantum. CAEPR made a decision years ago that this was a DETYA problem, not a CAEPR problem and that the benefits of rapid publication and transparency outweigh the costs of foregone research quantum and academic status. The option of waiting one or two years for publication in refereed scholarly journals is just not an option in the world of Indigenous policy research, although many of our publications are further refined and subsequently published.

So what are some of the features of CAEPR’s research that are manifest in its corpus, however defined. Let me return to the five elements that I suggested have become the hallmark of CAEPR’s approach (and corpus) and say a little on each.

1. CAEPR research is independent, rigorous, often inter-disciplinary, and, whenever possible, empirically verified. The independence of our research is guaranteed by our university-base and our insistence on a right to publish any of our research, sometimes, when intellectual property is jointly held, after an agreed time delay. The rigour of our research largely comes from our willingness to use all available statistics, even if we are critical of their value in cross-cultural contexts, part of our rigour is our willingness to self-critique. Another is assured by our inter-disciplinary, team-based research approach: CAEPR is inter-disciplinary and if this is not directly evident in collaborative publications, then it is the scrutiny provided in seminars as well as in in-house and external refereeing of publications. Our statistical approach is also frequently ground-truthed via community-based field work.

2. CAEPR research goals are long-term, yet also highly responsive to Indigenous public policy priorities. The combined support of university and government agencies gives CAEPR a foot in two camps. The long-term research goals are
underwritten to some extent by five-year funding agreements and ongoing university support. Our responsiveness is based on annual negotiation of part of our research agenda with external stakeholders, but also by a willingness to be flexible and to take on additional consultancy research, including for our key stakeholders ATSIC and DFACS. The appropriate trade-off between long-term research goals and short-term responsiveness requires careful, and always strategic, assessment and can vary from year to year.

3. CAEPR research methods emphasise community-based fieldwork and collaboration whenever possible. Community-based fieldwork and collaboration and engagement with Indigenous people has always been fundamental to the CAEPR approach partly because such a high proportion of our core staff establishment is made up of anthropologists. Fieldwork ensures that our research is empirically grounded and reflects the heterogeneity of Indigenous lived experience, but it too requires careful trade-offs: for one, fieldwork is expensive and given fixed resources a strain on budgets. It is also difficult to ensure equitable coverage of all Indigenous Australia especially when it is always easier to revisit communities where research relations and protocols have been established. An additional reason that CAEPR researchers collaborate with Indigenous regional and community organisations is to gain important access to data sets and interpretations that are different from official perspectives. Such collaboration allows CAEPR to question the validity of more macroscopic statistically based work; there is a constant internal engagement within CAEPR, and in our published corpus, about such methodological and conceptual issues.

4. CAEPR avoids undertaking advocacy research for any interest group and its outcomes are transparent. This is not to say that CAEPR does not undertake consultancy research, but centre policy states that we do not undertake advocacy research and we insist that all research results are published, or at least that we retain a right to publish. Our record here is not impeccable, there have been one or two notable exceptions. Being university based, CAEPR staff can avail themselves of consultancy leave and at times CAEPR staff have undertaken land claim research (advocacy?) and appeared as expert witnesses in litigation, but usually on approved consultancy leave.

5. CAEPR output is consistently high and policy relevant, so that all its sponsors can be confident that they get good value for investment of scarce research dollars. The success of correlation between CAEPR’s research performance and policy development is for others to judge. But from CAEPR’s perspective, we are conscious of making a concerted effort to influence policy development in the following illustrative areas from each of the past five years:

- in 1997, the publication *The Job Ahead: Escalating Economic Costs of Indigenous Employment Disparity* (Taylor & Altman 1997) clearly had a significant impact on policy;
- in 1998, with the availability of 1996 Census data CAEPR again influenced policy with early explanations of the unexpected growth in the Indigenous population. Data from 1996 were used to update *The Job Ahead* with the even more influential *The Job Still Ahead: Economic Costs of Continuing Indigenous Employment Disparity* (Taylor & Hunter 1998);
In 1999, much CAEPR research focused on the Reeves Land Rights Inquiry and the parliamentary inquiry into its recommendations with the CAEPR monograph *Land Rights at Risk: Evaluations of the Reeves Report* (Altman, Morphy & Rowe 1999) ensuring a sound policy response based on multi-disciplinary perspectives to this review;

In 2000, a great deal of CAEPR’s work focused on community case studies about the Community Development Employment Projects (CDEP) scheme and on the hosting of the major conference ‘The Indigenous Welfare Economy and the CDEP Scheme’ resulting in a publication of the same name (Morphy & Sanders 2001); and

In 2001, a considerable CAEPR effort has focused on welfare reform, with the first pilot Community Participation Agreement being facilitated and documented by a researcher from CAEPR in close collaboration with an Aboriginal community and council in central Australia (Smith 2001).

The story so far suggests that the establishment of the CAEPR corpus has been relatively unproblematic. This is not the case and the following template tries to demonstrate that a number of features of CAEPR’s approach have both advantages and disadvantages.

<table>
<thead>
<tr>
<th>CAEPR feature</th>
<th>Advantage/benefit</th>
<th>Disadvantage/cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-disciplinary empirical approach</td>
<td>Culturally robust policy analysis; relevant</td>
<td>Limited opportunity for theorising, pure research</td>
</tr>
<tr>
<td>High accountability</td>
<td>Ensures confidence of sponsors that they receive value for money</td>
<td>Perception of reduced independence; frequent review</td>
</tr>
<tr>
<td>Monopoly provider</td>
<td>Recognised expertise in a particular area allows ongoing focus and momentum and refinement of approach</td>
<td>Perception of research hegemony and a concern about absence of research benchmarks or alternate views by sponsors</td>
</tr>
<tr>
<td>Government funding</td>
<td>Agency involvement in agenda setting and ‘ownership of research outputs’</td>
<td>Perception of government control, pressure to undertake applied short-term research</td>
</tr>
<tr>
<td>University funding</td>
<td>Independence and requirement to be scholarly and independent; ensure quality outputs</td>
<td>University demands increase; critiques by peers of applied policy-oriented research</td>
</tr>
</tbody>
</table>

### Lessons for Economics and Indigenous Health Research

There is clearly a view that despite the considerable corpus in health research and Indigenous health research that has developed over the past thirty years, there is insufficient focus on the inter-relationships between economic status and health status for Indigenous Australians. The research that does exist, and there is no shortage of it, is largely empirical and not surprisingly shows a ‘two-way’ relationship.

In preparing for this workshop I, like others, completed a brief questionnaire with six questions. In writing this paper and in trying to conjure up some lessons that Indigenous economic policy research might provide to Indigenous health...
economics research I revisited some of my own responses and was somewhat surprised by their (or my) apparent simplicity. To summarise briefly, and moving from the general to the particular, it seems to me that there is a need for:

- A better understanding of the causes of low Indigenous health status and the role that economic status might play as a reason for this. This might sound simplistic, but I remain unconvinced that the Indigenous health policy discourse has adequately captured the heterogeneity of Indigenous circumstances Australia-wide. I am aware that this is a politically contentious and problematic issue but I raise it anyway.

- A better theoretical framework that assists the posing of questions about the inter-relationships between health, education, housing and infrastructure, employment, and income. So much of the available analysis is empirical. Such a framework might assist a comparative analysis of differences in Indigenous and non-Indigenous health status.

- A better conceptual framework that allows a proper cultural analysis of variability in Indigenous health status, but that also allows a modelling of the impact of choice (e.g., residence at remote localities). I contend that such analysis will quickly demonstrate that health status equality is not synonymous with health status equity. Again a contentious issue, perhaps, for those who are wedded to mainstream scientific medical models and who believe that there are normative, culture-neutral definitions of health status.

- As part of this conceptual framework there is a need to recognise demographic changes in households. The majority of Indigenous households Australia-wide are mixed. Even the most remote communities all now have non-Indigenous components and are increasingly inter-cultural.

- Better data, particularly for comparative analysis of differences in Indigenous and non-Indigenous health status, in similar circumstances. There is still no comparative data, for example, on household expenditure patterns or on income adequacy for family structures and households that differ greatly from the mainstream (see Smith 2000).

- Related to this is a need for more information on the adequacy of health funding and service provision and whether this is equitable provided on the basis of need and historic legacy. The sort of research that John Deeble and the Australian Institute of Health and Welfare and, more recently, the Commonwealth Grants Commission (Commonwealth Grants Commission 2001) needs to continue.

In my view, these six issues alone would make a worthwhile agenda for a research unit focused on Indigenous health economics issues, whether starting from scratch (as was the case with CAEPR) or attached to one of the plethora of health research organisations in the university or public sector.

Before making some suggestions about how the CAEPR experience in establishing a corpus might assist, let me acknowledge that the political and institutional setting for undertaking health research is, without doubt, more complex than for economic policy research. This is for a combination of the following reasons:

- There is a high level of devolution from the Commonwealth to States in the health arena, but Indigenous-specific health funding and policy...
remains significantly with the Commonwealth. The articulations between Commonwealth/State and Indigenous/non-Indigenous present a complex matrix.

- The Indigenous community-controlled health sector and its peak body appear to be better established and more politically active than similar economic development institutions.
- There appear to be many more ethical issues relating to data collection and analysis in the health area, partly because the issues of health status are so highly personal and confidential.

Some possible lessons from the CAEPR experience would include the following:

1. **An effective multi-disciplinary approach.** All too often such an approach is nominal only; to make it effective is ultimately down to the synergy that can be generated among a dedicated team of researchers. It is noteworthy that the dominant academic discipline at CAEPR is anthropology, not economics. This reflects the difficulty in attracting economists to work on Indigenous policy issues. It also reflects the fundamental importance of cultural analysis in understanding economic processes cross-culturally. There is no doubt that such cultural analysis would also be of crucial importance for Indigenous health research.

2. **A marriage of macro statistical and micro field research.** It is important for a corpus to develop the big and policy digestible statistical picture, while also qualifying with the community-based, complex lived reality of Indigenous people. As a general rule, it is only the macro statistical that allows the tracking of change over time because multi-year and meaningful field research is so difficult to undertake.

3. **A foot in many camps.** Institutionally, I would argue it is important for research to be undertaken in the university sector to ensure independence. But for policy influence it is important that public sector agencies are stakeholders in the research and in setting research agendas. A partnership between university and public sectors can be resource intense and difficult to manage but with clear protocols in place can be effective. Appropriate linkages with Indigenous organisations are crucial. Accountability to a diversity of stakeholders is vital.

4. **Multi-year funding.** Building up a corpus and establishing intellectual research credentials and critical mass all take time. It is of crucial importance that multi-year funding for a minimum of a rolling five years with review after three (then five) years. Multi-year funding combined with regular reviews allow periodic reassessment of direction, but also ensures research productivity, year-in, year-out.

5. **Strategic research response capacity.** It is important that sponsors and research collaborators perceive that research is having an impact on (health) policy outcomes if not on (health) outcomes themselves (something that researchers cannot really deliver). It is vital to maintain a capacity to respond to strategic research opportunities within the parameters of negotiated research agendas. It is surprising how regularly such opportunities emerge.

6. **Remaining focused, maintaining momentum.** Working in Indigenous policy research is difficult because such research requires a holistic approach that can
dissipate research focus. And working with regional and community organisations that are often under-resourced in research capacity inevitably results in pressures and requests for assistance that might not be directly related to research. There is no ready formula for insulating researchers from such pressures, but ultimately evaluation will be based on agreed contractual undertakings (unless fully university funded). Change is incremental and tangible outcomes on the back of research are rare: maintaining momentum can be difficult.

**Some Issues for All us Indigenous Policy Researchers**

In this paper I have argued that the CAEPR model for generating a corpus on Indigenous economic policy research has been sound, and at least structurally such a model could be transportable to the Indigenous health research arena. However, CAEPR began from a perception of an extremely low research base—health research would not (see e.g. the corpus collected on the Australia Indigenous Health InfoNet at www.healthinfonet.ecu.edu.au). The CAEPR model is predicated on a partnership between the university sector, the bureaucracy and Indigenous stakeholders. This model, as I hinted above, is potentially problematic. In conclusion, I highlight some tensions and trade-offs—some reconcilable, some ir reconcilable, and all requiring constant management.

**Living in an inter-cultural domain 1: Costs and benefits**

Being based in the university sector has been fundamental to CAEPR’s existence: it has allowed the recruitment and retention of a committed cadre of academic researchers and a high level of intellectual freedom and independence. But even in today’s university there is a tendency to marginalise applied and policy-oriented research, discrimination in research quantum calculations being one manifestation of such deeply grained bias, the weight given to scholarly books in promotion being another. If the university sector does not understand university-based applied researchers, it is hardly surprising that bureaucrats, from a totally different ‘culture’ also struggle. There are always tensions in negotiating research agendas, in timing of publications, in the growing demands that universities place on their staff, and in the short-term nature of much applied research. It is important that there is room for pure research, even for applied researchers, otherwise the development and refinement of models and theories will never occur. Managing competing demands living in the inter-cultural space between the university and public sector requires constant vigilance.

**Living in an inter-cultural domain 2: Indigenous engagement or control**

A high level of Indigenous engagement is fundamental to undertaking research on Indigenous policy issues; this is so obvious it probably hardly requires mention. But what does this mean in reality and who are the Indigenous stakeholders with whom one needs to engage? Despite a commonly heard polemical complaint that Indigenous Australians are the most over-researched people in the world, there is a constant demand for additional research, much of it of an advocacy nature. Managing the Indigenous constituency, especially in the current political
environment, can be difficult. But there is also a distinct possibility that the community-control ideology at the expense of objective good science and good policy analysis might be resulting in sub-optimal outcomes. There is often a fine line between advocacy research and expert research, and between Indigenous engagement and Indigenous capture.

An associated issue that often arises is the role of Indigenous researchers within the academy. One extreme ideological view is that only Indigenous researchers should own and control and, possibly, undertake such work. This is countered by the other extreme that Indigenous researchers could not be impartial in this area of work. These issues sit at the core of debates about research being undertaken in Indigenous studies in general at the moment. In reality, recruiting qualified Indigenous researchers for employment in universities is difficult, a product of the inter-generational legacy of Indigenous exclusion from the mainstream provisions of the Australian education system. Getting Indigenous academic staff qualified to work on Indigenous economic policy research is also difficult and would probably be equally so in economic aspects of Indigenous health. Optimal research outcomes might require an inter-cultural collaborative approach rather than ideological commitment to untenable extreme positions.

A final issue here is the vulnerability of those undertaking research in good faith in the highly contested, politicised world of Indigenous affairs. Sometimes criticism is justified, sometimes it is totally unrelated to performance. At other times again, criticism seems to be a consequence of success. It is my view that all too often Indigenous economic and social problems are perceived as belonging to Indigenous people rather than to Australia as a whole.

**Organisational Life Cycles**

A final issue is the longevity of the organisations that generate a corpus and establishing appropriate mechanisms to ensure their reproduction. CAEPR has been fortunate to retain a critical mass of staff from establishment, but such staff stability is unusual in the tertiary education sector. A means to reproduce expertise is via graduate teaching programs and, in 2002, CAEPR is about to embark on that route with the usual three- to four-year lead time. As noted at the outset, when establishing CAEPR the uncertainty of funding meant that a high proportion of effort went into achieving immediate research outcomes; with the benefit of hindsight there may have been insufficient planning by CAEPR, ANU and ATSIC for the centre’s long life. It is important that contingencies are put in place when establishing research organisations focused on Indigenous policy issues, because history suggests that many of the problems to be addressed are relatively intractable and will be around for many years to come.

**Conclusion**

This paper has attempted to share frankly some views about CAEPR’s journey in establishing a corpus on Indigenous economic policy research. It has tried to identify some best practice that might be transportable to research on Indigenous health economics. It is likely that every research institution has its own history, establishment circumstances, personality, and life cycle. There may be elements of
the CAEPR model that could assist Indigenous health policy research. One crucial element is the dual ability to stay focused on core research business, especially in terms of generating a body of historic comparative data as a foundation, but also to be responsive to change. In CAEPR’s case, I sense that this is happening as we widen our focus to issues like economic and community development, welfare reform and governance. A major challenge is to maintain a ‘steady state’ working model that is focused and productive, there are always pressures to expand and to do more. In CAEPR’s case this will be our challenge in the next five to ten years.

Acknowledgments

I would like to thank Melinda Hinkson, Boyd Hunter, Jerry Schwab and John Taylor for reading an earlier draft of this paper and providing comments at very short notice.

References


Summary
This paper makes the case that national and State/Territory level health economic data can have substantial funding, and presumably policy, implications. Some notable data improvements have been made to Indigenous health economic data over the past decade, but the improvements have been relatively modest compared with the magnitude of the known data quality deficits. Many reports have been made documenting the extent and nature of data problems and describing in detail the actions necessary for the data problems to be overcome. Despite a number of attempts to implement the required actions little progress has been made. Some suggestions are made for future actions.

Introduction
This paper presents a brief assessment of the current state and future prospects for high-quality and useful health economic data for the Indigenous Australian population. The paper limits itself to considering State and Territory and national data only. It will consider six questions about these national, and State and Territory level health economic data issues and datasets. Each of these questions is considered below.

Can data make a difference?
The simple answer to this question is ‘yes’. Below, two examples of effective use of data in a health economics setting are provided. In the past five years I recall there being three substantial increases in Commonwealth funding for Indigenous health, though there may be others. I believe that two of the three funding increases resulted, at least in part, from the effective use of health economics data.

The first case arose following the release in 1997 of Indigenous population estimates after the 1996 Census of Population and Housing. These population estimates showed large unexpected and unaccountable population increases in some States and Territories (ABS 1998). As a result of these figures a successful budget submission for increasing Indigenous primary health care funding was made by the Commonwealth Department of Health and Ageing. The submission was based on the argument that increased funding was required to maintain the per capita expenditure in this area at levels that were set before the census when previous, lower, Indigenous population estimates were current. There were, of course, no new people as the result of the increased Indigenous census count, some people had merely self-classified themselves differently and/or counting methods
had improved in the latest census. Whether this alone is a sound reason for changing funding allocations is debatable but this is not the point I wish to focus on. The salient point is that a timely and, presumably, well-argued case based on effective use of data convinced Federal Cabinet and resulted in a substantial outcome of benefit to Indigenous health services.

The second instance in which I believe effective use of Indigenous statistics has contributed to a major advance for Indigenous health has been the contribution that the first report on Expenditure on Health Services for Aboriginal and Torres Strait Islander People (Deeble et al. 1998) made to the concept of ‘cashing out’ of the Medicare Benefits Scheme and the Pharmaceuticals Benefit Scheme (MBS/PBS) per capita expenditure, which is one of the planks underpinning the Primary Health Care Access Program. The health economics data in the report clearly demonstrated, with irrefutable evidence, what a lot of people knew or suspected but could not prove. The evidence showed that expenditure per capita on Aboriginal and Torres Strait Islander people for the purposes of the MBS and the PBS was very much less than that for Australians as a whole. The expenditure report is, of course, based on research which makes much more extensive use of data than the first example. Indeed, the report is probably one of the most influential uses of Indigenous data to emerge over the past decade.

The points to stress from these and other similar examples that could be presented, is that Indigenous data can have a major influence on health economic policy decisions. Two other points are important to note. Firstly, effective use of the data can be either quite simple or very sophisticated. Secondly, timing can be crucial. That is, if the data, or research using the data, are not available when the political or advocacy need arises the positive outcomes for Indigenous health might not occur.

**What are the major improvements in Indigenous statistics over the past decade?**

1) Official population estimates, albeit ‘experimental’ estimates, have been prepared by ABS since 1994 (ABS 2001).

2) Reliable mortality statistics are available for Northern Territory, Western Australia and, possibly, South Australia and have been available for much of the past decade. Queensland mortality data are improving (ABS & AIHW 2001).

3) Various special Indigenous surveys have been undertaken over the past ten years (ABS & AIHW 2001).

4) Perinatal statistics have become available for most States and Territories over the past ten years (ABS & AIHW 2001).

5) Hospital separations data are probably reliable for most purposes for Northern Territory and Western Australia but not for other States and Territories (ABS & AIHW 2001).

6) A ‘standard’ method has been endorsed by key stakeholders, both government and non-government, for determining Indigenous status but is by no means universal or applied in all collections.
Where do the most significant data deficiencies, uncertainties and problems lie?

The most important Indigenous statistical uncertainties and problems probably surround issues of the identification of Indigenous people in data collections. Three points should be made. Firstly, despite the same approach to identifying Indigenous people being used since 1981 the census counts over the past twenty years have shown large increases, much more than can be explained by demographic means, see Fig. 1. This has led to severe doubts about the validity of comparisons of statistics across time periods, even time periods as short as one year. Thus, the most striking data deficiency we have at present is our inability to map or document trends reliably over time for almost any important Indigenous health outcome measure.

Secondly, the approaches adopted to collect information about people’s Indigenous status in different data collections (e.g., self-completed questionnaires or interviews and question wording and structure) are not standardised and probably cannot be. It is unclear to what extent these differences bias statistics derived from the data collected, but there is reason to expect significant biases may exist. This problem is especially acute for ratio statistics where numerators are derived from administrative data and denominators from Census counts or similarly collected survey data.

Thirdly, despite the large increases recorded in census counts in recent years there is widespread expressed doubt among some service delivery professionals, and many Indigenous community officials and representatives, about the accuracy of community level population data. Most people who express doubts indicate a belief that the census data substantially underestimate ‘true’ figures. A range of concerns have been raised over the years but most remain largely untested.

The net effect of these issues is that most Indigenous statistics are subject to some
uncertainty and criticism and are often difficult or impossible to refute with confidence. Thus, every potential use of Indigenous statistics must be subject to careful critical examination before robust conclusions can be drawn.

**What are the prospects of achieving further major improvements in data in the near future?**

It is likely that there will be an increase in the available Indigenous health data from sample surveys in coming years arising from collections to which the Australian Bureau of Statistics is already committed (ABS 1999). The ABS should be commended for developing and adopting this long-term strategy for collecting Indigenous statistical data (see point 3 below). However, I see few prospects of the problems and uncertainties arising from inconsistent identification of Indigenous people, as outlined above, being overcome in the near future. One factor that will either alleviate these concerns, to some extent, or confirm them are the counts of Indigenous people from the 2001 Census and the population estimates derived from them. Some indication about 2001 Census counts should emerge in early 2002 if not earlier. (2001 Census counts of Indigenous people have proved to be more stable than these following the 1996 Census, although some inexplicable increases are present. Note added after ABS 2001 Census counts were published.)

**What strategies might be adopted for effective use of data so as to achieve research outcomes relevant to improved health?**

1. For some time the use of health-related statistics based on administrative data (that is, mortality and hospital separations) for the southern and eastern States might be doubtful. If used then it is probably essential that users undertake sensitivity analyses and make themselves aware of the extent to which possible data discrepancies would influence conclusions drawn from the analyses. The examples presented earlier indicate that influential uses of data can be made even when considerable uncertainties exist about the reliability of the data.

2. The most appropriate strategies for making a statistical comparison within the period 1996–2006 will be influenced by how the 2001 Census counts compare with those of 1996. A time-based comparison might be considered reliable if the differences between counts are largely explained in demographic terms. It is possible that for some States population counts will increase in this way, and a time-based comparison would then be considered reliable for their States but probably not for others. (Post-2001 Census evidence suggests improvements have occurred. Note added after ABS 2001 Census counts were published.)

3. The technical approach that offers the greatest potential for improving the reliability and availability of trend statistics for key Aboriginal and Torres Strait Islander health indicator variables is data linkage. We have at present both the technical knowledge and ability (either through unit record identifiers or by probabilistic means) and the necessary input datasets to achieve, in a very short time, major advances in the availability of these most important of all Aboriginal and Torres Strait Islander health statistics—trend statistics.

Linking datasets such as death certificates and census data, or census datasets collected at different times, is currently not done in Australia because of concerns about preserving the confidentiality of personal data in the datasets. It is, however,
done in New Zealand and Canada with great benefit to Indigenous health statistics. I believe a persuasive case can, and should, be made to relax some of the strictly adhered to linkage-bans practised in Australia so that reliable comparable Indigenous health statistics can be derived. Even if the linking of datasets were allowed only within the confines of the ABS or similar national institutions, and only summary statistics published, the long-term benefits to Aboriginal and Torres Strait Islander health information would be huge. Furthermore, the costs associated with this type of advance are relatively modest compared with those proposed for collecting survey-based Aboriginal and Torres Strait Islander statistics. The latter statistics are arguably much less important than trend statistics, which could be derived from linking existing datasets.

**What future changes are needed to further significantly improve Indigenous data from national and State collective?**

The changes needed to improve Indigenous statistical data are well known and well documented (see, for example, ABS & AIHW 1997, 1999, 2001). There are also well-documented accounts of the process that should be used to achieve these changes. This information has been known for at least a decade but, with a few notable exceptions, few real improvements have been made. What is lacking, and has been lacking for the past ten years, is the determination at the highest levels of society and government to make these changes happen. In my view this determination will not occur without it being underpinned with concerted long-term political will and pressure.

The preferred strategy for achieving medium- to long-term major improvements in Indigenous health statistics should include at least four broad approaches. Firstly, a major campaign to allow data-linkage of national datasets for deriving Indigenous health statistics. Secondly, a major research program to explore issues underpinning Indigenous identification with a view to being able to predict future changes and their implications for datasets and statistics. Thirdly, make greater uses of longer term special purpose cohort studies and explore the possibility of greater use of data linkage for providing Indigenous health statistics. Finally, we must all be prepared to make the very best use of what we have got—the good use of imperfect data can produce useful practical outcomes.

**References**

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Appendices

Appendix I

ATTACHMENT A: NACCHO Proposal to Government 1998

Proposal to increase access by Aboriginal people to appropriate primary health care, NACCHO, December 1998

Background

There is an urgent need to increase access by Aboriginal people to appropriate primary health care. Access by Aboriginal people to private general medical practices, which are the first point of contact with the health care system for most Australians, is limited. While the average Australian sees a GP five times per year (Commonwealth of Australia 1998: 5), Aboriginal and Torres Strait Islander people average fewer than two GP consultations a year (Deeble, et al. 1998: 20, Table 2.11). The cultural, locational, financial, and other barriers to access by Aboriginal people to mainstream services have been comprehensively described in a recent study (Keys Young 1997), and it is clear that for many Aboriginal people these barriers are very significant.

The establishment of Aboriginal-specific health services in some areas has partially addressed such barriers. A network of approximately 100 Aboriginal community controlled health services across Australia provides culturally and clinically appropriate health care to Aboriginal clients. In addition, in some States and the Northern Territory, government-controlled clinics have been established to deliver primary care services to Aboriginal people. However, many individuals and communities have no adequate access either to culturally appropriate services or to other arrangements, and where culturally appropriate services exist they are often severely under-resourced and unable to meet community needs fully.

Contrary to popular belief, Commonwealth government expenditure on Aboriginal health is not high. In fact, even taking the Aboriginal health funding program into account, the Commonwealth currently spends significantly less per head on the health of each Aboriginal person than on the health of each non-Aboriginal person. Approximately 63 cents per head is spent by the Commonwealth on health services to Aboriginal and Torres Strait Islander people, for each dollar spent per head on the health of other Australians (Deeble, et al. 1998: 11, Table 2.2). Only a portion of the 63 cents is spent on culturally acceptable and effective services to Aboriginal people.

This is largely because Aboriginal people are not accessing Medicare. While Medicare fee-for-service arrangements appear to work fairly well for the general community and mainstream service providers, the model of short consultations in a private practice setting does not fit with the needs of Aboriginal people for holistic, comprehensive care in a culturally appropriate setting. The result is that the Commonwealth spends only 27 cents per person from Medicare on Aboriginal
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and Torres Strait Islander people, for each Medicare dollar spent per head on other Australians (Deeble, et al. 1998: 22, Table 2.13). Aboriginal people are clearly unable to access their Medicare entitlements—the system is not working for them.

The current low level of access by Aboriginal people to appropriate primary health care is contributing to poor health status. Life expectancy for Aboriginal people is fifteen to twenty years below that of other Australians, infant mortality is two to four times higher, and adult death rates are three to four times higher (ABS/AIHW 1997). Lack of access to primary care is also contributing to a higher dependence by Aboriginal people on hospital-based care (Deeble, et al. 1998: 16, Table 2.7), which is expensive to the health care system, and less than optimal for the individuals concerned.

Equitable access to appropriate primary health care, complemented by other reforms, has the potential to bring about real long-term improvements to Aboriginal health outcomes.

A proposed model for capitation funding for Aboriginal primary health care

To improve Aboriginal access to primary health care, Commonwealth resourcing for Aboriginal health must be significantly increased. As Aboriginal-specific health funding is very limited, more flexible access to mainstream health funding is needed. It is suggested that an appropriate strategy to achieve this would be through the provision of Medicare capitation funding (regular payments based on the number of clients cared for, rather than on the number of individual consultations provided), to Aboriginal primary health care service providers.

Under this model, selected primary health care service providers identified by the Aboriginal community could have access to Medicare capitation funding. These payments could be pooled where appropriate with funding from other sources, such as State governments and the Commonwealth Aboriginal health program, to provide comprehensive primary health care services to the community. In accordance with Framework Agreement commitments in Aboriginal health, joint local planning processes could provide the basis for needs assessment and planning for service delivery, where this is appropriate and workable.

Access to capitation funding would give service providers greater flexibility to meet the needs of the community for holistic health care, including preventive care and special programs. The capitation model might require some form of client enrolment using Medicare numbers. In this scenario, capitated Medicare funds would be available to a service provider in respect of particular enrolled clients, and the service provider would not be able to direct-bill Medicare in respect of those clients. If an enrolled client accessed another service provider and Medicare was billed, this payment would be deducted by the Health Insurance Commission from the capitation funds due to the main care provider (a ‘billing back’ system). Systems to manage this have already been established as part of the coordinated care trials. In many cases, service providers may enrol and receive capitation funding for some clients (their core client base), while continuing to bill Medicare in the usual way for others (casual clients).

The use of the additional resources, that is, the form in which primary health care services are delivered, might vary in different areas depending on the needs expressed by the local community. The resources may be used to establish new...
Aboriginal primary health care services where there are none; to increase the level of services provided by existing health care providers; to improve linkages and collaboration between service providers; or any combination of the above. The model allows for diversity and innovation, within a framework of Aboriginal self-determination and local community decision making.

Aboriginal self-determination is a key success factor in any strategy to improve Aboriginal health, but this does not imply the exclusion of non-Aboriginal people or mainstream services from participation. In some cases, access to Medicare capitation funding could enable bodies identified by the local community as their preferred service provider to act also as a purchaser of services where appropriate. For example, the service provider could ‘buy in’ the services of privately practising general practitioners, specialists, nurses, or other professionals or organisations as appropriate, to work with their staff and provide services on a contract, sessional, or fee-for-service basis. It is anticipated that there will also be increased opportunities for liaison and referrals between Aboriginal primary health care providers and other service providers—e.g., hospitals, private medical practices, pathology services—to facilitate access by Aboriginal people to the full range of health care services and to improve continuity of care. There are many existing examples of this kind of collaborative work, and increased resourcing can help to build on these collaborative arrangements and strengthen opportunities for partnership.

**Principles to underpin increased equity of access by Aboriginal people to appropriate primary health care using Medicare capitation funding**

NACCHO has identified the following principles as critical success factors for this strategy:

- The primary purpose of Medicare capitation funding for Aboriginal health must be to achieve equity of access by Aboriginal people to appropriate primary health care, in keeping with the human rights of Aboriginal people.

- The strategy must be based on and support Aboriginal self-determination in health, in keeping with the following principles which underlie the National Aboriginal Health Strategy and the Aboriginal Health Framework Agreements (signed by all Australian governments and the community sector):
  - acceptance of Aboriginal and Torres Strait Islander people’s holistic view of health;
  - recognition of the importance of local Indigenous community control and participation; and
  - intersectoral collaboration.

- The strategy must have a primary health care orientation rather than a medical care orientation. This is in keeping with the holistic Aboriginal definition of health as not just the physical well-being of an individual, but the social, emotional and cultural well-being of the whole community.

- Medicare capitation funding must be introduced as an ongoing strategy, not a trial or pilot.
• The strategy must have a universal approach and be applicable to urban, rural and remote settings; to settings where there is already an Aboriginal primary health care service in place, and to settings where there is not; and should have sufficient flexibility to meet diverse community needs.

• Individual clients, services and communities must be able to opt in and opt out of the strategy at any point, based on informed decision making.

• Medicare capitation funding must complement, not replace, current funding programs such as the Commonwealth’s Aboriginal and Torres Strait Islander Health Program, and State/Territory Aboriginal health funding programs. Levels of funding currently provided through these programs must be at least maintained in real terms, and this funding should be pooled where appropriate with capitated Medicare funding.

• The strategy should not lead to a reduction in overall health care resourcing for any Aboriginal community or Aboriginal community controlled health service.

• Aboriginal communities must have primary governance over the use of Medicare capitation funding, including the choice of a service provider/s to whom the funding will be provided.

• The views of local communities should be sought through a comprehensive consultation process facilitated by the Aboriginal community controlled health sector.

• Where possible, needs assessments and decisions on service delivery should be made through transparent joint regional planning processes involving representatives of the signatories to the Aboriginal Health Framework Agreements (Federal and State governments, the Aboriginal community controlled health sector, and ATSIC). The views and needs of the local community must be the primary consideration in these processes.

• The level of Medicare capitation funding should be related to the level of need and the level of disease burden.

• In cases where joint regional planning is unworkable, alternative mechanisms must be available for access to Medicare capitation funding by the community. This should be based on appropriate needs assessment and planning to ensure that Aboriginal communities are not disadvantaged.

• Opportunities for increased collaboration and linkages between different service providers should be pursued in accordance with the needs expressed by the local Aboriginal community.

• The total primary health care funding available in respect of each Aboriginal community, from Medicare and other sources, should be sufficient to enable equitable access by each member of the community to comprehensive, holistic primary health care. The core functions of a comprehensive Aboriginal primary health care service must be clearly defined by the Aboriginal community, and local diversity in health care needs must also be recognised.

• Risk management strategies must be developed to ensure that the level of available primary health care funding is adjusted as required to take into
account factors such as increased client population, increased volume of services, changing community needs, and cost increases in service delivery.

- Aboriginal communities and services that do not currently have access to doctors should not be precluded from accessing Medicare capitation funding. Such funding may enable the community/service to attract a doctor if needed, to buy in medical services directly from other sources, or to develop innovative collaborative arrangements with other service providers as appropriate.

- The administrative, reporting and accountability requirements attached to the strategy should be appropriate and not overly burdensome. Opportunities for common accountability and reporting requirements between different sources of funding should be explored and maximised.
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The VicHealth Koori Health Research and Community Development Unit (VKHR&CDU) was launched in June 1999 and has been developed in partnership with the Victorian Aboriginal Community Controlled Health Organisation, the Victorian Health Promotion Foundation (which funds the Unit) and the University of Melbourne through the Centre for the Study of Health and Society where the Unit is located.

At the core of the Unit’s work is a commitment to undertaking, collaborating in and supporting research that directly benefits the Koori community. The work of the Unit spans academic and applied research, community development, and medical education. The combination of these activities is a central and innovative aspect of the Unit’s function, as is the identification and use of mechanisms to link research with the improvement of health care practices and policy reform. Overall, these tasks are guided by both an Advisory Committee and a Research Advisory Group.

In relation to the research program, five key areas govern the inquiry undertaken within the Unit. These comprise: historical research into Koori health policy and practice; historical and contemporary research into health research practice, ethics and capacity building; applied research on the social and cultural experience of Koori health, well-being and health care delivery; health economics research on the factors and processes that impact on the provision and use of Koori health care; and the evaluation of Koori primary health care and related health promotion programs.

The Discussion Paper Series (DPS) is directly linked to this diverse program of research and provides a forum for the Unit’s work. The DPS also includes papers by researchers working outside the Unit or in collaboration with VKHR&CDU staff. Individual papers aim to summarise current work and debate on key issues in Indigenous health, discuss aspects of Indigenous health research practice and process, or review interim findings of larger research projects. It is assumed that the readership for the series is a broad one, and each paper is closely edited for clarity and accessibility. Additionally, draft papers are ‘refereed’ so as to ensure a high standard of content.

More information on the series (a list of which can be found overleaf), on the preparation of draft papers, and on the work of the Unit can be obtained by directly contacting the VKHR&CDU.

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Discussion Paper No. 8: Kim Humphery, ‘The Development of the National Health and Medical Research Council Guidelines on Ethical Matters in Aboriginal and Torres Strait Islander Health Research: A Brief Documentary and Oral History’ (December 2002).


