CONSULTANT'S REPORT

COMMONWEALTH GRANTS COMMISSION

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OFFICE OF ABORIGINAL HEALTH, HEALTH DEPARTMENT OF WESTERN AUSTRALIA

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Aboriginal Definition of Health Need

Commonwealth Grants Commission Indigenous Funding Inquiry

Office of Aboriginal Health
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EXECUTIVE SUMMARY

1. This report proposes and exemplifies the operation of a new model for allocating additional resources across Aboriginal regions or communities. It is based on Aboriginal values which have been used both to develop the model from its raw academic base and to provide necessary weightings in the development of a formula (such as with respect to the importance of relative disadvantage) which will allow the approach to become a practical tool of policy making.

2. The new allocation model was developed in response to a request by the Commonwealth Grants Commission (CGC) to provide material that builds a picture of Aboriginal health need and examines issues relevant to the allocation of funding across regions.

The following main components have been addressed in response to this request:

(i) Developing an understanding, based on Western Australian data, of matters relevant to the measurement of health status (needs) with the aim of approximating health status using readily available proxies and applying those proxies to data from other States - this might include establishing the major relationships on a regional basis between Indigenous population distribution, socio-economic circumstances and health status.

(ii) Developing an understanding of, and measuring, factors that might affect Indigenous access to and use of services, including physical availability of health services relative to population location, and cultural and social issues that affect access to and use of services. Being aware of the existing use of services.

(iii) Examining other issues that are relevant to an allocation of resources among regions, especially differences in the costs of providing services.

3. The approach to resource allocation outlined in this report and presented schematically in figures 1-1 to 1-4 is based on the simple idea that resources should be allocated to provide as much good as possible, such good reflecting the Aboriginal Definition of Health Need (section 3). This emphasis on the nature of the good is in itself somewhat novel (section 4). Often it is assumed that health services are about maximising health and concerns are restricted to this, largely efficiency question. When resource allocation formulae do address equity, they tend to draw heavily on the notion of 'health need' and the idea that the greater this is - essentially the greater the health problems - the more money should be allocated. This in turn often results in need being defined in terms of sickness such

that if one geographical area is twice as sick as another, then it should receive twice as much per capita. It is argued (section 4) that allocating pro rata with the *size of the problem* is not a rational approach to deciding what *the size of the inputs* should be. Why would we expect that the size of the problem would determine the size of the solution in terms of dollars?

4. In developing this new approach we have, through discussions with key Aboriginal people, taken into account their preferences for resource allocation. This has been done against the background of the key features of the Aboriginal Definition of Health Need (section 3) which includes cultural security; physical wellbeing; good environment; and freedom from poverty. What is crucial in this approach is two things: first to ensure it is built on a scientific conceptual base and secondly to allow for the preferences of Aboriginal people in considering what the good is that is to be pursued. This brings in elements of subjectivity. While this seemingly results in greater measurement problems than in the 'standard' sickness needs approach, it is only seemingly so as the standard model bypasses but does not resolve these issues. One advantage of the new approach is that it requires explicit consideration of the values that underlie what is to be achieved with the funds being allocated.

5. In the approach proposed (section 5), there are four components. These have to be weighted and aggregated to allow the specification of the good that is sought, thereby providing the basis for determining the relative amounts to be allocated to different geographical locations.

(i) First there is an assessment of the potential benefit that additional resources will provide ie. the **capacity to benefit** (CTB).

(ii) The second component involves weighting of CTB to reflect the fact that nominally equal benefits may be weighted more highly for those who start with greater disadvantage. This is the concern of **vertical equity**.

(iii) The third component embraces the fact that communities are not equally well developed in terms of their 'infrastructures' to allow them to have the capacity to benefit from additional resources for, say, an eye program. This phenomenon has been called **MESH (Management, Economic, Social and Human) infrastructure.**

(iv) The fourth component concerns reducing access inequities from both **geographical remoteness** and **cultural access barriers**. These require special cost weightings.

6. In operationalising the approach, there is a need to respect *informed* Aboriginal preferences to determine the nature of the good that the relevant resources are aimed at achieving. The driving force is equity with emphasis on capacity to benefit, but giving due priority to developing overall infrastructure and allowing added weight to the relatively disadvantaged.

7. The report also reviews (section 6 and appendices) the current availability of data to take the approach forward. It is clear that, while there is scope for improving data and value issues, it is possible, on the basis of what is currently available, to implement the approach. This is exemplified in section 5 where dollar allocations for communities with different characteristics are presented. These show allocations per capita of new monies varying from between 10 percent of the average and 350 percent. The formula can be adjusted to take account of different weights, for example as between investing in new programs and building up infrastructure where this is weak. That decision, as with others involving value judgements, needs to be examined further in the light of Aboriginal values nationwide and not just as at present reflected in those of Western Australian Aborigines.

8. The following schematic diagrams give an overall view of the elements contributing to defining Aboriginal Health Need and the proposed resource allocation.

Figure 1-1: ABORIGINAL DEFINITION OF HEALTH

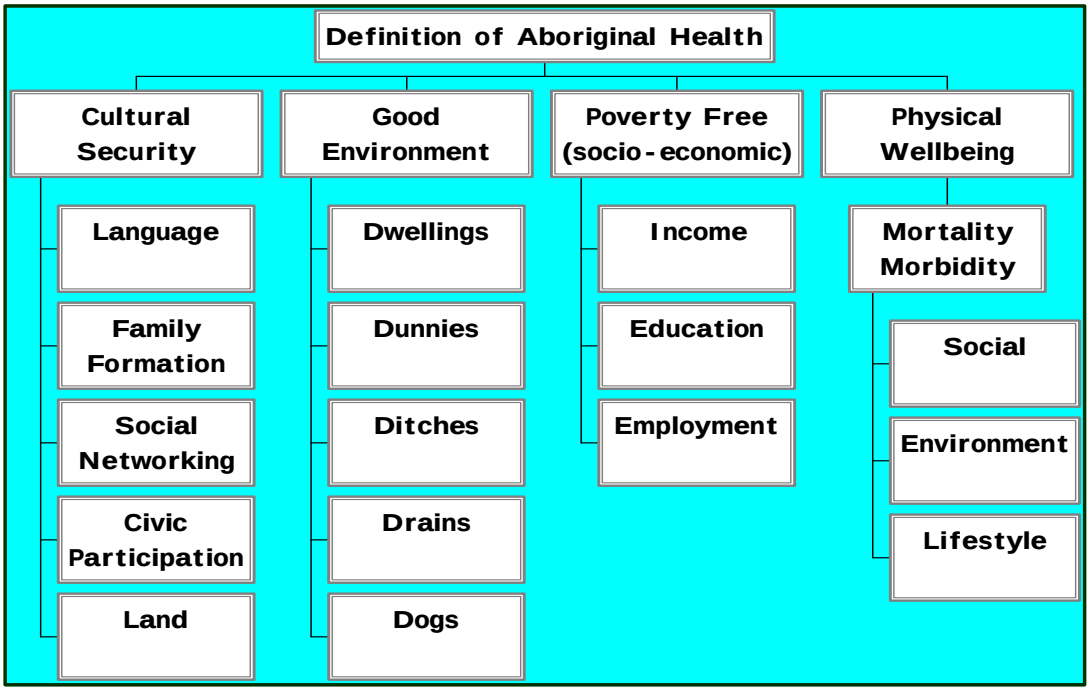


Figure 1-2: ACCESS COST FOR ABORIGINAL HEALTH

Figure 1-3: MODEL OF ABORIGINAL HEALTH NEED

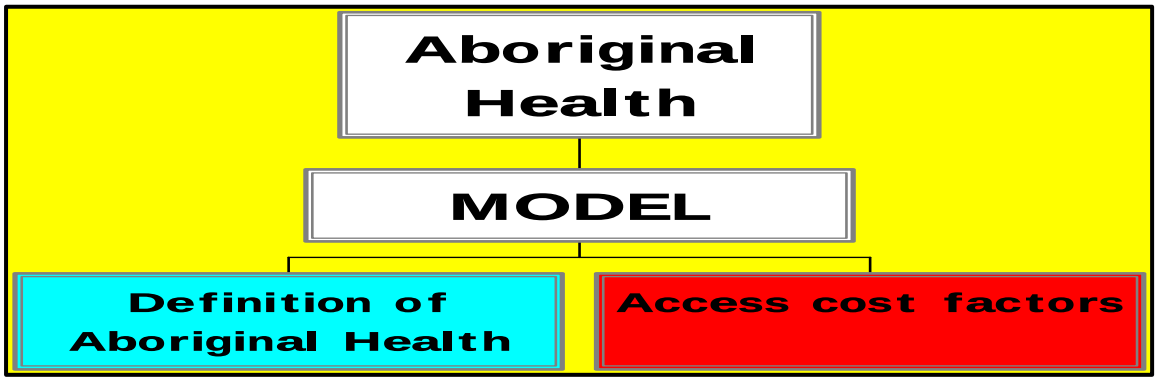
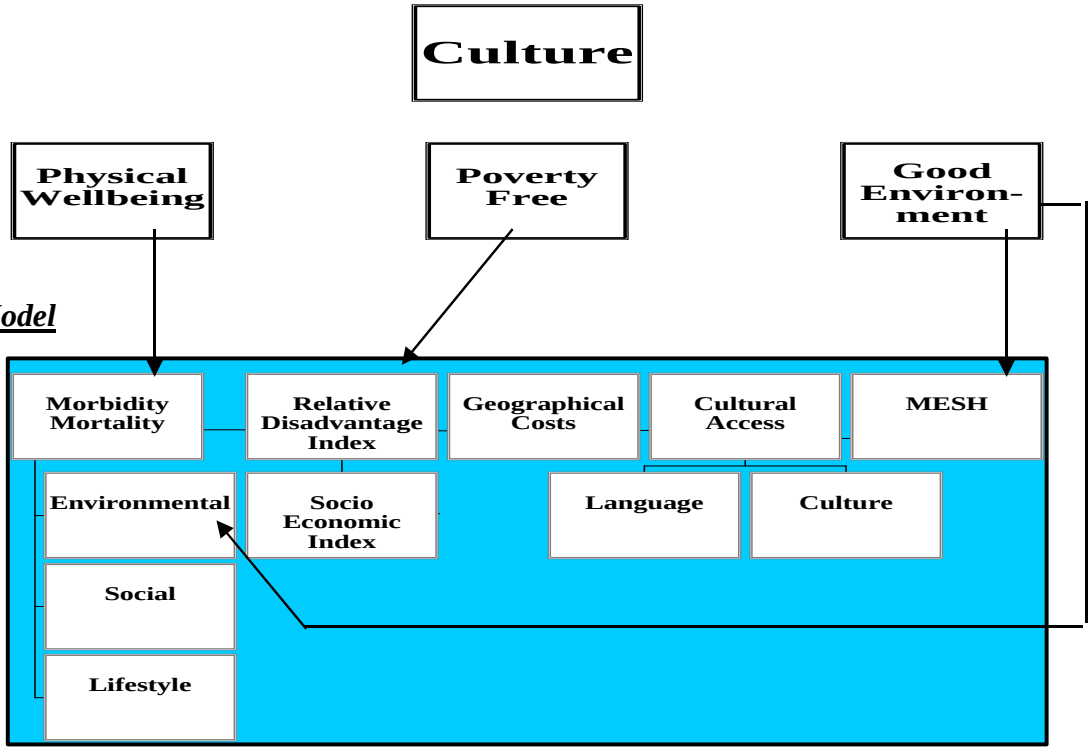


Figure 1-4: PROPOSED FUNDS ALLOCATION MODEL

(a) Definition of Aboriginal Health



(b) Model

INTRODUCTION

1. The new model for resource allocation proposed in this report has involved inputs from the following:

(i) OAH and HDWA staff.

(ii) Key members of the Aboriginal community.

(iii) The Social and Public Health Economics Research Group (SPHERe).

(iv) National Key Centre for Social Applications of Geographical Information Systems (GISCA).

2. Whilst OAH and HDWA staff have managed this development, they have also provided technical input and contributed to the development of the concepts. Members of the Aboriginal community from key service agencies, from around the State (and beyond) took part in a number of workshops. Their role was to take the original academic model as proposed by SPHERe and develop that both conceptually and in terms of providing a reality test. Additionally where values were needed to drive the model, as for example in the measurement of capacity to benefit, they provided these in a series of workshops. They were also charged with ensuring that whatever concepts were proposed for the allocation process, and how these were then aggregated, measured and operationalised in any recommendations were culturally secure.

3. SPHERe, through the work of its director Gavin Mooney, contributed the conceptual academic framework for the development of the model. He facilitated the community workshops and took part in many of the brainstorming sessions.

4. GISCA's role was to undertake the spatial analysis for the mapping of various factors, such as those related to health status and remoteness, that were considered potentially relevant to any formula for resource allocation.

5. Collectively, as reported in what follows, these groups have developed a comprehensive new process for the allocation of funding.

6. In section 3, the components of the Aboriginal Definition of Health Need are developed and spelt out. It was always the case, as the process was managed by OAH, that such components must be central to any resource allocation formula; hence the centrality of this Aboriginal Definition of Health Need. These components — cultural security, physical wellbeing, good environment and freedom from poverty — are at the heart of the approach developed in this report.

7. Section 4 outlines the approach in principle where the two major features-weighted capacity to benefit (CTB) and 'MESH' — Management, Economic, Social and Human - infrastructure are set out. The weighted CTB represents a departure from more conventional 'needs based' formulae for resource allocation. These more traditional ways of allocation have tended to assume that resources be allocated pro rata with the size of the problem. The CTB approach rages that there is need to think about what good is to be achieved with the resources deployed. Weighting the CTB is then done to reflect the fact that any nominally equal benefits might be weighted more highly if they are benefiting more disadvantaged people.

8. 'MESH' represents the other major departure from the more conventional approaches. It reflects the fact that some communities are poorly placed to take advantage of any monies they may receive to develop programs to benefit their people. This may be because they lack leadership or management skills. Hence there is a need to begin by helping them to develop greater capacity to benefit by investing in management and other skills necessary to allow programs to be organised.

9. Other components of the approach relate to variations in costs between for example remote and accessible areas and also as a result of variations in cultural security. With respect to remoteness costs, in this section the idea of 'EPEA' positions is also introduced i.e. equally productive and equally attractive positions.

10. Section 5 indicates the progress that has been made in measuring the various components of the formula and sets out by way of examples some of the numbers that emerge from applying the formula to communities with different characteristics. A key finding here is that it is possible to apply the formula on the basis of existing data and values although it is evident that there is scope for improving the information currently to hand through future research.

11. In section 6 the results of investigating current data availability are presented. This suggests that much of what is required is there in sufficient detail but that some aspects are in need of further research to allow them to be pinned down. Also, where values have been derived from Aboriginal people, to date this has been restricted largely (but not wholly) to WA people. Eliciting values from senior Aboriginal figures across the country would be an important step forward from where the approach currently stands.

12. Apart from presenting conclusions, section 7 also sets out what is needed to improve data and values and a time frame (six months) to do so.

13. The appendices report in detail on the data collected and collated to allow the approach to be operationalised.

ABORIGINAL DEFINITION OF HEALTH NEED

Introduction

1. In the early 1970s Aboriginal communities developed a concept of health that has become a standard definition, widely accepted and quoted:

> ***"Health is not just the physical wellbeing of the individual but the emotional social and cultural wellbeing of the whole community. This is a whole of life view and it also includes the cyclical concept of life-death-life".***

2. The 1989 National Aboriginal Health Strategy, accepted by all jurisdictions and used by the Health industry and Aboriginal communities as a national blueprint for Aboriginal health over the last decade, reaffirmed the broad acceptance of this definition. Aboriginal communities continue to use it, State and federal governments continue to cite it. The Aboriginal groups that met to assist in the development of this report again accepted the definition and sought to use it as the basis for responding to the tasks at hand.

3. The breadth of the definition illustrates the complexity and scope of need that requires to be taken into account. The Aboriginal approach to health need is seen as the achievement of a balance between a set of key and inter-related states:

(i) cultural security;

(ii) physical wellbeing;

(iii) good environment; and

(iv) freedom from poverty.

4. The differentiation of need between communities or regions can therefore be seen as the extent to which there are variations in the level of achievement in Aboriginal communities, groups or ATSIC regions of the desired states of cultural security, physical wellbeing, good environment and freedom from poverty.

5. Aboriginal working groups met to discuss what was meant by each of these domains. These discussions revealed a series of elements and sub-components, that when aggregated would meet Aboriginal people's definition of good health and wellbeing. These elements and sub-components are described hereunder and illustrated in the model at Figure 4-1.

6. The next step in the process was seen as the identification of indicators that could be used to measure the level of achievement of these key elements and sub-components of need. Research was undertaken to identify sources of data that could reliably be used complete this task.

7. This section discusses this work and details the construction of each domain, its elements and the various indicators and data sources used in each. The final sub-sections will then attempt to show how this definition can be used to assess the relative need between ATSIC regions and health zones in Western Australia.

8. The interplay between the various domains and their components detailed in this section should be seen as cumulative. While some communities may be rich in one domain they may be poor in another. The model aggregates these factors appropriately and includes some weighting according to the discussions of Aboriginal participants in the working groups.

Cultural Security

9. Aboriginal people have long asserted the importance of recognition of culture and their identity as First Nations within Australia in efforts to improve Aboriginal socio-economic status. Recognising and responding to culture as a determinant of health and wellbeing remains a central element of Aboriginal people's agenda in health. The lack of attention to cultural values and rights in the development or provision of services to Aboriginal individuals and communities has stood for some time as a practical measure of how far we have to go.

10. However, there are more intrinsic relationships between culture and health that Aboriginal people have sought to bring to the debate about health gain. Increasingly science and industry have found important policy and program implications in the interaction between the health of individuals and communities and the protection and promotion of strong social and cultural values. This convergence of views provides the basis for improved definition and comprehensiveness in response to Aboriginal needs.

11. We have used the term *Cultural Security* because the working groups saw the existence of an environment where the legitimate cultural rights, views, values and expectations of Aboriginal people were protected and able to flourish as one of the states necessary to good health and wellbeing.

12. The essential elements of culture that need to be recognised in definitions of need include:

(i) language;

(ii) family formation;

(iii) social support and networking;

(iv) civic participation; and

(v) land.

13. Aboriginal people believe that, if Aboriginal culture was given greater recognition and the values of society were brought into play in the heath debate, the trust, cooperation and the notion of shared responsibility for members of the community inherent in culture would contribute to an improvement in the health and wellbeing of individuals and families.

14. Shared values, such as the 'moral economy' of Native Americans based on the logic of reciprocity and the right to subsistence, profoundly impacts on the levels and quality of social capital within their society[1]. Similar circumstance exists for Aboriginal people in Australia. This section seeks to draw together relevant and measurable data and presents indicators that collectively represent the level of need within this domain.

15. ***Language.*** Cultural security is evident in the ties that bind individuals, families and larger groups of Aboriginal people. How and how often members share common values and culture can influence the strengths of bonds that bind individuals and families together. One of the ties in Aboriginal communities that contribute to social capital and hence health and wellbeing, is the integrity of Aboriginal languages. Language is a unifying element in any society.

16. Use of language in Aboriginal communities is closely connected to identity. The increasing use of Aboriginal words as a means of describing the identity of Aboriginal individuals exemplifies this. Use of Murri, Koori, Nyoongar not only denotes the individual as Aboriginal but also identifies the individual with an historical experience and location.

17. In respect of Aboriginal communities, language helps to build and reinforce the values of reciprocity bounded solidarity, enforceable trust and social obligation. It provides the lubricant for social interaction, a basis for the generation of social capital. In short the use of Aboriginal languages provides a protective benefit to community members beyond the basic output of communication.

Aboriginal communities have long worked to protect Aboriginal language and have increasingly sought to encourage their use as a means for and demonstration of cultural integrity, solidarity and strength.

Key data.

(i) Use of Aboriginal languages

[1] Varese 1996

Data Sources.

(i) Census

(ii) NATSIS

(iii) Future Improvements in the data may be available through the ABS Aboriginal General Social Survey planned for 2003 and for 6 yearly intervals thereafter

18. ***Family formation and function.*** Aboriginal families and related cultural groupings form the basis for Aboriginal societal structure. It has been only a generation or two since extended kin networks of parents, grandparents and clan members made up virtually the entire social world for Aboriginal people, providing the framework for most of the business of life. Through the vehicle of the family, Aborigines can guarantee an Aboriginal future for their children[2]. Inside the web of family, norms of sharing and mutual aid provided a social safety net for every individual. The disruption of family structure in Aboriginal communities has had significant consequences over many years.

19. The pattern of family formation and behaviour sets people down a pathway or life course that can and does determine health outcomes in later life. Poor parental social status and education contribute to their own poor health but also contribute to the poor health of the children in later life. Poverty in the family reduces the capacity of the group to provide an environment that is conducive to good health. Studies have shown that low-income families are more likely to use coercive parenting and less likely to use discussion and reason. Higher levels of coercive parenting are associated with higher levels of mental health problems in children[3].

20. The family structure and behaviour in early childhood influences the capacity of the child to build a store of personal social capital. If families are not stable and not cohesive, this adds to the poor environment and contributes to poor health in later life. Children develop core attachments at age 6-8 months and if there is instability in the family unit, this results in an insecure basis for these attachments.

21. Poor parenting leads to poor health of children and adds to poor self-esteem of parents. Aboriginal communities have expressed continuing concern at the number of "kids having kids" and the relative lack of parenting skill in these new families. The lack of grandparents, in some cases parents, and of supportive social networks adds further weight to this area of health deficit.

22. The pathway on which these factors set a child are also well understood in terms of their leading to poor education, poor income levels and greater risk of poor health in later life, in terms of both physical health and mental health. Individuals set on this pathway are

[2] Reid & Trompf 1991

[3] Silburn et al. 1996

less able to cope, having lower self-esteem and less chance of getting out of the poverty trap, all of which lead to issues about 'self esteem, coping strategies and cognitive and social skills'[4]

Key Data.

(i) Age of Family formation

(ii) Age of commencement of child bearing

(iii) Parental social status and education

(iv) Single parent numbers

(v) Numbers of defacto relationships

(vi) Levels of school attainment

Data Sources.

(i) Census

(ii) Improvements may be possible through ABS Aboriginal General Social Survey

23. ***Social networking and support.*** Aboriginal social networks can provide a protective health benefit to their members. The coming together of Aboriginal groups to provide support and act as a basis of advocacy and collective action has shown the practical health benefit offered by such arrangements. The establishment of Aboriginal service organisations, such as Aboriginal Medical and Legal Services, the maintenance of cultural practices such as is found in the practice of "law business" for many tens of thousands of Aboriginal families annually and the development of social change agenda such as Native Title and land rights actions over the past 30 years each illustrate where the collective nature of Aboriginal social existence has manifested a positive outcome.

24. The degree of social and cultural cohesion and support within a community has been recognised in a number of studies impacting on the health and wellbeing of the community. Chronic anxiety, insecurity, low self-esteem, social isolation, and lack of control over work appear to undermine mental and physical health. These impacts progressively increase down the social structure of society.[5]

25. Social networking may be seen as the extent to which the individual is part of a community of mutual obligation and exchange[6] and is able to make contact with and share with people who are able to provide grounding, informational and emotional support and support that reinforces the self-worth of the individual and family.

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[4] Kuh et al 1997

[5] Brunner E & Marmot M, 1999

[6] Stansfield S 1999

26. Evidence that social support affects physical and mental health and mortality can be found in a number of reported studies.[7] Cardiovascular disease in Aboriginal communities remains one of the most pressing areas of health need. Studies have consistently found that social support has an effect on mortality from cardiovascular disease[8].

27. Behaviours such as smoking, drinking and excessive eating may develop as a response to stress or unhappy or disruptive early relationships. These disturbances in social support and networking at an early age may lead to an impaired ability to develop and maintain social support in later life and consequently add to the impact on adult health caused by unhealthy behaviours.

28. Social cohesion is found to promote public health. Evidence suggests that close relations among communities contribute to healthier populations. Researchers in Alameda County, California claim that people with few social ties were two to three times more likely to die from a variety of causes than individuals with extensive social contacts. Income and political inequality and their impact on social capital development are viewed as public concerns[9]

29. The existence of trust, social norms and understandings between members of a collective is a reflection on the social capital of the group. Social capital can have a positive impact on the health and wellbeing and prosperity of an entire community, not only on the households with a lot of social capital[10]. Social capital can be used by the poor as a substitute for human and physical capital[11] and increases with use. The quantity, quality and persistence of social interactions among neighbours, friends and members of groups and associations, generate social capital and the ability to work together for a common good.

30. The extent to which individuals are able to have confidence in the social interaction between members of the community, are able to trust the values and other underpinning of these interactions, understand the reciprocity and draw on social organisation to support the community interaction and individual's participation, has an impact on the physical and mental health of the members. Where Aboriginal people represent the dominant population and are able to influence the civic and cultural life of the community, their health and wellbeing is strengthened.

31. The degrees to which individuals are incorporated as members of the community and social networks and the level of contact with the members of the network is a useful measure of the level of social support[12]. Where Aboriginal people are in a minority; are less able to make regular contact with members of their social network and are not confident of the underpinning of the social structure around them they are more likely to suffer from doubts of self-worth and lack trust to engage. Under such circumstances the mental and physical health of individuals and of families may suffer.

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[7] Berkman and Syme 1979; House et al. 1982; Blazer 1982; Kaplan et al. 1988

[8] Kawachi et al. 1996

[9] Kawachi Ichiro Bruce P. Kennedy & Kimberly Lochner 1997

[10] Narayan & Pritchett 1997

[11] Collier 1998

[12] op cit

Key Data.

(i) Aboriginal people as a proportion of the total regional Aboriginal population.

(ii) Social status of regional Aboriginal populations.

Data Sources.

(i) Census

32. ***Civic spirit and participation.*** Studies[13] have shown that "civic communities" value solidarity, civic participation and integrity. Civic communities are those areas where members become engaged in the public life of the community not because of forms of "what's in it for me" but because they recognise the generalised benefit to all members of collective action on important public issues.

33. The roots of civic communities are well grounded in the shared historic cultural, economic and social experience of the people. This experience brings with it an acceptance of reciprocity between members.

34. There are many social conditions that can create civic spirit. Among them are both formal and informal civic institutions that engage the citizenry in public life and embed values and norms in the community.

35. Formal institutions are bodies with specific concerns about the community - for example, community associations, parent-teacher associations and local political organisations. There is also a strong relationship between voluntary associations and local political organisations[14]. Informal institutions characterised by dense social ties promote discussion and communication, disseminate information and encourage recognition of the value of the bonds and reciprocity between members.

36. In Aboriginal communities the institutions of Aboriginal society, the vehicles of cultural practice, community decision-making and the setting of social standards and norms have, to varying degrees, been eroded by colonialism and the imposition of the political will of the dominant society. Where these institutions, both formal and informal, are eroded the strength of the civic community is also eroded.

37. Where the stocks of a civic community are largely intact, the community tends to be more confident about its roots and through the continuing use of this social capital it becomes self-replenishing. Where stocks are denuded, communities are less able to strike out with confidence and are more likely to leave change to others. The implications are that these communities needs are greater because the basic building blocks are absent.

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[13] Putnam R, 1993
[14] Irwin Michael

38. Examples of strong civic participation and spirit are found in voter turn-out, participation in the cultural and religious lives of communities, in organised recreational and other social events. These examples provide a measure of the strength of Aboriginal civic spirit and participation. Strength of civic spirit and participation stands as therefore a protective behaviour.

Key Data.

(i) ATSIC election turnout

Data Sources.

(ii) ATSIC

(iii) Potential improvement offered by ABS Aboriginal General Social Survey proposal

39. ***Land.*** Aboriginal society is based on a relationship between "country and people". This relationship cannot be characterised under any notion of proprietary ownership. They do not own the land, more likely the land owns them, continuing the same hallmarks of reciprocity evident in the cultural relationship between people. The nature of this relationship involves both rights and duties, rights to use the land and its products, and duties to tend the land through the performance of ceremonies. Aboriginal people are responsible for the law that respects it, and for ensuring that the land is in a fit physical and spiritual condition to be handed down to future generations. It is not a source of material wealth but of spiritual consolation. [15]

40. The maintenance of this relationship provides a continuing benchmark for Aboriginal people that speaks to the wellbeing of the family, community and society. The inability to meet the obligations and exercise the rights inherent in this relationship impacts on the wellbeing of the people.

41. Some commentators have described the values and norms as an ethic that prompts individuals to cooperate with fellow members of their community to include soil, waters, plants and animals in the boundaries of the community.[16]

42. Documentation of the importance to Aboriginal people of this relationship is found in the volumes of work surrounding the land rights debate. Recognition of Aboriginal peoples' relationship to land is found in the various pieces of "Land Rights" legislation across the country and the more recent decisions and agreements flowing from Mabo. Direct evidence of the value placed on this relationship by Aboriginal people is found in the outstation movement and effort to "return to country".

43. Aboriginal people have left created Aboriginal communities and returned to their traditional country. In the Northern Territory alone there are over 600 'homeland centres' and their numbers are growing. This movement to traditional land and the

[15] Ogleby CL
[16] Rose DB

re-establishment in some cases and the continuation in others of the relationship between the people and country has been recognised as

> "one of the most significant developments in Aboriginal affairs....(demonstrating) the desire of Aboriginal people to assert control over their lives.[17]"

44. The opportunity to return to their country has meant an increase in ceremonial and traditional activity. More bush tucker is being eaten, local languages spoken, and families are relieved of the social stresses of large communities and the alcohol abuse problems of towns. Most importantly it reaffirms people's identity and allows them to look after their country and carry out their responsibilities to it.[18] Studies have also shown that returns to land also produce improvements in Aboriginal health. Aborigines who live on homelands have lower rates of diabetes, cardiovascular risk factors, hospitalisation and death compared to those in more centralised communities[19].

45. Land is a constant in Aboriginal life regardless of the geography and the issue of land is closely linked to the assertion of identity.

46. Whilst the particular priorities with respect to land differ between Aboriginal people, they are united in their view that land, whether under the banner of land rights or not, is the key to their cultural and economic survival as a people[20].

47. The issue of land in the context of this report goes to the question of whether Aboriginal people who do not have the means to exercise their rights and meet their obligations are more disadvantaged than those who do.

48. There is little doubt that those Aboriginal communities closest to where dispossession began have suffered overwhelming and continuing effects. The removal to created communities, the almost total destruction of traditional language, the disruption and dispersal of families and the more recent population movement and growth in metropolitan areas lists the level of disadvantage suffered by a significant proportion of Aboriginal people. Aboriginal communities in the south west of Western Australia, New South Wales, Victoria and elsewhere are among those who have been almost completely dispossessed.

49. When we took what we call 'land' ... it left each local band bereft of an essential constant that made their plan and code of living intelligible. Particular pieces of territory, each a homeland, formed part of a set of constants without which no affiliation of any person to any other person, no link in the whole network of relationships, no part of the complex structure of social groups any longer had all its coordinates. [21].

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[17] 1987 House of Representatives Standing Committee on Aboriginal Affairs report

[18] Northern Land Council

[19] McDermott R et al, 1998

[20] Royal Commission into Aboriginal Deaths in Custody, 1999

[21] Stanner in ATSIC

50. The definitions of health and wellbeing and of Aboriginal aspiration developed by Aboriginal people over the past 200 years have all included the importance of land. Australian society has largely accepted this as fundamental to the issue of Aboriginal need and development.

51. Measures taken by parliaments in a number of jurisdictions to recognise this relationship have all recognised the benefit to Aboriginal people of land and have made special provision to ensure that where the relationship between people and land could not be served special provisions were made.

52. Aboriginal ownership of land for purposes that serve this relationship is a measure of need satisfied. Conversely where Aboriginal ownership is not provided for it is a measure of unmet need.

Key Data.

(i) Percentage of land under Aboriginal ownership or control

(ii) Proportion of Aboriginal population at regional level living on Aboriginal land

(iii) Native Title

Data Sources.

(i) Jurisdictional Land Title Agencies

(ii) ATSIC

(iii) National Native Title Tribunal

Physical Wellbeing

53. Assessment of mortality and morbidity is the most common method used to measure levels of health and hence the amount of disease in the community[22]. Mortality in Aboriginal communities that is unnecessary and untimely provides an indication of the level of unmet need across a range of conditions. The distribution of mortality across geography and age can provide information about the service needs of Aboriginal communities.

54. Morbidity in Aboriginal communities is a marker of acute illness and in the absence of other information can be used as an indicator of the prevalence and incidence of disease. Like mortality, morbidity data can provide a useful indicator of the level of unmet service need in Aboriginal communities.

[22] Holland W, Wainwright – WHO 1979

55. Consider cardiovascular disease (CVD) in Aboriginal communities, which ranks as one of the major causes of mortality. While the higher mortality rate for Aboriginal people is a marker of need in itself, the mortality rate also stands as a marker of the deficiency in services across the natural history of the disease - aetiology through pathology through to manifestation. Death rates would be reduced if effective prevention and promotion services tackling issues like smoking, obesity, physical exercise, raised blood pressure and inappropriate diet were targeted at the highest risk members of the community. Death rates would also be reduced if access to appropriate treatment services were improved. The absence or inappropriateness of these services in the Aboriginal community manifests itself in higher mortality and morbidity rates and therefore as areas of unmet need.

56. The goal for Aboriginal people in this area of unmet need is to reduce untimely and unnecessary death to levels that parallel rates in the non-Aboriginal community. This comparative goal is a compromise between an as yet undefined ideal state and some sort of minimum standard.

57. The cumulative measure of disease burden is found in all cause mortality rates.

Key Data.

(i) Mortality on a regional basis

(ii) Morbidity on a regional basis

Data Sources.

(i) Jurisdictional Morbidity Systems

(ii) AIHW

(iii) Jurisdictional and national mortality data sets

Good Environment

58. The impact of poor environment on Aboriginal health and wellbeing is well documented. A significant body of work[23] has emerged over recent years that identifies the nature of this impact and in more recent times quantifies the cost and morbidity associated with it. Poor environment is related to a range of morbidities in Aboriginal communities including diarrhoeal disease, skin infections, respiratory infection, gastrointestinal infection, eye infection and ear infection. There is an overwhelming burden of respiratory disease in Aboriginal children that is closely linked to poor housing and environment.

[23] National Trachoma and Eye Health Committee 1975, House of Representatives Standing Committee on Aboriginal Affairs 1979, UPK Report Nganampa Health Council 1987, Environmental Health Needs of Aboriginal Communities in Western Australia 1998.

59. Recent reports have highlighted the relationship between respiratory tract infections and poor environment[24]. Other reports indicate that the level of health need, typified by infections in Aboriginal communities and particularly in Aboriginal children may not improve unless there is substantial improvement in the environmental conditions of communities[25].

60. In Western Australia in 1993 the excess expenditure for hospitalisation attributable to the more than expected episodes of various environmental health related conditions was $11.6m with almost half of the excess ($5.1m) for children under five years of age[26].

61. Strategies to remedy this health deficit have highlighted the importance of community and family infrastructure, the absence of which shows a high correlation with the prevalence and incidence of related disease. While the provision of adequate housing is essential to the elimination of environmental health deficits communities have also suggested that the provision of a house in itself may not be enough and that there are a number of critical hardware issues within a house that need attention. The capacity of families to ensure personal hygiene, clean clothes and bedding, the removal of waste, reductions in overcrowding, separation of dogs and children, nutrition, dust control and temperature control has a significant bearing on the reduction of environmental health deficits.

Dwellings

62. A recent report[27] discussing environmental conditions in mainly rural and remote Western Australian Aboriginal communities indicated 70 percent of the population covered by the Survey had significant or serious, and sometimes multiple problems with various aspects of their housing. Other reports[28] show housing needs in rural and remote communities at similar levels.

63. Deficiencies in health hardware in Aboriginal housing adds to the burden of disease and the level of need. In a 1994 survey[29] covering more than 20,000 Aboriginal households nationally, some 12 percent of dwellings were in need of repair, 11 percent of dwellings did not have enough bedrooms, 6 percent had inadequate bathroom services and 6 percent had inadequate ventilation or insulation.

64. The survey went on to demonstrate the additional disadvantage suffered by rural and remote communities with 8 percent of dwellings reporting no electricity or gas service, 8 percent without running water, 9 percent without toilet facilities, and 11 percent

[24] Williams P, Gracey M, Smith P, 1997
[25] Torzillo P, Rainbow S, Pholeros, 1992
[26] Unpublished information Health Department of WA
[27] Gracey M, Williams P, Houston S 1998
[28] Community Housing and Infrastructure Needs Survey, 1999
[29] National Aboriginal and Torres Strait Islander Survey, 1994

without bathroom/shower facilities. This confirms other findings[30] that while Aboriginal people living in urban areas were disadvantaged in their housing status compared with non Aboriginal people, Aboriginal people living in remote and rural areas had significantly higher levels of disadvantage.

65. An estimated 40,000 Aboriginal people required housing in 1993. The cost of remedying the housing deficit including construction and maintenance in Aboriginal communities has been estimated at over $1.37b[31].

66. The availability of good housing is critical to good health. Condition in the house can be linked to increased risk of ill health including respiratory disease-asthma and bronchitis, accidents and stress and antisocial behaviour from overcrowding. Some overseas studies have shown that there is an increased risk of between 1.5 - 3.5 of cough and wheeze in children in a home with damp or mould around. Homeless people have higher levels of infections, mental illness, stress respiratory disease, have higher mortality from disease, violence and self harm[32].

67. ***Sewerage, waste water and solid waste (dunnies, drains and ditches).*** For 88,000 Aboriginal people living in discrete Aboriginal communities, 3600 were without sewerage disposal systems and 12,300 lived in communities where the system did not work properly. The CHINS[33] report indicated that some 204 communities affecting 2,428 dwellings had leaking sewerage.

68. Not surprisingly communities with a usual population of 50 or more with sewerage overflows or leakages were generally found in rural and remote areas. The absence of effective sewerage services is linked to increased rates of gastrointestinal infections, diarrhoea, skin infections and poor infant growth.

69. Despite some recent gains, infectious diarrhoea is a chronic public health issue in many parts of Aboriginal Australia. Diarrhoea has an impact on growth and development in infants. The inadequacy, or absence in some cases, of an adequate sewerage system in Aboriginal communities constrains efforts to improve health. Gastrointestinal disease, particularly in infants, is related to faecal contamination and personal and community hygiene.

70. The 1997 Environmental Health Needs Survey in Western Australia showed that 21 per cent of discrete Aboriginal communities covered by the survey did not have access to the normal range of municipal services such as garbage collection.

Key Data.

(i) CHINS

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[30] Jones R, 1994

[31] ATSIC & Australian Constructions Services 1993

[32] Robinson F, Spencer S, Wood M, Keithley J, 1996

[33] op cit

Data Sources.

(i) ATSIC

(ii) Australian Bureau of Statistics

Poverty Free

71. Aboriginal people in Australia are the most disadvantaged. Aboriginal communities have higher levels of unemployment, lower levels of educational attainment and lower levels of income. The features of this disadvantage are chronic. There is a significant body of evidence that demonstrates the impact of poverty on health and wellbeing.

72. ***Education.*** Lower levels of success, lower levels of achievement, lower retention rates and inadequate levels typify aboriginal education[34]. Three percent of Aboriginal people have never attended school compared with one percent in the non-Aboriginal community[35]. Having left school Aboriginal people are less like to progress to tertiary or other post secondary education and training. As a proportion of population Aboriginal people are about half as likely to be attending university and about half as likely to obtain any form of post secondary qualification.

73. Lower levels of educational attainment lead generally to less skilled work and an area of the workforce that regularly suffers periods of unemployment. Studies have shown a strong correlation between poor levels of education attainment and unemployment[36]. Such factors have been associated with higher levels of mortality[37] in both men and women.

74. ***Employment.*** Employment remains a chronic problem in Aboriginal Australia. Changes in the nature of industries that traditionally employ Aboriginal people, poor educational levels and community views about Aboriginal people impact on the capacity of Aboriginal people to obtain work[38]. Unemployment in the Aboriginal community is more than double that in the non-Aboriginal community[39] and many Aboriginal commentators claim that this is a gross underestimate. Such figures also hide pockets of unemployment where rates can be significantly higher.

75. The CDEP program, a work for the dole program generally operating in rural and remote Australia influences the official unemployment rates. For those Aboriginal people living in rural and remote areas who had an income some 53 per cent got their income from CDEP[40].

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[34] Royal Commission into Aboriginal Deaths in Custody
[35] Australian Bureau of Statistics 1998
[36] Power et al 1991
[37] Wunsch et al 1996
[38] Grey and Tesfaghiorghis 1991
[39] Australian Bureau of Statistics 1998
[40] op cit

76. About 25 per cent of Aboriginal people work as labourers or other such occupation compared with about 8 per cent of Aboriginal workers employed in managerial, administrative or professional occupations. More than 25 per cent of non Aboriginal workers are employed in managerial, professional or administrative occupations with less than 10 per cent employed in labouring or related occupations[41].

77. Work helps build self esteem and confidence[42]. There are a number of studies that have drawn association between unemployment, job insecurity and type of job, high prevalence of ill health and excess mortality.[43] Furthermore, other work has suggested that the impacts of unemployment reach far beyond the lives of the individual suffering unemployment. Most would understand the impacts of unemployment on the families of the unemployed but we are also now coming to understand the impact of unemployment on whole communities and society more broadly. Unemployment represents a measure of unmet need in Aboriginal communities.

78. ***Income.*** Level of income is impacted by the poor level of educational attainment and high rate of unemployment in Aboriginal communities. Nearly 60 per cent of Aboriginal people received a gross income of less than $12,000 per annum compared to about 45 per cent in the non Aboriginal community[44]. Government payments were the main source of income for about 55 per cent of Aboriginal people.

79. Income for Aboriginal people during the ages where families have children in their early years (25 – 44) was about 40 per cent less than that of non Aboriginal people in the same age groups ($265 vs $437). Disparity in incomes is associated with greater deprivation and poor health. Income inequality is associated with other elements of life and health such as rates of crime and homicide[45]

80. Of real concern is the fact that recent studies[46] have suggested that Aboriginal income and employment prospects are not promising and this points to continuing disparity and dependency. Indeed studies[47] have recently shown that inequalities, of the nature described here, rather than absolute level of deprivation, are an important driver of health differential.

Key Data.

(i) Rates of unemployment

(ii) Income levels

(iii) Levels of educational attainment

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[41] op cit

[42] Wadsworth 1991

[43] Daniels & Stilgoe 1979, Moylan & Davies 1980, Cook et al 1982, Moylan et al 1994, Moser et al 1994 1997, Morris et al 1994

[44] Australian Bureau of Statistics 1996

[45] Hsieh & Pugh 1993, Kennedy et al 1998

[46] Altman & Sanders 1991

[47] Wilkison 1992, Kaplan et al 1996, Kawachi & Kennedy 1997

Data Sources.

(i) Census

(ii) NATSIS

Further opportunities for improvement may be possible in the ABS proposed Aboriginal general Social Survey.

WEIGHTED CAPACITY TO BENEFIT AND 'MESH' INFRASTRUCTURE: AN ALTERNATIVE APPROACH TO FUNDING IN ABORIGINAL HEALTH

New Approach

1. The emphasis here is purely on *new* resources although much of what is said would apply if the approach were to deal with existing resources as well. In the context of discussions in WA the geographical areas considered have tended in the main to be referred to as 'communities'. Again however, there is no problem in working with the approach at regional level if that is seen as the most appropriate.

2. This new approach is based on the idea that resources should be allocated to reflect the principles that policy seeks to pursue. These are taken as using whatever resources are available to provide as much good as possible to the people concerned.

3. This statement is in itself somewhat novel. It means inter alia taking explicit steps to identify the nature of the good that is to be pursued. In this particular case this is based on the Aboriginal Definition of Health Need as spelt out in the previous section. In more general terms the research to date that has gone into determining what the nature of the good that health services seek to provide is surprisingly limited. Often it is assumed that health services are concerned with maximising health and clearly health is a significant part of what health services are about. The question arises, however, as to whether health services are only about health and, even if they are whether they are about maximising health.

4. As identified in the previous section there are four components to the nature of the good in this context: cultural security, physical wellbeing, good environment and freedom from poverty. How these relate to the components of the model for the new approach are discussed below.

5. Considerations regarding the nature of the good and its maximisation are often restricted to concerns with efficiency: what is to be maximised subject to some resource constraint. A second (and in this case crucial) set of concerns is aimed more at the issues surrounding equity and the fairness with which health care resources are allocated across different competing groups in the community. Here the question is not strictly maximisation but distribution in terms of some concept of fairness. The difficulty that arises is that there is no single correct definition of what is fair.

6. Frequently at this level, resource allocation formulae draw heavily on the notion of health need and, where this occurs, it is commonly assumed that the more the need—essentially the greater the health problems — the more spending should be allocated. On whatever basis resources are to be allocated, it is important as a starting point to identify what is being attempted with the resources. In other words, what is the nature of the good that is sought? With respect to concerns for efficiency, it is necessary to try to identify that rather than simply assume it is to maximise health. With respect to equity,

when this is set in terms of need defined in terms of sickness, it is unclear what the nature of the good is that is being pursued. For example allocating resources pro rata with the need or size of the problem does not say anything very clearly or explicitly about what the outcome will be unless it is assumed that the impact on the need is known. In practice this is in fact seldom known. So resources are allocated pro rata with the need. Yet it is most unlikely that allocating pro rata with the *size of the problem* is a rational approach to deciding what *the size of the inputs* should be to address the problem of need. To be clear we should ask why should we expect that the relative size of the problem would determine the relative size of the solutions? There is faulty logic here.

The Nature of the Good

7. In developing this approach, we have endeavoured to identify the nature of the good in the context of funding across different Aboriginal geographical groupings. What is crucial in doing this is to allow for the preference of Aboriginal people in considering what the nature of the good is that is being pursued. This brings in elements of subjectivity that become difficult (but not impossible) to quantify. While this is seemingly harder than the 'standard' sickness needs approach it is only seemingly so as the standard model bypasses many of the issues here and implicitly rather than, as we would advocate, explicitly deals with these value issues.

8. In the approach adopted here there are four components involved. These have to be weighted and aggregated in some way to allow the specification of the good that is sought.

9. ***Capacity to benefit.*** First there is an assessment of the potential benefit that additional resources will provide i.e. the capacity to benefit (CTB). If left at that, then this would not embrace any concept of equity at all but would in essence be an efficiency criterion. The three other components are all related directly or indirectly to equity.

10. ***Weighting of capacity to benefit.*** The second component involves a weighting of CTB to reflect the fact that not all nominally equal benefits will be weighted the same and independently of the relative disadvantage of the recipients. Thus (as has been discovered in surveys conducted by SPHERe among health policy makers) if comparisons are being made between indigenous and non-indigenous populations, the weighting to be attached to health gains for the former group may be 2 or even 3 times that of the latter. This reflects the idea of 'vertical equity' i.e. that unequals should be treated equitably but unequally. In effect this would mean that some nominally equal benefit of say 100 units of health gain would in any evaluation in cost benefit terms be given a value of 200 or 300 if that gain were to an indigenous population simply because it is considered that more weight should be given to benefits to the worse off in society. This is thus very clearly equity weighting. This process allows those deemed to be further down the ladder to be given extra resources to move further up the ladder, the initial position on the ladder determining the relative pace at which different groups move.

11. ***MESH***. The third component reflects the fact that some communities have developed better 'infrastructures' to allow them to have the capacity to benefit from additional resources for, say, an eye program or a screening program or whatever. Others

are not so well placed to use additional program resources efficiently and wisely. This 'infrastructure' can occur in all sorts of ways that reflect issues such as management skills, economic resources, social infrastructure and human capital, arising for example in leadership talents. Because of the multi-faceted nature of this phenomenon it has been called MESH (Management, Economic, Social and Human) infrastructure. To invest in building up such infrastructure in communities that are deficient in this is seen as a way to make communities' capacity to benefit more equal. Thus investing in MESH infrastructure is related to considerations of equity. Communities that currently have a low capacity to benefit from program monies because of deficiencies in MESH might under this funding model have investments made in MESH so that in time their capacity to benefit would rise.

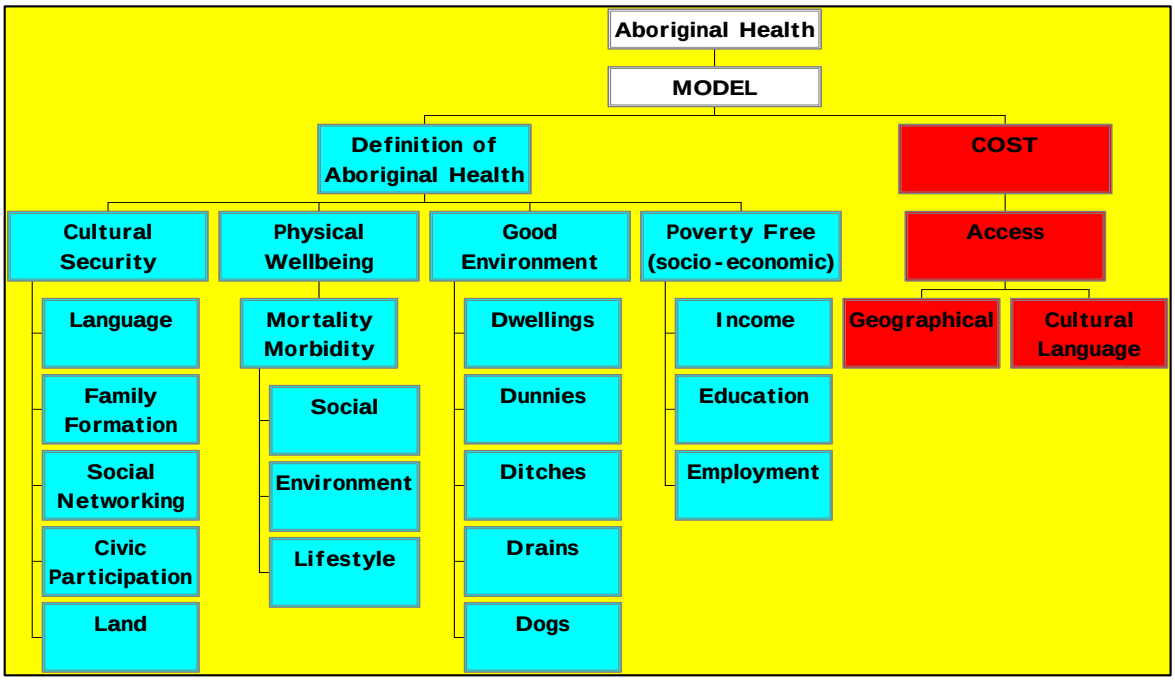
12. One important issue here is that the idea of MESH means that there is a need to separate out any funding into two parts: monies for programs or in essence running costs; and monies for MESH infrastructure which is rather like capital investment.

13. ***Access cost factors.*** The fourth component relates to reducing inequities in access arising through both geographical remoteness and cultural access barriers. Clearly both are present and will vary depending on not just the location of the services but also the cultural safety of them. Both of these factors are seen as requiring special cost weightings to reduce such barriers.

Construction of the Model

14. In considering these four components it is important that the reader recognises that they represent a repackaging of the issues raised in the previous section regarding the Aboriginal Definition of Health Need although they are set out somewhat differently. Thus issues of cultural security are incorporated into the capacity to benefit calculations, the access costs and MESH; physical wellbeing is a factor in the health measures for capacity to benefit; the quality of the environment again comes in mainly through the health factors in capacity to benefit (specifically under environmental health) but also in MESH; and freedom from poverty is reflected in the Relative Disadvantage Index (RDI) used in vertical equity calculations. These linkages are shown in Figure 4.1 below.

Figure 4-1: MODEL OF ABORIGINAL HEALTH NEED — EXPANDED



15. In principle the process involved in the model is not complicated. In essence it has the prime advantage that it does allow the issue of 'doing good' to be centre stage. This is seen as a significant strength of the approach. In practice it may appear to create the problem of requiring a series of value judgments about the definition of the nature of the good, the relative weight to be attached to helping those worse off compared with those who are already better off, etc.

16. It is important to recognise that the approach does not in fact create these problems but only seemingly so. This is because any approach to resource allocation has to consider, even if not always explicitly, what good it is attempting to achieve and what good in practice it is likely to achieve. Unlike many other approaches, what this new approach does is to require this to be made explicit. This in itself – this explicitness – is a major advance as compared with other approaches.

17. In operationalising the concept of capacity to benefit, there is a need to try to respect Aboriginal preferences. These *informed* preferences as far as possible should determine priorities for resource allocation. There is also a need to try to ensure that the setting of priorities and the establishment of equity rules should as far as possible be linked together and whenever practical be built from the bottom up. Thus the priorities of local communities can be used to assist in setting priorities in equitable resource allocation across indigenous communities. These in turn can be used when looking at the allocation of resources between indigenous and non-indigenous communities. The driving force is equity with emphasis on capacity to benefit, but giving due priority to developing overall infrastructure and added weight to benefits in those communities deemed to be relatively disadvantaged. At the level of indigenous resource allocation, given differences that exist

between communities, there is a need to establish differential weightings for health benefits to these different communities.

Advantages of the New Approach

18. This new approach is favoured over more conventional bases of resource allocation. It is in some senses more subjective in that it is more clearly based on the preferences of the populations or communities who are supposed to benefit from the resources deployed. This is strength of the approach particularly as it means that it is the values of Aboriginal people that drive the model. That is a fundamental principle of the approach. It is also a fundamental advantage as such a principle is often not present in other approaches to resource allocation.

19. Such other approaches frequently are based on the idea that the greater the amount of sickness in a population, the greater is deemed to be the need and the greater are judged the resources to be allocated. Frequently too, whatever measure of differential need is used, the resources to be allocated are determined pro rata with this. Thus if 'need' is 10 per cent above the average, 10 per cent more resources are to be allocated. This inter alia requires a common concept of need across different communities e.g. both indigenous and non-indigenous.

20. As indicated in the previous sub-section, the concept of capacity to benefit recognises that health services in different locations have varying capacities to provide benefits in terms of both the population receiving the care and the impact that health services, as opposed to other services, can have. This 'capacity to benefit' notion of need is often seen to be more difficult to measure than the conventional 'sickness' view of need. This is however something of a myth. This is because such conventional need is often measured badly and inappropriately.

21. As an example of some of the problems of using degrees of sickness as measures of need, let us take the use of Standardised Mortality Ratios (SMRs) in resource allocation formulae. In several of these eg. in the original RAWP formula in the UK (Resource Allocation Working Party, 1976) which was the very start of this type of approach and in the Resource Distribution Formula in NSW (NSW Health, 1996), SMRs were and are used to reflect the degree of sickness in different regions or areas. The implication of this is that an SMR of 110 translates into an additional 10 per cent of resources to be allocated to that region. Now there are three reasons why this sort of measure might be problematical. First (and one that has been heavily debated) the fact that death rates are 10 per cent higher does not mean that any sickness arising will also be 10 per cent higher. Second, even if it did, there is no reason why a higher sickness rate of 10 per cent should translate into 10 per cent more resources. Third, even if that were the case, it is not immediately clear that that would result in an equitable outcome. There are no simple arithmetic guiding rules here, but rather there are several value judgements needed to translate any differential sickness to differential resource allocation. The task only *seems* easy because such mechanical interpretations are in practice used to operationalise the measurement process. What is sought with such a process? What is the impact of differential resource allocations? And what is fair with respect to process or outcome? It is argued not only that capacity to benefit is a useful measure of need, but there is also an argument for opposing the use of the extent-of-sickness basis of need *in this context of*

resource allocation mechanisms. It is seriously flawed in principle and, as indicated, even its seeming virtue in terms of its measurability is questionable.

22. It is also the case that with respect to the use of SMRs, where populations have been standardised for age, then because older people tend to use more resources than younger people, other things being equal, if one population is older than another that population will get more resources. That seems logical and is provided the object is set in terms of allocating according to need in terms of sickness. Yet where a population is so sick that it never on average gets old, as is the case with an Aboriginal population, then the use of SMRs instead of discriminating in favour of Aborigines, will in fact penalise them for dying young!

23. While at first sight this appears most strange, the explanation is in reality simple. The sickness — based needs approach, using for example SMRs, allocates according to the size of the problem as it is. It does not look at the issue of trying to ameliorate the problem or of assessing what the impact might be in terms of where populations end up rather than where they start. In other words the 'value added' by the resources. Our new approach is about looking to see what capacity there is to change things. Indeed this is why it is called the capacity to benefit approach.

24. The concept of MESH is also seen as an important advantage of this new approach (and it is one that has been developed directly out of discussions with key Aboriginal colleagues in WA). It requires a different way of thinking about funding of services which conventional 'needs based' formulations cannot cope with adequately. It requires acceptance that there are two components involved. One relates to the conventional funding of programs such as say an eye program or diabetes program while the other is aimed at building up a community or region to increase its capacity to benefit. This latter notion (of MESH infrastructure) can involve a number of facets which is why it is considered to include such varying components as Management, Economic resources, Social issues (such as social cohesiveness) and Human factors (such as leadership skills). This split between program monies and MESH development monies is paralleled in other contexts by the division between running costs and capital costs.

MEASUREMENT AND THE NEW APPROACH

Introduction

1. With respect to measurement issues there are various sources which currently exist to allow measurement of the components of the model. There is inevitably at this stage room for improvement in the information. Nonetheless as highlighted elsewhere in the report, especially in section 6 and the appendices, much progress has already been made in obtaining and reviewing existing data sources. It is important to recognise that while the approach is demanding of both data and value judgements (eg. with respect to the weights to be attached to various factors in the composition of capacity to benefit and the weightings for relative disadvantage) it is possible to operationalise it on the basis of existing information.

2. In considering this there are two key components that need to be recognised. First there are aspects of the model which are wholly 'factual' or 'scientific' in the sense that technical data are available or could be made available to allow certain parts of the model to be quantified. Second there are other aspects which require judgment where elements of subjectivity have to be brought to bear. In most instances these require the elicitation of preferences of Aboriginal people so that the model is driven by these values, an important integral principle within the model.

3. It is essential that there is recognition of the value base of some aspects of the model. For example in deciding on the relative weights to be attached to degrees of disadvantage, it matters in the final calculations whether this is on a scale of 0.5 to 2 or 0.2 to 4.0 as these figures are used to weight cardinally the capacity to benefit. In other words how important relative disadvantage is can only be determined subjectively according to some individuals or some group's preferences. Again there are elements of subjectivity built into the calculations of capacity to benefit. Recognising this question of the need for such preferences is essential to the understanding of the model but also, and not least, to avoiding some of the problems associated with the more conventional approach to resource allocation (as highlighted in section 4).

4. It is recognised that Western Australia, along with the Northern Territory and South Australia, has better data than the other States and Territories. The approach however can be applied nationally across all ATSIC regions by using proxies in the data poor States and Territories or by matching non-Western Australian regions with appropriate regions in Western Australia.

Components

5. ***Capacity to benefit (CTB).*** In our experience in developing the measurement and data aspects of the model, the question of making CTB operational and measurable in the health setting seems to be more straightforward than might have been anticipated. It has emerged in discussions with various key Aboriginal figures from various

agencies in WA that CTB can be measured as a function of the amount of morbidity and mortality arising from environmental factors as compared with that from social health factors compared with that from lifestyle factors. The assumption is made that environmental health factors are more amenable to short term discrete interventions such as the supply of adequate water, housing, and sewage services, and that significant health improvements will result from such investment. Social health factors, such as domestic violence, road related trauma and infectious diseases require behaviour change to result in an improvement in health. Such change is harder to bring about. Nonetheless it is likely that there will be some, even if limited, immediate reduction in illness and injury. The final area of lifestyle illness also relies on behaviour change to influence health outcomes, but even when there is a change in behaviour, usually caused by the onset of illness, the person and the community still has the burden of illness that is not easily or cheaply reduced.

6. It is argued that a community or region's CTB can be assessed through an analysis of Aboriginal mortality and morbidity in accordance with these three groupings. Other things being equal, those locations with higher environmental related illness will be rated as having a higher CTB.

7. If there is no or little variation in the proportions of these three groupings across different communities, then overall population health status would become a proxy measure for the location's CTB. It is assumed however (and there is evidence in WA to support this) that these proportions will vary from community to community and as such the CTB will be a function of not just the level of population health but also the mix of sources of health problems.

8. When developing the ideas and measurement issues in this approach, such weighting and aggregation were examined by key Aboriginal people in the State. Their values are reflected in the examples given later in this section. Certainly the principle of using these three groupings of illness appears sound, reflects the Aboriginal Definition of Health Need as spelt out in section 3, and has been met with consensus among those Aboriginal people with whom it has been discussed.

9. ***Weighting of capacity to benefit: vertical equity.*** The second element of the model involves the weighting of capacity to benefit to take account of vertical equity. What this means in practice is that a process is adopted which allows for the weighting of different regions' allocations according to some view as to how badly or how well off these regions are.

10. This requires a judgement as to what dimensions are relevant to 'badly' or 'well' off (the measurement of which will need to be done by relevant experts). Secondly it needs the devising of a weighting system to reflect this. This requires values and preferences from Aboriginal people. Thus the measurement is by 'experts'; the valuation by Aboriginal people.

11. We propose using a Relative Disadvantage Index (RDI) to achieve this. The Australian Bureau of Statistics has developed an Aboriginal specific disadvantage index for the CGC and it is likely that this index will continue to be produced in the future. This can form the basis of the calculations for incorporating vertical equity with, on top of that, weightings (which by definition have to be subjective) to reflect Aboriginal judgements

about how relatively important different degrees of disadvantage are across different communities. The raw index scores provided by the ABS Socio-Economic Index are unlikely to reflect the weighting that needs to be applied when comparing the most and least disadvantaged communities.

12. It is important to recognise (as emphasised in the Introduction to this section) that there are, and have to be, elements of subjectivity involved here. This is because the RDI is attempting to reflect how relatively important nominally equal benefits are deemed to be to groups who are relatively well off compared with similar benefits to those less well off. Again the aim of doing good has to be kept in mind in that more effort needs to be made in moving those at the bottom of the ladder up to the next "rung".

13. ***MESH – Management, Economic, Social, Human Infrastructure.*** It is clear from the various discussions that have taken place in developing this approach with Aboriginal people that the concept of MESH is very real. Its precise contents can vary from community to community and it is that rather than the entity per se which makes it difficult to pin down and measure.

14. Physical infrastructure and services have been assessed in each community by the WA Environmental Health Survey and more recently by CHINS. The remaining factors of leadership, community cohesion, community skill levels, and strength of culture are more subjective assessments. These are probably best assessed at a community level through self-assessment or assessment by regional bodies such as ATSIC.

15. To take this issue of MESH further requires two things. First there is a need to decide what proportion of any additional spending that is to go to indigenous communities should go to MESH and what residual proportion should go to programs. The initial work we have done in WA using the judgements of key Aboriginal figures suggests that MESH on average might account for up to 40 per cent of any new spending. Second there is a need to determine in different communities what approaches to the development of MESH are likely to prove most useful and sustainable. This can be done (and is planned in WA) by surveying different communities which have experienced major shifts over time in MESH, both upward and downward, to try to establish first what it is that results in MESH changing and secondly to analyse what the costs of changing MESH might be.

Cost Factors

16. It would appear that nearly all resource allocation formulae in health care build in some adjustment factors for variations that arise in costs in different settings. In this context this approach is no different from the standard approaches although the practical and policy implications may be different.

17. Thus, given the notion of capacity to benefit from additional dollars, it is clear that other things being equal, areas which have, for whatever reasons, high average marginal costs, will be 'disadvantaged' in terms of their capacity to benefit from marginal dollars as compared to lower cost areas. There is thus a need to make adjustment for variations in cost, which arise for reasons that in this context might be deemed to be worthy of compensation. Thus where it was felt that an area was likely to be unfairly penalised

under capacity to benefit allocations because it had high costs, then compensation for the high costs would come into play.

18. The most obvious cost factors that one might want to incorporate under this are those related to remoteness. It is proposed that with respect to distance, cost weightings should reflect both the costs of providing the same level of service (i.e. services are equally productive) and that positions are equally attractive to staff in terms of recruitment and retention. This has resulted in the development of what have been called 'EPEA' costs-Equally Productive and Equally Attractive.

19. Work presented in the next section on Data discusses some of the costs associated with remoteness. To date however it has not been possible to calculate costs associated with 'EPEA' positions which clearly will lead to higher cost ratios for remote areas than are presented in section 6. The remoteness costs presented there can however be used as minima until the full EPEA positions costs have been worked out.

20. There are also costs associated with making services equally culturally secure and accessible to different language groups. Currently the CGC (see section 6), in taking account of language barriers alone, use a cost ratio of 1.1. This is seen as a minimum figure for Aboriginal communities that have English as a second language.

21. Research is needed to analyse the full costs of cultural security but it is envisaged that these costs will be no less than that cost associated with language. It is suggested that a ratio of 1.1 can in the meantime be used as a minimum estimate for culture.

Developing a Formula

22. There are various ways of combining the information deemed relevant to developing a formula for allocating funds to different communities and eventually to ATSIC Regions.

23. What has been agreed is in the light of discussions with key Aboriginal leaders in Western Australia with whom we have consulted thus far and in the light of various data exercises specially undertaken for this project, the following:

(i) That the principles underlying the weighted capacity to benefit plus MESH model are accepted as reflecting the concept of Aboriginal Health Need as outlined in section 3.

(ii) These principles are preferred by these key Aboriginal leaders to those which underlie a ‘standard’ health needs approach.

(iii) The components relevant to determining the nature of the good and the extent of the good in different locations are agreed to reflect the Aboriginal Definition of Need and are as follows:Population size

- A split between investing in MESH infrastructure and investing in programs

- Capacity to benefit as indicated by the mix of three types of health issues: environmental; social illness; and life-style illness. The greater are environmental health issues both absolutely and relatively, other things being equal, the greater is the capacity to benefit; similarly the greater the extent of social illness vis-à-vis life-style illness, the greater the capacity to benefit.

- Relative disadvantage index (RDI) which reflects the extent of community disadvantage (and which will clearly be more similar across Aboriginal communities than between Aboriginal and non-Aboriginal communities).

(iv) In attempting to 'pursue the good' any costs of implementation will be influenced by both distance and cultural security. There will thus be a need to take account of remoteness and cultural security costs.

(v) With respect to the devising of any formula incorporating these factors, what has emerged this far is as follows:

- There is a need to form a judgment about what proportion of any new monies should be spent on MESH compared with investing in programs (accepting that the MESH investment will decline proportionately through time as MESH infrastructure improves generally). The evidence we have to date suggests that this MESH proportion (MESH P) should be of the order of 40 per cent.

- For the CTB ratings, beyond absolute levels of overall sickness, the reflections of the Aboriginal leaders with whom we have discussed this matter, suggest that environmental health, social illness and life style sickness be weighted in proportions of 5:3:2 respectively.

- For remoteness costs (but not adequately reflecting the Equally Productive and Equally Attractive ideas) the data presented in section 6 suggest that the cost ratios be on a scale between 2.29 and 1 (or, converting to a mean of 1, approximately 1.7 to 0.7).

- The aspect of cultural security access costs that has been calculated to date (see section 6) relates to language with a scale of between 1 and 1.10. As a minimum, a similar scale may be extended to cultural access. Clearly this is a minimum estimate of the cost differentials involved in cultural security aspects of access.

- The scaling of RDI that emerged from our discussions with our key Aboriginal groups suggest a fairly narrow scale (since all communities/ regions are disadvantaged) ranging from approximately 1.2 to 0.8.

- The scaling of the three disease categories for CTB (i.e. the weights to be attached to the incidence of the different categories of disease) is tentatively set in the range 0.3 to 1.7 around a mean of 1.

- The scaling of different levels of MESH (ie MESH Rating = MESH R) is set at between 0.0 and 2.0 (which would mean that where MESH is already good no additional monies would be allocated to MESH and where it is nil, that community/region would get twice the average new investment in MESH).

24. The "formulae" for applying the model can best be represented as:

Resource Allocation Index (RAI) = popn x {(1-MESH P) x CTB x RDI x CLI + MESH P x MESH R} x Remoteness

where

RAI = ***Resource Allocation Index***

popn = ***Aboriginal Population***

CLI = ***Cultural/Language Index***

MESH P = ***MESH proportion as defined above***

MESH R = ***MESH rating as defined above***

RDI = ***Relative Disadvantage Index (for the purpose of this report use wSEI, where wSEI = weighted ABS Socio-Economic Index)***

CTB = ***Capacity to Benefit = (0.5 x EMMI + 0.3 x SMMI + 0.25 x LMMI)***

where

EMMI = ***Environmental Mortality and Morbidity Index***

SMMI = ***Social Mortality and Morbidity Index***

LMMI = ***Lifestyle Mortality and Morbidity Index***

Applying the Formula

25. ***Some figures.*** Provisionally the following calculations are presented to indicate the sorts of processes involved and possible numbers that might emerge from the model. It is important for the reader to recognise that various assumptions have had to be made to get to this degree of quantification, including certain assumptions as to how various regions/communities might be distributed across the various scales for the different variables in the model.

These figures can be used to reflect what weights might be applied to different sizes of populations that would then give figures for weighted populations as a basis for allocating additional dollars.

(i) ***MESH Proportion ie. MESH P*** That the proportion of the total additional spends that go to MESH will average out at 40 per cent. It follows that non-MESH expenditure will equal 60 per cent.

(ii) ***MESH Rating ie. MESH R***

	Scenario (a)	**Scenario (b)**
Nil	2.0	3.0
Low	1.5	2.0
Adequate	1.0	1.0
Good	0.5	0.75
High	0.0	0.0

The figures chosen here are tentative. If yet greater weight were to be attached to improving MESH, then the figures might be those in Scenario b.

(iii) ***Weighting for Disease Categories for CTB***

Environmental	0.5
Social	0.3
Life style	0.2

(iv) ***Disease Incidence: (EMMI, SMMI, LMMI)***

High	1.7
Above average	1.3
Average	1.0
Less than average	0.7
Low incidence	0.3

These figures reflect discussions among key Aboriginal staff in WA. It would be possible however to have this range widened eg. to between say 0.2 and 3.0.

(v) ***RDI (or wSEI = Weighted ABS Socio-Economic Index*)**

- Highly disadvantaged 1.2
- Very disadvantaged 1.1
- Moderately disadvantage 1.0
- Disadvantaged 0.9
- Less Disadvantaged 0.8

These figures reflect the discussions with key Aboriginal staff in WA.

(vi) ***Access Cost Factors (CLI – Culture/Language Index)***

- High culture and language 1.1
- High culture or language 1.0
- Moderate culture 0.9

These figures (see section 6) reflect only language issues in cultural security. Clearly covering cultural security issues more broadly would lead to both a longer scale than just the two points here and a wider range.

(vii) ***Remoteness Cost Factors (CGCI – Combined Geographic Cost Index)***

- Very remote (VR) 1.7
- Remote (R) 1.2
- Moderate accessible (MA) 1.0
- Accessible (A) 0.9
- Highly accessible (HA) 0.7

These are based on the estimates presented in section 6 on data on remoteness costs. If 'Equally Productive, Equally Attractive' (EPEA) positions were also brought into the picture, the range would clearly widen, perhaps double.

26. ***Examples of applying the formula.*** The way in which the factors will be used is through adopting a ***"Resource Allocation Index"*** formula which will then determine how the dollars are allocated.

27. For the following communities an actual population of 1000 has been chosen.

Community A

(i) MESH P = 0.4;

(ii) MESH Rating is low (i.e MESH R = 1.5);

(iii) 1 - MESH P = 0.6;

(iv) CTB, the capacity-to-benefit index = 0.91 (obtained from a less than average incidence (score 0.7) for environmental health, weighted 0.5; average incidence (score 1.0) for social health, weighted 0.3; and high incidence (score 1.3) for life style illness, weighted 0.2, giving an overall index of 0.7 X 0.5 + 1.0 X 0.3 + 1.3 X 0.2 = 0.91);

(v) The community is disadvantaged (RDI = 1.0);

(vi) The community has medium language and culture access costs (ACCESS = 0.90); and

(vii) It is very remote (REMOTE = 1.70).

28. The RAI here is 1965. This community would receive about twice the average per capita of any extra monies available, mainly, as it transpires, because of the degree of remoteness. Also while it does well in receiving monies for MESH it is a little below average for CTB monies.

29. Note that if the MESH proportion were set at only 20 percent rather than as above 40 percent, this community's weighted population would fall to 1624.

Community B

(i) MESH P = 0.4;

(ii) MESH Rating is nil (i.e. MESH R = 2.0);

(iii) 1-MESH P = 0.6;

(iv) CTB, the capacity-to-benefit index = 1.7 (obtained from a high incidence of environmental health (score 1.7), weighted 0.5 ; a high incidence of social health (score 1.7), weighted 0.3; and a high incidence of life style illness, weighted 0.2, giving an overall index of 1.7 X 0.5 + 1.7 X 0.3 + 1.7 X 0.2 = 1.7);

(v) The community is highly disadvantaged (RDI = 1.2);

(vi) The community has high language and culture access costs (ACCESS = 1.1); and

(vii) It is very remote (REMOTE = 1.7)

30. The RAI here is 3440. This community would receive approximately three and a half times the average per capita of any extra monies available. It is a very badly off and very remote community.

Community C

31. Community C is at the opposite end of the spectrum from Community B in all aspects. It would get only about 10 percent of the average per capita of any extra monies available.

Conclusion

32. This section has shown that, with some assumptions, it is possible even now to apply a formula for allocating any additional resources to different Aboriginal communities/regions. The data are available as are (from Aboriginal leaders in WA) the value judgements needed to get the process to work.

33. There is scope for improving the data and the underpinning values and we intend to do this over the next 6 months or so. We have also applied the formula in WA. These results are explored in our supplementary report also submitted to the Commission.

34. In the conclusion to this report we indicate in more detail what would be involved in that process and provide a timeframe for that work over the next six months.

DATA

Introduction

1. As outlined in the introduction the development of the model of Aboriginal health need was based on action research that used the experience and knowledge of many people in the Aboriginal health area. The concepts developed were then tested through research and re-interpreted in response to the outcomes of that research. This cycle of discussion, research and re-interpretation led to the development of the model of Aboriginal health need and the funds allocation process, which are reported in this document.

2. The role of senior Aboriginal managers from around the State was critical in the development of the model. They provided the focus for the project and ensured that the concepts were culturally secure. The model could not have been developed without this Aboriginal input.

3. The first hypothesis developed in this process was that there was a high correlation between poor health outcomes and living in remote areas, the first point of reference being the RRMA classification of remoteness. This classification system was rejected because it failed to discriminate adequately between rural and remote and isolated areas, and it did not allow for the phenomena of service centres in remote areas such as Broome. This then led to the second point of reference, the Access and Remoteness Index of Australia (ARIA) classification.

4. ***Access and Remoteness Index of Australia (ARIA).*** The Australian Social Health Atlas provided guidance for this project as it showed the power of the Access and Remoteness Index of Australia (ARIA) developed by the National Key Centre for Social Applications of Geographical Information Systems (GISCA) for the Commonwealth Department of Health and Aged Care.

5. ***ARIA vs RRMA***. GISCA's concept of remoteness was developed out of concern for the lack of accessibility of people living in rural and remote areas of Australia. "Remoteness" had to be refined to the extent that it could be quantified, as a necessary step to identifying the needs of people living outside metropolitan areas. ARIA supersedes an earlier index of remoteness called the Rural, Remote and Metropolitan Areas classification (RRMA). ARIA was designed to be an unambiguously geographical approach to defining remoteness. (A *Social Health Atlas of Australia – second edition: Volume 6: Western Australia)*

6. Comparisons of accessibility and remoteness ratings, using both RRMA and ARIA for selected locations, are listed in Appendix: Data and Data issues

7. Relative remoteness and accessibility, as measured by the ARIA, is depicted on maps by isolines (lines of equal ARIA value). ARIA interprets remoteness in terms of access to a range of services, some of which are available in smaller and some only in larger centres. The remoteness of a location is measured in terms of distances travelled by road to

reach a service centre. The accessibility index is on a scale from 0 and 12 where 0 indicates high accessibility and 12 high remoteness. (Department of Health and Age Care, Occasional Paper Series No 6).

Mapping the Data

8. The next step in the development process was to have the Aboriginal health outcomes mapped by GISCA for key health conditions that were considered to indicate best Aboriginal health need. ARIA classifications have been used to map Aboriginal population, hospitalisation and mortality data across Western Australia. These health outcomes were related to ATSIC regions as the Indigenous Funding Inquiry had announced that it would be basing its analysis on these regions.

9. Other ARIA data mapped includes access using road distances to specific services.

Developing the Model

10. The working groups considered that any assessment of relative need could not be done solely on the basis of remoteness. The work of Gavin Mooney from SPHERe was critical in both assisting the group with theoretical concepts and facilitating discussion around the development of a definition of health need. The concepts of capacity to benefit, vertical equity, relative disadvantage, and capacity building were presented to the group and reinterpreted by them. This resulted in the development of a multi facetted model, based on an Aboriginal health need (see section 3), for resource allocation (see sections 4 and 5).

11. Further work resulted in the development of the following concepts:

(i) ***MESH*** — Management Economic Social and Human infrastructure, which includes all the components necessary for a community to develop positively;

(ii) ***Remoteness Cost*** — which is the additional cost of providing services in a remote area;

(iii) ***Access Cost*** — cost of providing culturally secure services to Aboriginal people; and

(iv) ***EPEA*** — equally productive and equally attractive - which relates to the provision of a level of funding so that the services provided are equivalent to those provided in a metropolitan area and that the conditions of employment are sufficiently attractive to potential service providers. ie enough funding to do the job well.

These concepts were incorporated into the resource allocation model.

Data

12. ***Population.*** It is well known that Aboriginal and Torres Strait Islander people are often under counted and poorly identified in statistical collections. There was a large unexplained increase in Census counts of Aboriginal and Torres Strait Islanders between 1991 and 1996, which suggests the estimates for completion of births and deaths have some inaccuracies as well as more people identifying as Aboriginal and Torres Strait Islander.

13. Although Aboriginal and Torres Strait Islander statistics are more complete for Western Australia, the Northern Territory and South Australia than the other States, there is a lack of consistent, continuous data for the States. Data are often presented within different boundaries and for different time periods. This does not allow for accurate detailed comparisons between regions or time frames to be made.

14. Small counts of Aboriginal and Torres Strait Islander people mean that it becomes difficult to examine and compare data by smaller regions, such as health service regions.

15. In the more remote areas patients may be referred or evacuated to other regions or States and this could result in their postcode of usual residence being recorded incorrectly. As an example of this, evacuations and referrals for particular localities in the Warburton ATSIC Region are given in Appendix: Evacuation and Referral Statistics, Ngaananyatjarra Health Service

16. ***Morbidity and mortality.*** For the purpose of this report, Aboriginal population, hospitalisation and mortality data were mapped by ATSIC region for Western Australia. Data *by ATSIC Region are preferred* as ATSIC Regions can be applied Australia wide and are more widely used in Aboriginal and Torres Strait Islander data coding and analysis. There is thus greater availability of comparable data. ATSIC Regions cover a larger landmass than alternate boundaries, such as Health Service Regions, which means variations between region become more apparent due to larger units of data. There is considerable movement of the population between areas over time, weakening the value of the data for small area analysis (A Social Health Atlas of Australia, Volume 6: Western Australia).

17. The hospitalisation and mortality ratios for Aboriginal and Torres Strait Islander people may be affected by other factors. Regions with mining towns may suffer more from respiratory or infectious diseases. Some regions have more resident doctors than others and these doctors possibly have different admitting practices.

18. The major causes of hospitalisation and death among Aboriginal and Torres Strait Islander people include injury and poisoning, infectious and parasitic diseases, respiratory diseases, circulatory diseases and endocrine disorders and complications of pregnancy. The maps produced showing relative incidence throughout Western Australia are presented in the Appendices.

19. The analysis of these maps and the accompanying data seem to confirm that there is a correlation between remoteness and high health need. The importance of this finding is that not all jurisdictions have the same data collections on Aboriginal health.

20. Aboriginal hospital separations and deaths tend to be under-counted due to lack of identification of Aboriginality and coding issues where postcode of usual residence is not known.

21. ***Access — geographical.*** Although, for this report, the ARIA classification is the preferred reference as a measure of remoteness and accessibility, it does not allow for the additional factors that hinder access such as the effects of quality of road surface, climatic changes and seasons that affect transport opportunities.

22. ***Access — cultural/language.*** Cultural and language barriers are difficult to quantify but are known to exist. There are no specific data available that give an accurate indication of cultural accessibility. However, for the purpose of this report, data that reflect levels of social cohesion or civic participation have been used to draw comparisons between regions. The examples presented in *Appendix: Data and Data issues* show the results of ATSIC voting patterns throughout Western Australia and English as a second language (ESL). From these data, it appears that those regions that have the highest participation rates in ATSIC elections or do not have English as a first language have greater social cohesion. This greater social cohesion corresponds with a poorer health, which indicates greater difficulty in accessing services, due to language barriers or cultural inappropriateness of services. This concept is explored further later in this report.

Additional Supporting Data

23. In an effort to support the hypotheses that need increases with remoteness, other data have been sourced. These data relate to socioeconomic, lifestyle, environmental and cultural factors that influence health outcomes. These data sources are summarised as follows.

24. ***Community Housing and Infrastructure Needs Survey (CHINS).*** The CHINS Survey draws further comparisons between remoteness and environmental factors. The maps included in this report, prepared by the ABS, generally reflect poorer socio-economic environmental conditions in remote areas, which supports the health data presented by the ARIA maps.

25. ***Environmental Health Needs Survey (EHNS).*** The EHNS is a readily available source of information that assesses physical infrastructure and services in 270 discrete Aboriginal communities in Western Australia. The EHNS reports need from a community perspective. Of the communities surveyed, 65 per cent identified access and housing as priority needs, followed by 53 per cent identifying water, power and sewerage as a priority need.

26. ***Alcohol consumption.*** Data on alcohol consumption was sourced from unpublished figures from liquor licensing data from National Drug Research Institute. Alcohol consumption data represents litres of absolute alcohol using a service population

for adults (15+). Figures are given for 1997-1998, based on sales which assumes that all alcohol sold is consumed. Litres of alcohol sold are listed in *Appendix:Data and Data* for regions located from metro to very remote. This data is not Aboriginal specific. Although it is known that a greater proportion of Aboriginal people live in the more remote areas, it cannot be assumed that these Aboriginal people are responsible for the greater alcohol consumption. It is also known that approximately 50 per cent of the Western Australian Aboriginal population do not drink.

27. ***Domestic violence.*** There is very little Aboriginal and Torres Strait Islander domestic violence data available at regional level. Domestic violence data presented in this report is available only for 1994 ('Measuring the Extend to Domestic Violence' by Anna Ferrante, Frank Morgan David Indermaur and Richard Harding, *The Crime Research Centre, University of Western Australia. Hawkins* Press 1996). High levels of domestic violence have been related to high socioeconomic disadvantage. For the purpose of this report, police regions have been matched with the ARIA they fall under. This gives a general indication that domestic violence against Aboriginal people increases with remoteness.

28. Domestic violence data will also be mis-represented as data is extracted from police records with the result that these reflect only reported incidences of domestic violence. It is difficult to establish the true number of incidences. The recording of Aboriginality in data may also be inaccurate as it relies on the victims concerned identifying as Aboriginal or in some cases, Aboriginality may be established by the person's appearance. Domestic violence data reported by police region is in Appendix Data and Data issues.

29. Further descriptions of the data sourced and restrictions of the data are explored in the following section and the appendix relating to data and data issues. The data above play an important role in confirming the hypothesis that the more remote regions of Western Australia are less advantaged, suffer from poorer health and have a greater need.

Cost Factors

30. ***Geographical cost factors.*** At present there is no suitable index across Western Australia that can be used to assess the relative cost geographically of delivering health services. The limited number of spatial indexes that do exist, such as the Regional Prices Index published by the Department of Commerce and Trade, do not reflect the cost of providing primary health care or hospital services.

31. ***Medical, nursing and health worker costs/primary care costs.*** To overcome this deficiency in data several locations of varying remoteness were asked to provide the perceived cost of supplying and retaining a doctor, nurse and Aboriginal health worker for twelve months. A number of health services responded and data show a general cost increase with remoteness. Most of the costs provided are based on what it is currently costing to employ these staff.

32. A list of specific costs associated with employing a doctor, nurse or Aboriginal health worker was collated mostly from financial reports from health services. This list was then provided to each of the health services to complete the costs relevant to that particular health service. The cost headings are as follows:

Table 6-1 EXPENSES LIST

Accommodation/rent assistance	In charge allowance	Operational costs
Administration support	Insurances	Phone/fax
Administration costs	IT licenses/support	Postage
Airfares	Laundry allowance	Recruitment costs
Air charters	Vehicle leasing	Resources
Availability allowance	Leave	Risk management
Buildings	Leave loading	Salary
Conference/meeting costs	Medical consumables/supplies	Salary on costs
District allowance	Motor vehicle expenses	Staff training
Freight	On call allowance	Superannuation

Some comments on the cost of delivery of service were also submitted by various health services. These are included *in Appendix:Comments on remoteness costs from health services.*

33. The following table presents the results from the survey of Health Services. There is a clear link between ARIA rating and the cost of employing health professionals. The most dramatic increase in costs is for doctors with costs nearly three times in Jigalong and nearly five times in Warburton when compared to Perth. The cost of AHWs, although increasing with remoteness, was fond to be more uniform across the State. This, in part, reflects the fact that AHWs are usually recruited from the local population.

Table 6-2 COST TO EMPLOY DOCTOR, NURSE AND ABORIGINAL HEALTH WORKER FOR 12 MONTHS

ARIA	Location	Doctor	Nurse	AHW	Package
0.00	Perth	115,600	50,553	28,130	385,486
1.17	Bunbury	128,463	50,553	26,191	386,715
2.76	Geraldton	210,285	48,000	28,000	474,285
3.24	Albany	177,300	79,700	41,600	586,300
5.73	Mullewa	213,319	78,079	28,752	541,989
6.30	Northampton	213,319	78,079	28,752	541,989
7.92	Yalgoo	214,042	79,033	29,436	548,723
9.99	Carnarvon	260,000	90,000	35,000	650,000
11.32	Wiluna	217,500	88,170	33,010	591,900
11.60	Jigalong	299,178	89,837	34,633	686,650
12.00	Warburton	574,898	174,699	37,997	1,152,278

34. A package of primary care services has been costed based on one doctor, two nurses and six Aboriginal Health Workers. This "package" has been developed as a minimum primary care service provision that could be applied to a population of between 500 and 1000. However, where the population is dispersed there would need to be an additional factor for unproductive travel time.

Figure 6-1 COST OF PRIMARY HEALTH CARE PACKAGE BY ARIA

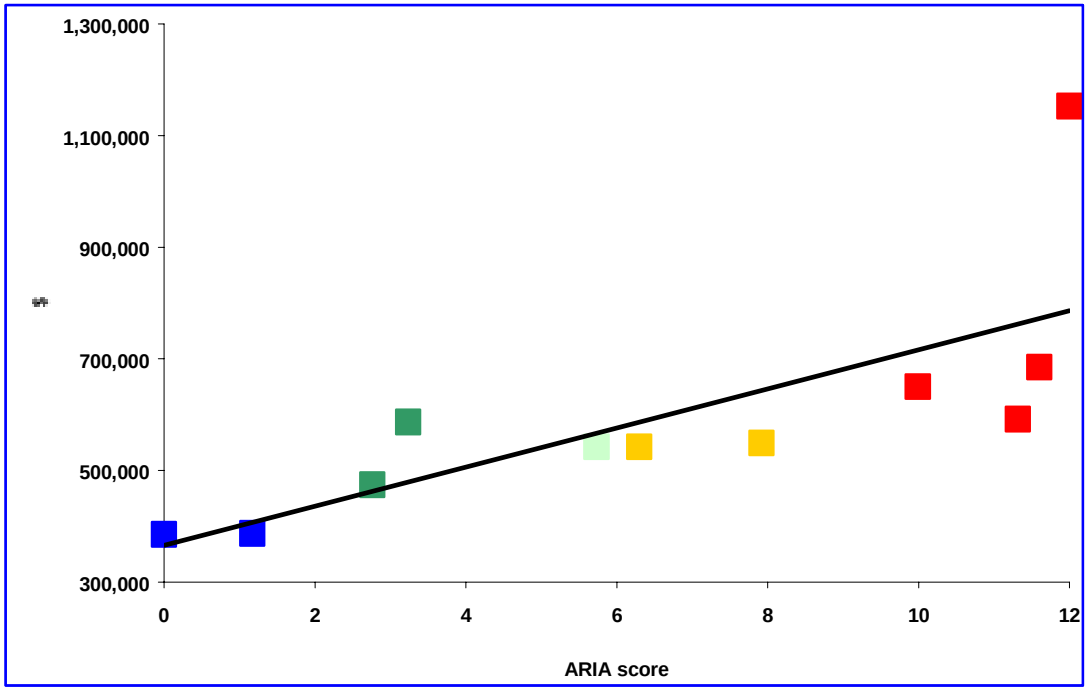
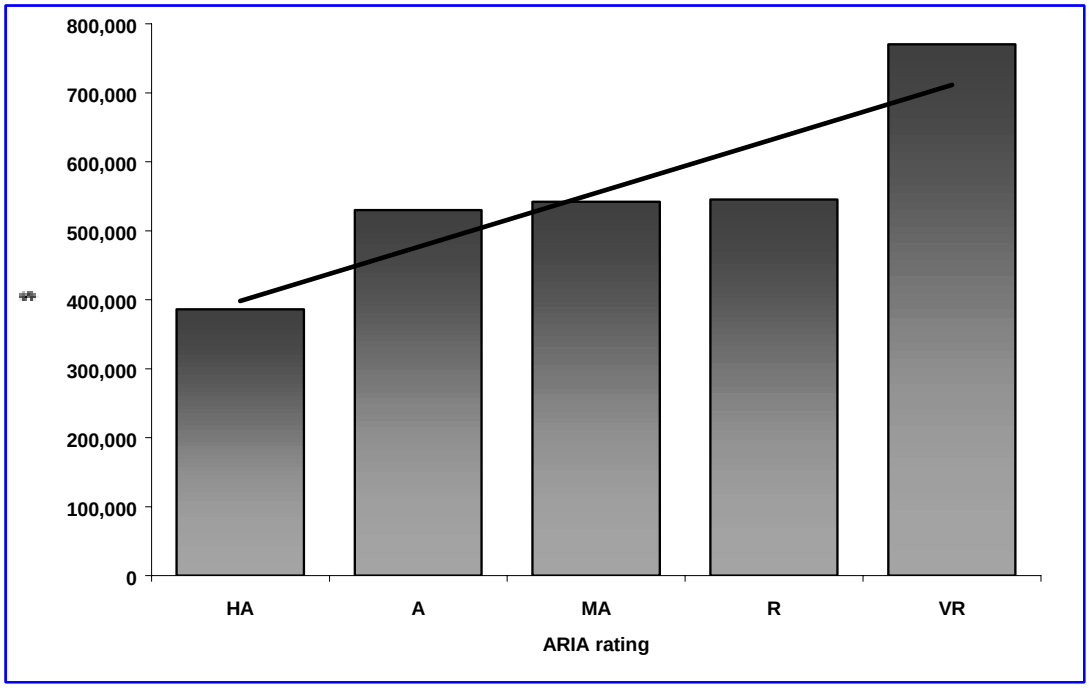


Figure 6-2 PRIMARY HEALTH CARE PACKAGE AVERAGE COST BY ARIA



35. ***Travel costs***. While the increased cost of providing a service to Aboriginal people, particularly in remote areas of Western Australia, is a major focus of this section of the report, the cost of travelling to the metropolitan area from remote areas for certain treatments must also be considered.

36. Most of the costs provided are sourced from information already known from the experiences of the Office of Aboriginal Health. Other costs such as taxi, charter or airfares were sourced from the providers of these services. A more detailed discussion of this is contained in *Appendix: Data and Data issues.*

37. As the cost of travel varies according to the type of treatment required, it is necessary to weight treatments and travel costs to arrive at a Travel Cost index. Further work is required to establish more rigorous weighting.

Table 6-3 COST OF INTERVENTION BY LOCATION AND ARIA

		Perth	Harvey	Merredin	Northampton	Carnarvon	Kalumburu
Aria		HA	HA	A	Ma	R	VR
Intervention							
Specialist Visit		$50	$36	$175	$553	$879	$3,039
Day Patient		$50	$36	$175	$553	$879	$3,039
Renal Patient		$50	$108	$10,023	$10,807	$15,417	$20,224
Acute Hospital Care		$300	$247	$745	$1,048	$1,274	$3,679
Weighted							
Specialist Visit	25%	$13	$9	$44	$138	$220	$760
Day Patient	30%	$15	$11	$53	$166	$264	$912
Renal Patient	5%	$3	$5	$501	$540	$771	$1,011
Acute Hospital Care	40%	$120	$99	$298	$419	$510	$1,472
Total Travel Cost		$150	$124	$895	$1,264	$1,764	$4,154
Travel Cost Index		**1.00**	**1.00**	**5.97**	**8.42**	**11.76**	**27.70**

38. The overall Travel Cost Index shows a significant cost differential across ARIA ratings up to 27 times for Very Remote regions.

39. ***Hospital costs.*** Work undertaken by T McGuire on the linked data set of MBS /hospitalisation shows a significant cost differential for ATSI vs non-ATSI across the State. The data in the following table shows that while costs in the HA are of the South West are similar for the ATSI and non-ATSI, cost in very remote regions such as the Goldfields and North West are around double for ATSI vs non-ATSI.

Table 6-4 SCALED CENTRAL EPISODES (SCE) PER PERSON, BY ARIA AND HEALTH ZONE, ATSI AND NON-ATSI, WESTERN AUSTRALIA, 1999

	HA		A		MA		R		VR	
Zone	Non ATSI	ATSI	Non ATSI	ATSI	Non ATSI	ATSI	Non ATSI	ATSI	Non ATSI	ATSI
Metropolitan	2.42	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South West	2.35	2.34	2.68	2.98	2.54	4.97	0.00	0.00	0.00	0.00
North West	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	3.40
Great Southern	0.00	0.00	2.21	3.30	2.56	2.91	1.99	6.03	0.00	0.00
Midwest	0.00	0.00	2.23	2.85	2.24	2.85	2.20	2.64	2.32	3.45
Goldfields	0.00	0.00	0.00	0.00	1.78	3.14	2.45	2.61	2.09	4.30
Midlands	2.59	3.05	2.49	2.45	2.76	2.64	2.36	4.52	0.00	0.00
Total	2.47*	2.70*	2.48	2.86	2.52	2.95	2.32	3.69	1.83	3.53
Standardised**	2.47	2.70	2.47	2.87	2.47	2.89	2.47	3.93	2.47	4.76
ATSI/ATSI		1		1.06		1.07		1.45		1.76
ATSI/non-ATSI		1.09		1.15		1.17		1.59		1.93

* The totals for HA (highly accessible) exclude the Metropolitan Health Zone as data for this Zone will skew the results. Reasons for this are given in the text below.

** Scaled Central Episodes (SCE) standardised to the HA rate.
Example for ARIA rating MA – standardised rate for ATSI = 2.89 = 2.47/2.52*2.95.

ATSI Aboriginal and Torres Strait Islander.

HA Highly Accessible.

A Accessible.

MA Moderately Accessible.

R Remote.

VR Very Remote.

40. When calculating the total scaled central episodes for highly accessible locations in the table above, the Metropolitan Health Zone was excluded from the calculation as this high number of episodes would have skewed the results. The SCE costs for the Metropolitan region are higher than expected due to a number of influencing factors including several teaching hospitals existing in fairly close proximity and people who travel to Perth for renal dialysis often coded as being resident in the metropolitan area. Aboriginal people in the metropolitan area also tend to use teaching hospital accident and emergency services for Primary health care reasons rather than to visit a GP.

41. ***Pharmaceuticals and other costs including administration and consumables.*** The Regional Price Index (RPI) has been calculated by the Department of Commerce and Trade to provide an indication of the cost of a basket of goods and services across Western Australia. (Regional *Prices Index, Second data collection 1999, June 2000, Commerce and Trade, Government of Western Australia)* Included in the basket of goods are items such as:

(i) Food;

(ii) Clothing;

(iii) Housing;

(iv) Household equipment;

(v) Transportation;

(vi) Petrol;

(vii) Recreation and Education; and

(viii) Health and Personal Care.

42. It should be noted that the health services covered in the index include hospital, Medicare Benefits Scheme (MBS), Private Health Insurance (PHI) and Pharmaceutical Benefit Scheme (PBS).

43. All of these are either set centrally at a fixed price or heavily subsidised. This index therefore does not reflect the true costs of health service provision but is indicative of cost barriers experienced by consumers. The Regional Price Index has been used for Pharmaceuticals and other costs as the relative prices associated with the provision of these services is assumed to be similar to those measured by the RPI.

Table 6-5 REGIONAL PRICE INDEX BY ARIA RATING, WESTERN AUSTRALIA, 1999

Place	ARIA rating	ARIA class	Town Price Indices 1999
			%
Kununurra	12	VR	114.9
Exmouth	12	VR	114.0
Derby	11.41	VR	114.0
Meekatharra	10.79	VR	109.2
Laverton	10.17	VR	114.7
Port Hedland	9	R	112.4
Karratha	9	R	112.9
Broome	9	R	114.0
Carnarvon	8.16	R	107.5
Esperance	7.21	R	105.3
Katanning	4.76	MA	106.7
Kalgoorlie	3.87	MA	107.3
Narrogin	3.75	MA	106.6
Geraldton	2.76	A	103.9
Albany	2.69	A	105.5
Bussleton	2.246	A	104.3
Perth	0	HA	100.0

HA Highly Accessible.
A Accessible.
MA Moderately Accessible.
R Remote.
VR Very Remote.
Source: Region Price Index, Second Data Collection 1999, Department of Commerce and Trade, Government of Western Australia, June 2000.

Table 6-6 AVERAGE RPI BY ARIA CLASS, WESTERN AUSTRALIA

ARIA Class	Average Regional Price Index
VR	113.4
R	110.4
MA	106.9
HA	104.3
A	103.3

44. ***Combined geographic cost index***. The development of a robust spatial index for the provision of health services would take considerable time and effort and would not be available for inclusion in the CGC IFI final report. However, a spatial index for an ARIA range that provides indicative costs has been developed using data sources discussed above.

45. The overall cost of providing the health system in Western Australia in 1998 -99 is shown in the following Table. (Health insurance and private contributions to health expenditures have been excluded as less than 2 per cent of Aboriginal people are admitted as private patients by electing to used PHI)

Table 6-7 1998-99 HEALTH EXPENDITURE

Function	$ million	Per cent	$ per capita
State			
Hospital services	1,069	40.0	574
Community health	560	20.9	301
Public health	73	2.7	39
Travel (PATS)	10	0.4	5
Other	145	5.4	78
Commonwealth			
MBS	561	21.0	301
PBS	231	8.6	124
OATSIH	26	1.0	14
Other	A		
Total	2,675	100.0	1,436

Source: CGC 2000 update, HIC 1998-99 Annual Report, CGC IFI Draft Report.

46. By using the overall costs of health service provision it is possible to 'weight' each expenditure category to derive a combined Geographical Cost Index.

Table 6-8 COMBINED INDEX — WEIGHTING OF COSTS

Combined Index	Percent	Functions
Hospital Costs	40.0	Hospital services
Medical/Nursing/AHW	45.6	Community health, Public health
Regional Price Index	12.8	Other
Travel	1.6	Travel (PATS)x4(Non-metro)*
Total 100	100	

* Travel has been increased by a factor of four as this component relates only to rural and remote residents of Western Australia (around 25 per cent of the population).

47. In the following table, the above percentages are expressed as decimals. (To simplify calculations these proportions are reduced to two decimal places).

Table 6-9 COMBINED GEOGRAPHIC INDEX BY COMPONENTS

ARIA	Primary Care Index	Hospital Cost Index	Regional Price Index	Travel Index	Combined Geographic Cost Index
Weight	.40	.45	.13	.02	1.000
HA	1.00	1.00	1.00	1.00	1.00
A	1.37	1.06	1.05	5.97	1.28
MA	1.40	1.07	1.07	8.42	1.35
R	1.41	1.46	1.10	11.76	1.60
VR	1.99	1.77	1.14	27.70	2.29

48. The Combined Geographic Cost Index shows a steady progression across ARIA classifications and a significant increase for the Very Remote category. This is consistent with 'on the ground' experience in the cost of health service provision across Western Australia.

Access Costs

49. ***Cultural security***. There exists significant evidence that providing culturally secure services to Aboriginal peoples results in additional costs to health systems. Brewerton etc has found in a limited study that this could be in the order of 38 per cent. However, the cost of these services across regions or Aboriginal communities is difficult to measure. Current work being undertaken by the Office of Aboriginal Health in conjunction with by BEGA and Derbarl Yerrigan may provide an insight into some of the factors affecting cultural security in remote and urban settings.

50. Anecdotal evidence suggests that where culture is strong the adequacy of Western models of health is least secure to Aboriginal people.

51. Information obtained from the linked data set of hospital and MBS activity in Port Hedland provides a valuable insight into the poor access to primary health care services by ATSI people.

52. In the three years (1994-1996) that data is available, 465 ATSI people and 1442 non-ATSI people were identified as having been admitted into hospital. During this period the same ATSI population used $182,747 worth of MBS services while the same non-ATSI population used $901,535 of MBS services.

53. For a population that should have a similar health profile (ie were admitted to hospital during the three-year period) we find that the annual ATSI per capita consumption of MBS to be $138.44 while the non-ATSI consumption was $2367.84.

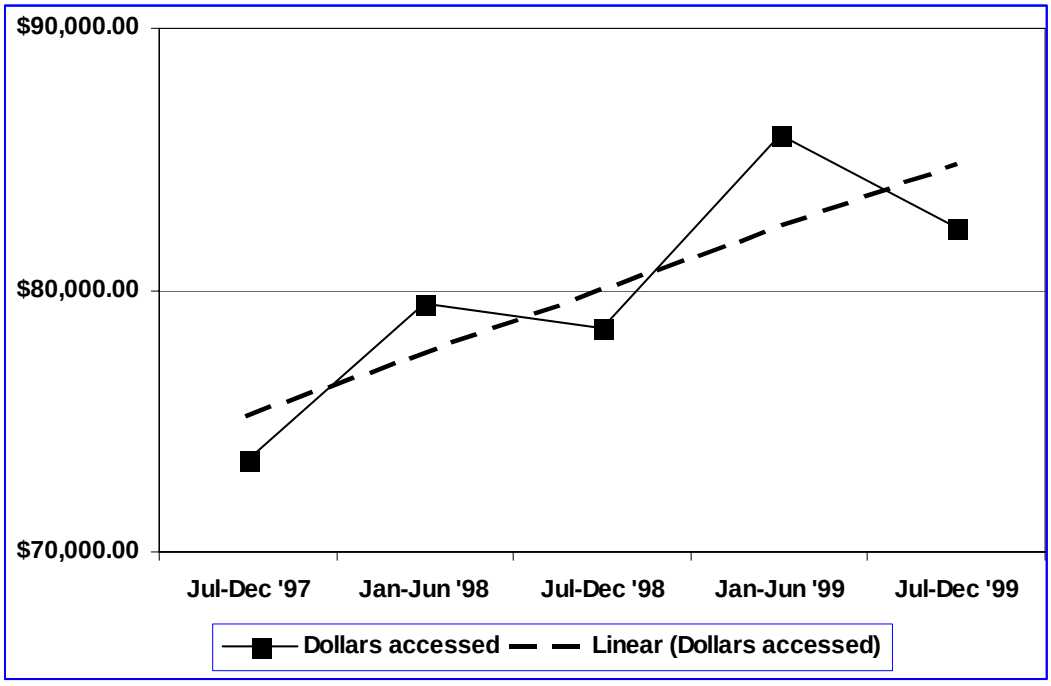
54. Clearly ATSI people were consuming primary health care services in Port Hedland at only 51.7 per cent of the non-ATSI rate, with access a significant problem. The community controlled health service in Port Hedland (Wirraka Maya Aboriginal Health Service) was established in Port Hedland in 1997 and it is intended that when data for 1997-1998 becomes available the analysis of the linked data set for Port Hedland will be repeated.

55. It is also worth noting that both populations used considerably below the Australian National Average consumption rate of MBS ($329.77 in 1996) despite the fact that these people were hospitalised during the three-year period and were therefore likely to represent the least healthy proportion of the overall population. This is indicative of the overall problem in access to MBS in remote areas.

56. Where cultural security, morbidity and mortality data, to take account of positive health influences, is available then a cultural cost factor needs to be applied. Where health and cultural data is not available across regions, it is suggested that no weightings be given for cultural access costs as it is assumed that these costs will, to a significant extent, be off set by relative improved health status.

57. The South West Aboriginal Medical Service (SWAMS) is the newest in Western Australia and is the only ACCHS in the South West of this State. SWAMS has used the Aboriginal Coordinated Care Trials to establish a culturally secure health service. Preliminary Medicare utilisation data obtained from the Coordinated Care database shows an increasing level of utilisation of Medicare services for the enrolled Aboriginal population. This is seen to be an indicator of the success of the culturally secure service and indicates that barriers to access exist in the standard service provision model.

Figure 6-3 MEDICARE DOLLAR ACCESS, SOUTH WEST ABORIGINAL MEDICAL SERVICE (SWAMS), JULY 1997-DECEMBER 1999



58. It is suggested that cultural security be weighted for communities where culture is strong. Although it is difficult to estimate what weights should be applied, it is considered to be at least that applied for language (10 per cent). Further work in this area is required.

59. ***Language***. In addition to cultural security English as a second language results in significant costs to health service providers. The CGC currently uses a weighting of 1.1 for ESL in its health assessment category for State general relativities and a similar weighting would be appropriate in the context of the Indigenous Funding Inquiry.

60. Although the cost of providing Aboriginal language services may be greater than most other languages, there is a lack of concrete evidence of relative costs. For several of the Aboriginal languages interpreters may not be resident in Perth or the major regional centres and these services may have to be 'recruited' as needs arise resulting in increased costs compared with other language services.

CONCLUSION AND THE WAY AHEAD

1. Aboriginal affairs funding over much of the past three decades has been submission driven, input focused and historically based. The capacity of funders, communities and other services providers to do the most good with the available resources has been adversely affected. These are neither the approaches nor the paradigms or results to be valued in the 21st century. The Aboriginal leadership across Australia and most of non Aboriginal Australia would agree that a better way forward is to reform the way funding and business is done to reflect an Aboriginal approach to need that is transparent and respectful of Aboriginal cultural values and aspirations.

2. Not surprisingly much of what Aboriginal people have been saying for the last three decades about the relationships between the various domains of need are over recent years gaining recognition through expanded research in the social sciences and humanities. Aboriginal communities have increasingly embraced partnership as a model of progress. The human service sector of Australian society has also increased their capacity to contribute constructively and cooperatively.

3. The work and dialogue with all players has shown that it has been possible to construct a resource allocation model based on both a sound conceptual framework and the Aboriginal definition of need. That model has used reliable and sensitive data for WA and embraced a set of values that have been explicitly articulated and endorsed in discussion with key Aboriginal figures in the State. This report gives some examples of the sorts of allocations that might arise from the application of the model.

4. The results of early analyses conducted for this report and presented in the paper suggests that, while remoteness and health problems are correlated, a model based solely on this link would not adequately reflect either the Aboriginal definition of need or the conceptual sophistication required of a resource allocation model.

5. The more refined model, recommended in the report, is based on the two central concepts of weighted capacity to benefit (CTB) and MESH - Management, Economic, Social and Human - infrastructure.

6. The capacity to benefit of a region/community indicates the extent to which additional resources can provide extra benefit. It is interpreted as being a function of the sources of morbidity and mortality with, for example, those communities with greater environmental health problems having, other things being equal, a greater capacity to benefit. On the basis of the extent of environmental health problems, of social illness and of lifestyle diseases an index of capacity to benefit can be worked out for each region/community.

7. The concept of MESH reflects the fact that some communities/regions are better placed to implement health programs successfully than others. In any decisions in allocating new resources, the implications of incorporating MESH in the formula are that where existing MESH is low/poor, by investing in some MESH infrastructure this will increase the capacity to benefit of some communities/regions.

8. It is claimed that this model has significant advantages over more traditional models that are most often based on 'health need' as measured by amounts of sickness. Beyond indicating how the two central concepts of CTB and MESH can be operationalised and measured, the report also shows how weighting of relative disadvantage can be measured. It also provides a basis for calculating cost variations across different locations.

9. The model could be applied in WA now, using the information presented in this report. It could also be applied across Australia using currently available data sources either directly or adopting suitable proxies. We advocate that both of these tasks be done.

10. There is, however, scope for improving the information base on some fronts. We advocate that work be undertaken to achieve these improvements over the next six months. Such work would involve first improving data with respect to the measurement of CTB, MESH investment and cost data and second eliciting Aboriginal values for the relevant parameters, such as has been done in WA, but from a more nationally representative group of key Aboriginal figures. The results of these tasks will provide by the middle of the year, a more rigorous information base on which to better operate the model.

APPENDICES

APPENDIX 1

ASSUMPTIONS AND DEFINITIONS

Assumptions

1. In developing an allocative model that defines Aboriginal Health Need, several assumptions were made that helped determine the data collected and the analysis undertaken. These assumptions are drawn from the knowledge and experience those involved in Aboriginal Affairs on a daily basis. The assumptions are summarised as follows:

(i) Aboriginal and Torres Strait Islander People are more socio-economically disadvantaged and suffer poorer health than non-Aboriginal and Torres Strait Islander People in Western Australia. To further understand the inequalities in Aboriginal health it is therefore important to compare health status between Aboriginal and Torres Strait Islander people in Western Australia.

(ii) There needs to be a more holistic approach to health care. Health status is the eventual result of many other contributing factors. By aiming to improve all aspects of living conditions, we will have greater success in improving health. For example, environmental conditions are a significant priority as good housing, running water and solid wast systems will prevent outbreaks of disease.

(iii) Definition of need is to guide a fairer more equitable allocation process. Current funding processes are based on historical methods or on a group's ability to lobby for the funding.

(iv) There is never enough funds to address need, therefore the process is to allocate an adequate amount of funds.

(v) This allocation process is to deal with new monies; ie no one will lose current allocations.

(vi) All new allocations to be divided between maintaining existing service functions and addressing need according to priorities. There is very little use in providing new services or providing new infrastructure, if there is no maintenance once it is implemented. There must also be an allocation of funds to continue current programs or initiatives, particularly those that are proving to be successful.

(vii) All those areas of priority need will be raised to an agreed level before any resources or further resources can be allocated to other areas.

(viii) The process will be reapplied say in 3-5 years time to reassess need. Regularly reapplying the allocation process allows for progress to be monitored and adjustments to allocations to be made. Where one group is progressing well and significant improvements have been made in their area of most need, new areas of need will be defined, whilst maintaining their current status.

(ix) Definition of remoteness needs to be more refined. Most current reporting only classifies remoteness and access into urban, rural and remote categories. ARIA classifications have been used in this report, as remoteness is classified form 0-12. Using this classification, areas that may have been previously classed as remote, will now possibly be classed by varying degrees of remoteness.

(x) Health status deteriorates with increased remoteness. This is has been shown for the Western Australian population as a whole. The differences in health status found for the whole population are greater between ATSIC Region for Aboriginal and Torres Strait Islander people.

(xi) Cost of delivery of service increases with remoteness. Remote areas are more difficult to access. The roads are not as easy to travel on, in many cases the only access is by plane. There is also the added issue of some areas not being accessible at particular times of the year due to climatic conditions. There is also the added cost of freight charges. The cost of employment in remote areas is high as incentives need to be offered to recruit and retain staff.

(xii) Good health among Aboriginal and Torres Strait Islander People results from strong cultural security, physical wellbeing, good environment and freedom from poverty. Health has been defined by the World Health Organisation as ‘a state of complete physical, mental and social well being and not merely the absence of disease or infirmity’.

(xiii) Socioeconomic, lifestyle and cultural factors are difficult to quantify.

(xiv) Increase in cultural security/cohesion often means better health.

(xv) A community or region must have good management structure in place to manage funding and programs (MESH).

(xvi) Two components that must be addressed first are environmental and MESH.

Definitions

(i) ***Access* :** Access is defined in both geographical and sociological terms.

(ii) ***Accessibility/Remoteness Index of Australia (ARIA):*** Relative remoteness and accessibility, as measured by the Accessibility/Remoteness Index of Australia (ARIA), is depicted on maps by isolines (lines of equal ARIA value). ARIA interprets remoteness as access to a range of services, some of which are available in smaller and some only in larger centres. The remoteness of a location is measured in terms of distances travelled by road to reach a service centre. The accessibility index uses a continuous floating point variable with values between 0 and 12 where 0 indicated high accessibility and 12 high remoteness.

(iii) ***ADHN — Aboriginal Definition of Health Need:*** As described in this report, developed by The Office of Aboriginal Health.

(iv) ***ATSI — Aboriginal and Torres Strait Islander***: Describes a person of Aboriginal or Torres Strait Islander decent.

(v) ***CHINS — Community Housing and Infrastructure Needs Survey***: This survey is referred to in this report to draw further comparisons between remoteness and environmental factors. The maps included in this report are prepared by the ABS for ATSIC generally reflect poorer socio-economic environmental conditions in remote areas, which supports the health data presented by ARIA maps.

(vi) ***Capacity to Benefit (CTB):*** It is considered that this concept of need, which is about trying to use the resources to get as much good achieved as possible is relevant. The nature of the disease patterns (eg environmental or lifestyle) is likely to lead to variations in CTB.

(vii) ***Commonwealth Grants Commission (CGC):*** The CGC is a Commonwealth statutory authority whose role is to advise the Commonwealth on how the general revenue assistance grants to States should be distributed so each has the same capacity to provide a standard level of services to its population.

(viii) ***Cultural Security:*** The concept of cultural security embraces the uniqueness of Aboriginality. It is based on the principles of self-determination to empower the local Aboriginal communities to maintain, protect and practice traditional knowledge of beliefs, values, customs and heritage. The inseparable connections of indigenous people to the land, and the holistic view of health and family, are the keys to laying a foundation of cultural implications of health. The understanding of Aboriginal and Torres Strait Islander people, families, lifestyle and the strong kinship relation to everyone in the community, is essential to achieving health gains in indigenous communities. (As defined by The Office Of Aboriginal Health, 2000 – Marian Kickett).

(ix) ***Environmental Health Needs Survey (EHNS):*** Survey of select Aboriginal communities in each ATSIC Region of Western Australia. These communities were surveyed on environmental issues and needs such as water, electricity, housing, sanitation, solid waste disposal, dust, dog control, human services and Community Development Employment program (CDEP).

(x) ***Geographical Access:*** Geographical access is defined as the physical distance and geographical barriers that separate location. The measure of geographical access used in this paper is the Access and Remoteness Index of Australia.

(xi) **GISCA — *National Key Centre for Social Applications of Geographical Information Systems.***

(xii) ***Indigenous Funding Inquiry (IFI):*** The IFI is made up of the Chairman of the CGC plus four part time Commissioners (two of whom are Indigenous) who will provide information to help Commonwealth Government to:

- understand the needs of Aboriginal and Torres Strait Islander people across Australia for key services; and
- better target Commonwealth funding and expenditure to those in greatest need.

IFI must report by 28 March 2001. The areas to be considered by IFI are:

- Housing and infrastructure
- Employment and training
- Health, and
- Education.

(xiii) ***MBS***: Medicare Benefit Scheme

(xiv) ***MESH Infrastructure:*** Various factors might affect how well a location is able to convert funding into doing good. For instance, a lack of existing management, economic and social (including cultural) and/or human infrastructure — MESH infrastructure — might mean that any additional funding would do little extra good.

(xv) ***PBS*****:** Pharmaceutical Benefit Scheme.

(xvi) ***Relative Disadvantage Index (RDI):*** RDI is a rating of the disadvantage in socio-economic terms of one Aboriginal community or region against another. The Australian Bureau of Statistics (ABS) has developed this rating.

(xvii) ***Remoteness:*** Definition of remote used in The Social Health Atlas of Australia is: "Remote:…Far away, far off, distant form some place thing or person, removed, set apart….". (Shorter Oxford Dictionary).

(xviii) ***Social Access:*** Social Access is defined as those perceptual, socio-economic factors that impinge on the accessibility to services. Of particular concern to this paper are those access factors that contribute to Aboriginal cultural security.

(xix) ***SPHERe:*** Social and Public Health Economics Research Group.

APPENDIX 2

GEOGRAPHIC COSTS

Comments on Remoteness Costs From Health Services

1. ***Health service 1.***

   (i) ***Definition:*** Rural/Remote Access Subsidy — Special funding that recognises the additional cost if services in rural and remote areas due to the size of the unit and the cost of dispersion. It includes Minimum Location Cost, Service Delivery Mode/disability allowance and remote location allowances. The subsidy is the additional amount assessed for the locality and is unique to each Health Service. This associated with cost of service dispersion and remoteness.

   (ii) ***Problem*****:** Identification of concern that relate to rural and remoteness within the Pilbara and Kimberley Health Services and to take a consistent approach to quantification.

   (iii) ***Patient travel to metropolitan hospitals:*** Inter-hospital transfers due to complexity of treatment of patient.

   (iv) ***Work related travel:*** Travel costs for staff development, conferences, business meetings and the like. Travel costs unique to isolation includes airfare and vehicle costs.

   (v) ***Award related travel:*** Travel costs for staff and dependants on an annual basis equivalent to a return economy airfare to Perth.

   (vi) ***Award related leave:*** The North west leave arrangements allow for an additional one weeks leave after 12 months together with two travelling days.

   (vii) ***Staff accommodation:*** A requirement to attract staff into the Northwest cost involved include rates, repair and maintenance and refurbishment such as white goods, furniture, air conditioners, etc.

   (viii) ***Staff energy needs:*** An air conditioner subsidy relating to electricity is mandatory under Circular A6669 – Air conditioning subsidy.

   (ix) ***Business energy needs***: Energy consumption costs are higher in the Northwest.

   (x) ***Freight and cartage:*** freight charged due to the tyranny of distance.

(xi) ***Repairs and maintenance:*** Repairs and maintenance incurred due to the climatic nature of the region.

(xii) ***Communication costs:*** Communication costs are higher in the Northwest as against, say, the metro area.

(xiii) ***Vehicle costs:*** Vehicle allocation for senior staff, doctors and engineering is a fact of life for staff recruitment in the Northwest.

(xiv) ***Staff recruitment:*** Staff recruitment costs – advertising and associated costs are more frequent in remote areas due to the geography, climate and the perceived lack of opportunities (career wise).

(xv) ***District allowance:*** A district allowance is paid to all staff as a remote location allowance for being in the Northwest.

2. ***Health service 2***. The cost of maintaining an active doctor presence in the Ng Lands is complicated by a number of compounding factors. If a doctor could be found to reside in the Lands, the cost of maintaining that person would not be dissimilar that recorded above (referring to cost data given). The workload, call out rates and travelling between communities are factors that would eventually cause practitioner burnout. Professional isolation and the need for extended relief add to the burden of such positions, and consequently, their cost. Equal, it would not be possible to manage the medical needs of the Communities with one practitioner therefor the cost of an additional doctor to provide the same medical coverage as exists today is estimated to be approximately 70 per cent of $574,898 or $402,428.

3. The cost of air charters currently incurred in flying doctors to the Lands would be offset by the need to provide housing, motor vehicles, medical equipment, reliable communications (which are pressing need regardless) and the like. The capital costs to put full time doctors in the Lands are estimated to be approximately $320,000-$350,000.

4. The cost of insurance is not possible to identify at this time as all premiums are embodied in the blanket cover held by Ngaanyatjarra Council. It is estimated that these premiums range between $30,000 and $50,000.

5. The cost of maintaining and operating facilities are loaded into the nurse category. This had been dome to reflect the fact that the primary resource in each community is the nurse who has a 24hr/7day presence during duty rotations.

6. ***Health service 3.*** Most of the doctors who visit the hospital come as VMOs (visiting medical officers) which are local GPS etc. We have 5 medical doctors on the books in our ED area and their salaries range from $120,000 to $165,000 depending on shifts, penalties etc.

7. ***Health service 4.*** Basic costs are attached, but there are many variables:

(i) accommodation supplied or not;

(ii) local recruitment;

(iii) grams services out into Murchison – costs different out there;

(iv) motor vehicle usage defines cost and may vary;

(v) workers compensation rates vary from 0.44 per cent to 2.5 per cent depending on industry classification;

(vi) collection rates from Medicare depend on doctors classification;

(vii) there is a threshold point for fixed costs that offer savings if larger;

(viii) costs associated with practise accreditation;

(ix) petrol prices going up all the time;

(x) medication costs in more remote is less because of section 100 exemption for some AMS's; and

(xi) Recruitment costs vary year by year by as much as $15,000 for doctors.

8. ***Costs associated with Aboriginal patient travel***. Like all people living in remote and very remote areas of Western Australia, Aboriginal people have to travel to Perth to access some medical specialist services not provided in the region and tertiary hospital care. The difference is that this situation impacts on 3 per cent of the non-Aboriginal population and over 30 per cent of the Aboriginal population in Western Australia.

9. This paper has been produced to give an idea of the costs associated with the requirement to travel outside the region to access essential medical care. It outlines the experience and the particular cost factors associated with Aboriginal people from six different regions of the state accessing five different medical interventions.

10. The following locations with their Access and Remoteness Index of Australia rating (ARIA) have been chosen to provide a comparison between the costs associated with travelling outside the region to access essential medical care:

(i) Perth;

(ii) Collie;

(iii) Merredin;

(iv) Northampton;

(v) Carnarvon; and

(vi) Kulumburu.

11. ***Costs for each medical intervention.***

Table A2-1 SPECIALIST CONSULTATION OF ONE HOUR ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	30	80	80	80
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil		70 (2 nights)	70 (2 nights)	245 (7 nights)
Escort costs	Nil	Nil	Nil	Nil	Nil	2422
Family support	?	?	?	?	?	?
Emergency transport	Nil	Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	Nil	100 (3 hrs)	100 (3 hrs)
Total	50	36	175	553	879	5039

Table A2-2 DAY SURGERY ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	30	80	80	80
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil		70 (2 nights)	70 (2 nights)	245 (7 nights)
Escort costs	Nil	Nil	Nil	Nil	Nil	2422
Family support	?	?	?	?	?	?
Emergency transport	Nil	Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	Nil	100 (3 hrs)	100 (3 hrs)
Total	50	36	175	553	879	5039

Table A2-3 RENAL DIALYSIS WHICH REQUIRES THE PERSON TO BE NEAR THE ROYAL PERTH RENAL UNIT OR A RENAL UNIT ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	3200	3200	3200	3200
Mileage payments	Nil	12 (3 trips pw to Bunbury)	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil	6388 (6 months)	6388 (6 months)	6388 (6 months)	6388 (6 months)
Escort costs	Nil	Nil	Nil	Nil	Nil	2422
Family support	?	?	290 (2 trips per 6 months)	816 (2 trips per 6 months)	?	2822 (2 trips per 6 months)
Emergency transport		Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	Nil	5,200 (3hrs/wk)	5200 (3hrs/wk)
Total	50	108	10 023	10 807	15 417	22 224

Table A2-4 ACUTE CARE REQUIRING INPATIENT TREATMENT IN A TERTIARY HOSPITAL FOR ONE WEEK ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	30	80	80	80
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil	Nil	70 (2 nights)	70 (2 nights)	245 (7 nights)
Escort costs	Nil	Nil	Nil	Nil	Nil	2667
Family support	250	211	570	?	?	?
Emergency transport	Nil	Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	495 (one hr per day x 5)	495 (one hr per day x 5)	495 (one hr per day x 4)
Total	300	247	745	1048	1274	3879

Table A2-5 AN EMERGENCY SITUATION REQUIRING AMBULANCE TRANSPORT TO THE NEAREST TERTIARY HOSPITAL ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	190	315	600 plus 500 for charter (25% of cost)
Taxi fares	50	Nil	20	20	20	20
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	73	22	Nil	55
Accommodation	Nil	Nil	Nil	35	Nil	105
Escort costs	Nil	Nil	Nil	Nil	Nil	1922
Family support	50	108	200	?	?	?
Emergency transport	355 (Amb)	355 (Amb)	710 (Amb) 3952 (RFDS)	710 (Amb) 7200 (RFDS)	710 (Amb) 13 680 (RFDS)	355 (Amb) 33 440 (RFDS)
Patient support services	Nil	Nil	Nil	Nil	100 (3 hrs)	100 (3hrs)
Total	300	499	4955	8177	14 725	37 097

12. ***Summary of costs of all interventions for each location.***

Table A2-6 COST OF ALL INTERVENTIONS FOR EACH LOCATION ($)

Intervention	Perth	Collie	Merredin	Northampton	Carvarvon	Kulumburu
Specialist visit	50	36	175	553	879	3239
Day patient	50	36	175	553	879	3239
Renal patient	50	108	10 023	10 807	15 417	22 224
Acute hospital care	300	247	745	1048	1274	3879
Emergency treatment	300	499	4955	8177	14 725	37 097

13. ***Assumed costs.*** It is assumed that:

(i) this exercise includes costs to the family as well as the health system;

(ii) accommodation for all patients and family costs $35 per day, which is the PATS accommodation allowance; and

(iii) those people who live close to Perth will travel with a family member who will remain in Perth when they are in hospital.

All costs are approximate at this stage and more accurate data is being developed.

APPENDIX 3

DATA AND DATA ISSUES

1. It is well known that Aboriginal and Torres Strait Islander people are often under counted and poorly identified in statistical collections. There was a large unexplained increase in Census counts of Aboriginal and Torres Strait Islanders between 1991 and 1996, which suggests the estimates for completion of births and deaths have some inaccuracies as well as more people identifying as Aboriginal and Torres Strait Islander.

2. Although Aboriginal and Torres Strait Islander statistics are more complete for Western Australia, Northern Territory and South Australia, than the other States, there is still a lack of consistent, continuous data. Data is often presented within different boundaries and for different time periods. This does not allow for accurate detailed comparisons, between regions or time frames to be made.

3. Aboriginal and Torres Strait Islander population data is provided from the ABS 1996 Census, by ABS Postal Area. Postal Area is formed by allocating Collection Districts (CDs) to Australia Post postcode areas on a 'best fit' basis. The Postal Area classification primarily relates to place of enumeration data produced from the Population Census. That is individuals are tabulated in the CD in which they were counted are included in the Postal Area to which that CD is allocated. Allocations are done on the basis of population not area (ABS, Postcode Region Concordance – Fact Sheet 12 – 1996 Census Postal Code Information).

Accessibility and Remoteness Index of Australia

4. ARIA categories and definitions are as follows:

(i) Highly Accessible (HA) — ARIA score 0-1.84 — relatively unrestricted accessibility to a wide range of goods and services and opportunities for social interaction.

(ii) Accessible (A) — ARIA score 1.84-3.51 — some restrictions to accessibility of some goods, services and opportunities for social interaction.

(iii) Moderately Accessible (MA) — ARIA score 3.51-5.80 — significantly restricted accessibility of goods, services and opportunities for social interaction.

(iv) Remote (R) – ARIA score 5.80-9.08 – very restricted accessibility of goods, services and opportunities for social interaction.

(v) Very Remote (VR) – ARIA score 9.08-12 – locationally disadvantaged – very little accessibility of goods, services and opportunities for social interaction.

The following table shows a comparison between the ARIA and RRMA ratings for selected locations.

Table A3-1 COMPARISON OF ARIA AND RRMA RATINGS FOR SELECTED LOCATIONS

Town/Shire	ARIA Score	ARIA Rating	RRMA Rating
Exmouth (S)	11.8158	Very Remote	Remote
Esperance (S)	8.4537	Remote	Remote
Coolgardie (S)	5.4545	Moderately Accessible	Remote
Corrigin (S)	4.6842	Moderately Accessible	Rural
Augusta-Margaret River (S)	3.0799	Accessible	Rural
Albany (T)	2.691	Accessible	Rural
Capel (S)	1.7396	Highly Accessible	Rural
Bunbury (C)	1.1696	Highly Accessible	Rural
Armadale (C)	0.858	Highly Accessible	Metropolitan
Bassendean (T)	0	Highly Accessible	Metropolitan

Aboriginal and Torres Strait Islander language, income and housing statistics were extracted from Australian Bureau of Statistics Census 1996, Census of Population and Housing, Aboriginal and Torres Strait Islander People, Western Australia (Cat. No.2034.5), ABS, Canberra.

Morbidity and Mortality

5. The following mortality and morbidity data was mapped by ATSIC region.

Table A3-2 DATA REQUESTED FROM GISCA

	Health Status (comparison of regional Aboriginal rate to State Aboriginal rate)
	Mortality
7.	Person Years Life Lost – Aboriginal males
8.	Person Years Life Lost – Aboriginal females
9.	Standardised All Cause Mortality Ratios - Aboriginal males
10.	Standardised All Cause Mortality Ratios - Aboriginal females
11.	SMR – Circulatory Diseases (Chapter7) - males and females
12.	SMR – Endocrine Disorders (Chapter 3) - males and females
13.	SMR – Respiratory Diseases (Chapter 8) - males and females
14.	SMR – Injury and Poisoning (Chapter 17) - males and females
15.	SMR – Neoplasms (Chapter 2) – males and females
	Hospitalisation
16.	Age Standardised All Cause Mortality Ratios - Aboriginal males
17.	Age Standardised All Cause Mortality Ratios - Aboriginal females
18.	ASR – Circulatory Diseases (Chapter 7) - males and females
19.	ASR – Endocrine Disorders (Chapter 3) - males and females
20.	ASR – Respiratory Diseases (Chapter 8) - males and females
21.	ASR – Injury and Poisoning (Chapter 17) - males and females
22.	ASR – Infectious and Parasitic Diseases (Chapter 1) - males and females
23.	ASR – Complications of Pregnancy (Chapter 11) – females

SMR Standardised Mortality Rates.
ASR Age Standardised Rates.

6. These maps are presented in the following appendices. In most cases there is a strong visual correlation between health status and remoteness. The following maps representing Potential Years Life Lost among Aboriginal males and females are examples of this strong correlation and hence show how mortality data may be used as a proxy indicator for health status.

7. Hospital separation and mortality data were extracted from the Hospital Morbidity Data system at the Health information Centre, Health Department of Western Australia and provided to GISCA by Australia Post postcode and Health Service Regions. Using spatial analysis techniques these data were converted up to ATSIC Region by approximate allocation of postcode to ATSIC Region. As some postcodes overlap ATSIC Region boundaries, further analysis was needed to determine in these cases, what portion of a postcode should be allocated to each Region. This resulted in portions of observed hospital separation and death counts in some cases.

8. As the population, hospitalisation and death numbers of Aboriginal people are relatively low compared to the total population, data were selected for longer intervals so that variations between ATSIC Regions are more apparent. Hospitalisation data were selected for 1994 to 1998 and mortality data were selected for 1989 to 1998.

9. The major causes of hospitalisation and death among Aboriginal and Torres Strait Islander people include injury and poisoning, infectious and parasitic diseases, respiratory, circulatory and endocrine disorders and complications of pregnancy.

10. The ATSIC Regions of Western Australia are:

(i) Wunan (Kununurra)

(ii) Kullari (Broome)

(iii) Malarabah (Derby)

(iv) Ngarda Ngarli Yarndu (South Hedland)

(v) Yamatji (Geraldton)

(vi) Western Desert (Western Desert)

(vii) Wongatha (Kalgoorlie)

(viii) Kaata-Wangkinyiny (Narrogin); and

(ix) Noongar (Perth).

11. Data sources used to in the production of these maps include:

(i) population data: ABS Census 1996;

(ii) locality data: AUSLIG TOPO250K database;

(iii) ARIA Contours: GISCA; and

(iv) Primary Health Care Location data: Department of Health and Aged Care, 1999.

12. Hospitalisation and mortality ratios presented in map format by ARIA have been standardised to the Total Western Australian Aboriginal population. Standardising to the State Aboriginal population also allows for age differences and population distribution differences between Aboriginal and Torres Strait Islanders and non Aboriginal and Torres Strait Islanders in Western Australia. Aboriginal and Torres Strait Islander hospitalisation and mortality rates are considerably higher relative to the non-indigenous hospitalisation equivalents.

13. The standardised ratio for any variable for a particular area shows the ratio of those variable for the local population compared to the experience in the whole population (in this case the State Aboriginal population). The technique of standardisation is used to

prevent variations in population structure from distorting differentials in events (Social Health Atlas of Australia).

14. Thus, hospitalisation and mortality standardised ratios, indicate how much worse or better off a region is compared to the State Aboriginal population as a whole. For example, the age-sex standardised mortality ratios for Injury and Poisoning shows the Geraldton ATSIC Region as having a mean mortality ratio range of 87.97-99.99 (ie similar to the rate for the State) and the Kununurra and Warburton ATSIC Regions having the highest ratios of 123.14-178.65. This means that the deaths from Injury and poisoning occur between 40 per cent (123.14/87.97*100) and 79 per cent (178.65/99.99*100) more in Kununurra and Warburton than for the Geraldton ATSIC Region and the State Aboriginal population as a whole.

15. The relative incidence of hospitalisation for injury and poisoning for ATSIC regions are calculated in the table below, showing that the rate of hospitalisation for injury and poisoning among Aboriginal people in the Warburton and Kununurra ATSIC Regions is approximately 2.2 times that of the Perth ATSIC Region. This relationship is more evident in the relevant map.

Table A3-3 STANDARDISED MORTALITY RATIO – INJURY AND POISONING, RELATIVE TO PERTH ATSIC REGION

ATSIC Region	Standardised Ratio	Rate to Perth (min)	Rate to Perth (max)	Relative Rate (Region: Perth)
		%	%	
Perth	59.51 to 77.13	100.00	100.00	1
Narrogin	59.51 to 77.13	100.00	100.00	1
Broome	77.13 to 99.99	129.60	129.63	1.3
Kalgoorlie	99.99 to 117.00	129.63	151.69	1.5
Geraldton	99.99 to 117.00	129.63	151.69	1.5
South Hedland	117.00 to 146.38	151.69	189.78	1.9
Derby	117.00 to 146.38	151.69	189.78	1.9
Kununurra	146.38 to 171.52	189.78	222.37	2.2
Warburton	146.38 to 171.52	189.78	222.37	2.2

Source: Morbidity Database, HIC, Health Department of Western Australia.

16. The standardised ratios are used to map hospitalisation and mortality data across the nine ATSIC Regions. The ratios have been grouped together from highest to lowest and divided into 5 classes with ratio of 99.99 being the mid point.

17. The classes break where there are obvious increases in the data. This is the standard classification method used and it is called 'natural breaks'. The software program uses a statistical formula to identify breakpoints between the classes, thus finding clusters inherent within the data and avoiding unnaturally breaking groups of data.

18. On the locality maps the accessibility measure can take any value between 0 and 3. The values were constructed in this way so that they could then be fed into other indexes such as the ARIA index. The value is generated by dividing the distance from a given locality to the nearest hospital of a specified size by the average distance of all localities to the nearest hospital of that size. The average distance figure for hospitals with more than 150 beds was 146 km, for hospitals with 41 to 150 beds it was 75 km and for hospitals with 1 to 40 beds it was 40 km. Thus if a locality gets a score of 2 it has recorded twice the average distance to the nearest hospital of a certain size. The value was thresholded at 3 to avoid very large numbers affecting the construction of the index.

19. Aboriginal population maps express the Aboriginal population of a particular ATSIC Region as a proportion of the State total population and the State Aboriginal population.

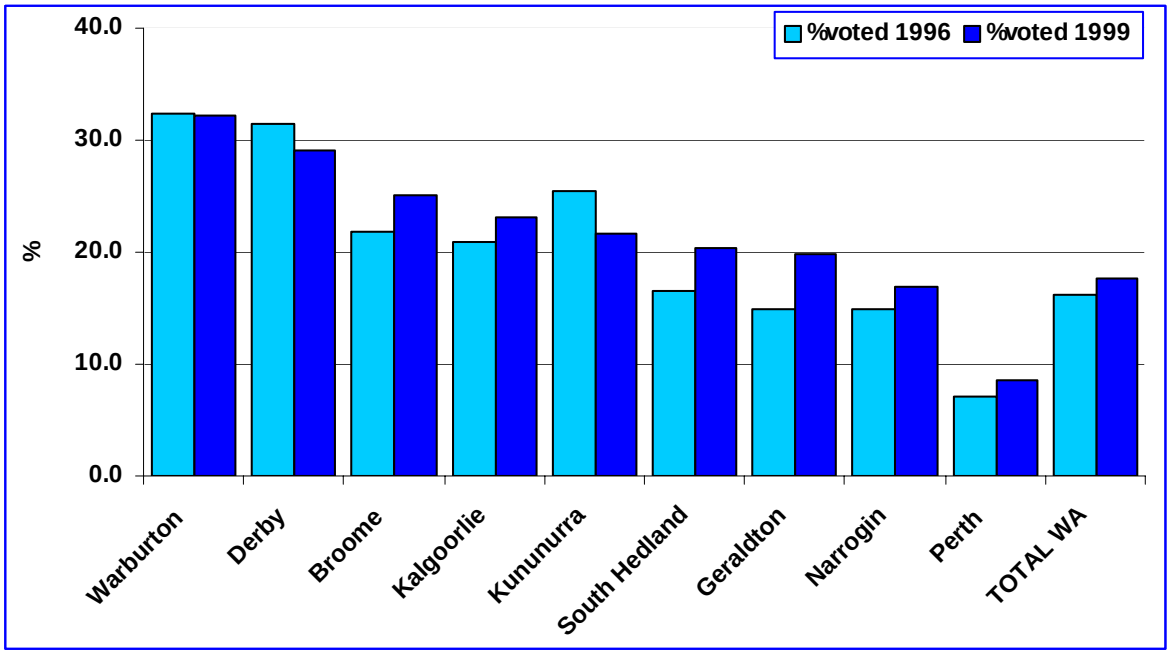
20. In the case of most graphs in this report, percentages have been used to express data as proportions. This allows any obvious variations in incidences between regions to be identified.

21. Graphs have been produced to give an indication of the level of differences between regions and confirm the visual differences that the coloured maps portray.

Cultural and Language Access

22. ***ATSIC voting patterns.*** ATSIC voting patterns were sourced from the Western Australian Electoral Commission. The results show a greater participation rate in the more remote areas, perhaps suggesting a great level of social cohesion among communities. These participation rates increase as health status decreases with remoteness.

Figure A3-1 VOTING PATTERNS BY ATSIC REGION, WESTERN AUSTRALIA, 1996-1999



23. ***Language.***

Table A3-4 LANGUAGE SPOKEN AT HOME, BY SECTION OF THE STATE[(a)]

	Major urban	Other urban	Bounded locality	Rural balance	Total[(b)]
	%	%	%	%	%
Australian Indigenous Language n.f.d.	2.79	7.61	24.78	51.05	17.13
English	91.25	88.15	65.84	41.99	76.92
Other languages[(c)]	2.89	1.62	5.31	2.40	2.62
Not stated	3.06	2.62	4.07	4.55	3.33
Total	100.00	100.00	100.00	100.00	100.00

(a) Place of enumeration
(b) Includes 'Migratory'
(c) Includes 'inadequately described' and 'non-verbal so described'
Source: ABS, unpublished data, 1996 Census

Alcohol Consumption Data

24. The following data represents litres of absolute alcohol using a service population for adults (15+). Data is for 1997-1998 and based on sales, which assumes that all alcohol sold is consumed.

Table A3-5 LITRES OF ALCOHOL SOLD DURING 1997/98 PER CAPITA

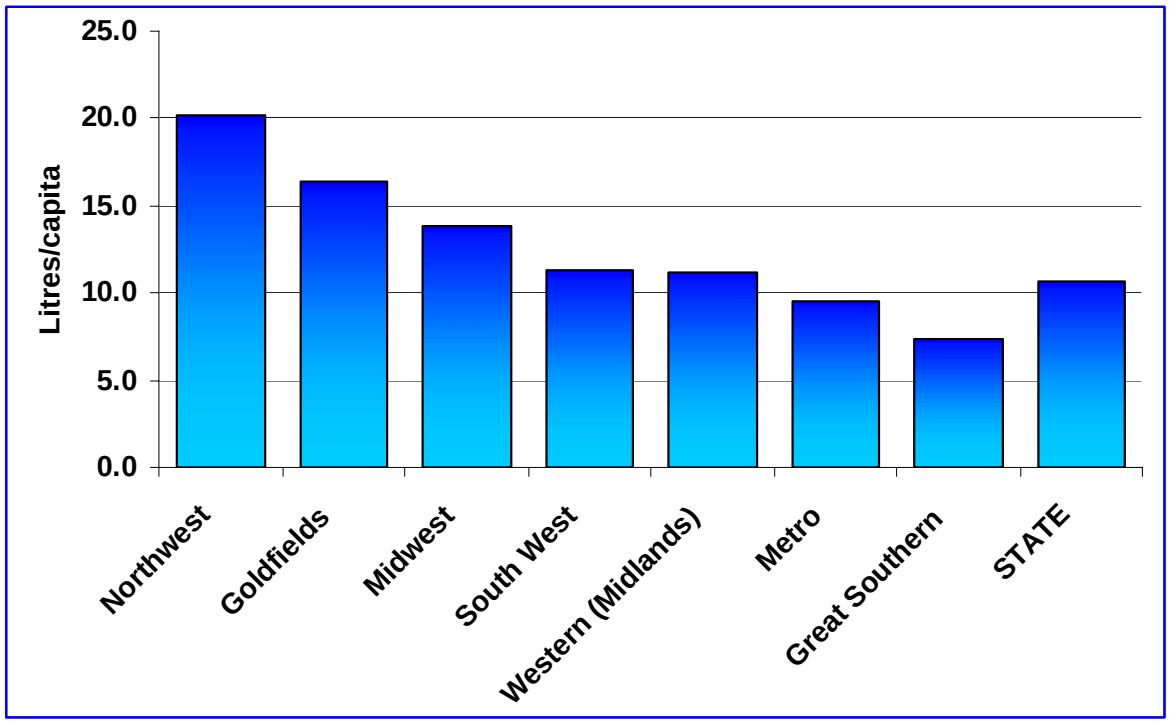
ARIA Class	Alcohol (litres/capita)
North West	20.19
Goldfields	16.32
Midwest	13.8
South West	11.35
Western (previously Midlands)	11.21
Metro	9.49
Great Southern	7.35
STATE	10.69

Source: National Drug Research Institute unpublished Liquor Licensing Data.

25. Whilst the regions do not exactly match the ATSIC regions there seems to be a general trend of increased consumption in more remote areas. It is believed that only 50 per cent of Aboriginal people drink alcohol and that most of the large consumption rates are attributed to miners and others working in remote areas.

26. This data is presented more clearly in a graphic format below.

Figure A3-1 ALCOHOL CONSUMPTION RATES – LITRES PER CAPITA IN WESTERN AUSTRALIA, 1997-1998



Domestic Violence

Table A3-6 REGIONAL BREAKDOWN OF REPORTED INCIDENTS OF VIOLENCE AND DOMESTIC VIOLENCE AGAINST ABORIGINAL PEOPLE, WA, 1994

Aria Rating	Police Region	Domestic violence against Aboriginal people		Total violence against Aboriginal people		Domestic violence as % of total violence against Aboriginal people
		No	%	No	%	%
HA	Bunbury	11	1.8	36	1.9	30.6
HA	Mandurah	10	1.7	38	2.0	26.3
HA	Northam	10	1.7	59	3.2	16.9
HA	Perth Metro	116	19.5	501	26.9	23.1
A	Albany	15	2.5	63	3.4	23.8
A	Geraldton	91	15.3	289	15.5	31.5
MA	Narrogin	9	1.5	35	1.9	25.7
R	Karratha	110	18.5	238	12.8	46.2
VR	Broome	166	27.8	368	19.8	45.1
VR	Kalgoorlie	58	9.7	232	12.5	25.0
	Total	596	100.0	1859	100.0	32.0

HA Highly Accessible.
A Accessible.
MA Moderately Accessible.
R Remote.
VR Very Remote.
Source: Measuring the Extent of Domestic Violence.

Table A3-7 REPORTED INCIDENTS OF DOMESTIC VIOLENCE IN THE PERTH AREA, 1994, CLASSIFIED BY POSTCODE-BASED SOCIO-ECONOMIC STATUS

Postcode-based social disadvantage category	Population	Number of reported domestic violence incidents	Reported domestic violence rate per 100 000 relevant population
Most highly disadvantaged	114,205	112	98.1
Highly disadvantaged	162,916	104	63.8
Disadvantage	276,690	183	66.1
Less disadvantaged	254,686	79	31.0
Least disadvantaged	295,964	50	16.9
Total	1,104,461	528	47.8

Source: Measuring the Extent of Domestic Violence.

27. Further information regarding the above is available in “Measuring the extent of domestic violence”.

APPENDIX 4

COSTS ASSOCIATED WITH ABORIGINAL PATIENT TRAVEL

1. Like all people living in remote and very remote areas of Western Australia, Aboriginal people have to travel to Perth to access some medical specialist services not provided in the region and tertiary hospital care. The difference is that this situation impacts on 3 per cent of the non-Aboriginal population and over 30 per cent of the Aboriginal population in Western Australia.

2. This paper has been produced to give an idea of the costs associated with the requirement to travel outside the region to access essential medical care. It outlines the experience and the particular cost factors associated with Aboriginal people from six different regions of the state accessing five different medical interventions.

3. The following locations with their Access and Remoteness Index of Australia rating (ARIA) have been chosen to provide a comparison between the costs associated with travelling outside the region to access essential medical care:

(i) Perth;

(ii) Collie;

(iii) Merredin;

(iv) Northampton;

(v) Carnarvon; and

(vi) Kulumburu.

Costs for Each Medical Intervention

Table A4-1 SPECIALIST CONSULTATION OF ONE HOUR ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	30	80	80	80
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil		70 (2 nights)	70 (2 nights)	245 (7 nights)
Escort costs	Nil	Nil	Nil	Nil	Nil	2422
Family support	?	?	?	?	?	?
Emergency transport	Nil	Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	Nil	100 (3 hrs)	100 (3 hrs)
Total	50	36	175	553	879	5039

Table A4-2 DAY SURGERY ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	30	80	80	80
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil		70 (2 nights)	70 (2 nights)	245 (7 nights)
Escort costs	Nil	Nil	Nil	Nil	Nil	2422
Family support	?	?	?	?	?	?
Emergency transport	Nil	Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	Nil	100 (3 hrs)	100 (3 hrs)
Total	50	36	175	553	879	5039

Table A4-3 RENAL DIALYSIS WHICH REQUIRES THE PERSON TO BE NEAR THE ROYAL PERTH RENAL UNIT OR A RENAL UNIT ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	3200	3200	3200	3200
Mileage payments	Nil	12 (3 trips pw to Bunbury)	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil	6388 (6 months)	6388 (6 months)	6388 (6 months)	6388 (6 months)
Escort costs	Nil	Nil	Nil	Nil	Nil	2422
Family support	?	?	290 (2 trips per 6 months)	816 (2 trips per 6 months)	?	2822 (2 trips per 6 months)
Emergency transport		Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	Nil	5,200 (3hrs/wk)	5200 (3hrs/wk)
Total	50	108	10 023	10 807	15 417	22 224

Table A4-4 ACUTE CARE REQUIRING INPATIENT TREATMENT IN A TERTIARY HOSPITAL FOR ONE WEEK ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	359	629	1137 plus 1000 for charter (25% of cost)
Taxi fares	50	Nil	30	80	80	80
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	145	44	Nil	55
Accommodation	Nil	Nil	Nil	70 (2 nights)	70 (2 nights)	245 (7 nights)
Escort costs	Nil	Nil	Nil	Nil	Nil	2667
Family support	250	211	570	?	?	?
Emergency transport	Nil	Nil	Nil	Nil	Nil	Nil
Patient support services	Nil	Nil	Nil	495 (one hr per day x 5)	495 (one hr per day x 5)	495 (one hr per day x 5)
Total	300	247	745	1048	1274	3879

Table A4-5 AN EMERGENCY SITUATION REQUIRING AMBULANCE TRANSPORT TO THE NEAREST TERTIARY HOSPITAL ($)

Cost Item	Perth	Collie	Merredin	Northampton	Carnarvon	Kulumburu
Airfares	Nil	Nil	Nil	190	315	600 plus 500 for charter (25% of cost)
Taxi fares	50	Nil	20	20	20	20
Mileage payments	Nil	36	Nil	Nil	Nil	Nil
Long distance bus fares	Nil	Nil	73	22	Nil	55
Accommodation	Nil	Nil	Nil	35	Nil	105
Escort costs	Nil	Nil	Nil	Nil	Nil	1922
Family support	50	108	200	?	?	?
Emergency transport	355 (Amb)	355 (Amb)	710 (Amb) 3952 (RFDS)	710 (Amb) 7200 (RFDS)	710 (Amb) 13 680 (RFDS)	355 (Amb) 33 440 (RFDS)
Patient support services	Nil	Nil	Nil	Nil	100 (3 hrs)	100 (3hrs)
Total	300	499	4955	8177	14 725	37 097

Summary of Costs of All Interventions for Each Location

Table A4-6 COST OF ALL INTERVENTIONS FOR EACH LOCATION ($)

Intervention	Perth	Collie	Merredin	Northampton	Carvarvon	Kulumburu
Specialist visit	50	36	175	553	879	3239
Day patient	50	36	175	553	879	3239
Renal patient	50	108	10 023	10 807	15 417	22 224
Acute hospital care	300	247	745	1048	1274	3879
Emergency treatment	300	499	4955	8177	14 725	37 097

4. ***Assumed costs.***

(i) It is assumed that this exercise includes costs to the family as well as the health system.

(ii) Accommodation for all patients and family is assumed to cost $35 per day, which is the PATS accommodation allowance.

(iii) It is assumed that those people who live close to Perth will travel with a family member who will remain in Perth when they are in hospital.

5. All costs are approximate at this stage and more accurate data is being developed.

APPENDIX 5

ACCESS MAPS

Figure A5-1 ACCESSIBILITY/REMOTENESS INDEX OF AUSTRALIA (ARIA) BY ATSIC REGION, AUSTRALIA, 1999

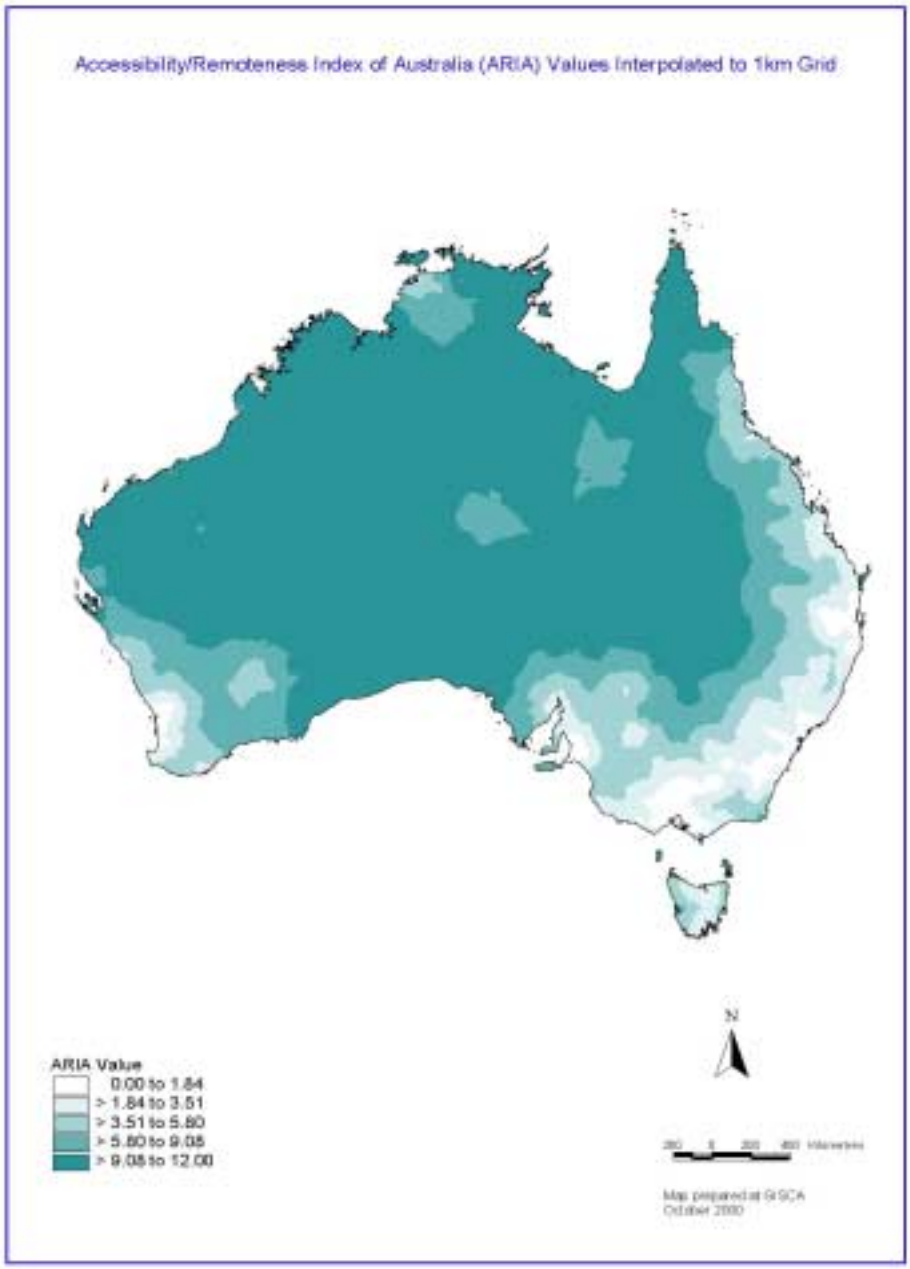


Figure A5-2 ACCESSIBILITY/REMOTENESS INDEX OF AUSTRALIA (ARIA), BY ATSIC REGION, WESTERN AUSTRALIA, 1999

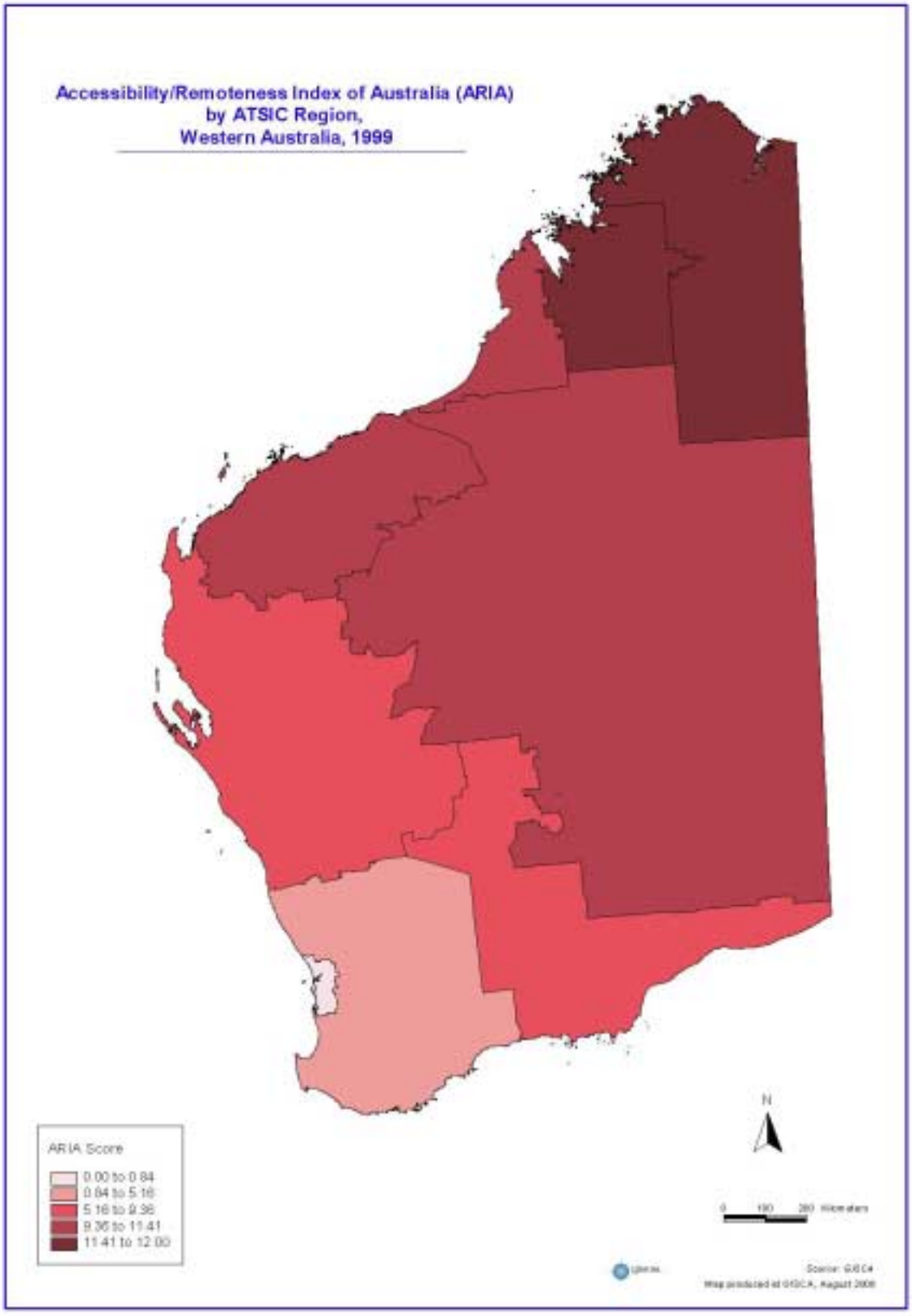


Figure A5-3 DISTANCE TO THE NEAREST HOSPITAL WITH 1-40 BEDS, BY 2KM^2 GRID, WESTERN AUSTRALIA, 1999

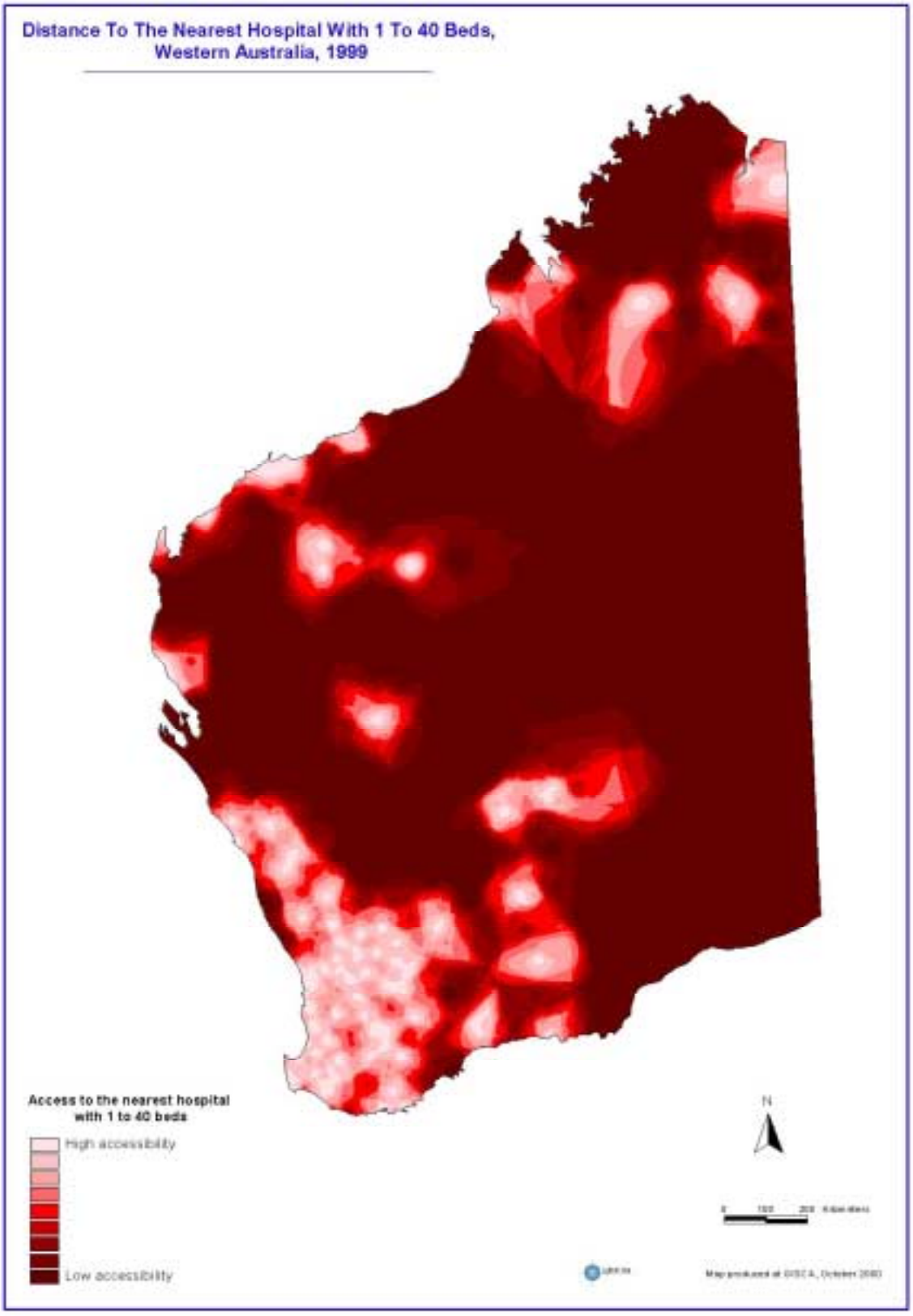


Figure A5-4 ACCESS TO THE NEAREST HOSPITAL WITH 1-40 BEDS, BY LOCALITY, WESTERN AUSTRALIA, 1999

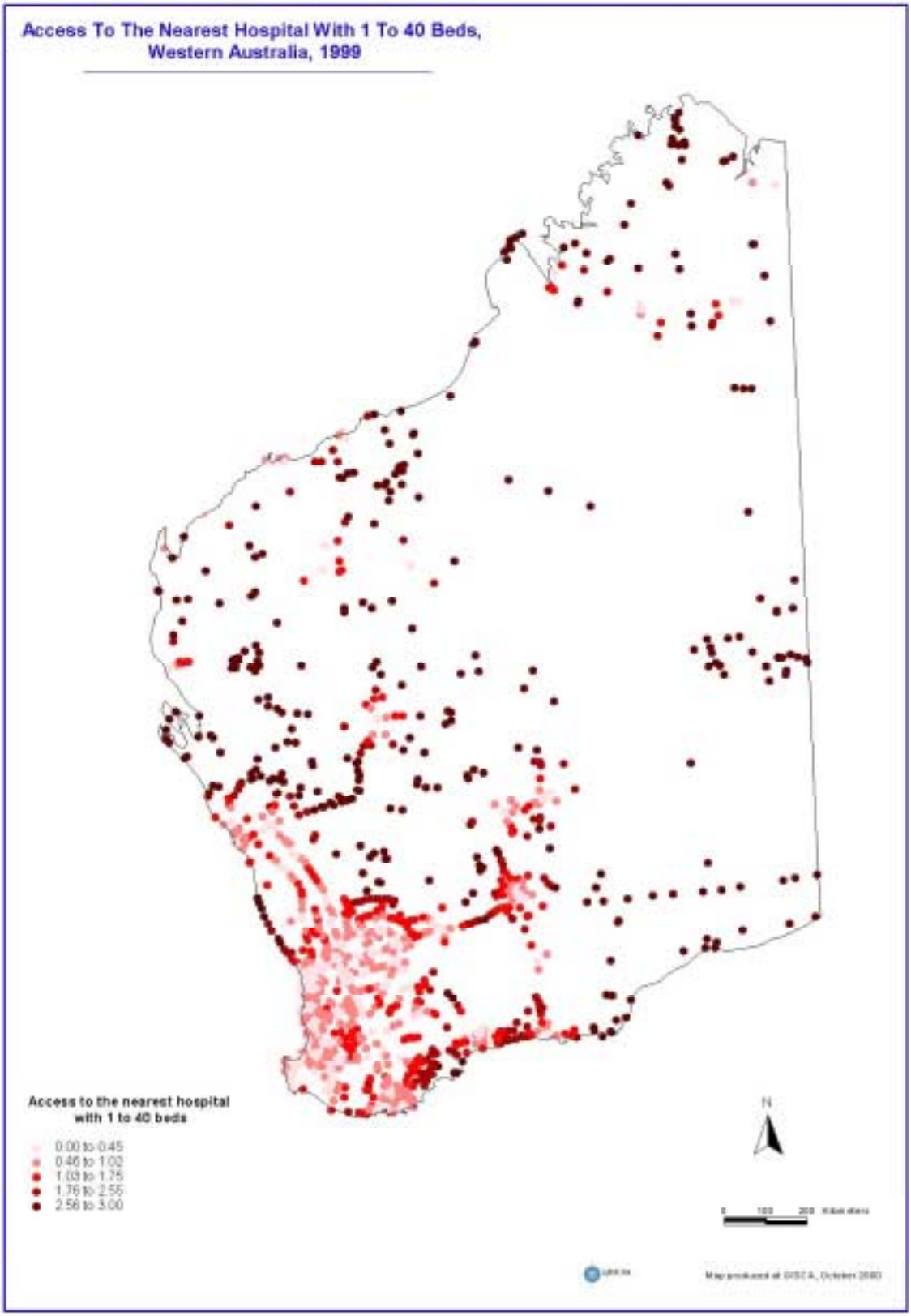


Figure A5-5 DISTANCE TO THE NEAREST HOSPITAL WITH 41-150 BEDS, BY 2KM^2 GRID, WESTERN AUSTRALIA, 1999

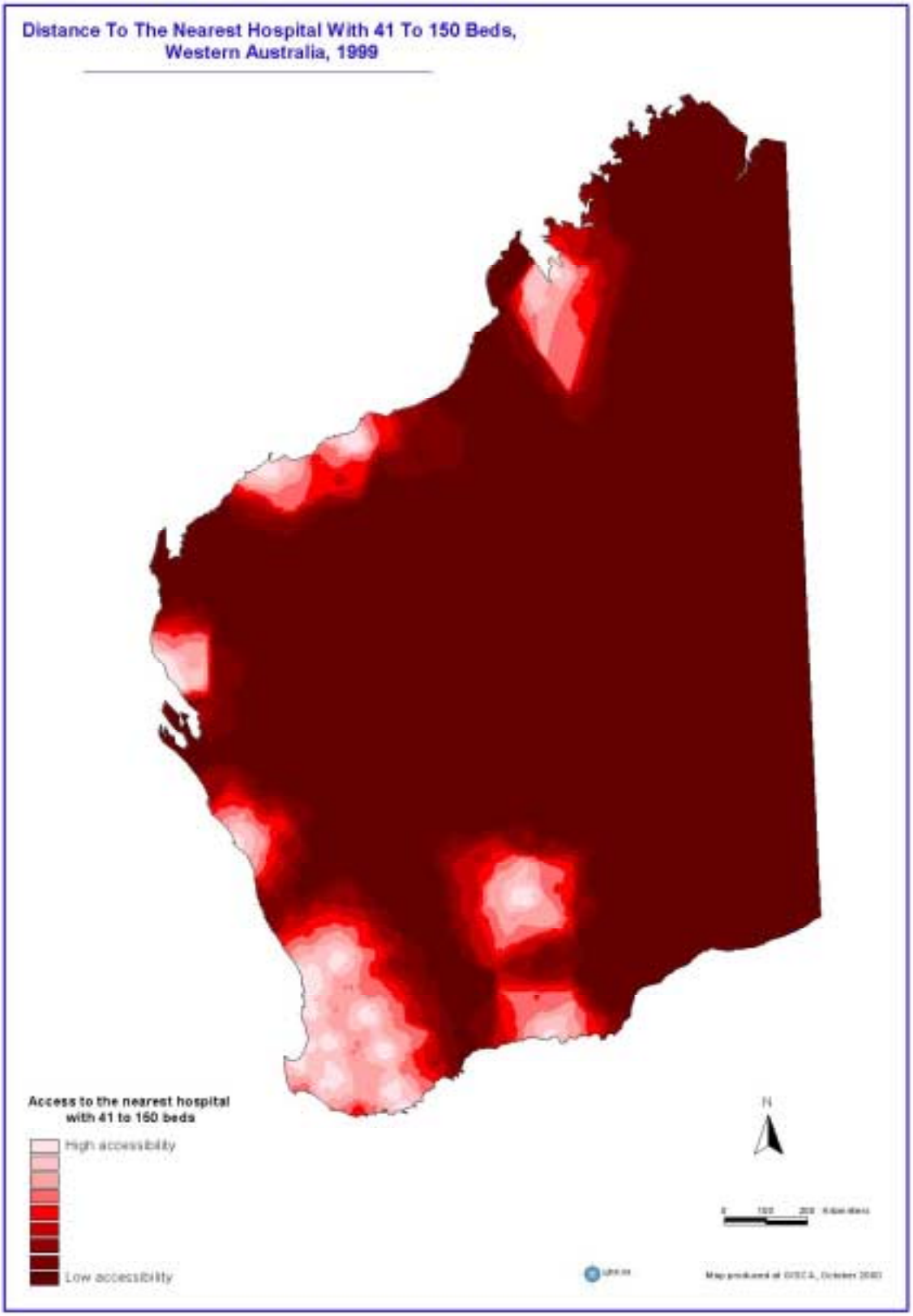


Figure A5-6 ACCESS TO THE NEAREST HOSPITAL WITH 41-150 BEDS, BY LOCALITY, WESTERN AUSTRALIA, 1999

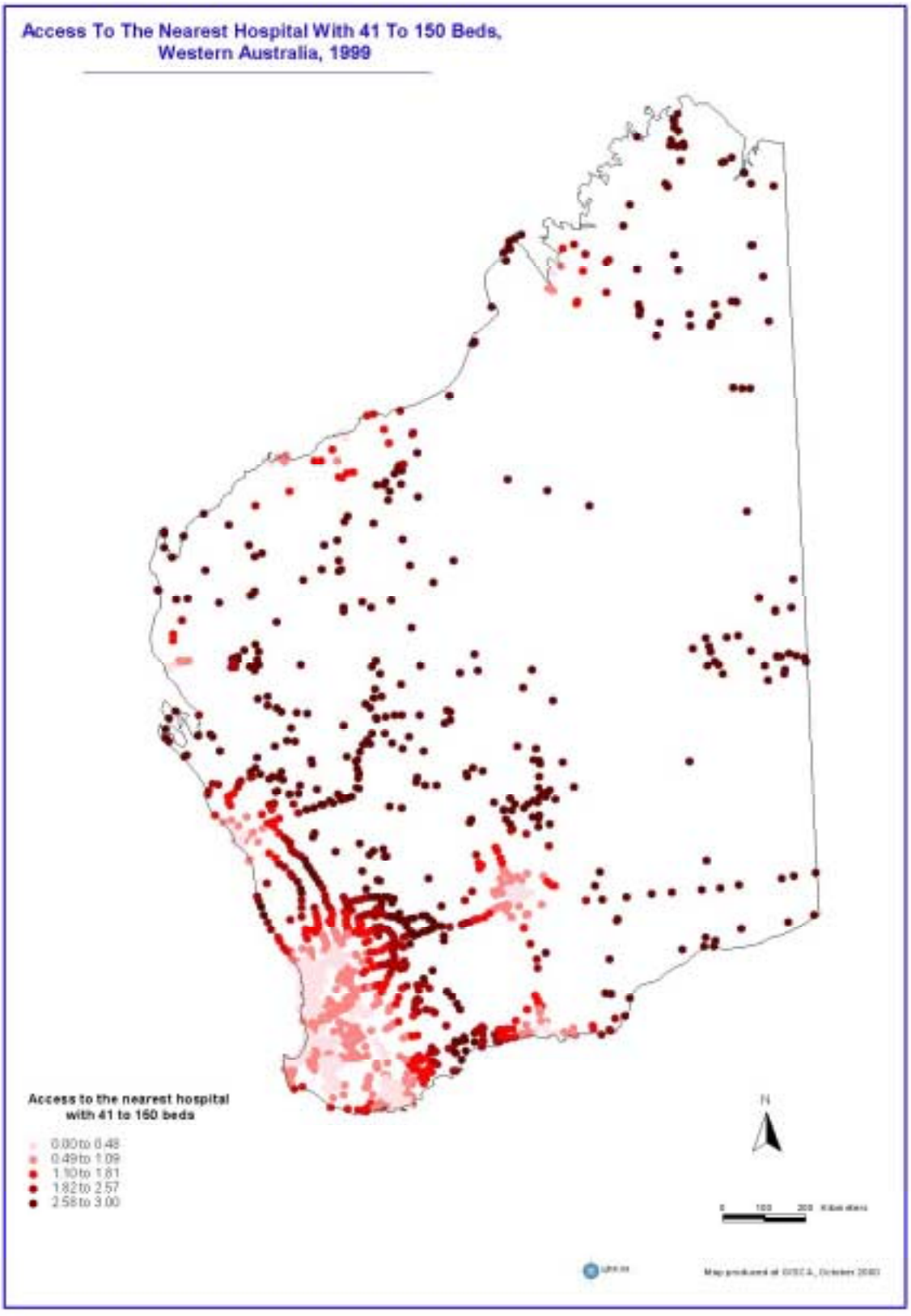


Figure A5-7 DISTANCE TO THE NEAREST HOSPITAL WITH MORE THAN 150 BEDS, BY 2KM^2 GRID, WESTERN AUSTRALIA, 1999

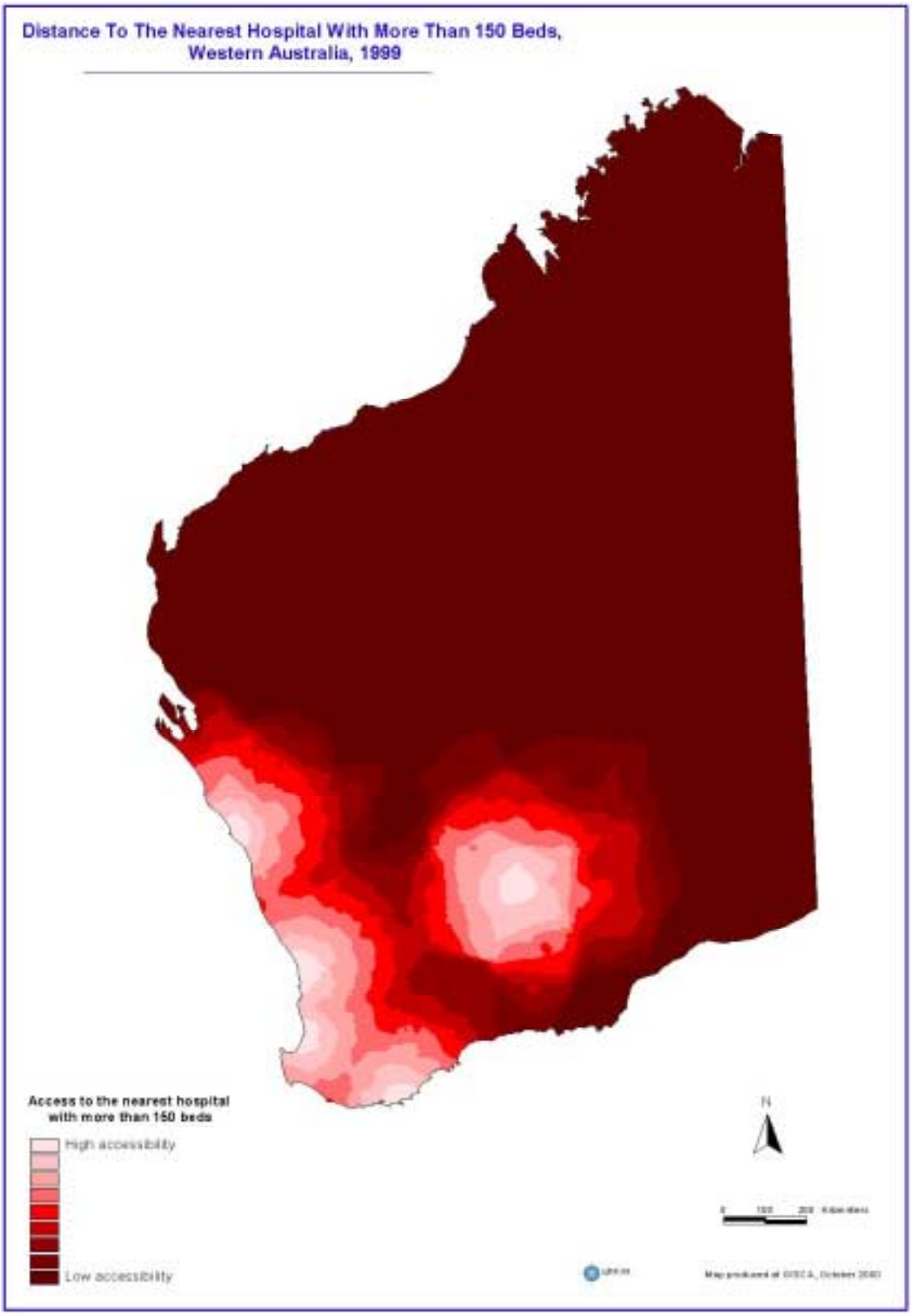


Figure A5-8 ACCESS TO THE NEAREST HOSPITAL WITH MORE THAN 150 BEDS, BY LOCALITY, WESTERN AUSTRALIA, 1999

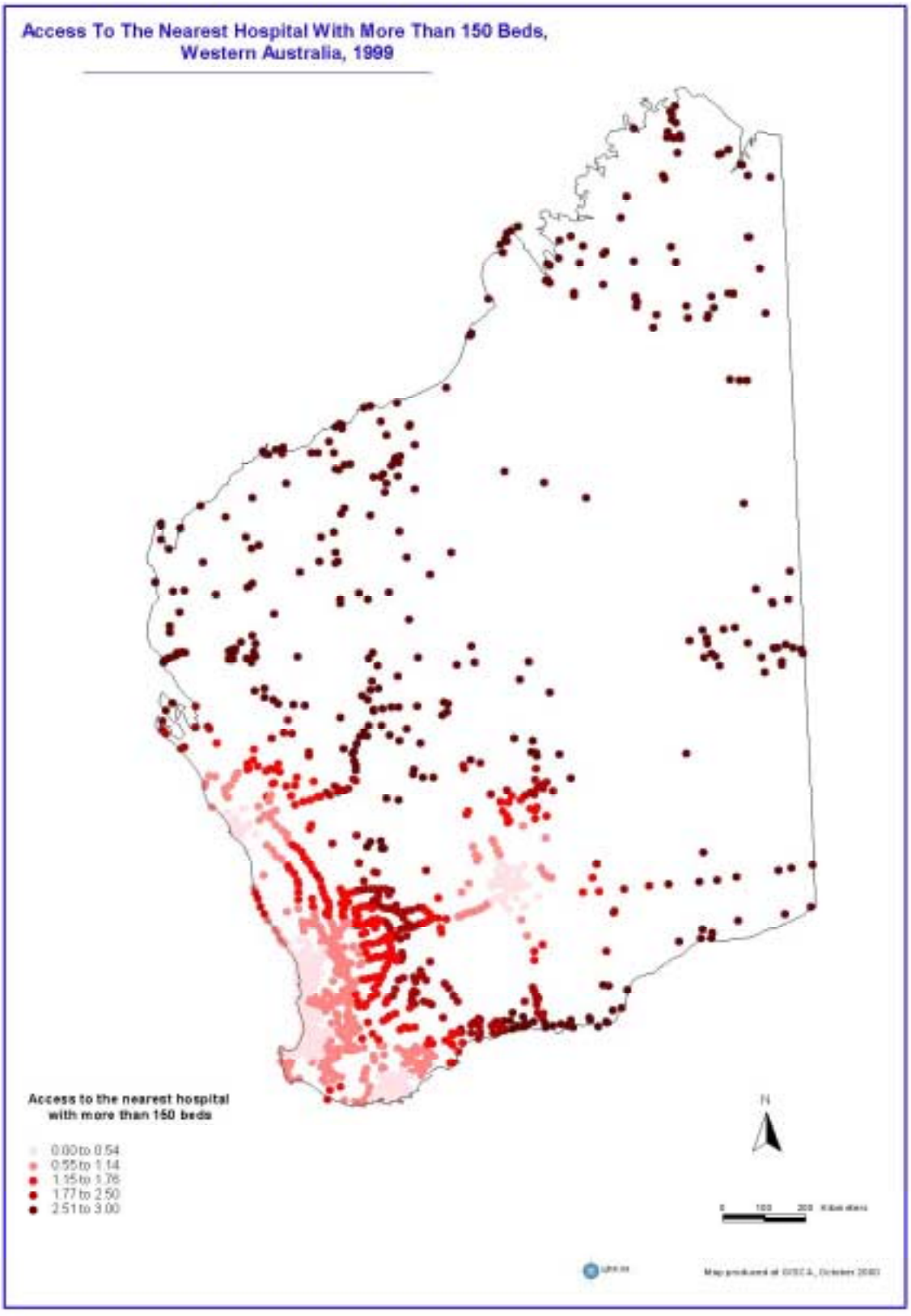


Figure A5-9 ACCESS TO THE NEAREST GP OR ABORIGINAL MEDICAL SERVICE, GRID, WESTERN AUSTRALIA

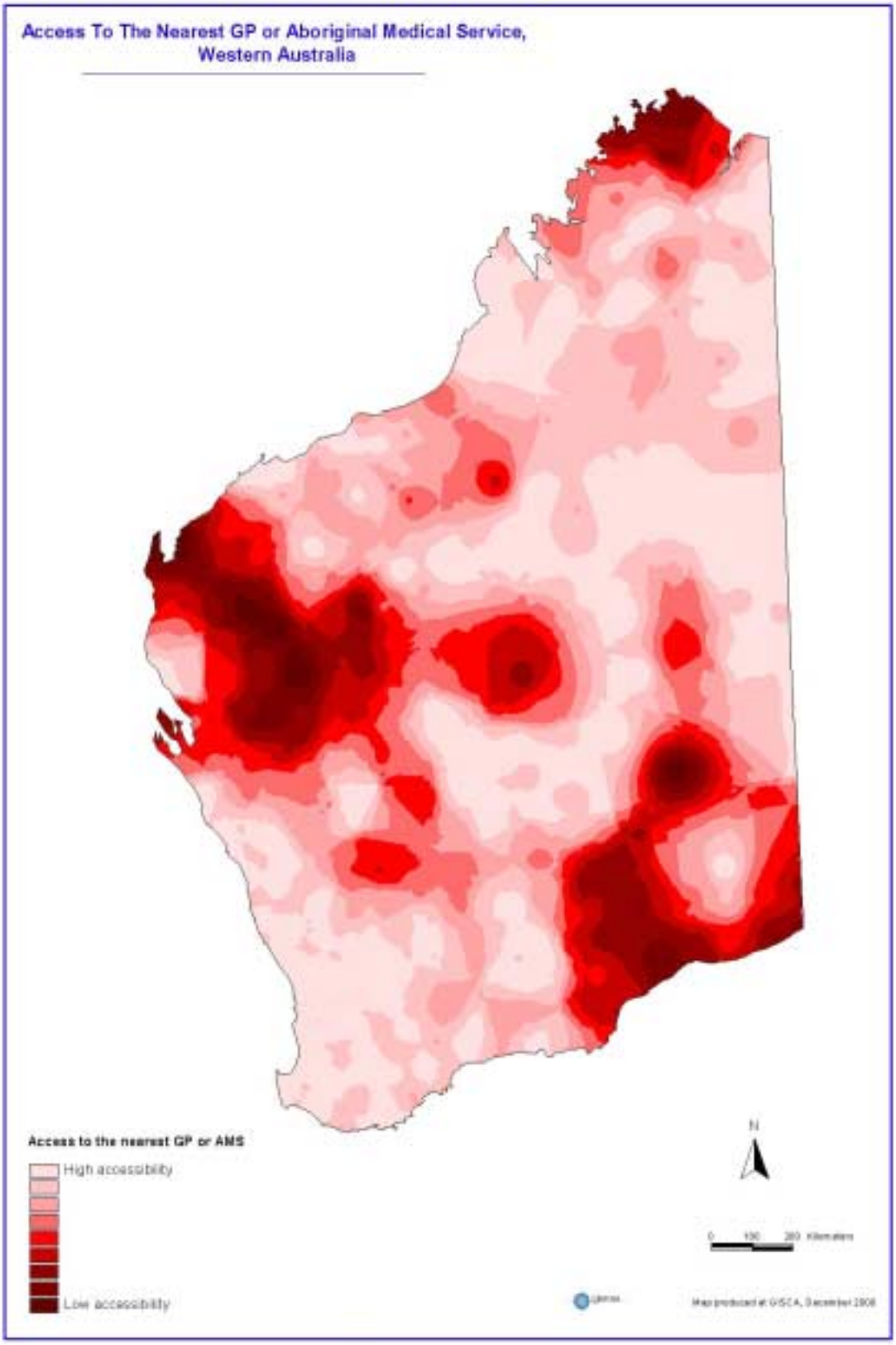


Figure A5-10 ACCESS TO NEAREST GP OR ABORIGINAL MEDICAL SERVICE, LOCALITY, WESTERN AUSTRALIA

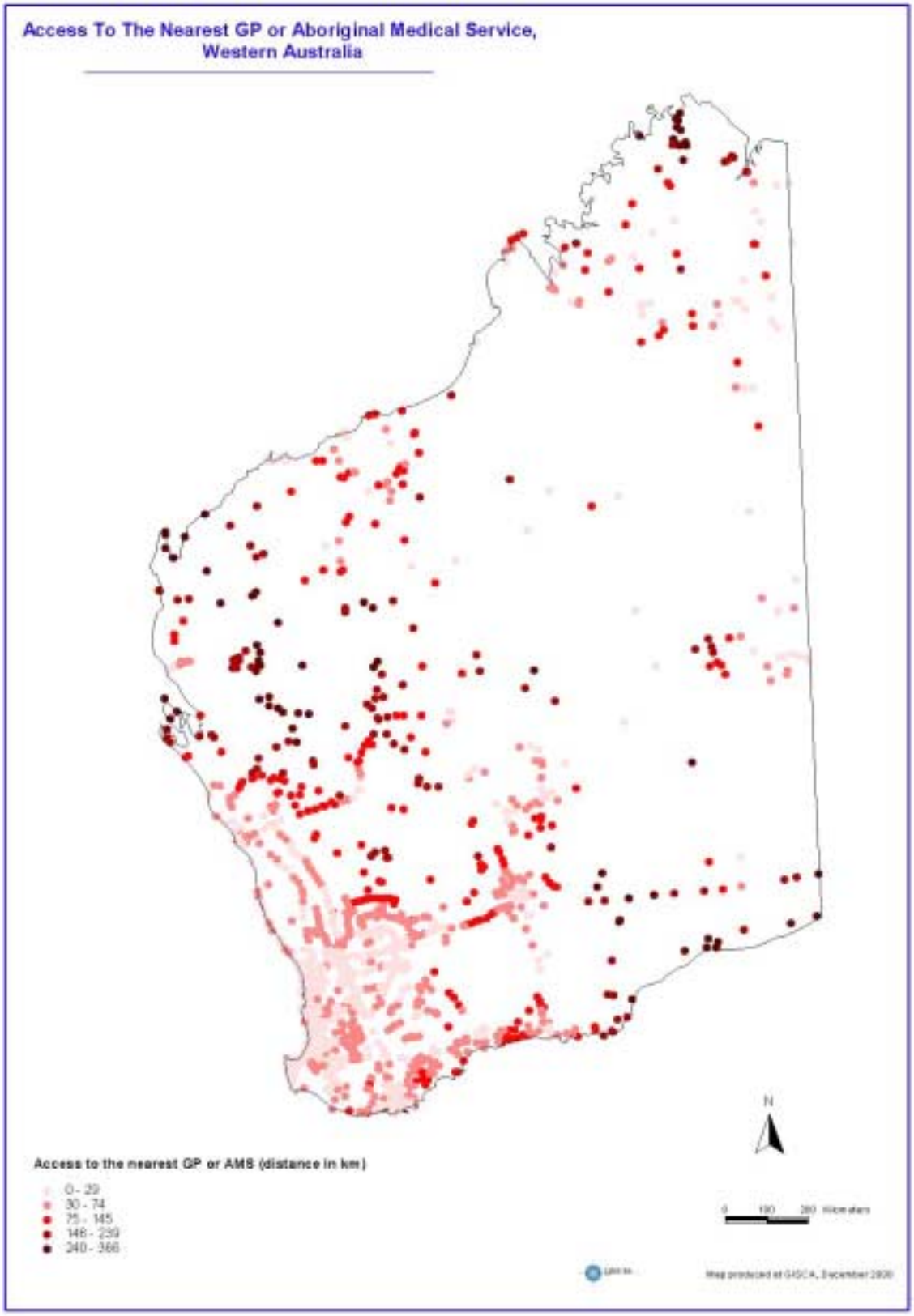


Figure A5-11 MBS BENEFITS PAID PER CAPITA ($), WESTERN AUSTRALIA, 1997-1998

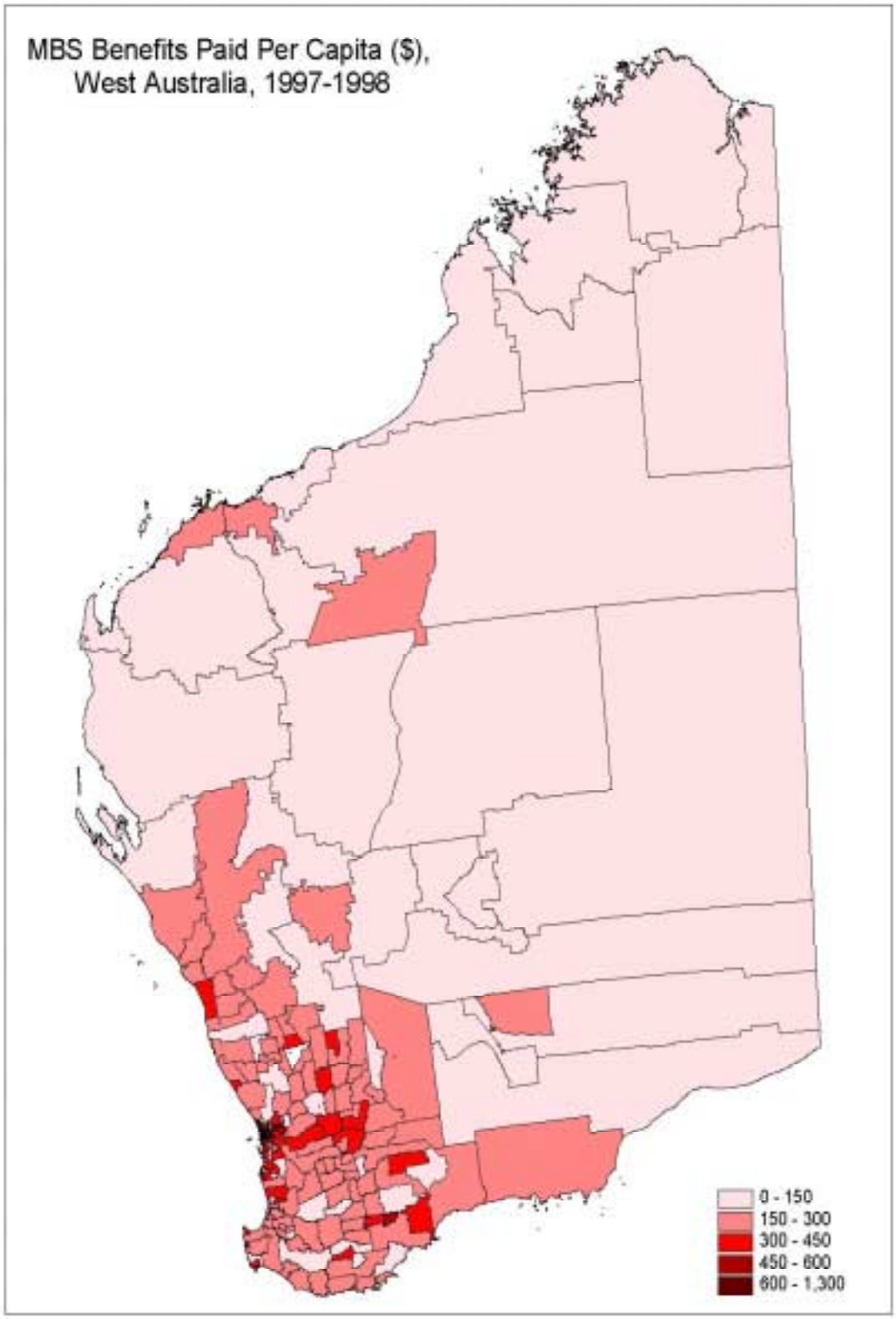
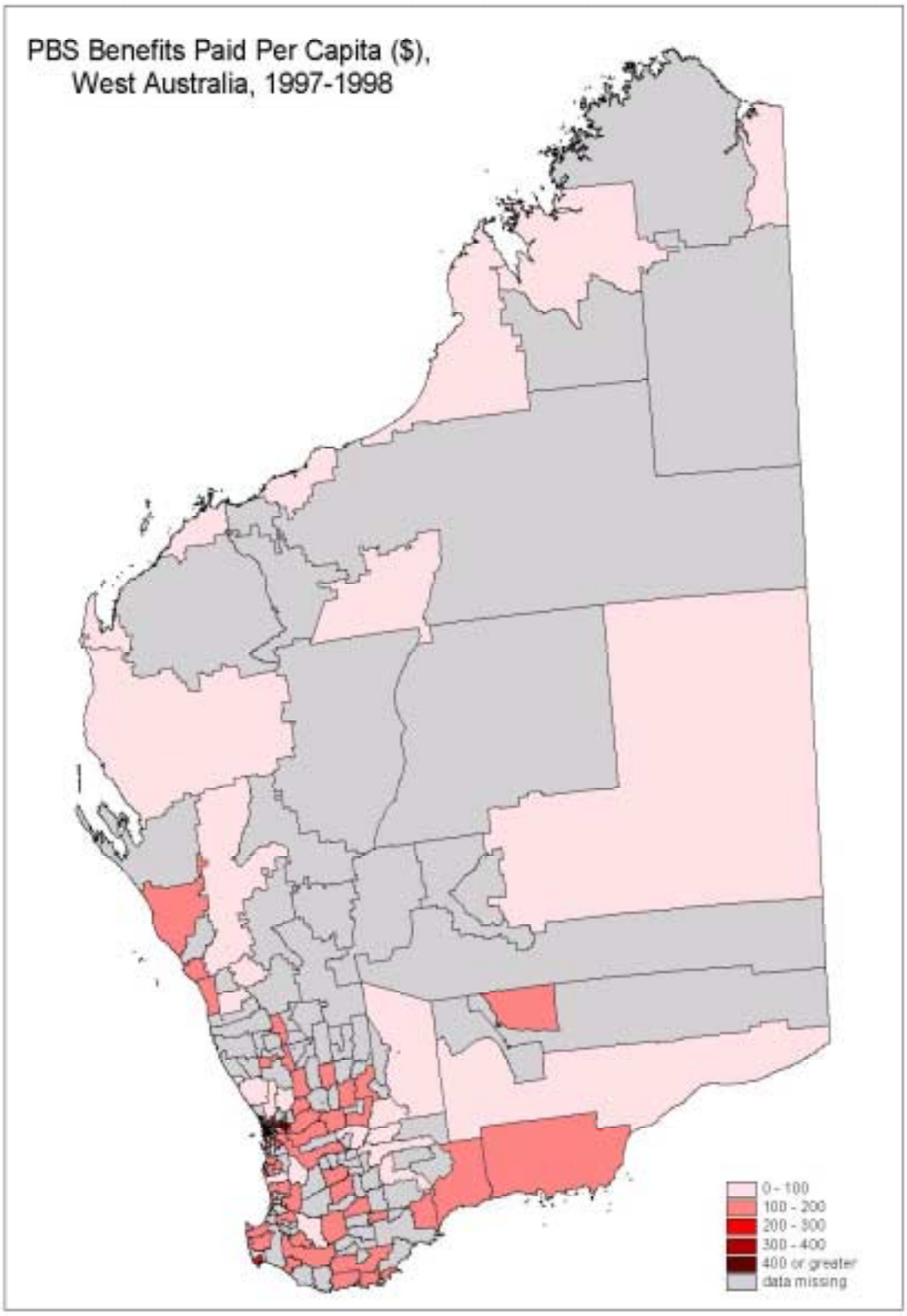


Figure A5-12 PBS BENEFITS PAID PER CAPITA ($), WESTERN AUSTRALIA, 1997-1998



APPENDIX 6

DISTRIBUTION OF ABORIGINAL POPULATION IN WESTERN AUSTRALIA

Figure A6-1 ABORIGINAL POPULATION AS A PROPORTION OF THE TOTAL POPULATION BY ATSIC REGION, WESTERN AUSTRALIA, 1996

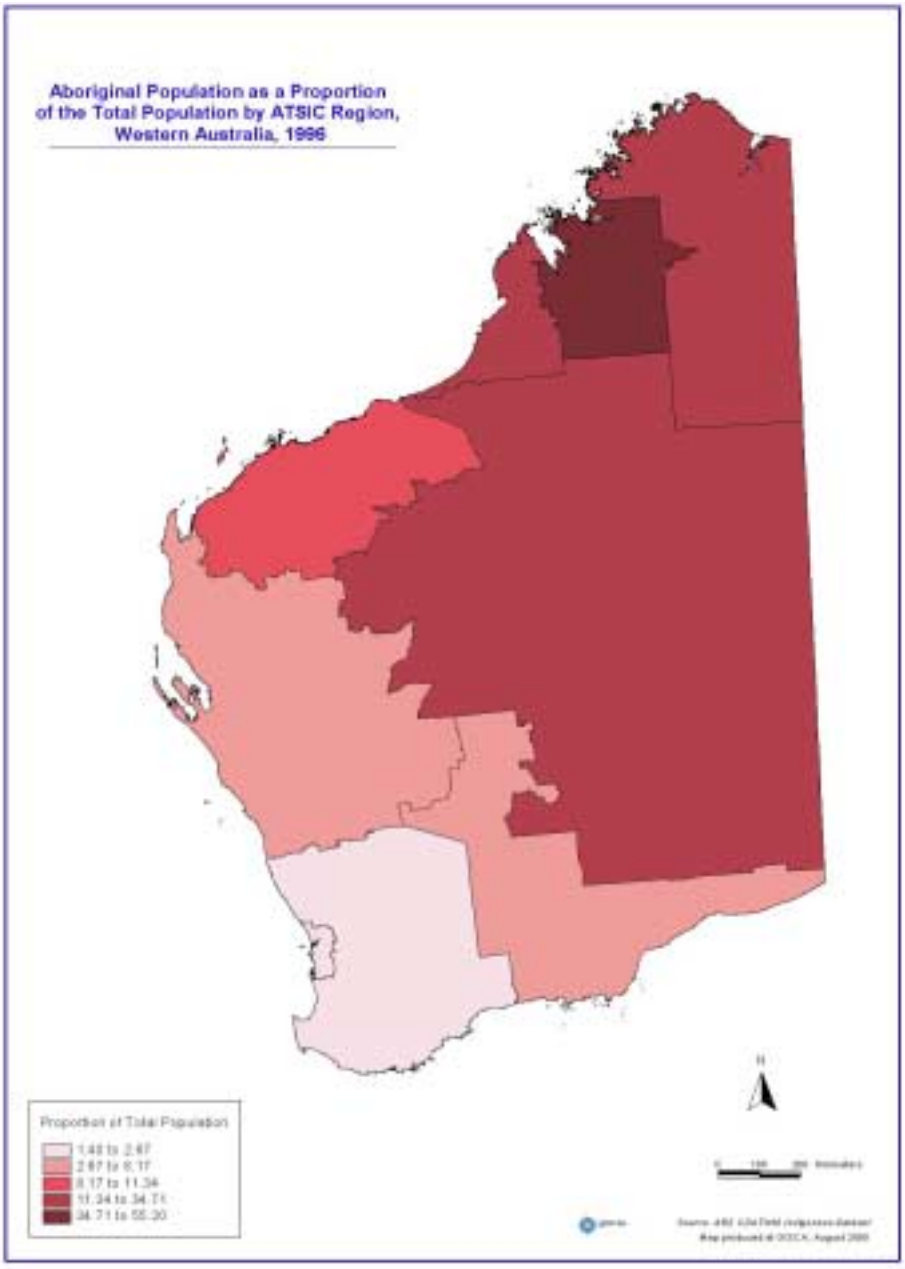


Figure A6-2 ABORIGINAL POPULATION AS A PROPORTION OF THE TOTAL STATE ABORIGINAL POPULATION BY ATSIC REGION, WESTERN AUSTRALIA,1996

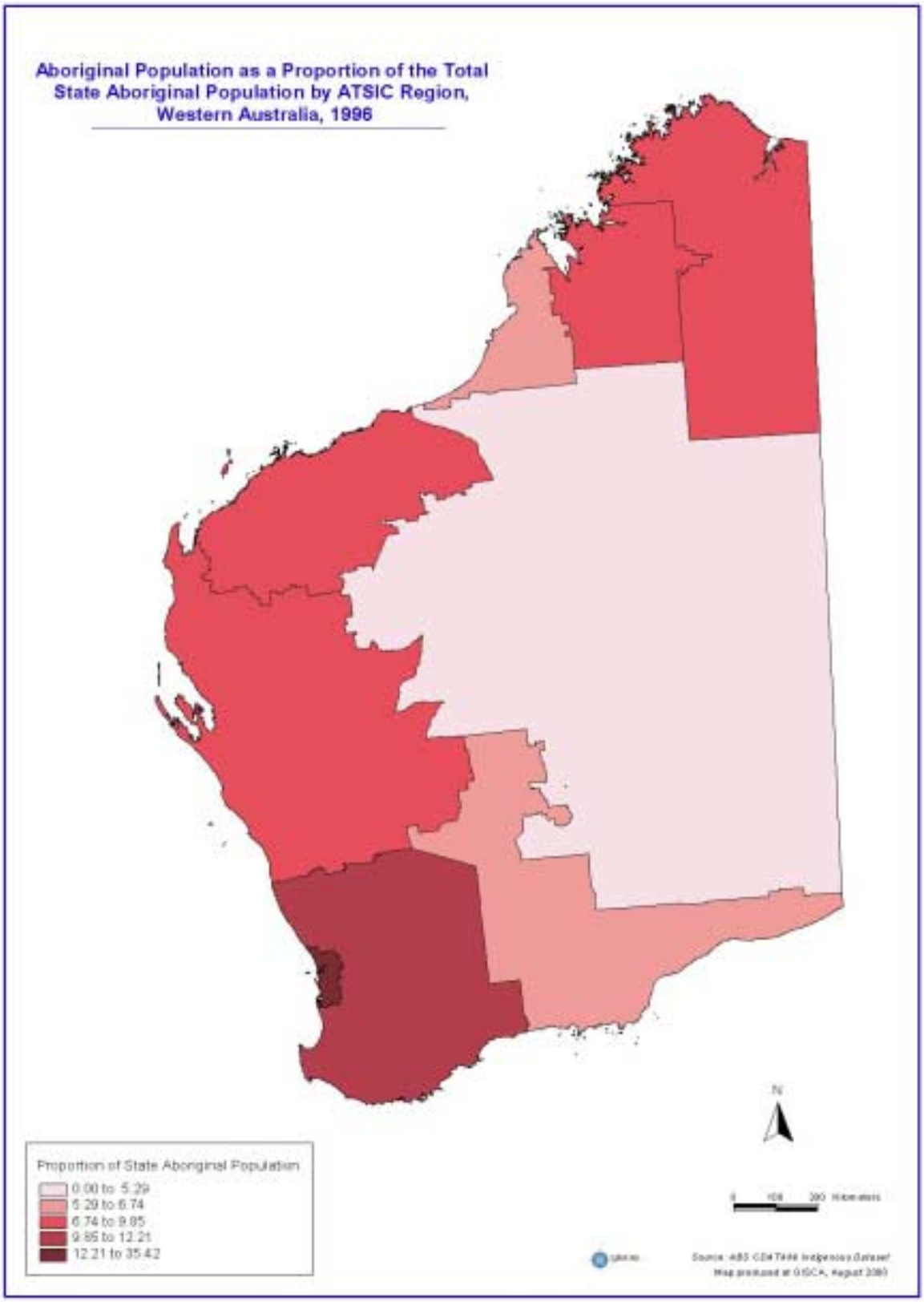


Figure A6-3 PROPORTION OF THE ABORIGINAL POPULATION AGED 0-14 YEARS BY ATSIC REGION WESTERN AUSTRALIA, 1996

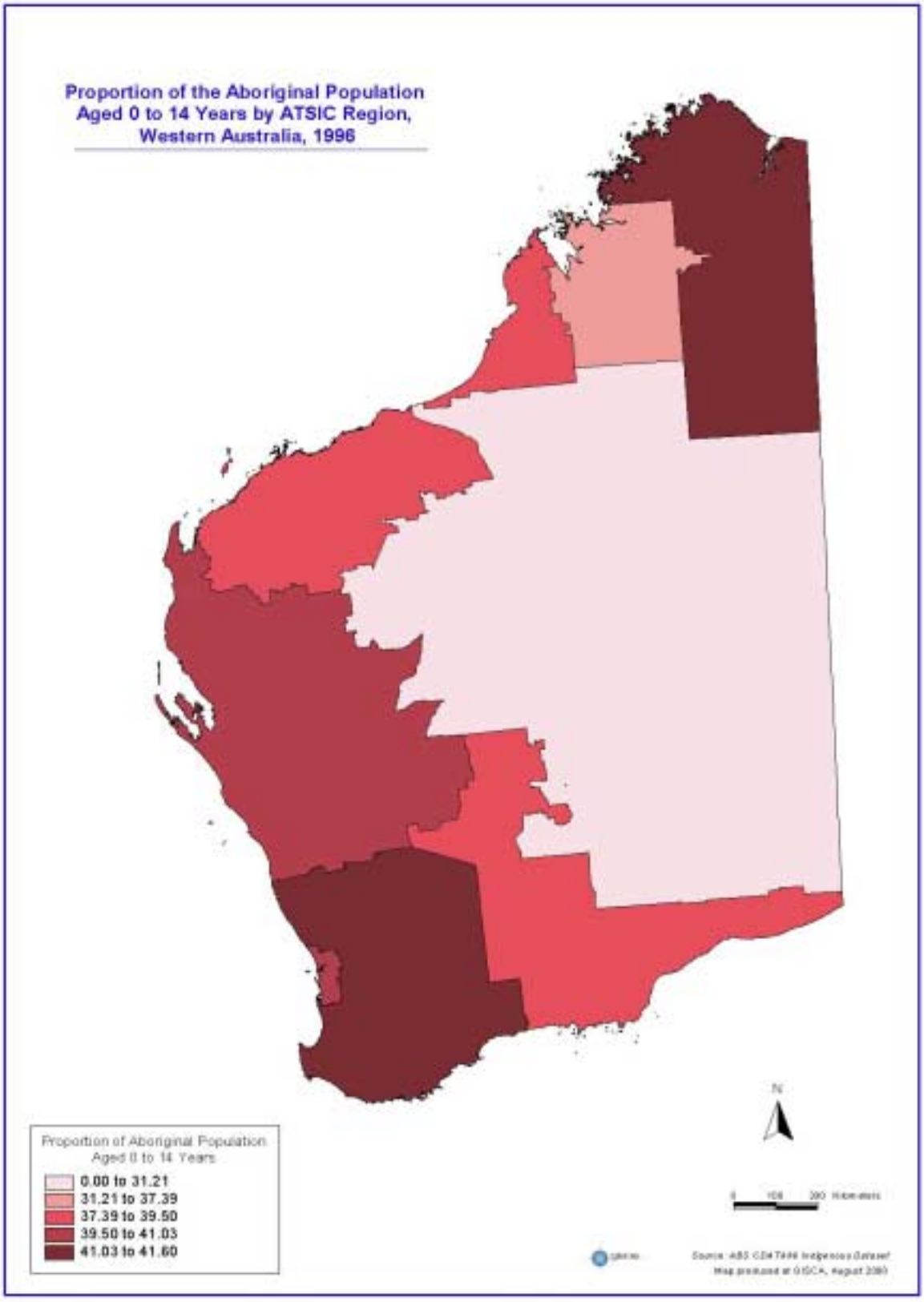


Figure A6-4 PROPORTION OF THE ABORIGINAL POPULATION AGED 55 YEARS OR OVER BY ATSIC REGION, WESTERN AUSTRALIA, 1996

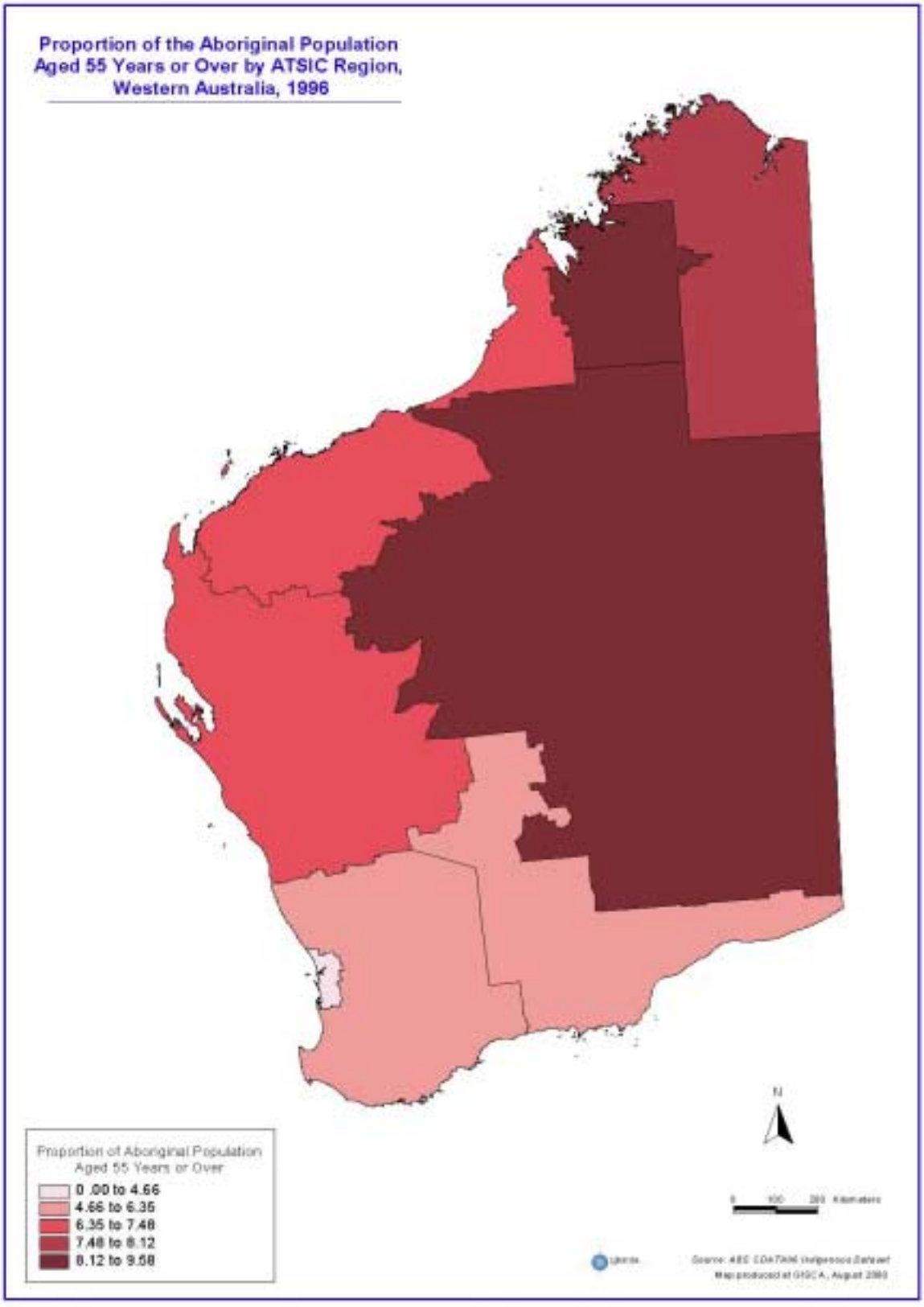


Figure A6-5 NUMBER OF ABORIGINAL MALES BY ATSIC REGION WESTERN AUSTRALIA, 1996

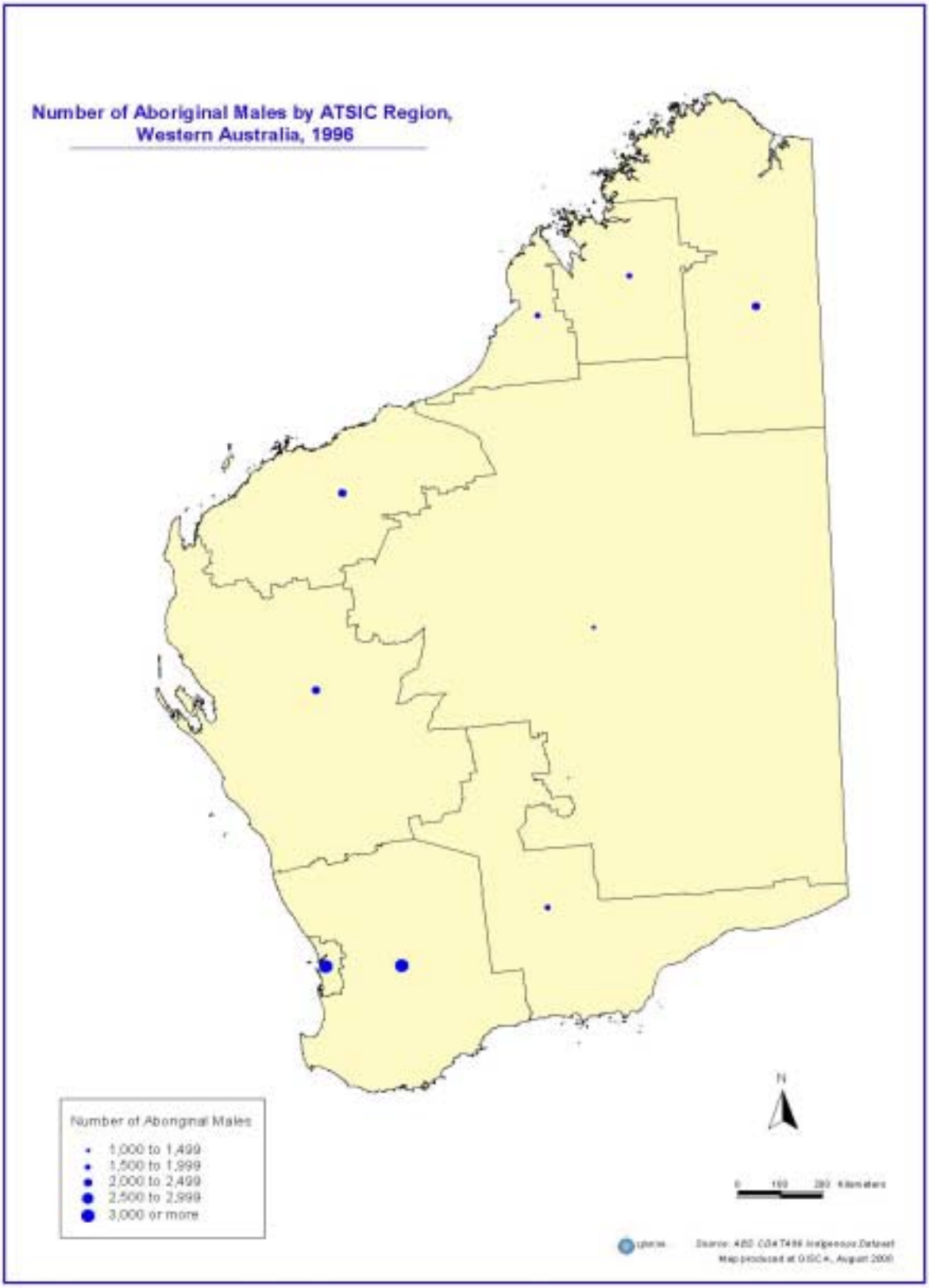
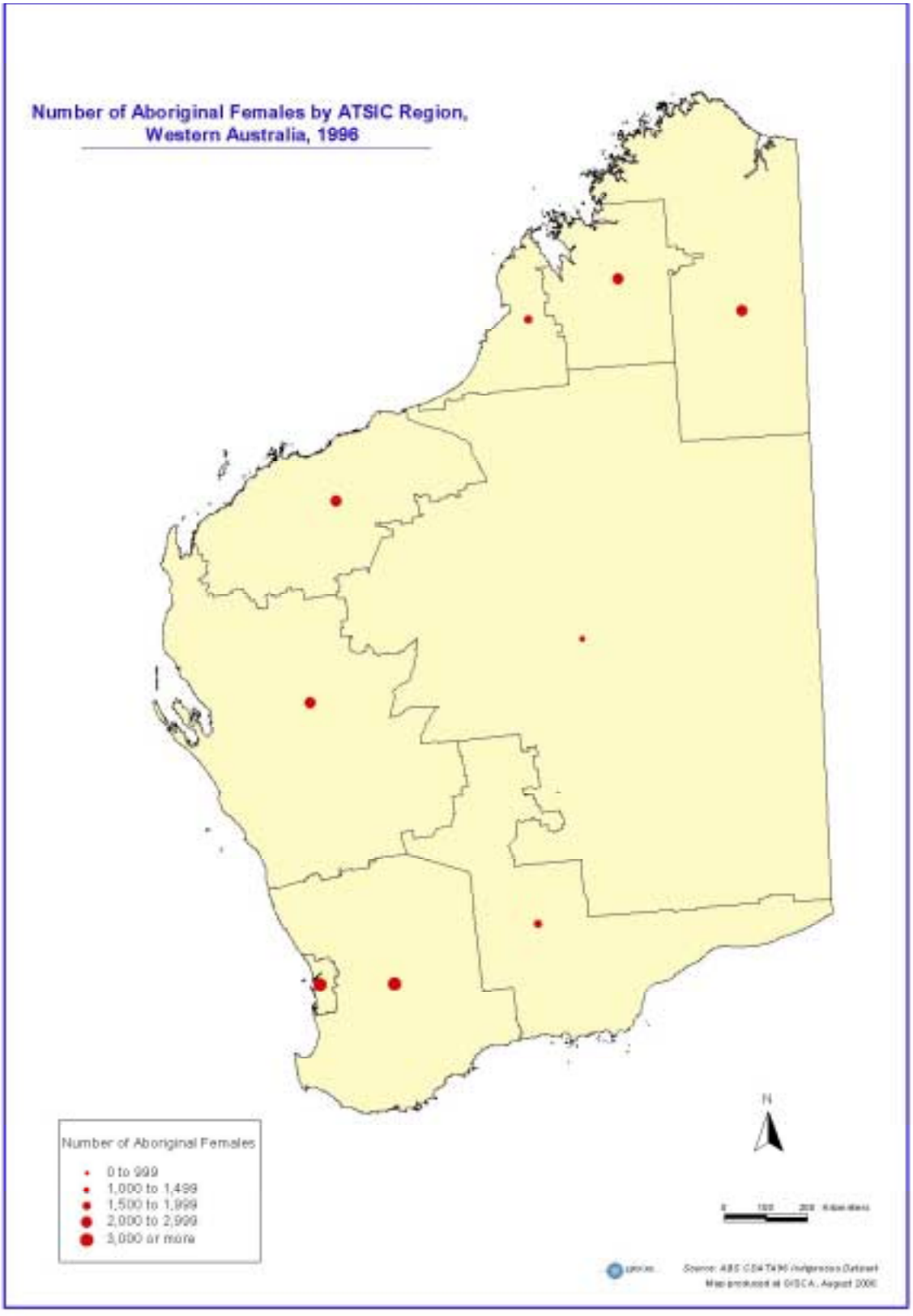


Figure A6-6 NUMBER OF ABORIGINAL FEMALES BY ATSIC REGION, WESTERN AUSTRALIA, 1996



APPENDIX 7

ALL CAUSES MORTALITY, HOSPITALISATION AND POTENTIAL YEARS LIFE LOST

Figure A7-1 STANDARDISED MORTALITY RATIO — ALL CAUSES DEATHS OF ABORIGINAL MALES BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

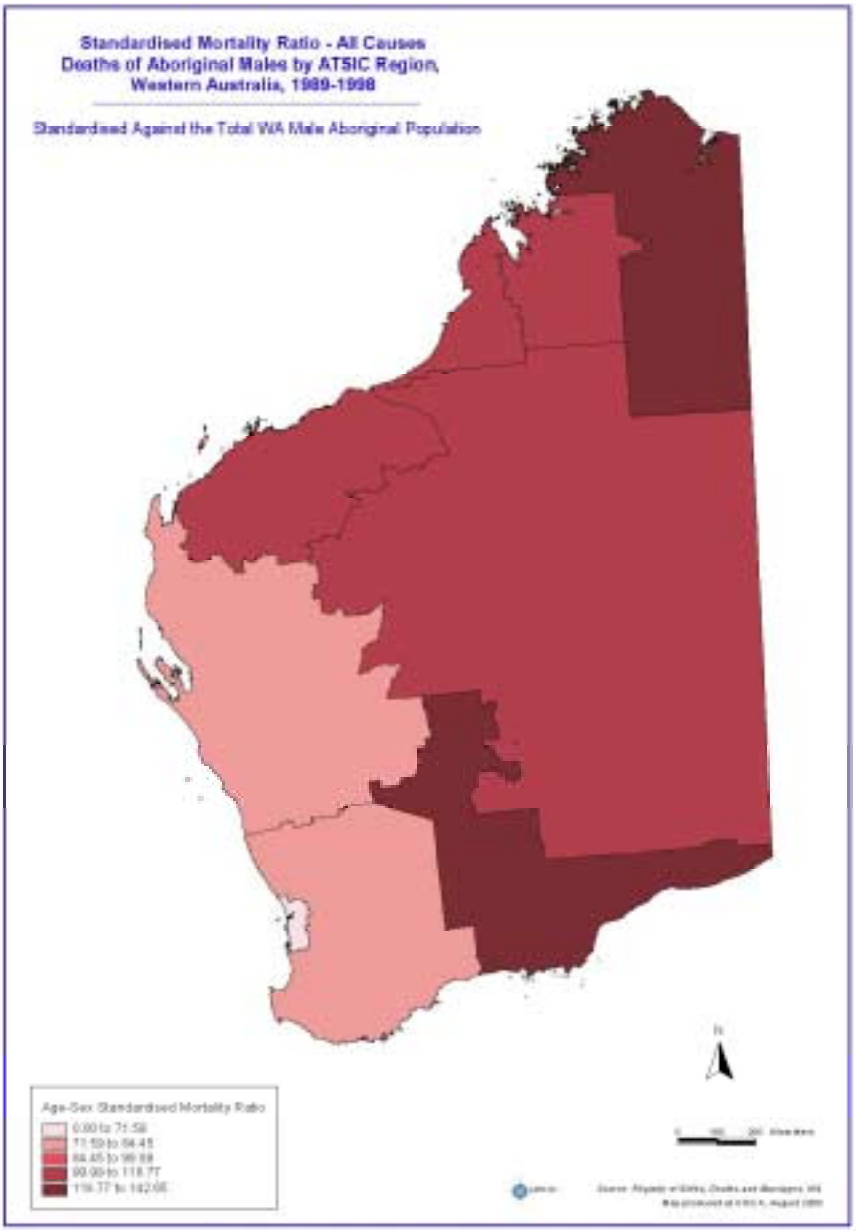


Figure A7-2 STANDARDISED MORTALITY RATIO — ALL CAUSES DEATHS OF ABORIGINAL FEMALES BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

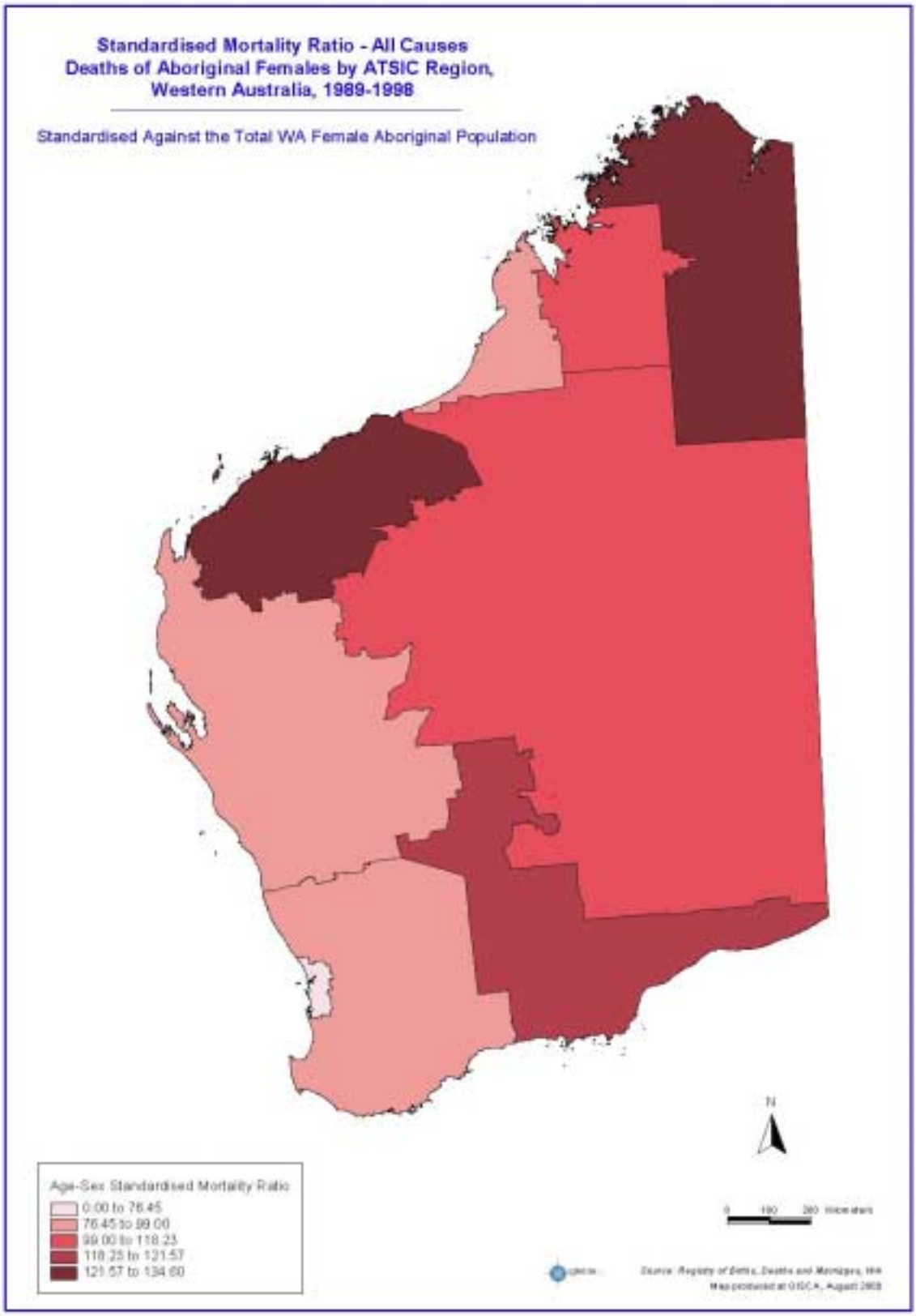


Figure A7-3 POTENTIAL YEARS OF LIFE LOST TO AGE 65 (AGE-STANDARDISED RATIO) ABORIGINAL MALES BY ATSIC REGION, WESTERN AUSTRALIA

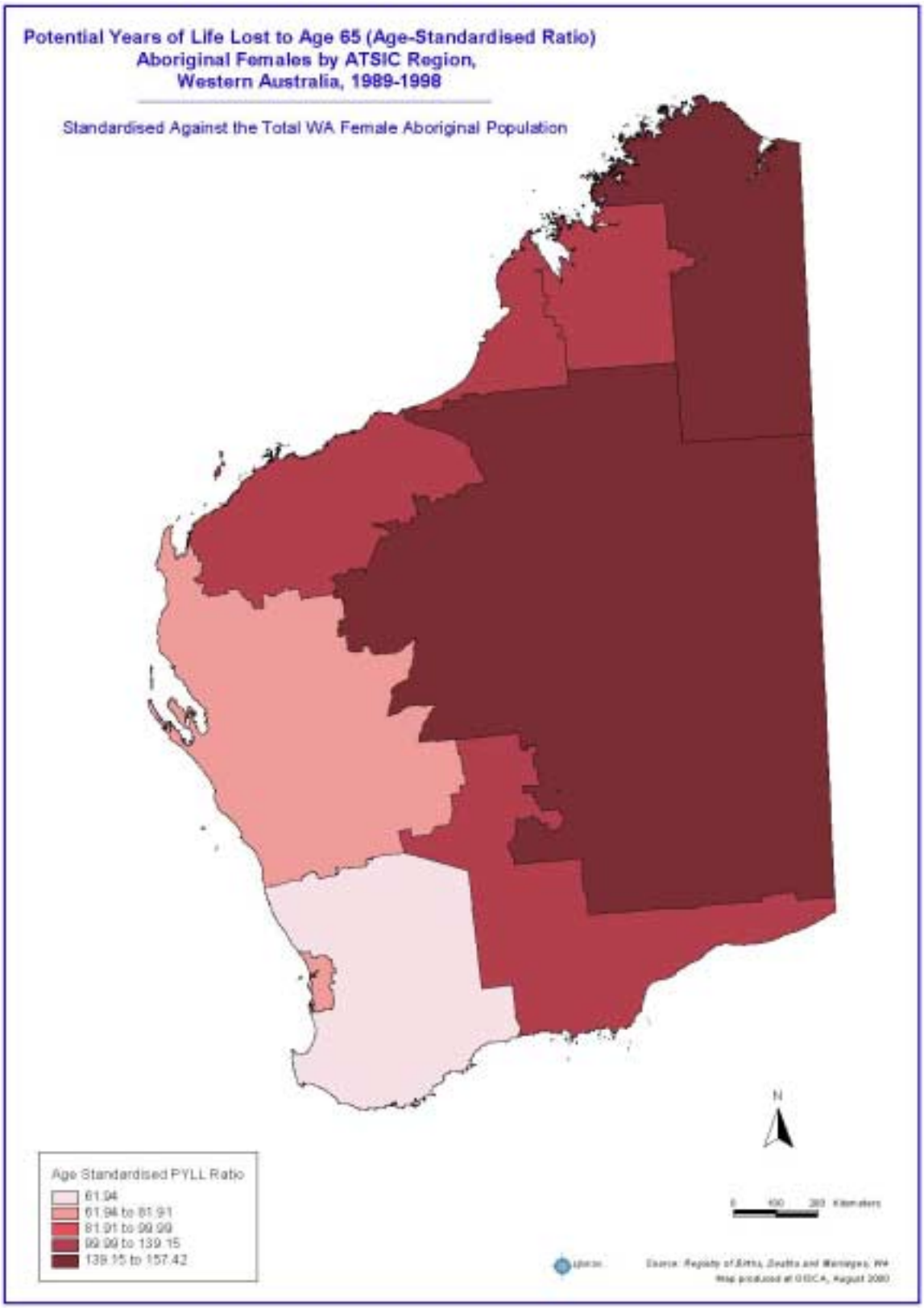


Figure A7-4 POTENTIAL YEARS OF LIFE LOST TO AGE 65 (AGE-STANDARDISED RATIO) ABORIGINAL FEMALES BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

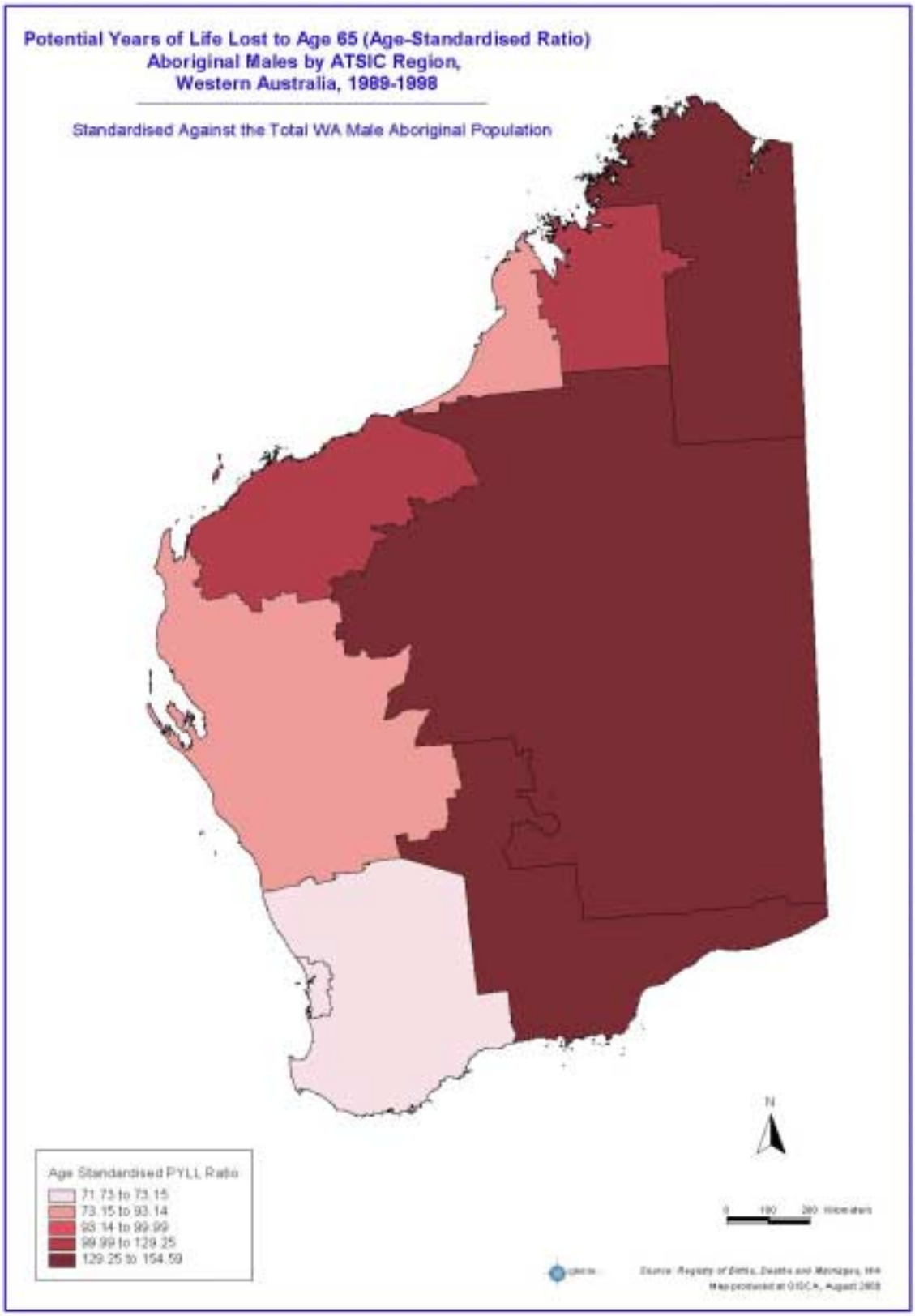


Figure A7-5 AGE-STANDARDISED ALL CAUSE HOSPITALISATION RATIO — ADMISSIONS OF ABORIGINAL MALES BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

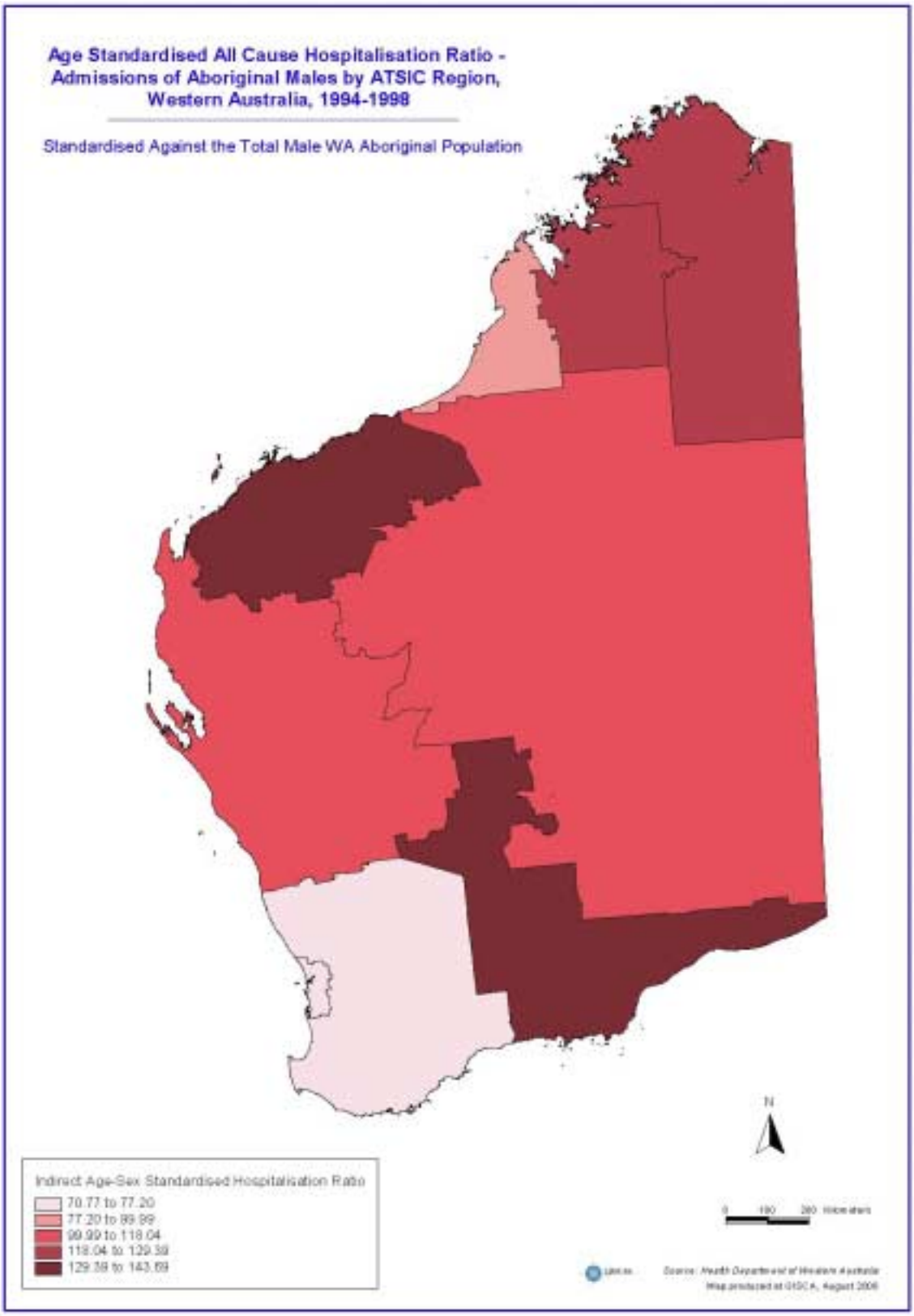
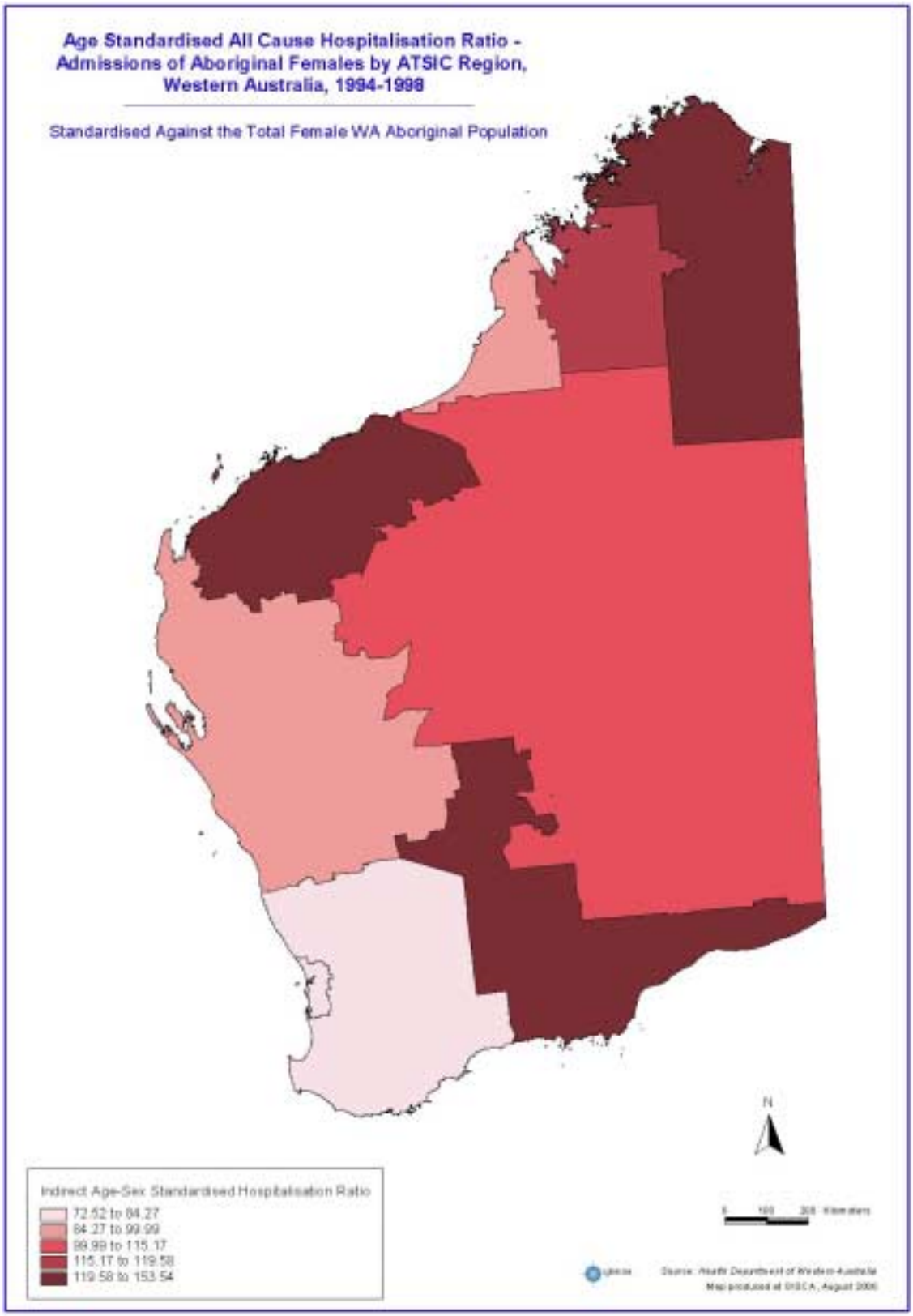


Figure A7-6 AGE-STANDARDISED ALL CAUSE HOSPITALISATION RATIO — ADMISSIONS OF ABORIGINAL FEMALES BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998



APPENDIX 8

DISEASES CAUSED BY ENVIRONMENTAL FACTORS

Figure A8-1 AGE-STANDARDISED HOSPITALISATION RATIO — INFECTIOUS AND PARASITIC DISEASES ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

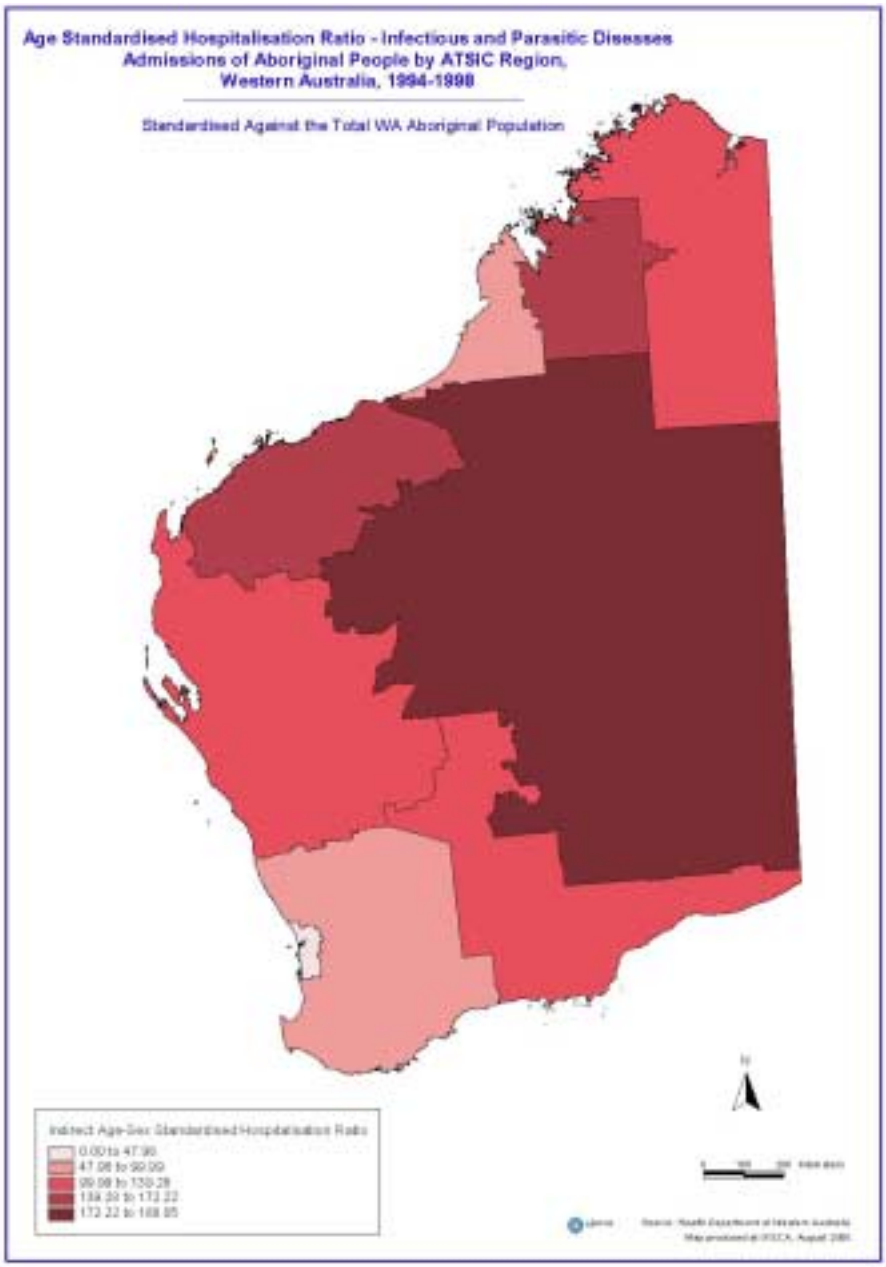


Figure A8-2 AGE-STANDARDISED HOSPITALISATION RATIO — INFECTIOUS AND PARASITIC DISEASES ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

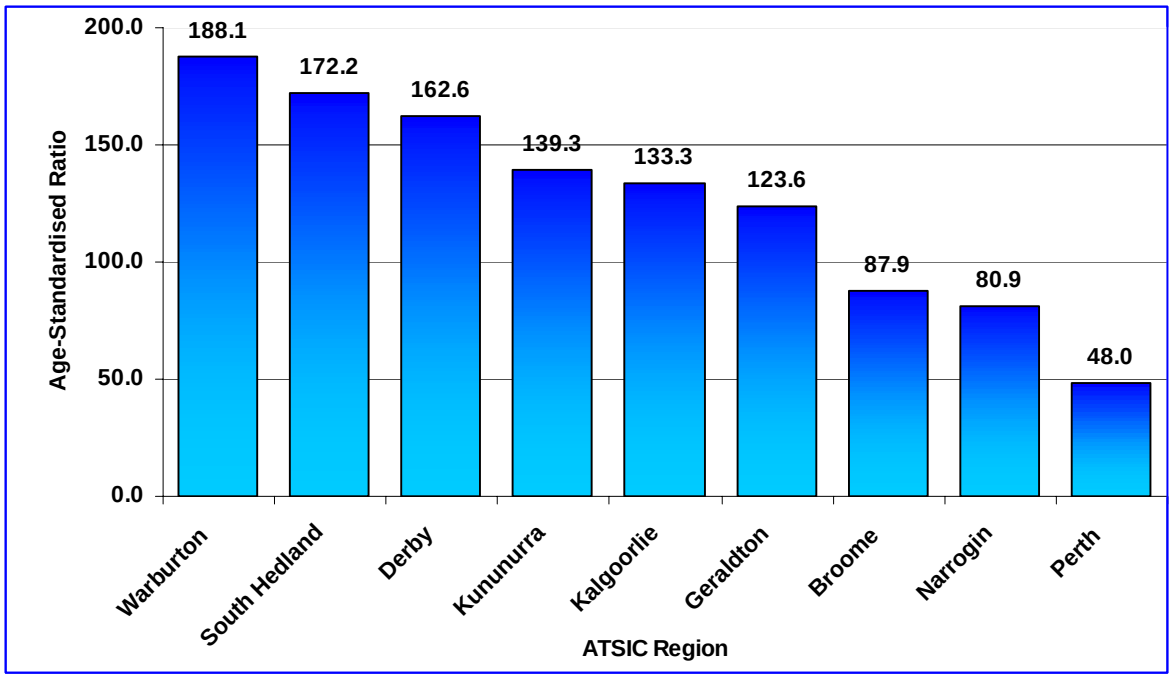


Figure A8-3 PROPORTION OF TOTAL HOSPITAL SEPARATIONS FROM INFECTIOUS AND PARASITIC DISEASES COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, 1994-1998

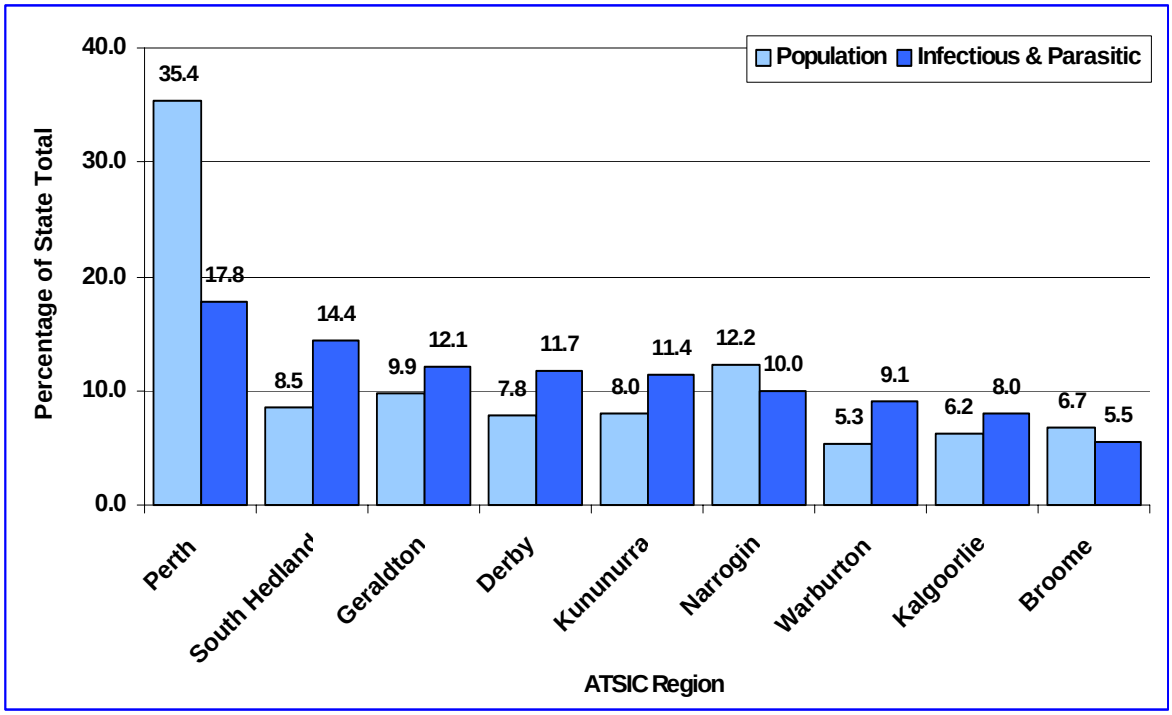


Figure A8-4 STANDARDISED MORTALITY RATIO — RESPIRATORY DISEASES DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

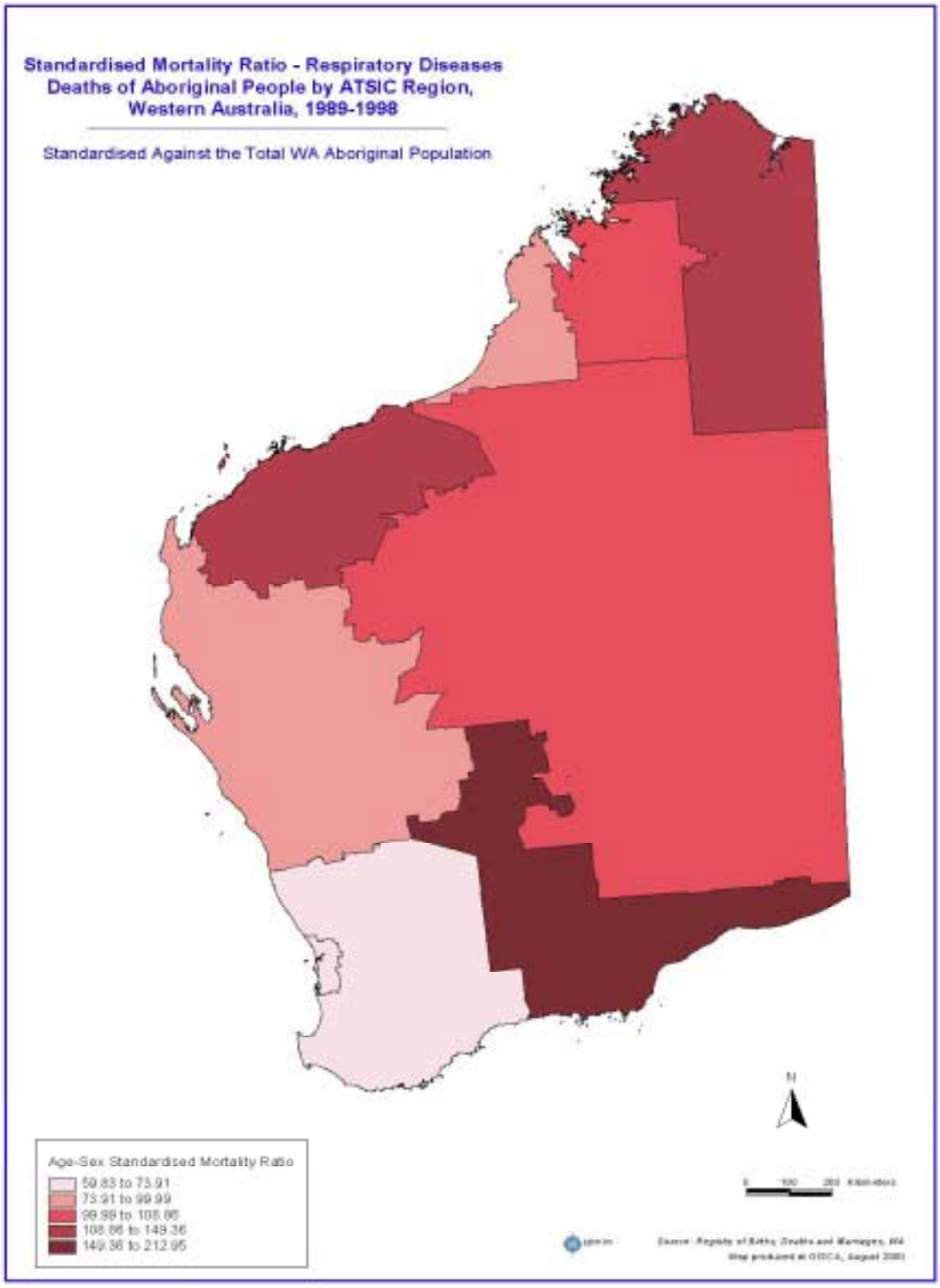


Figure A8-5 STANDARDISED MORTALITY RATIO — RESPIRATORY DISEASES DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

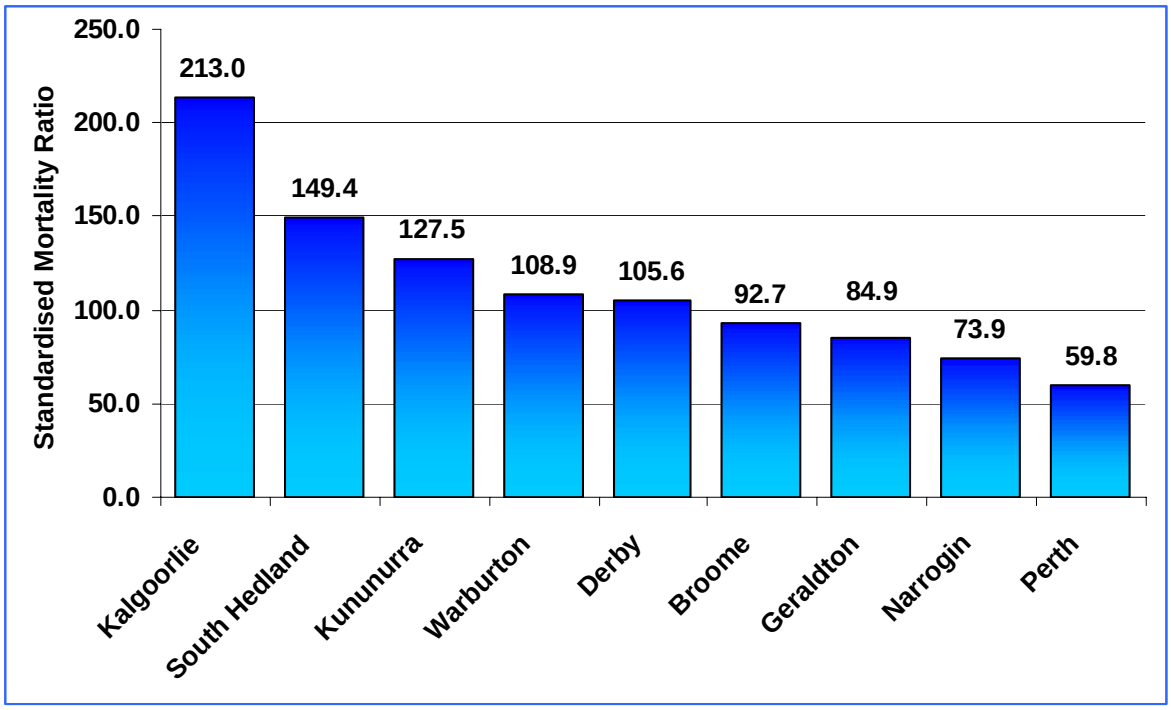


Figure A8-6 PROPORTION OF TOTAL DEATHS FROM RESPIRATORY DISEASES COMPARED TO RESPIRATORY DISEASES COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1989-1998

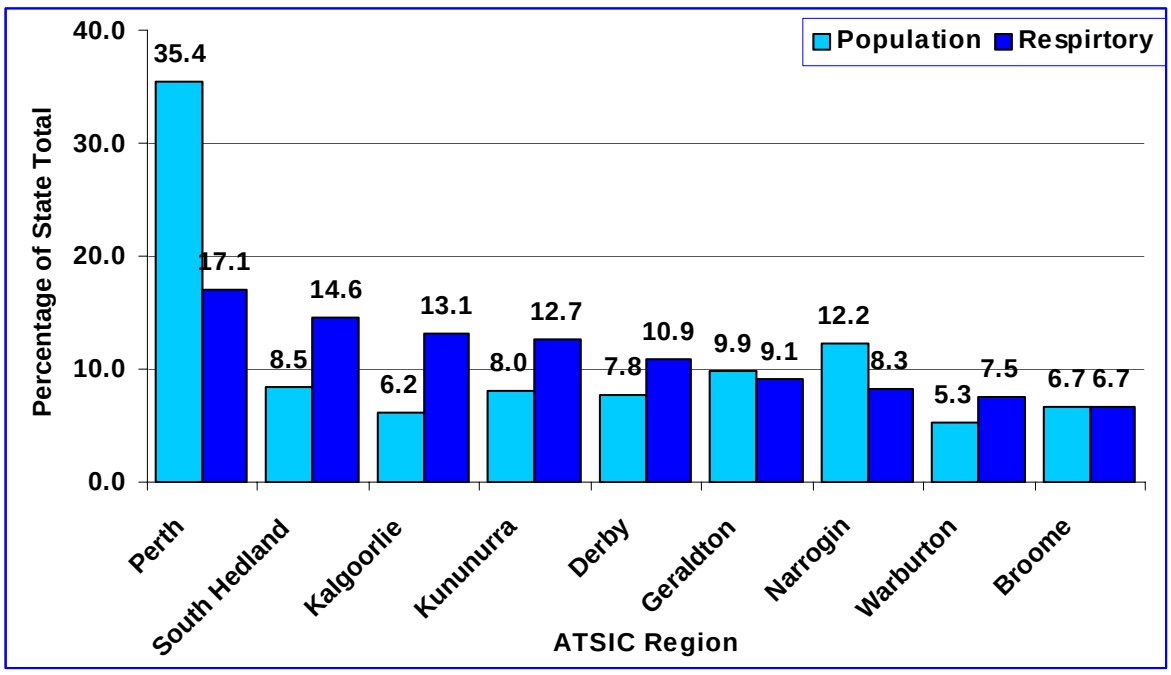


Figure A8-7 AGE-STANDARDISED HOSPITALISATION RATIO — RESPIRATORY DISEASES ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

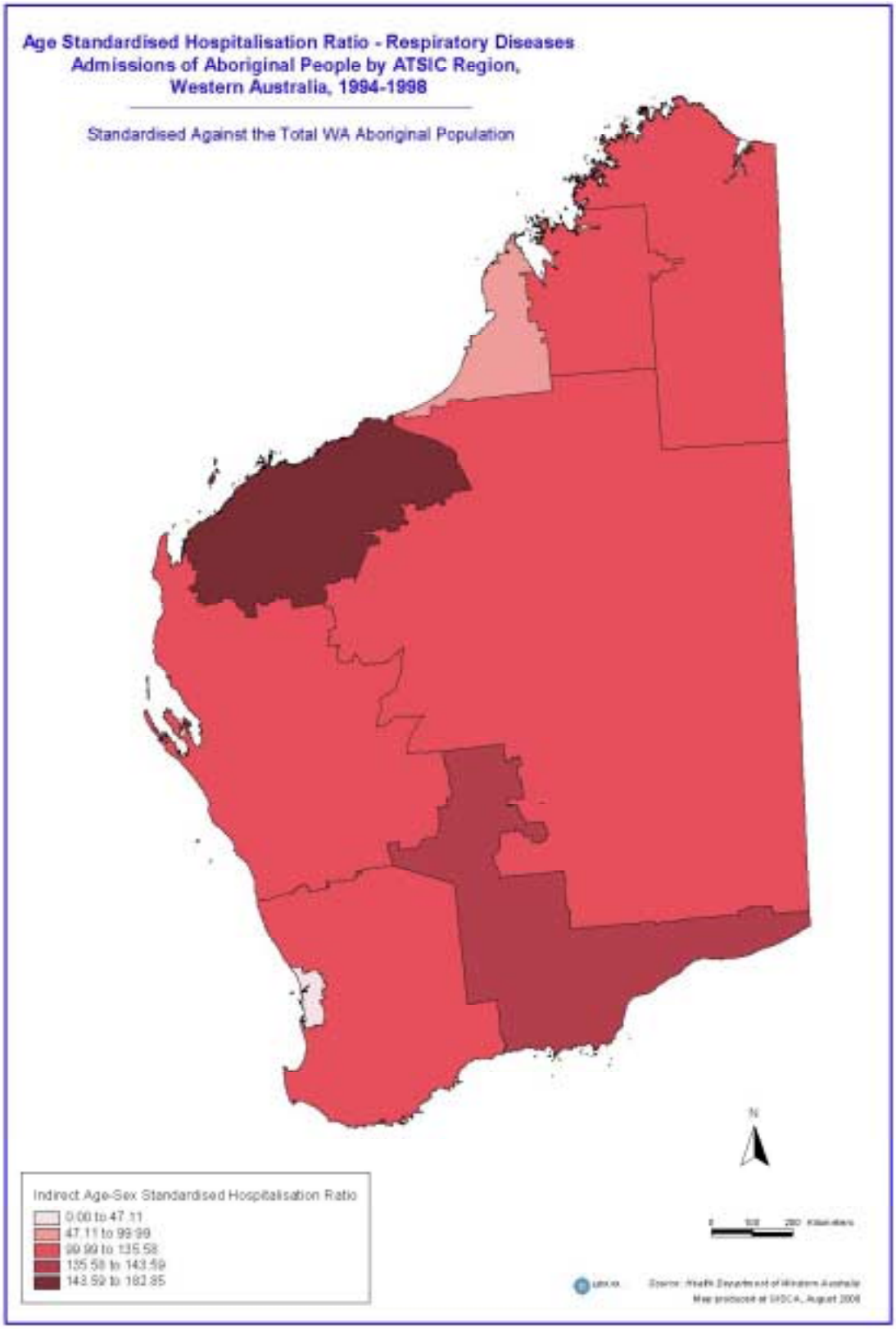


Figure A8-8 AGE-STANDARDISED HOSPITALISATION RATIO — RESPIRATORY DISEASES ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

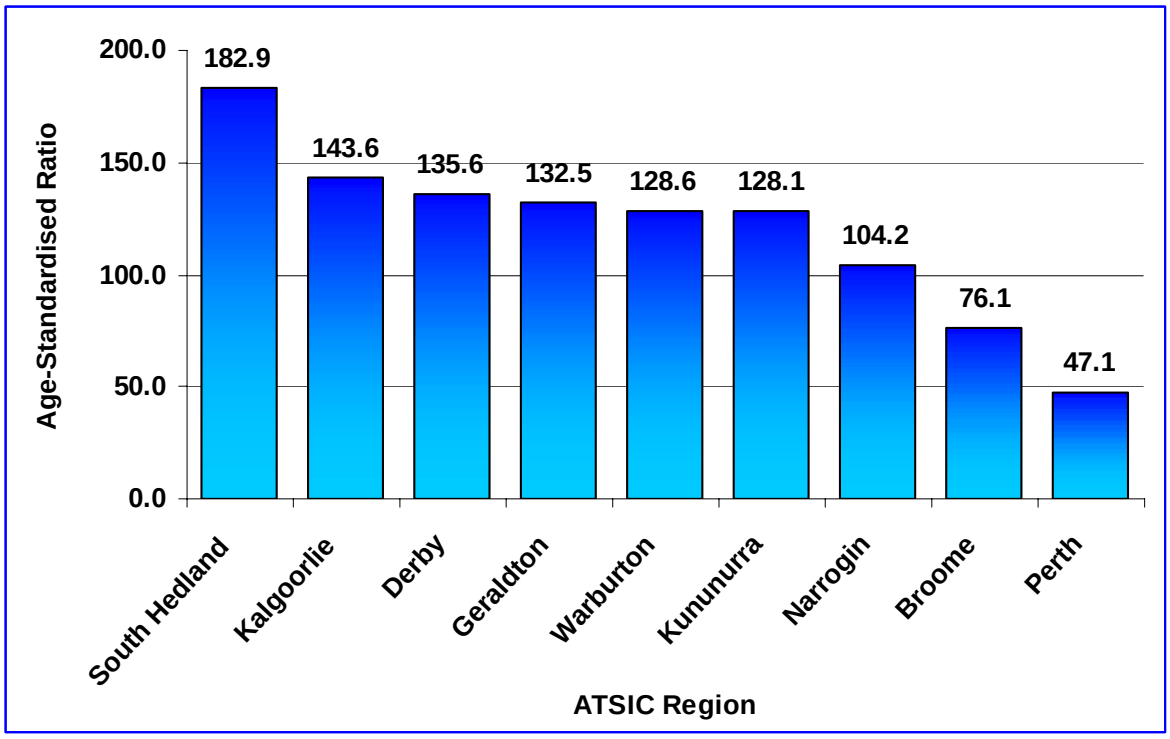
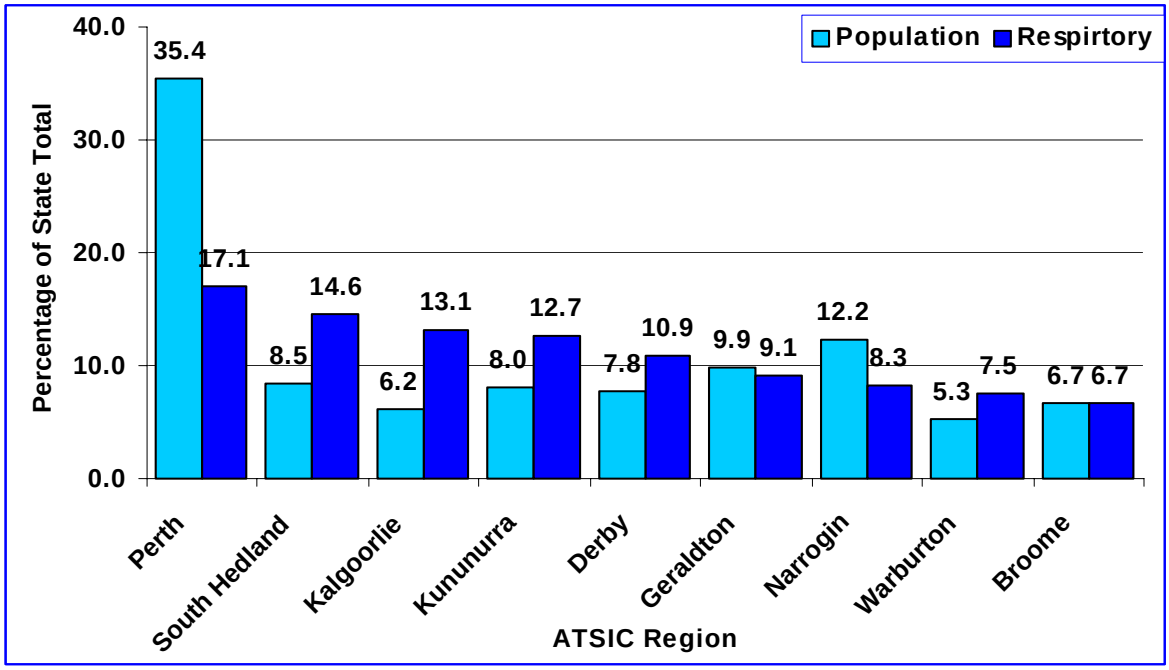


Figure A8-9 PROPORTION OF TOTAL HOSPITAL SEPARATIONS FROM RESPIRATORY DISEASES COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1994-1998



APPENDIX 9

DISEASES CAUSED BY SOCIAL FACTORS

Figure A9-1 STANDARDISED MORTALITY RATIO — ENDOCRINE DISORDERS DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

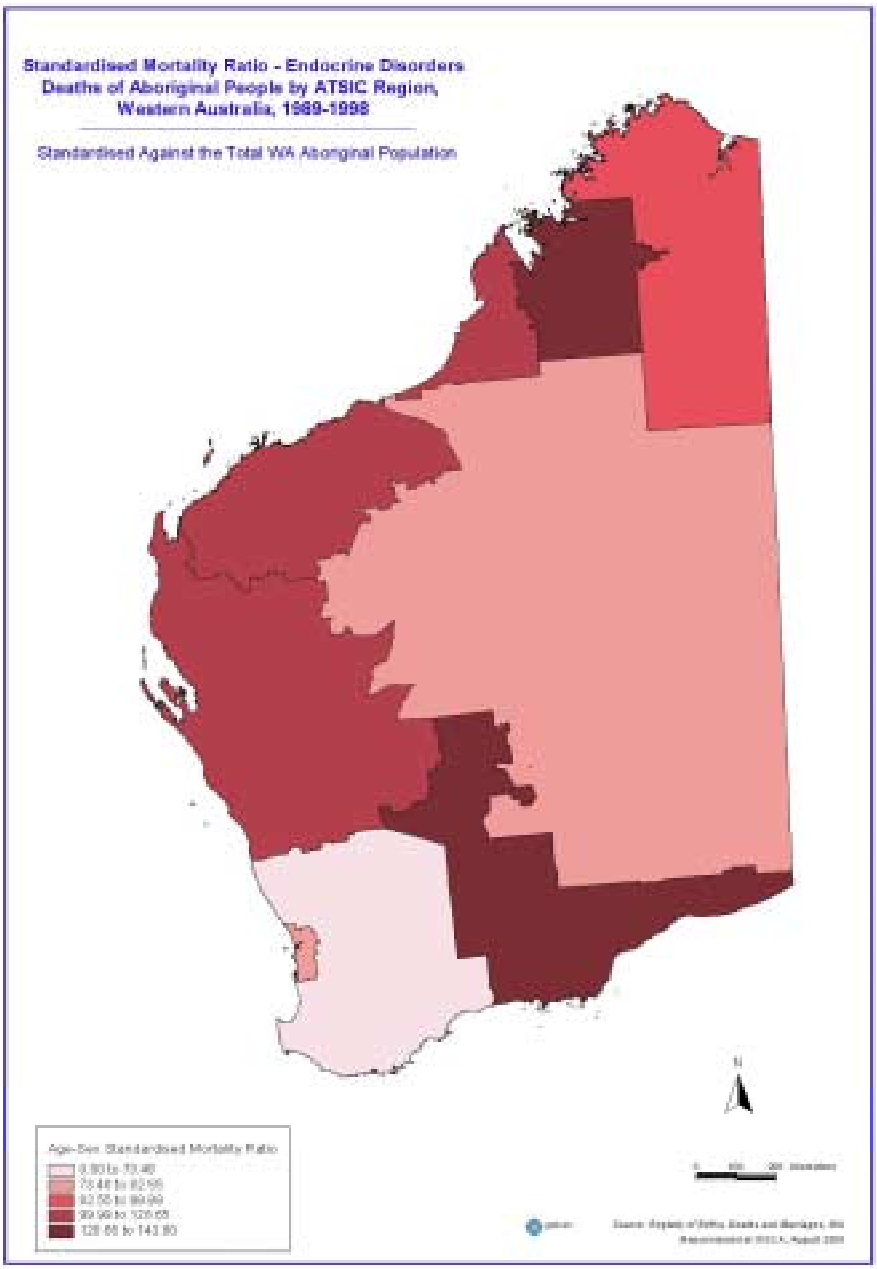


Figure A9-2 STANDARDISED MORTALITY RATIO — ENDOCRINE DISORDERS DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

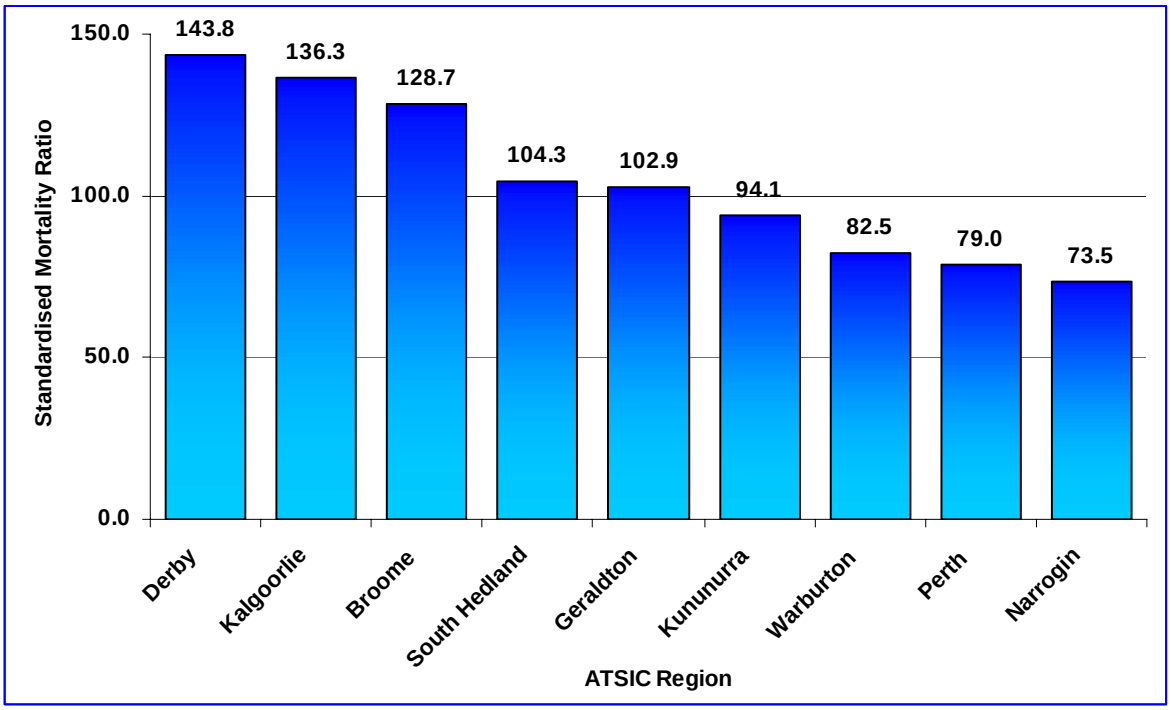


Figure A9-3 PROPORTION OF TOTAL DEATHS FROM ENDOCRINE DISORDERS COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1989-1998

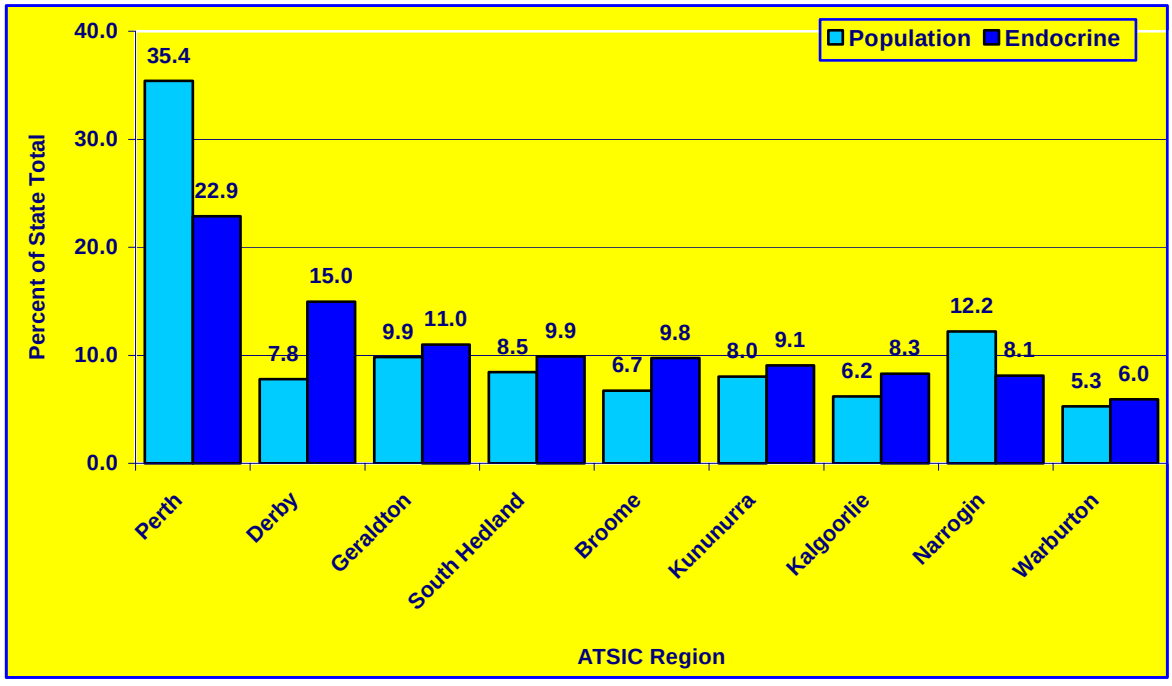


Figure A9-4 AGE-STANDARDISED HOSPITALISATION RATIO — ENDOCRINE DISORDERS ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

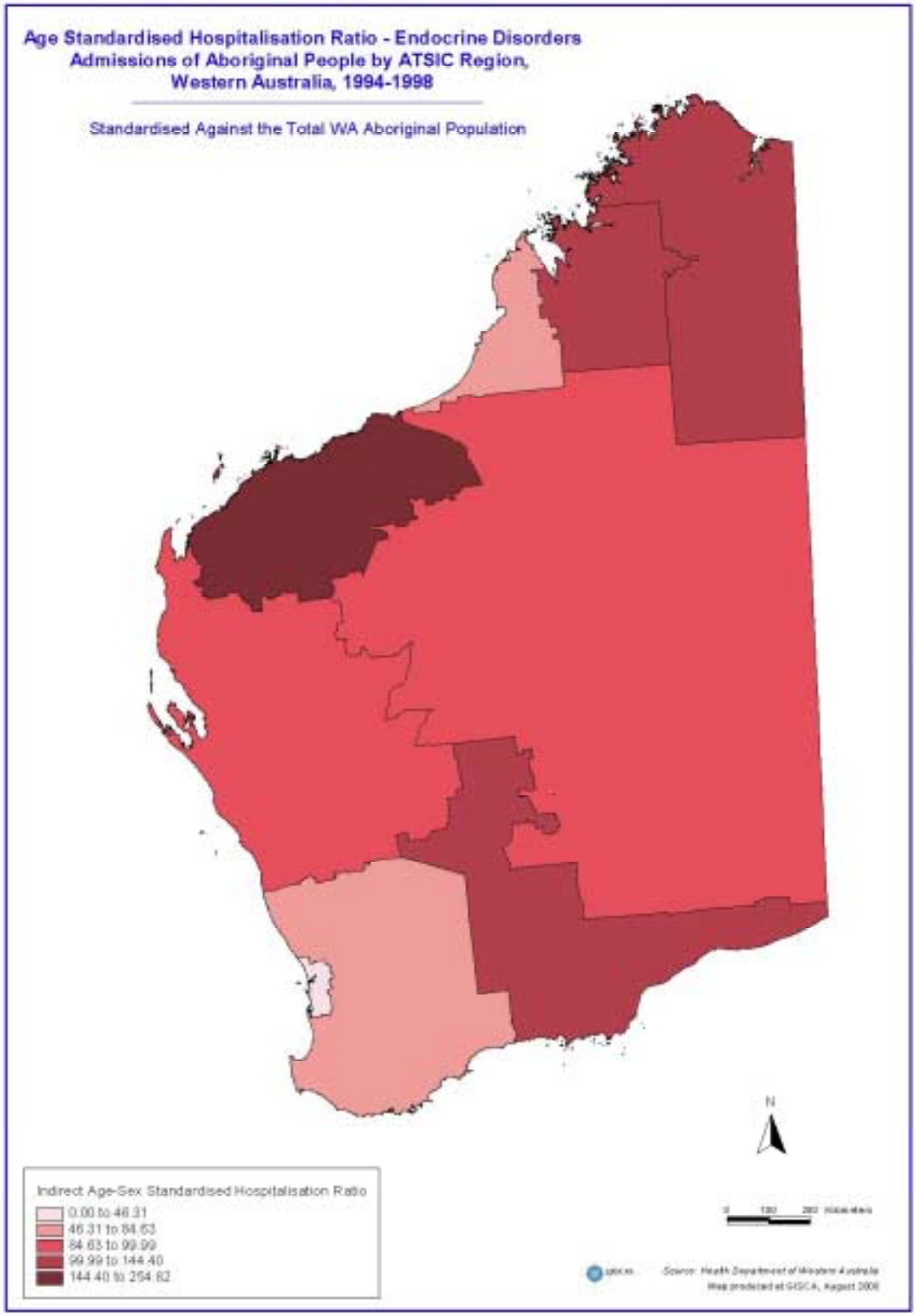


Figure A9-5 AGE-STANDARDISED HOSPITALISATION RATIO — ENDOCRINE DISORDERS ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

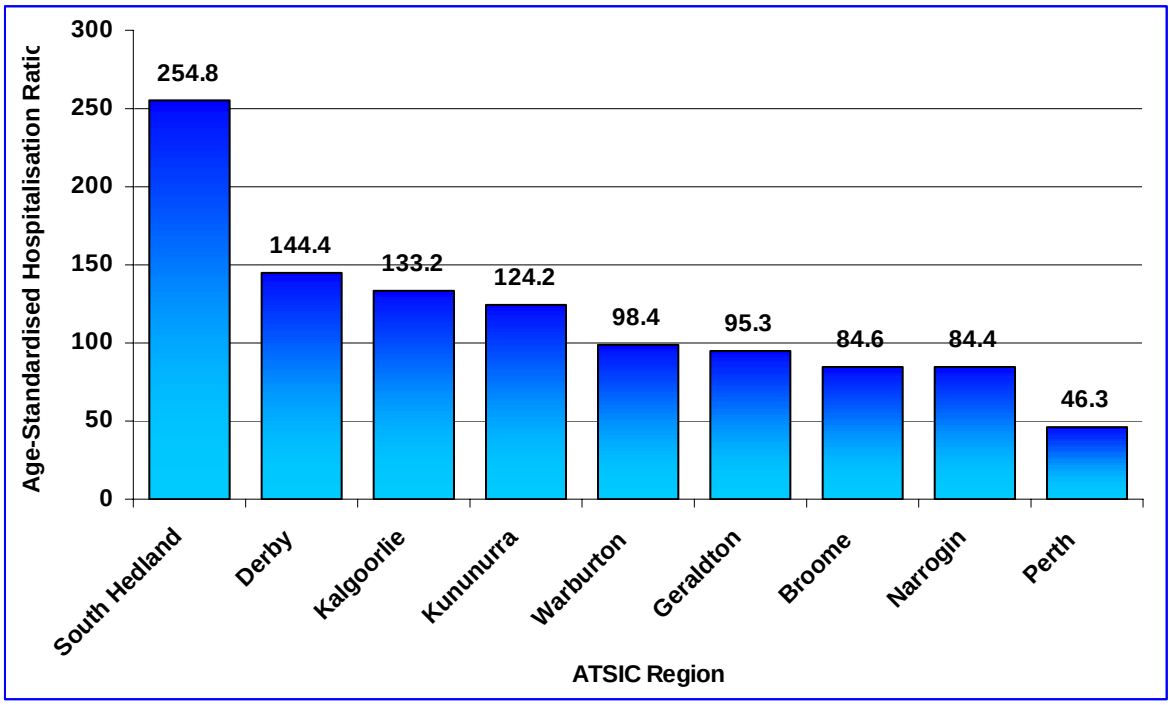
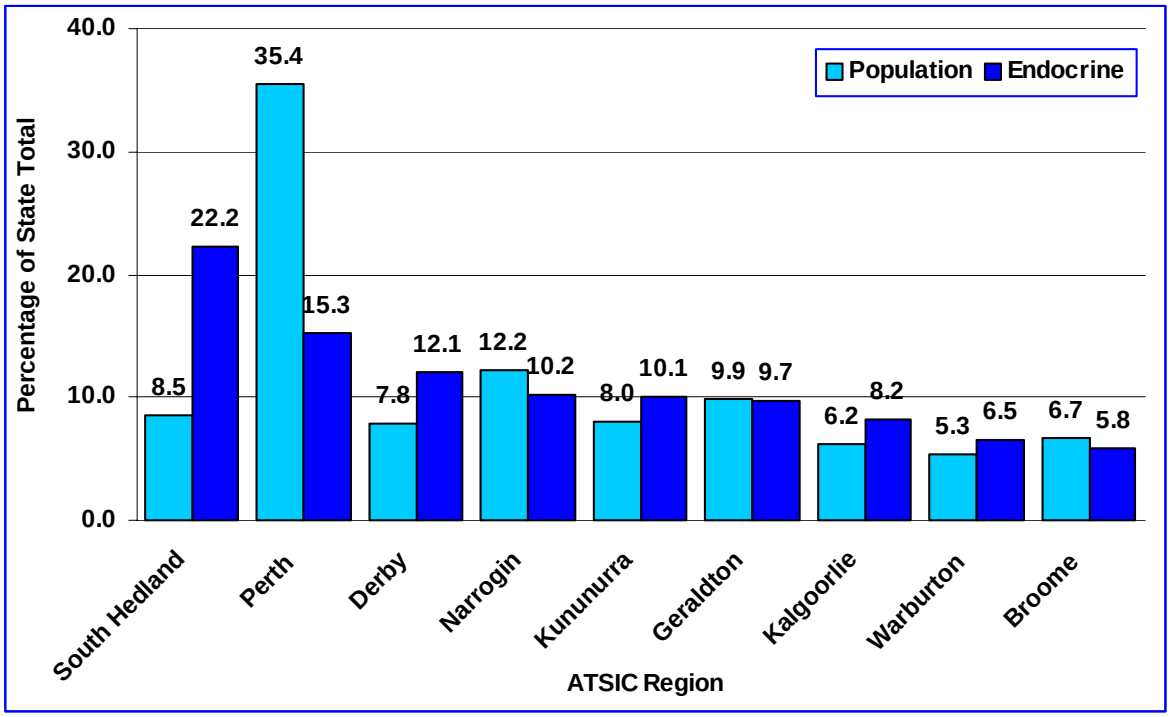


Figure A9-6 PROPORTION OF TOTAL HOSPITAL SEPARATIONS FROM ENDOCRINE DISORDERS COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1994-1998



APPENDIX 10

DISEASE CAUSED BY LIFESTYLE FACTORS

Figure A10-1 STANDARDISED MORTALITY RATIO — INJURY AND POISONING DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

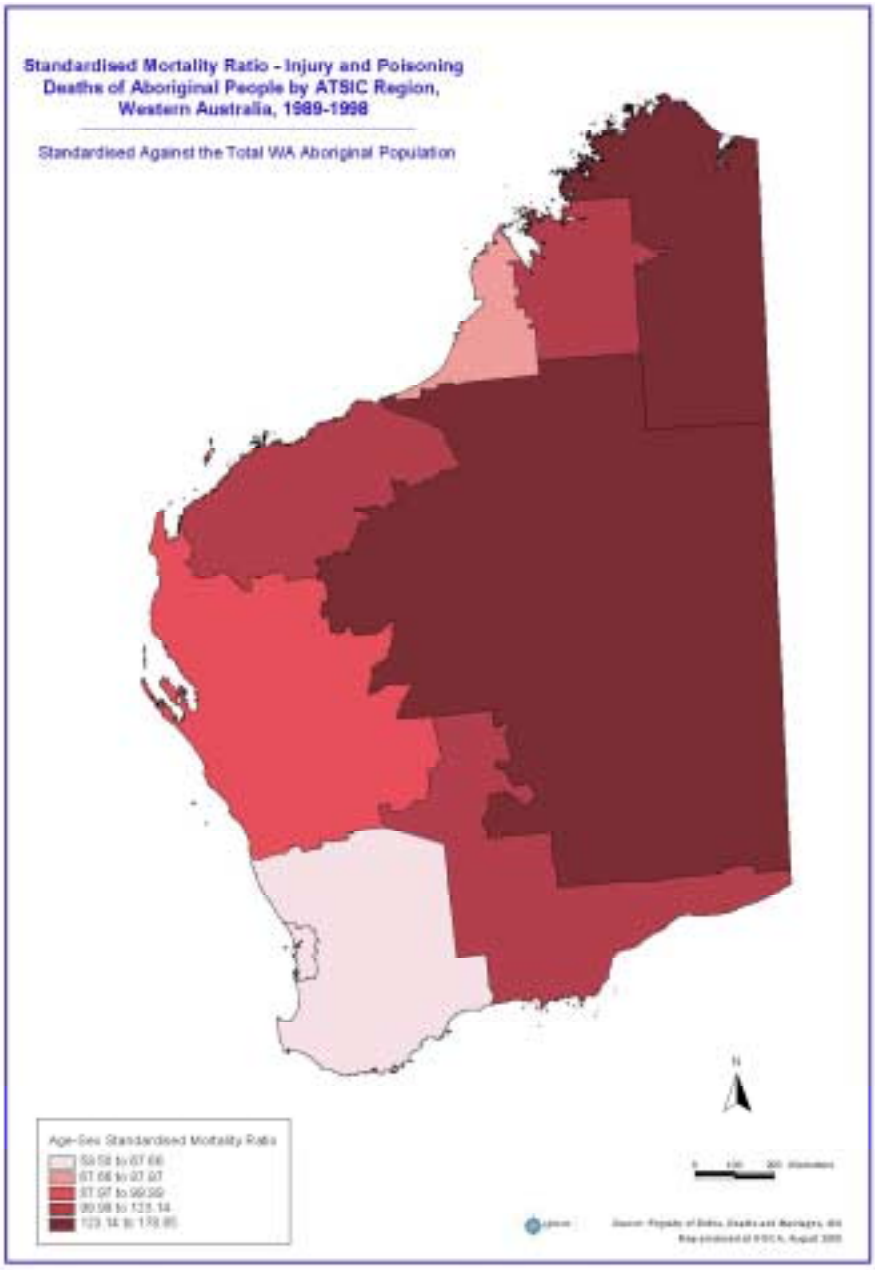


Figure A10-2 STANDARDISED MORTALITY RATIO — INJURY AND POISONING DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN, AUSTRALIA, 1989-1998

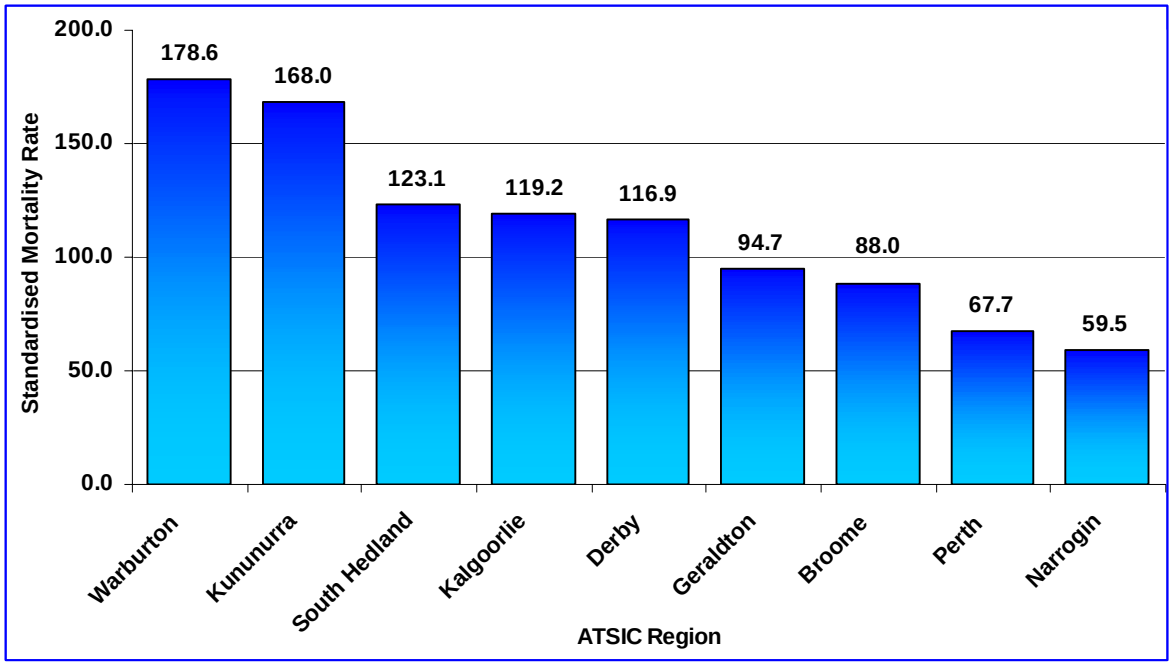


Figure A10-3 PROPORTION OF TOTAL DEATHS FROM INJURY AND POISONING COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1989-1998

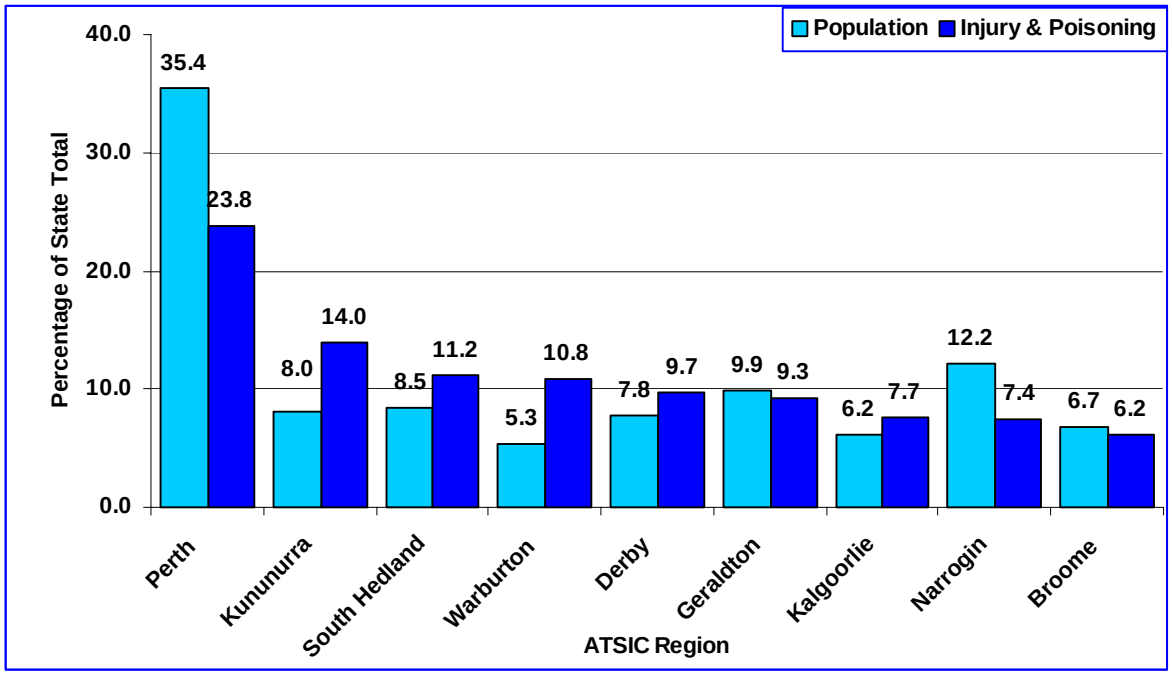


Figure A10-4 AGE-STANDARDISED HOSPITALISATION RATIO — INJURY AND POISONING ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

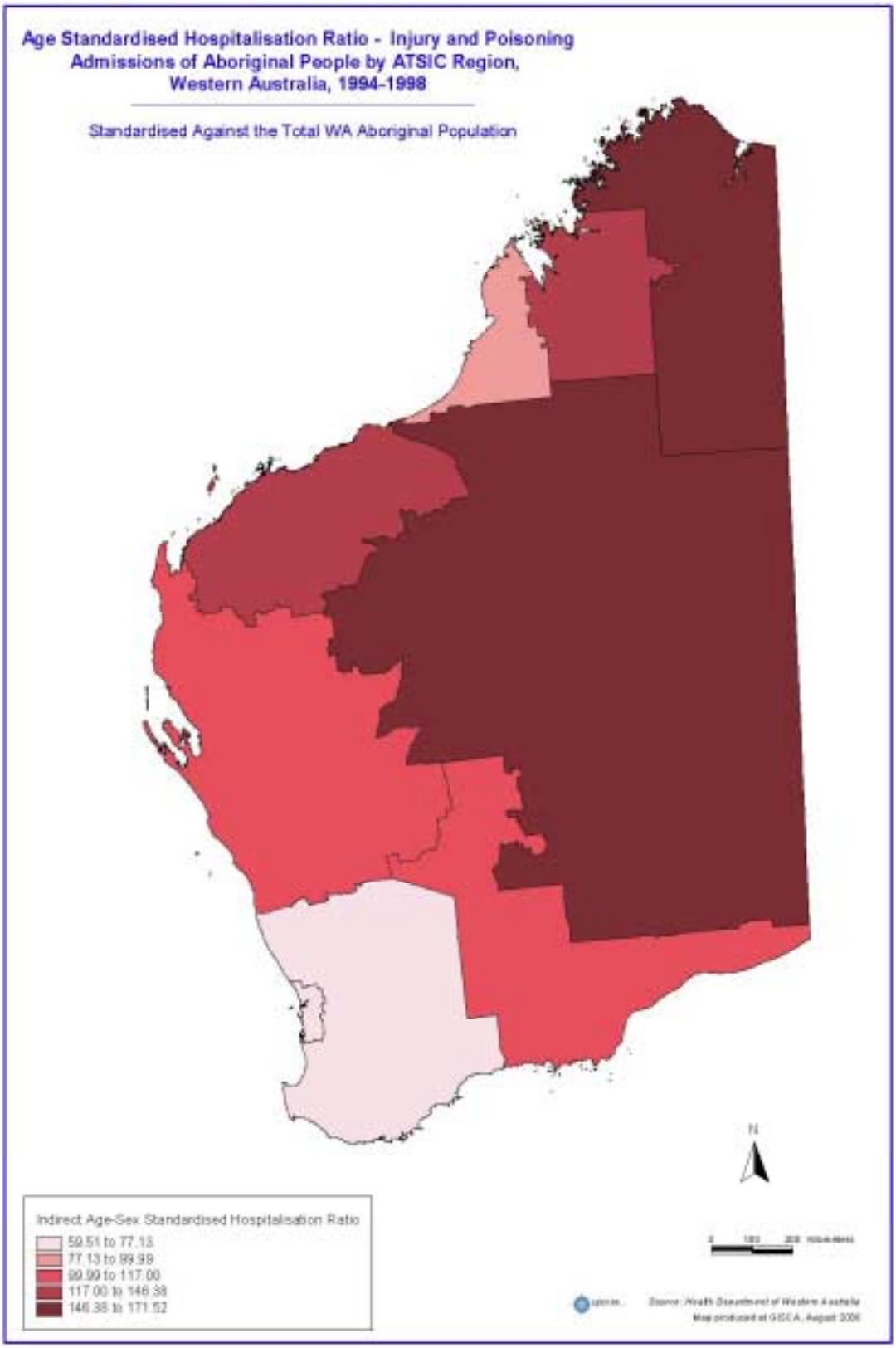


Figure A10-5 AGE-STANDARDISED HOSPITALISATION RATIO — INJURY AND POISONING ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

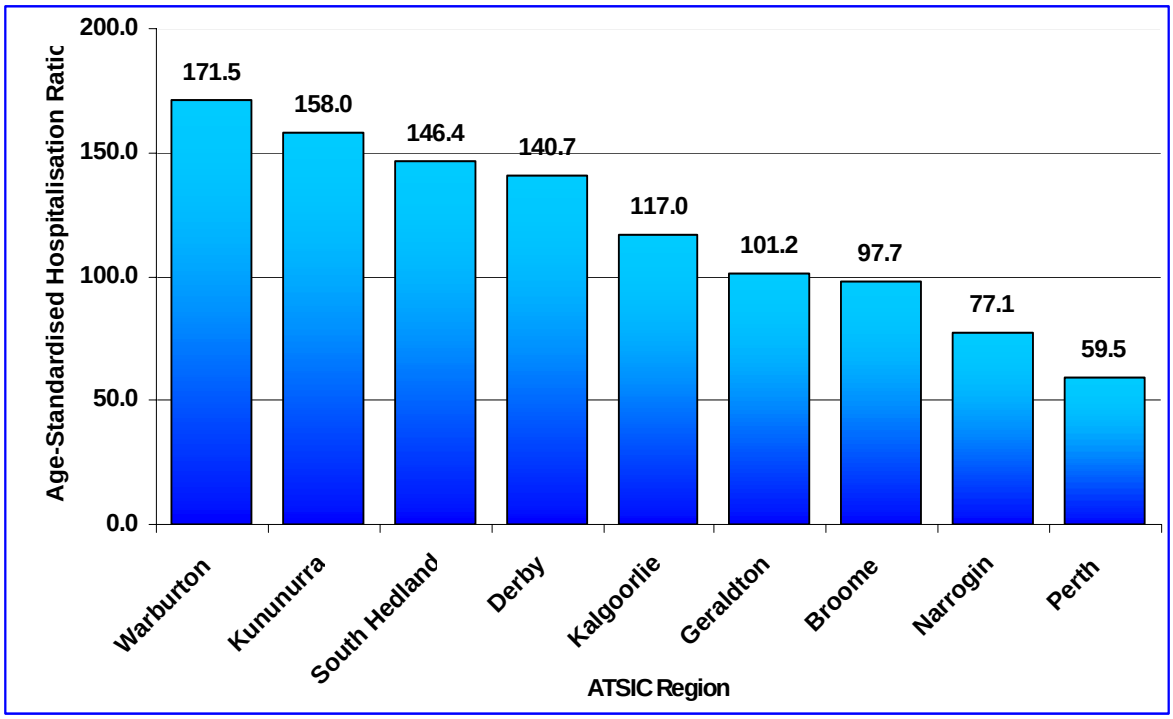


Figure A10-6 PROPORTION OF TOTAL HOSPITAL SEPARATIONS FROM INJURY AND POISONING COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1994-1998

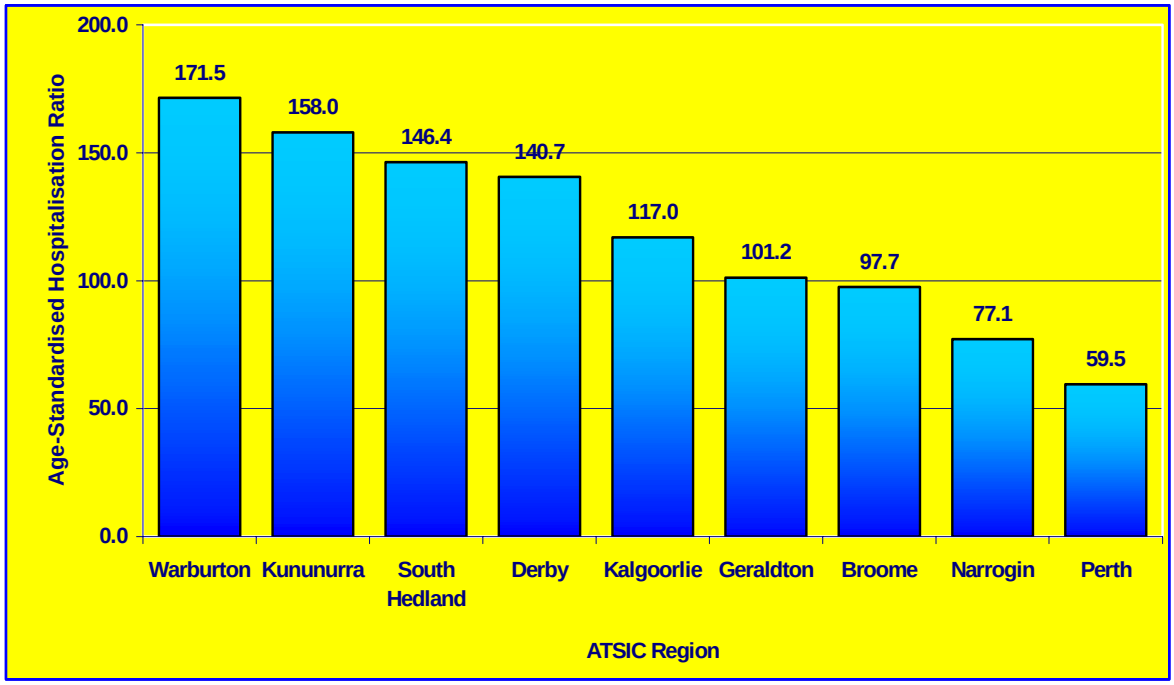


Figure A10-7 STANDARDISED MORTALITY RATIO — CIRCULATORY DISEASES DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

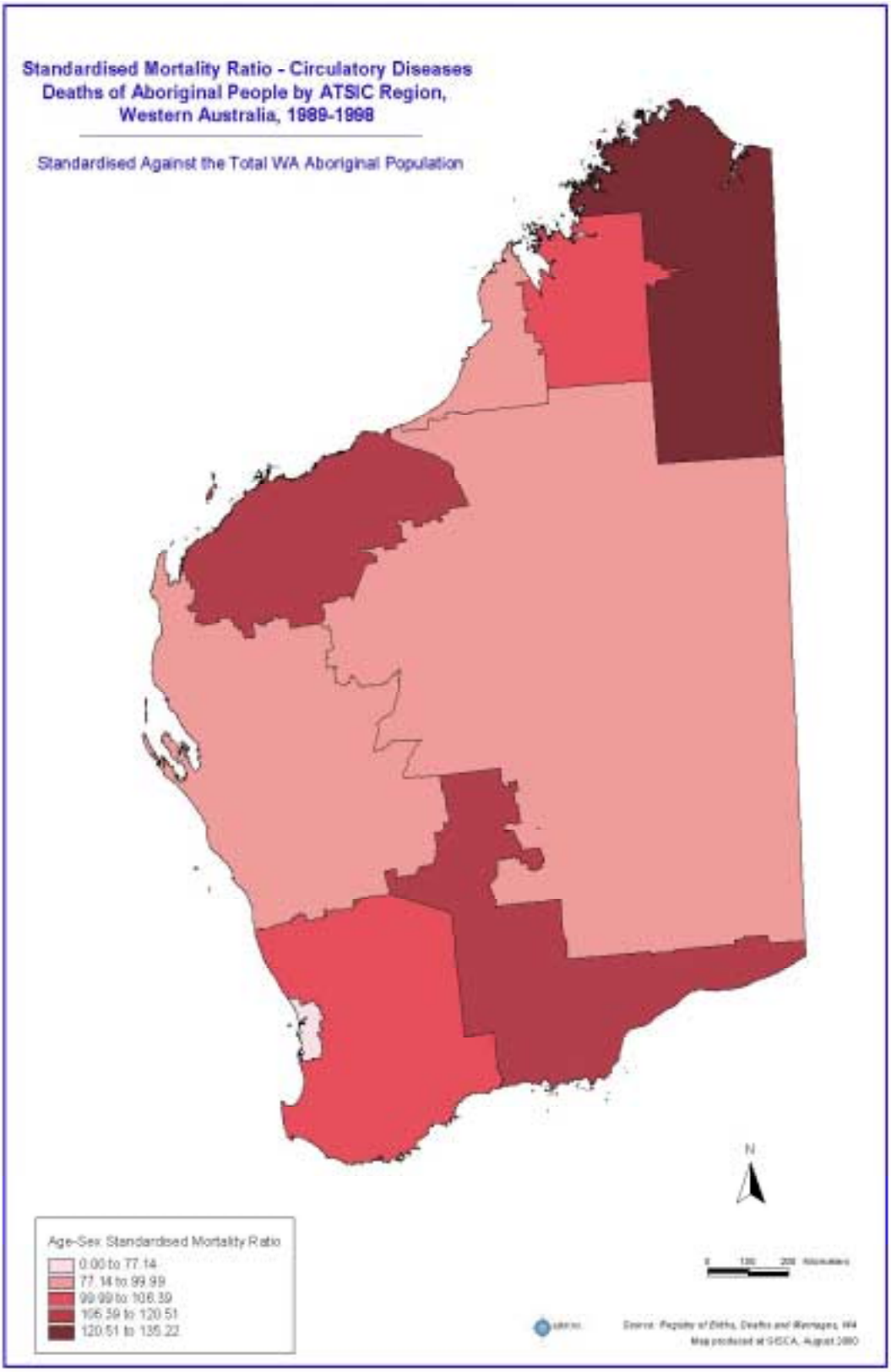


Figure A10-8 STANDARDISED MORTALITY RATIO — CIRCULATORY DISEASES DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

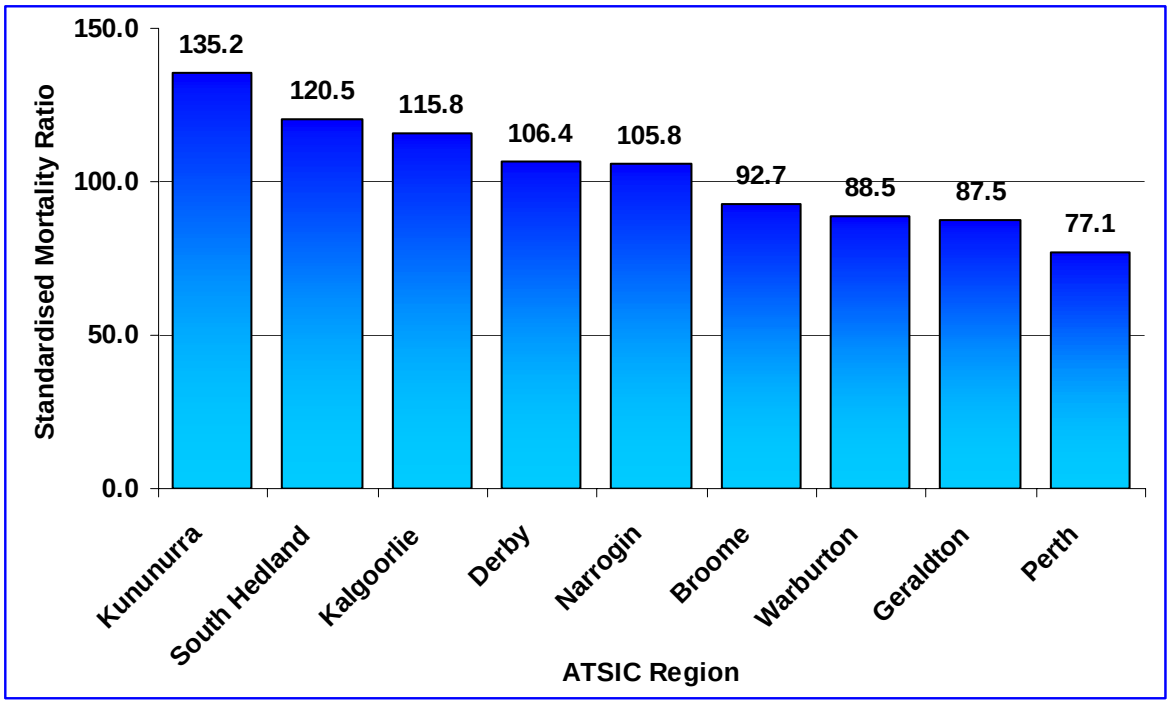


Figure A10-9 PROPORTION OF TOTAL DEATHS FROM CIRCULATORY DISEASES COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1989-1998

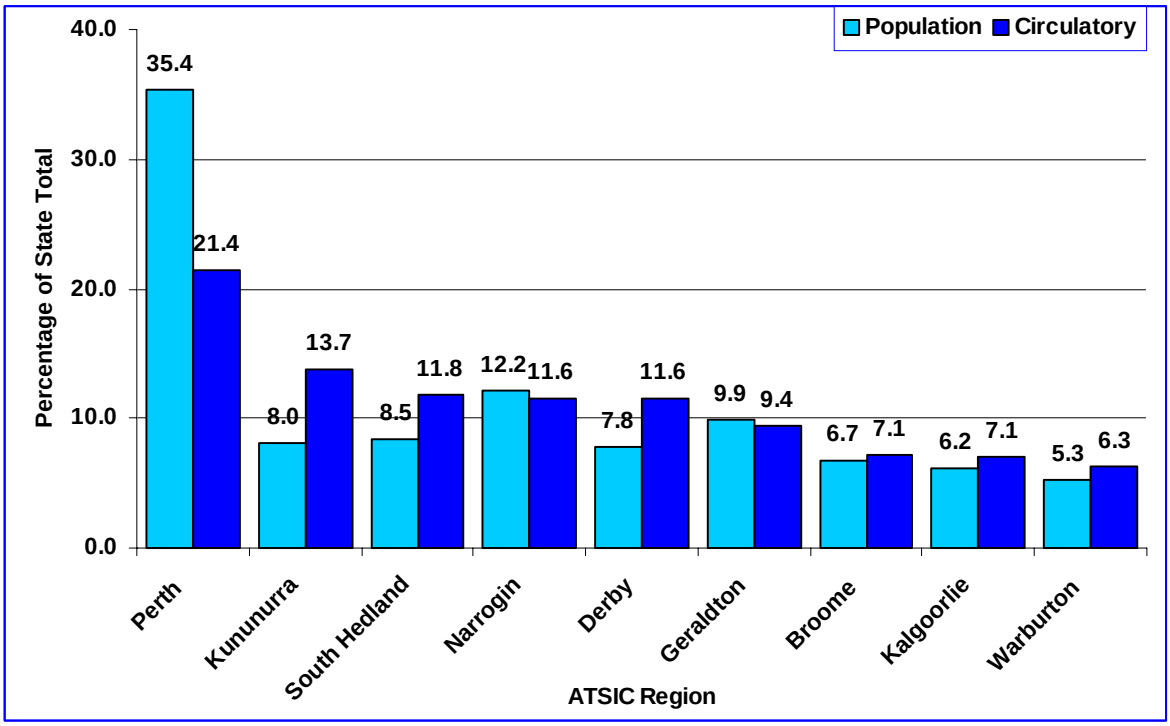


Figure A10-10 AGE-STANDARDISED HOSPITALISATION RATIO CIRCULATORY DISEASES ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

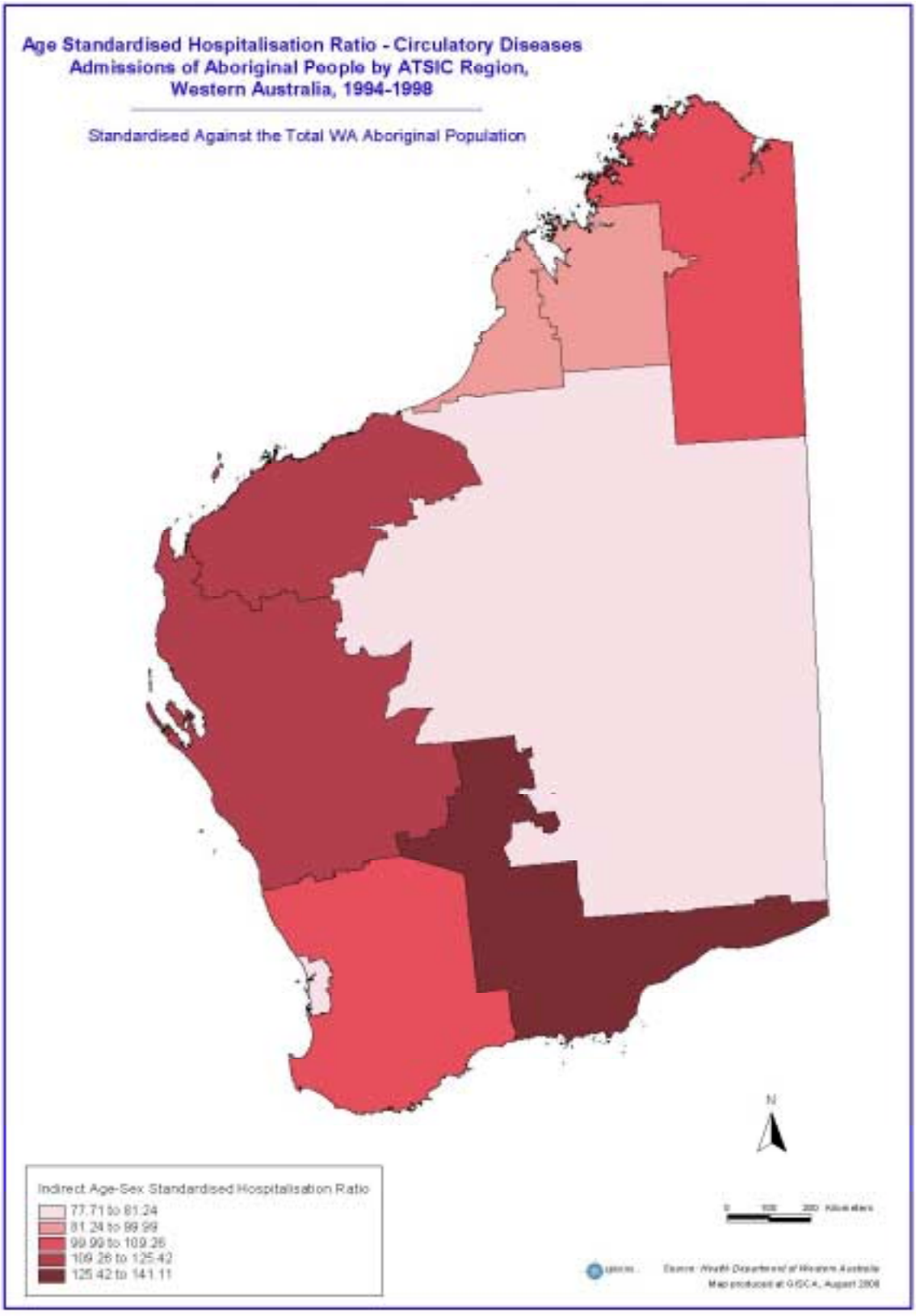


Figure A10-11 AGE-STANDARDISED HOSPITALISATION RATIO — CIRCULATORY DISEASES ADMISSIONS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

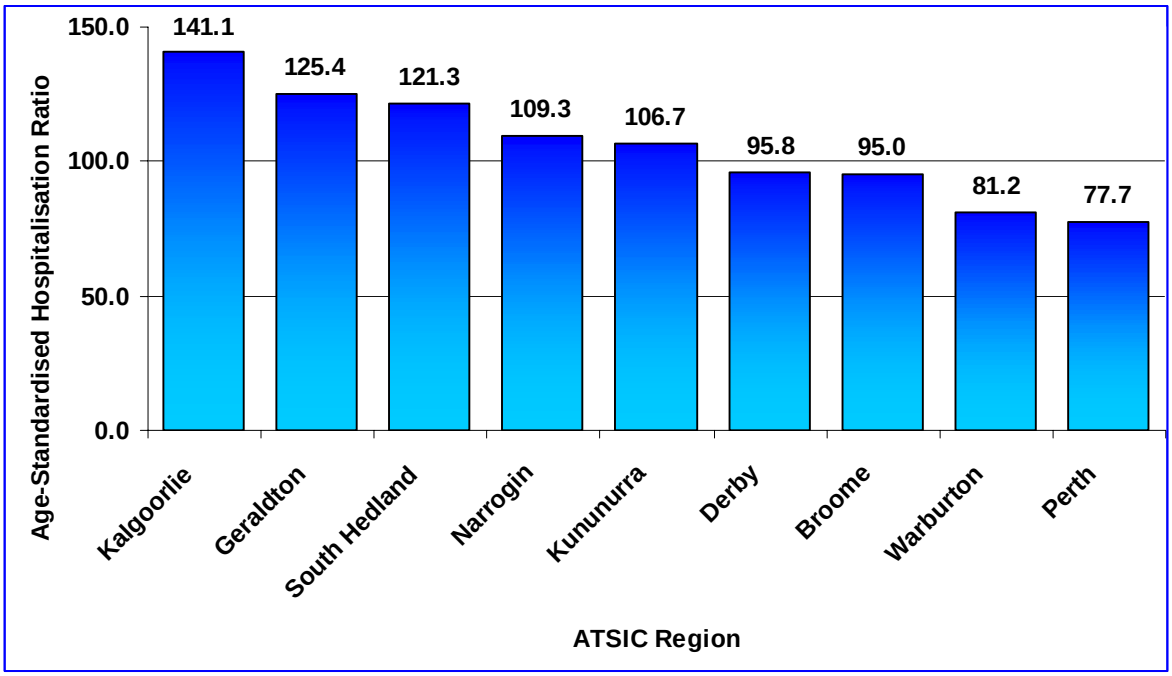


Figure A10-12 PROPORTION OF TOTAL HOSPITAL SEPARATIONS FROM CIRCULATORY DISEASES COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1994-1998

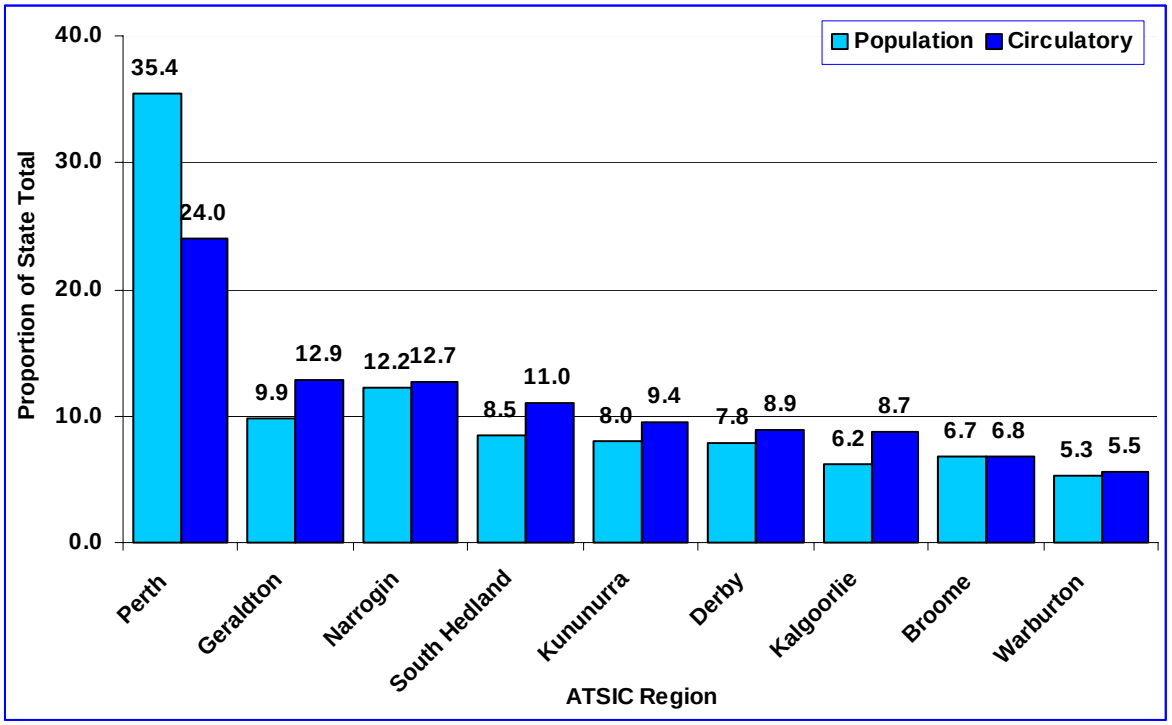


Figure A10-13 STANDARDISED MORTALITY RATIO — NEOPLASMS DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

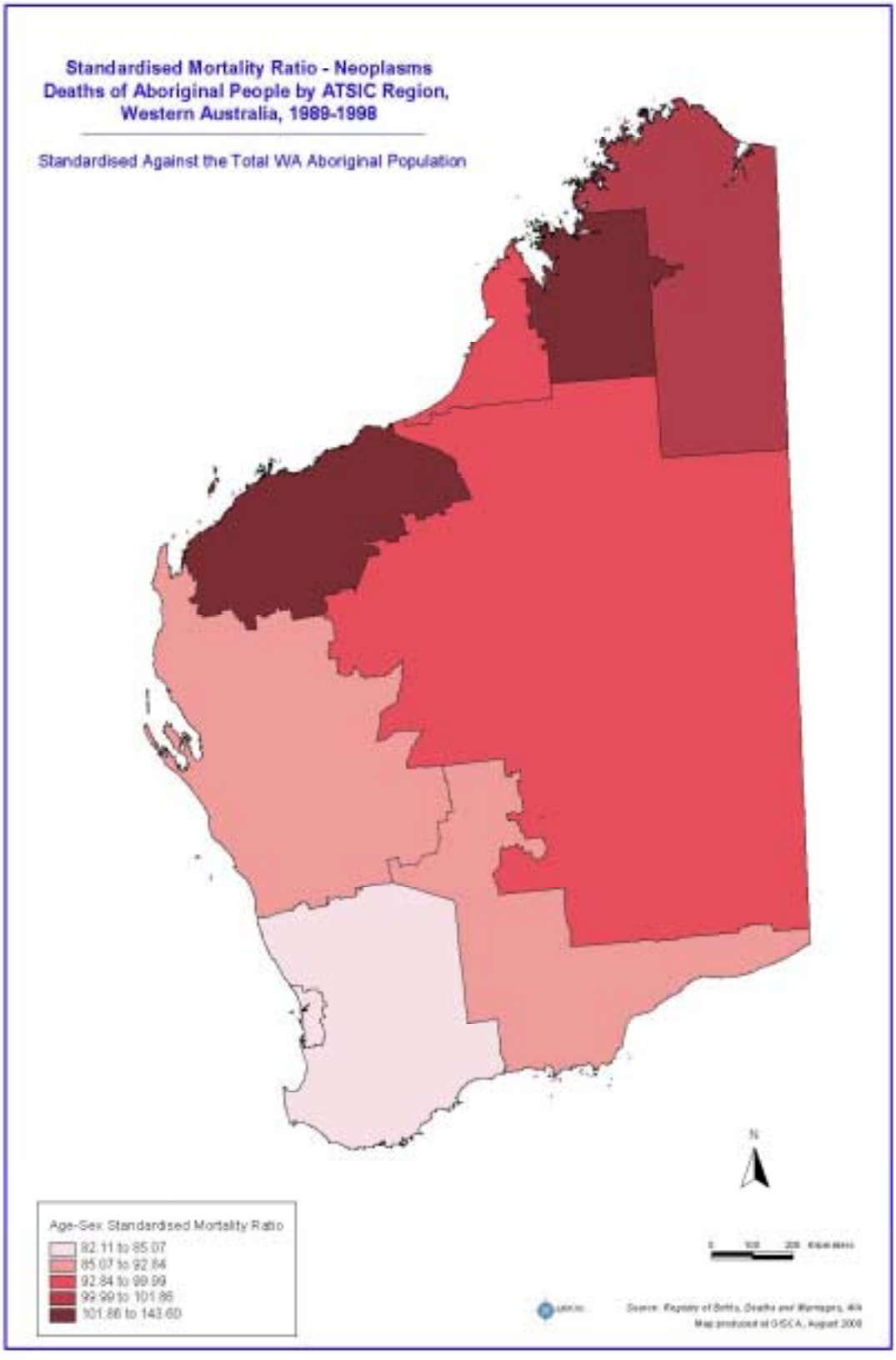


Figure A10-14 STANDARDISED MORTALITY RATIO — NEOPLASMS DEATHS OF ABORIGINAL PEOPLE BY ATSIC REGION, WESTERN AUSTRALIA, 1989-1998

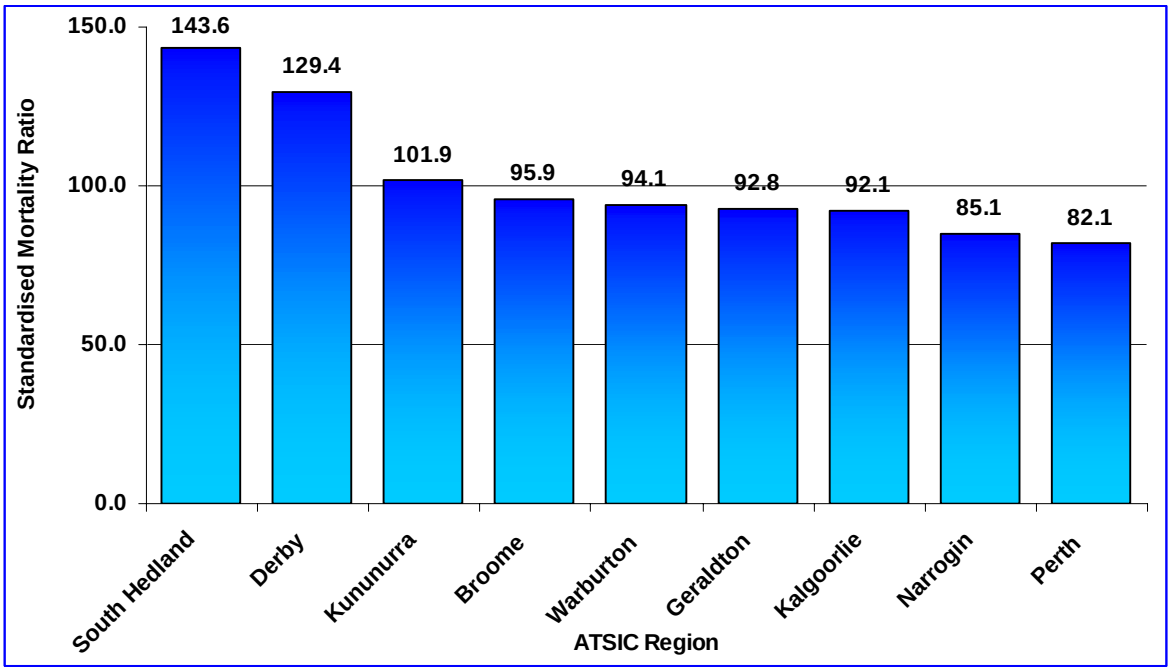


Figure A10-15 PROPORTION OF TOTAL DEATHS FROM NEOPLASM COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1989-1998

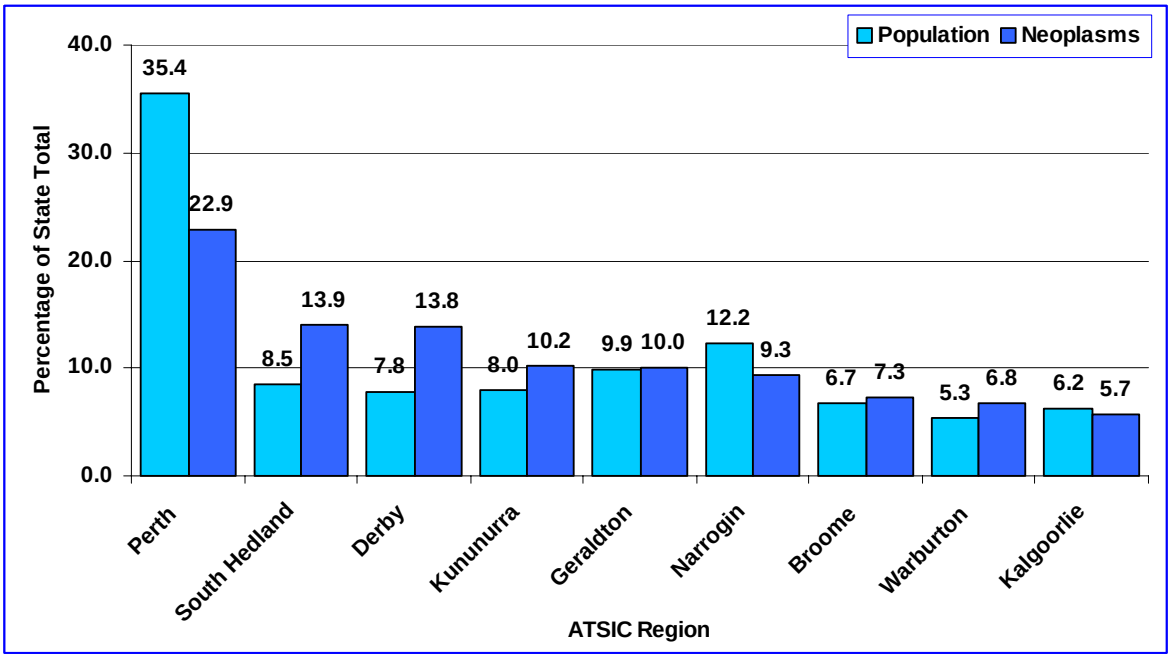


Figure A10-16 AGE-STANDARDISED HOSPITALISATION RATIO — COMPLICATION OF PREGNANCY ADMISSIONS OF ABORIGINAL FEMALES BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

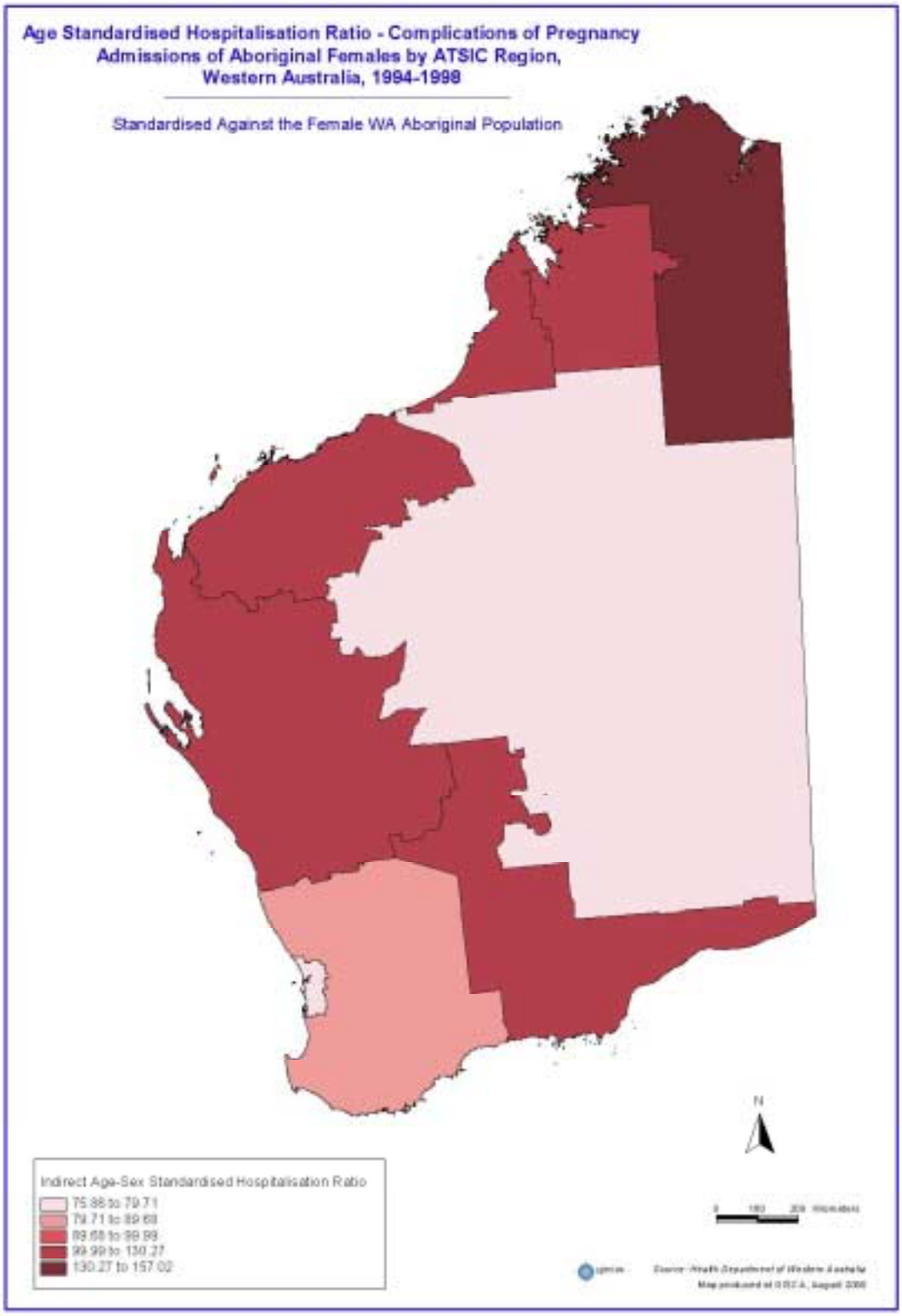


Figure A10-17 AGE-STANDARDISED HOSPITALISATION RATIO — COMPLICATION OF PREGNANCY ADMISSIONS OF ABORIGINAL FEMALES BY ATSIC REGION, WESTERN AUSTRALIA, 1994-1998

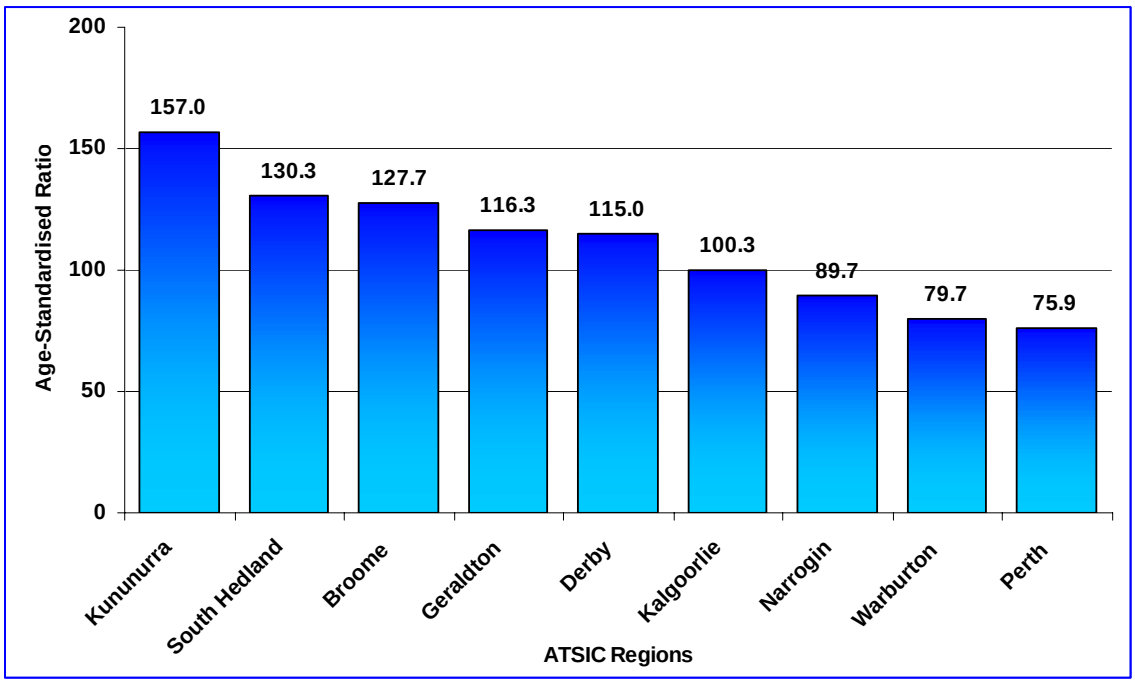
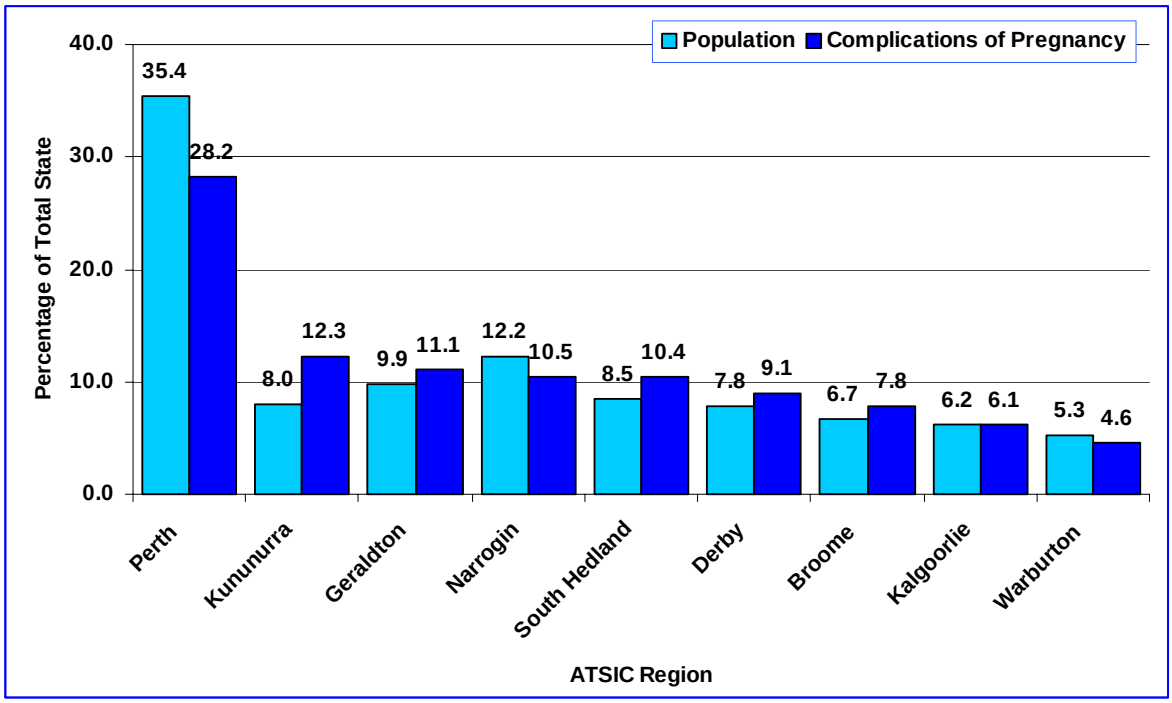


Figure A10-18 PROPORTION OF TOTAL HOSPITAL SEPARATIONS FOR COMPLICATIONS OF PREGNANCY COMPARED TO PROPORTION OF STATE POPULATION BY ATSIC REGION, ABORIGINAL PEOPLE, WESTERN AUSTRALIA, 1994-1998



APPENDIX 11

ALLOCATIVE MODEL USING THE ABORIGINAL DEFINITION OF NEED

1. The working groups, especially the senior Aboriginal officers considered that the development of a process of defining Aboriginal Health Need and establishing priorities was only part of the work that needed to be completed. The other task is the development of an allocative model that ensures that funding directed towards priority communities does the most good.

2. In trying to address the allocation process, the working groups considered two approaches. The first involved taking the priorities and allocating weightings to provide a dollar value. This process was far too difficult as it involved complex mathematical problems and there was insufficient information in terms of costs to convert weightings to dollars. The second approach involved using the collective knowledge of the groups to allocate funds according to the needs of certain areas. This was a subjective exercise that achieved the goal of gaining some consensus as each group gave approximately the same funding to each of the regions under consideration. This approach has not been used because it was considered to lack rigour.

3. In trying to develop an equitable allocative process the working groups identified the following questions that need to be addressed.

(i) How then does one go about allocating funding to the priority areas?

(ii) What are the social and geographical access issues and what is the cost of these?

(iii) What do you do about communities and areas that do not have the skills, staff or infrastructure to effectively utilise the funds?

(iv) When you allocate funds how much should be directed to treatment programs and how much to prevention programs?

4. The groups found the task of answering these questions to be difficult. In order to simplify the exercise certain assumptions have been made. Therefore, the allocation process only applies to:

(i) ***New funding:*** the problem of whether the task was to re-allocate existing funding (with all the associated issues of removing funds) or did it only apply to the allocation of new dollars that continued to create divisions in the groups;

(ii) ***A fixed amount of funding:*** this issue was associated with the questions of the amount of funding and the adequacy of the amount.

Again, the groups were of the opinion that Aboriginal people should not be set up to fail through the provision of an inadequate amount of funding. However, the reality is that in the provision of new funding, that the amount will always be insufficient to address all that Aboriginal health needs; and

(iii) ***Funding will be used to address the highest need and to create the maximum benefit:*** The groups considered whether to allocate a small amount of funding to all or to allocate all the funding to those in the most need in an order of priority dollars. The assumption is that the maximum benefit should go to those in the most need and those with the least need may miss out.

5. The allocative process that has been developed attempts to address the difficulties outlined above by approaching the task in a staged manner. There is no attempt to use a formula to develop an answer. The process to be used to allocate a fixed amount of new funding for health is:

(i) Identify Aboriginal Health Need.

(ii) Develop Priorities.

(iii) Assess the Priority Areas.

(iv) Develop Cost Weightings.

(v) Allocate Funds.

Identify Aboriginal Health Need

6. In previous chapters, it has been shown how to define Aboriginal health need and how the information could be used to develop priorities for funding.

Develop Priorities

7. Example 1 used in section 8 of the development of priorities for the allocation of the environmental health funding will be continued to be used to show how the process works. The priority areas in this example are:

(i) Malarabah RC

(ii) Western Desert RC and Ngarda-Ngarli-Yarndu RC

(iii) Wunan RC

(iv) Wongatha RC

(v) Kullari RC and Yamitji RC

(vi) Kaarta-Wangkinyiny RC

(vii) Perth RC

8. The Malarabah Regional Council has the highest priority for environmental health funding and the Perth Regional Council has the lowest. This is consistent with the hypothesis that those ATSIC regions in the remote areas of the State will have the highest aboriginal health need.

Assess Priority Areas

9. Each of the highest priority areas needs to be assessed to best target the funding. As the amount will not cover all the identified needs the assessment should ascertain the following:

(i) Level of the region's Management Economic Social and Human (MESH) infrastructure

(ii) What priority area is most likely to produce the most improvement for the funding ie. the 'best bang for the buck'

(iii) What should be the mix of treatment and prevention programs to address priorities.

10. ***MESH.*** Management Economic Social and Human infrastructure in a community or a region will have a significant affect on whether they are able to apply for funding, the management of projects, whether they have the physical or staffing infrastructure to support the project and the community culture to sustain the changes demanded by any health improvement program.

11. Therefore the assessment of the MESH infrastructure in a priority area, ATSIC region in this example, is essential to ensure that the funds can be directed is such a manner to ensure that the community are able to meet the program objectives. In our example of funding for environmental health funding, the Malarabah Region may need people to be trained as Environmental Health Officers before the programs can be introduced or may require the investment in waste treatment systems before any improvement in health will result. Of an amount directed to the region a certain percentage will need to be directed at building the capacity of the people in the area to deal with their own problems. The funding also has to be committed over a longer period of a year to enable the MESH to be built in the area.

12. ***Bang for the buck.*** The 'bang for the buck' or value for money or the greatest health gain for the funding utilised are all the same thing. In any priority region, it will be obvious that there are a number of areas that require action to enable the community to improve their level of attainment of the four ideal states that contribute to good Aboriginal health. The goal of utilising scarce health funding is to use it achieve maximum improvement.

13. The development of priorities for the region should be based on the fact that certain health conditions are more amenable to cost effective interventions than others. Health conditions can be divided into three areas:

(i) Environmental Health

(ii) Lifestyle Health; and

(iii) Social Health

14. ***Environmental health*:** relates to those diseases that result from poor water quality, poor sewerage treatment, overcrowded housing, poor dust control, and poor dog control. These can be easily and permanently addressed with the improvement in physical infrastructure and programs. Improvements in this area will bring immediate improvements in health for a large number of people.

15. ***Life style health*:** are those illnesses such as STDs/HIV, respiratory disease resulting from smoking, injury resulting from alcohol related violence and vehicle accidents, and domestic violence. Health promotion and other programs have been shown to be effective in altering human behaviour and improving health.

16. ***Social health*:** these illnesses develop over a long period of failure to change health risk related behaviour and are associated with the loss of Aboriginal social capital. Illnesses such as mental health are good indicators. Social ill health is the direct result of colonisation of Aboriginal peoples and will therefore take a long time to improve.

17. It is suggested that the assessment of the priorities in each region needs to be completed with this framework in mind. Funds should be directed at those strategies that will provide the most immediate improvement for the most people.

18. ***Mix of treatment and prevention.*** The assessment of each of the priority areas needs to take into account the balance between the need to meet the immediate treatment needs of the community whilst implementing programs to prevent illness occurring.

Develop Cost Weightings

19. The allocative process is affected by two cost factors. That is, even though two communities may have the same level of health need the actual cost of delivering the same level or type of services will be effected by their location (Remoteness Cost) and by the access (Access Cost) factors that needs to be overcome. These are two cost factors are:

(i) Remoteness Cost (ARIA); and

(ii) Access Cost (AC).

20. ***Remoteness cost (ARIA).*** This index has been developed by the National Key Centre for Social Applications of Geographic Information Systems. ARIA was designed to be an unambiguously geographical approach to defining remoteness. Socio-

economic, urban/rural and population size factors are excluded. ARIA interprets remoteness as accessibility to 201 service centres. Remoteness values for 11,340 populated localities are derived from the road distance to service centres in four categories.

21. This index provides a rating for each location within Western Australia of between 0 (city) and 12 (very remote). Whilst these ratings have not been converted into cost factors they are a clear indicator that it costs more to deliver services in the most remote regions. In the absence of hard data, the cost weighting are:

(i) most remote area, ARIA 10-12 is two times;

(ii) ARIA 8 – 10 is 1.75 times;

(iii) ARIA 6 – 8 is 1.5 times; and

(iv) ARIA 4 – 6 is 1.25 times the urban cost.

22. The cost weightings need to establish geographical equity so that the same level of service is provided no matter the location. Funding for positions should ensure that they are equally productive and equally attractive (EPEA) across regions.

23. ***Access cost (AC).*** In the context of this model, equal access is deemed to be a situation where two individuals perceive the height of the barriers as being equal once issues of remoteness/distance have been taken into account (through the remoteness index). The Access Cost rates the degree of perceived difficulty Aboriginal people have in achieving equal access to services. The principal barrier to equal access is seen to the absence of culturally secure services.

24. Again because the absence of data it is assumed that the cost of providing culturally secure services is two times the non-Aboriginal cost.

25. The cost weightings are based on an estimate of the likely costs. At best they are a guess, however the challenge is to undertake the research that will provide more accurate data. There is also a need to debate on what basis and for which costs in are to be included in cost weightings.

Allocation Process

26. ***Develop priorities.*** Continuing with Example 1 used previously, on the allocation of environmental health funding, it is assumed that there is $10 million per annum to be allocated between the seven ATSIC regions for a period of 5 years. Each of the ATSIC regions are rated according to the level of need with regard to each health state.

Table A11-1 RATING OF LEVEL OF NEED BY CULTURAL SECURITY, PHYSICAL WELLBEING, GOOD ENVIRONMENT AND FREEDOM FROM POVERTY BY ATSIC REGION, WESTERN AUSTRALIA

Rating (1 = high need)	Cultural Security	Physical Wellbeing	Good Environment	Freedom from Poverty
1	Perth RC	Ngarda-Ngarli-Yarndu RC	Western Desert RC	Malarabah RC
2	Kaarta-Wangkinyiny	Malarabah RC	Malarabah RC	Wunan RC
3	Yamitji RC	Wunan RC	Ngarda-Ngarli-Yarndu RC	Western Desert RC
4	Ngarda-Ngarli-Yarndu RC	Wongatha RC	Wunan RC	Ngarda-Ngarli-Yarndu RC
5	Wunan RC	Western Desert RC	Wongatha RC	Kullari RC
6	Wongatha RC	Kullari RC	Yamitji RC	Wongatha RC
7	Kullari RC	Yamitji RC	Kullari RC	Yamitji RC
8	Malarabah RC	Perth RC	Kaarta-Wangkinyiny	Kaarta-Wangkinyiny
9	Western Desert RC	Kaarta-Wangkinyiny	Perth RC	Perth RC

27. In this case it can be seen that the four priority ATSIC regions especially with regard to environmental health are Malarabah, Western Desert, Ngarda-Ngarli-Yarndu and Wunan.

28. ***Assess the priority areas.*** The WAAEHS indicates that each region has similar capacity in regard to MESH especially in regard to the need for investment in capital and training of Aboriginal Environmental Health Workers. Therefore each of the four priority regions will have the same level of funding. The mix of funding has to be split evenly between infrastructure developments and program provision because there is a need to both undertake work and training that will improve environmental health and to deliver programs that will deal with the results of poor environmental health.

29. The assessment of the priority areas is a key part of the allocative process. The information required to carry out this exercise should be available for each ATSIC Region. Unfortunately, there is little information that will enable a comprehensive analysis to be undertaken. The large distances involved and small populations makes this take difficult. However, unless there is a process of community auditing both government and Aboriginal people will have no idea of whether their life is improving. The audit process should provide key information relating to health, education, income, housing and environmental health that will indicate whether the goals of Aboriginal health are being achieved.

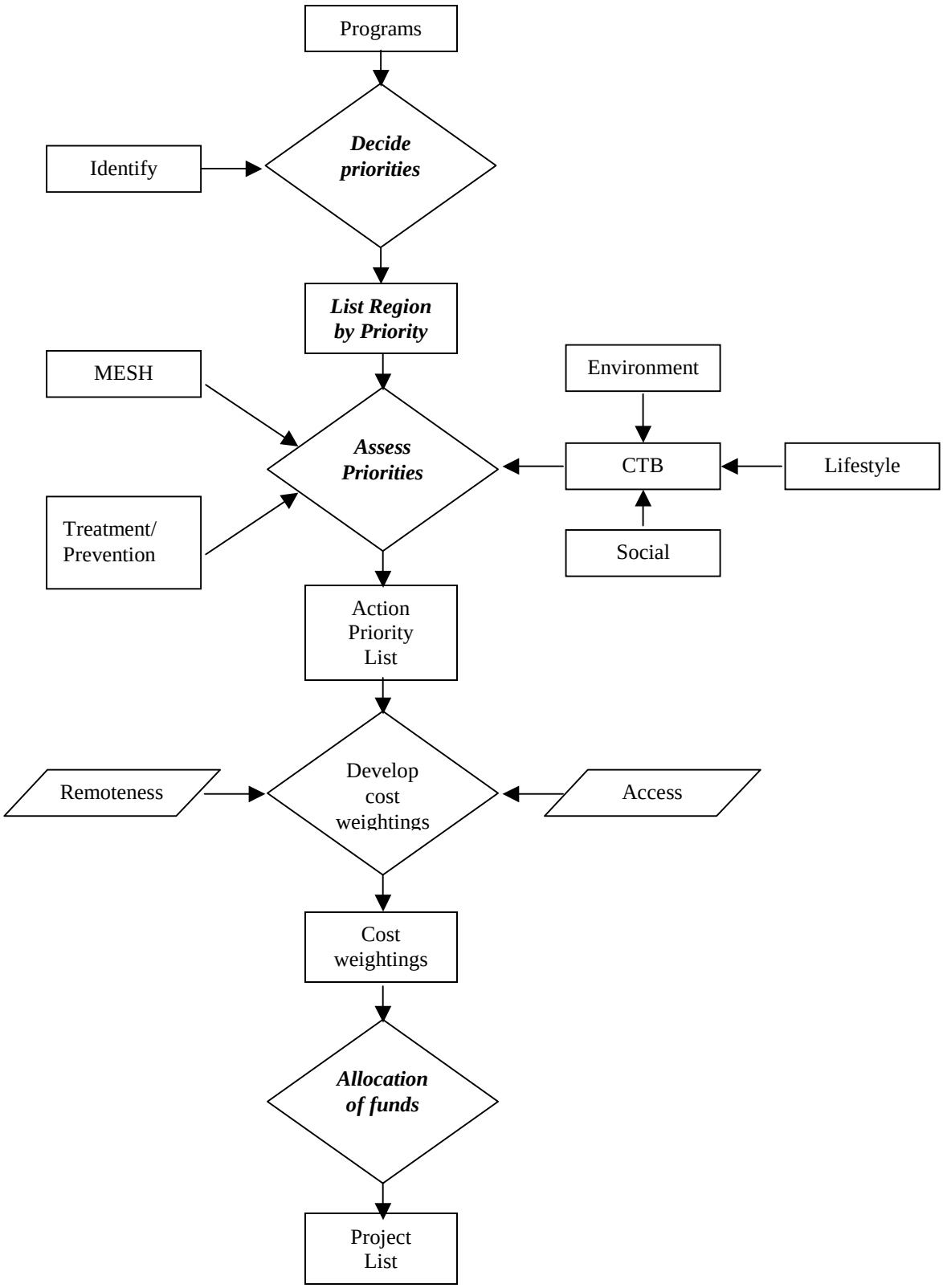
30. ***Develop cost weightings.*** The application of cost weightings is not applicable in this example as all four regions are very remote and the services will be provided in a culturally secure manner.

31. ***Allocate funds.*** The funds would therefore be allocated equally between the four priority areas with no funding going to the other regions for the five-year period. An evaluation of the impact of the funding strategy should included another assessment of health need, which should indicate whether there has been any change in priorities.

APPENDIX 12

ALLOCATIVE MODEL

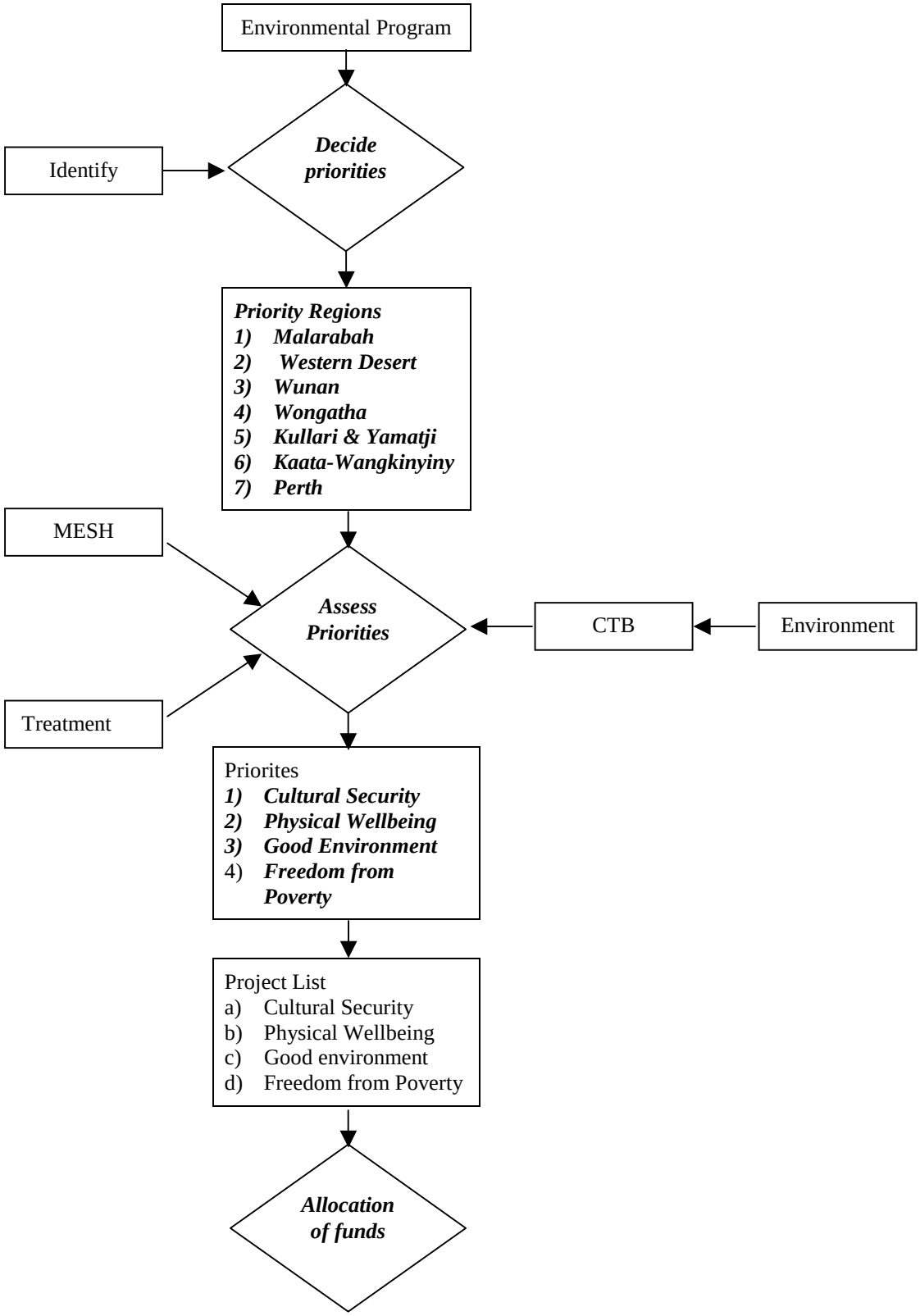
Figure A12-1 ALLOCATIVE MODEL



APPENDIX 13

ENVIRONMENTAL IMPROVEMENT EXAMPLE

Figure A13-1 ENVIRONMENTAL PROGRAM



Funds Allocation — Environmental Improvement Example

1. Funds have been allocated to Western Australia to address environment health. The allocations are to be made to ATSIC regions where the Regional Councils will distribute the funding.

2. ***Priority setting.*** *Allocation Goal:* To improve Aboriginal health through addressing environmental health and health hardware deficiencies in ATSIC Regions in Western Australia.

3. ***Cultural security.*** Even though the priority setting issue deals with environmental health, cultural security and strength impacts on and in turn is affected by other factors.

Table A13-1 ATSIC ELECTION PARTICIPATION, LANGUAGE, ALCOHOL CONSUMPTION AND DOMESTIC VIOLENCE BY ATSIC REGION.

		Data		
ATSIC Region	ATSIC election	Language	Alcohol consumed	Domestic violence
	%	%	Litres	%
Kullari RC	25	51.05	20.19	27.8
Malarabah RC	29	51.05	20.19	27.8
Wunan RC	21	51.05	20.19	27.8
Western Desert RC	36	51.05	20.19	9.7
Wongatha RC	24	24.78	16.32	9.7
Ngarda-Ngarli-Yarndu RC	20	51.05	20.19	18.5
Yamatji RC	20	24.78	13.8	15.3
Perth RC	8	2.79	9.49	19.5
Kaata-Wangkinyiny RC	17	7.61	11.35	1.8

4. Whilst the data is not accurate, it does show a pattern that indicates that in the more remote ATSIC regions there is a higher rate of participation in ATSIC elections, higher rates of Aboriginal language but higher rates of alcohol consumption and domestic violence. As the last two data sources are not Aboriginal specific and the data is not recorded for individual ATSIC regions it is of little use. The conclusion is that the remote ATSIC regions have a higher level of cultural security.

5. ***Physical wellbeing.***

Table A13-2 HOSPITALISATION AND MORTALITY RATIOS FOR MAJOR CAUSES OF HOSPITALISATION AND DEATH FOR ABORIGINAL PEOPLE BY ATSIC REGION.

	Data (in ratios)						
ATSIC Region	Mortality Ratio	Deaths Injury/ poisoning	Admissions Infectious/ parasitic	Deaths Resp.	Deaths Circ.	Deaths Endoc.	Deaths Neoplasms
Kullari	100	90	90	90	35	130	95
Malarabah	120	110	155	105	60	145	125
Wunan	135	155	145	125	50	95	105
Western Desert	105	175	190	105	25	85	90
Wongatha	140	110	140	210	25	130	90
Ngarda-Ngarli-Yarndu	120	115	165	150	50	105	140
Yamatji	80	95	130	80	78	105	90
Perth	65	60	45	55	110	80	80
Kaata-Wangkinyiny	80	55	80	65	50	75	85

6. The pattern that emerges from the analysis of the mortality data is that remote ATSIC regions have worse health outcomes for all but circulatory disease. There is a possible explanation for this. There seems to be a strong correlation to the map detailing the proportion of State Aboriginal population, which shows a low proportion of the State's Aboriginal population residing in the Warburton ATSIC Region.

7. This may mean that hospitalisation due to circulatory disorders is in effect consistent among the Aboriginal population. i.e it is a high cause of hospitalisation in all ATSIC Regions.

8. The other anomaly is the Kullari region that is remote but has lower rates of death than other remote regions. It is suspected that this is due to a number of factors including good infrastructure and ability to lobby for funding. This in fact shows that if there are improvements in funding for programs and infrastructure that health improves.

9. ***Good environment.***

Table A13-3 ENVIRONMENTAL HEALTH NEEDS SURVEY RESULTS BY ATSIC REGION.

		Data				
ATSIC Region	No. in house	Water	Housing	Waste disposal	Dog control	Environmental diseases
Kullari	4.8		Highest density			90
Malarabah	4.8		Highest density	worst		155
Wunan	4.8	75% no disinfect.	Highest density	worst		145
Western Desert	4.8	Highly dissatisfied	Highest density	worst		190
Wongatha	5.1				No controls	140
Ngarda-Ngarli-Yarndu	4.8				No controls	165
Yamatji	5.1	Highly dissatisfied				130
Perth	3.5					45
Kaata-Wangkinyiny	3.9					80

10. The most reliable data source in this table is the mortality relating to infectious and parasitic diseases. There is a direct relationship between these illnesses and environmental health. Therefore high rates of death relate to poorly maintained or inadequate environmental health infrastructure and health hardware.

11. Again the Kullari region is much better off than the other remote regions. The ATSIC regions with the highest need would be Ngarda-Ngarli-Yarndu, Wunan, Malarabah Western Desert and Wongatha.

Freedom from Poverty

Table A13-4 AVERAGE WEEKLY FAMILY INCOME BY ATSIC REGION

ATSIC Region	Data – there is minimal data available except 1996 ABS on average weekly family income
Kullari RC	$388
Malarabah RC	$388
Wunan RC	$388
Western Desert RC	$388
Wongatha RC	$434
Ngarda-Ngarli-Yarndu RC	$388
Yamatji RC	$434
Perth RC	$535
Kaata-Wangkinyiny RC	$434

12. The data here is of limited use. However, a preliminary report from the ABS is that their research on an Aboriginal disadvantage index shows that there is a high correlation between remote ATSIC regions and higher socioeconomic disadvantage.

Decide Priorities

13. The priorities can be summarised as follows:

Table A13-5 PRIORITY RATINGS FOR CULTURAL SECURITY, PHYSICAL WELLBEING, GOOD ENVIRONMENT AND FREEDOM FROM POVERTY BY ATSIC REGION, WESTERN AUSTRALIA

Rating (1 = low)	Cultural security	Physical wellbeing	Good environment	Freedom from poverty
1	Perth RC	Ngarda-Ngarli-Yarndu RC	Western Desert RC	Malarabah RC
2	Kaata-Wangkinyiny	Malarabah RC	Malarabah RC	Wunan RC
3	Yamatji RC	Wunan RC	Ngarda-Ngarli-Yarndu RC	Western Desert RC
4	Ngarda-Ngarli-Yarndu RC	Wongatha RC	Wunan RC	Ngarda-Ngarli-Yarndu RC
5	Wunan RC	Western Desert RC	Wongatha RC	Kullari RC
6	Wongatha RC	Kullari RC	Yamatji RC	Wongatha RC
7	Kullari RC	Yamatji RC	Kullari RC	Yamatji RC
8	Malarabah RC	Perth RC	Kaata-Wangkinyiny	Kaata-Wangkinyiny
9	Western Desert RC	Kaata-Wangkinyiny	Perth RC	Perth RC

14. Therefore the priorities for the allocation of the environmental health funding would be:

(i) Malarabah RC

(ii) Western Desert RC and Ngarda-Ngarli-Yarndu RC

(iii) Wunan RC

(iv) Wongatha RC

(v) Kullari RC and Yamatji RC

(vi) Kaata-Wangkinyiny RC

(vii) Perth RC

APPENDIX 14

LIFESTYLE IMPROVEMENT EXAMPLE

1. ***Allocation Goal:*** To improve Aboriginal health through addressing lifestyle health and health hardware deficiencies in ATSIC Regions in Western Australia.

Collect Data

2. ***Cultural Security*****:** See table ATSIC Election participation, language, Alcohol consumption and Domestic Violence by ATSIC Region.

3. ***Physical Wellbeing*****:** See table Hospitalisation and Mortality Rations for major causes of Hospitalisation and Death for Aboriginal people by ATSIC Region.

4. Deaths from injury and poisoning and overall mortality rates used to rate ATSIC Regions in order of priority.

5. ***Good Environment:*** See Table Environmental Health Needs Survey Results by ATSIC Region.

6. ***Freedom from Poverty:*** See Table Average Weekly income by ATSIC Region.

Decide Priorities

Table A14-1 PRIORITY RANKING

Rating (1 = low)	Cultural security	Physical wellbeing	Good environment	Freedom from poverty
1	Perth RC	Western Desert RC	Western Desert RC	Malarabah RC
2	Kaata-Wankinyiny RC	Wunan RC	Malarabah RC	Wunan RC
3	Yamatji RC	Ngarda-Ngarli-Yarndu RC	Ngarda-Ngarli-Yarndu RC	Western Desert RC
4	Ngarda-Ngarli-Yarndu RC	Wongatha RC	Wunan RC	Ngarda-Ngarli-Yarndu RC
5	Wunan RC	Malarabah RC	Wongatha RC	Kullari RC
6	Wongatha RC	Yamatji RC	Yamatji RC	Wongatha RC
7	Kullari RC	Kullari RC	Kullari RC	Yamatji RC
8	Malarabah RC	Perth RC	Kaata-Wankinyiny RC	Kaata-Wankinyiny RC
9	Western Desert RC	Kaata-Wankinyiny RC	Perth RC	Perth RC

7. Therefore the priorities for the allocation of the environmental health funding would be:

(i) Western Desert RC

(ii) Malarabah RC

(iii) Wunan RC

(iv) Ngarda-Ngarli-Yarndu RC

(v) Wongatha RC

(vi) Kullari C and Yamatji RC

(vii) Kaata-Wangkinyiny RC

(viii) Perth RC

Allocation Process

8. As for Example 1 follow on with allocating funds as outlined in Section 8:

9. ***Assess priority area.***

(i) MESH

(ii) Bang for the buck – environmental, lifestyle and social

(iii) Mix of treatment and prevention programs

10. ***Develop cost weightings.***

(i) Remoteness Cost

(ii) Access Cost

11. ***Allocate funds.***

APPENDIX 15

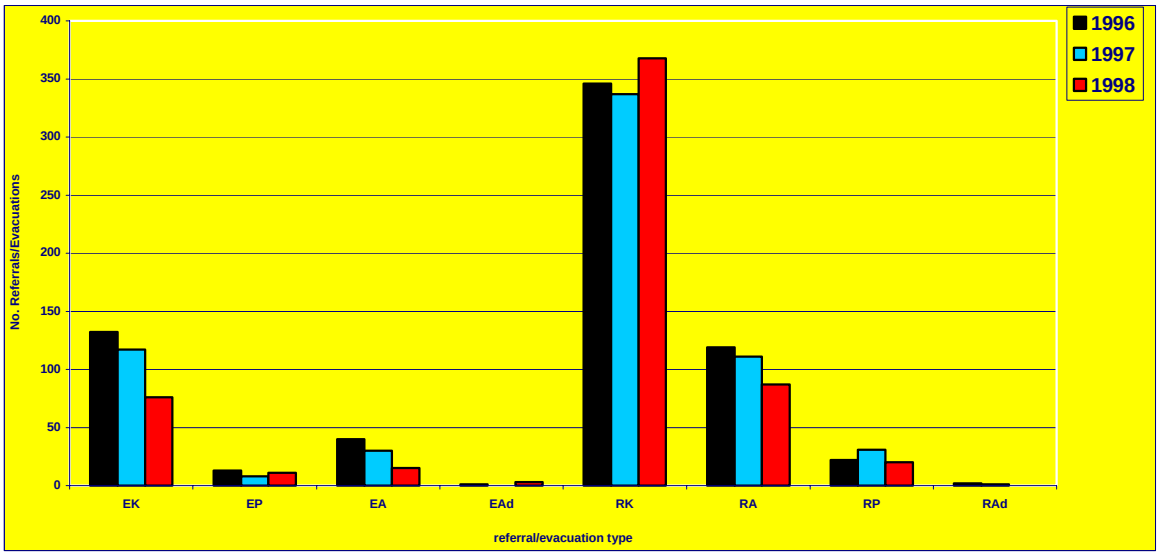
EVACUATION AND REFERRAL STATISTICS, NGAANANYATJARRA HEALTH SERVICE

Table A15-1 TOTAL EVACUATIONS AND REFERRALS BY COMMUNITY, 1996-1998

Year	EK	EP	EA	EAd	RK	RA	RP	RAd	Total
1996	132	13	40	1	346	119	22	2	675
1997	117	8	30	0	337	111	31	1	635
1998	76	11	15	3	368	87	20	0	580

EK	Evacuation to Kalgoorlie.
EP	Evacuation to Perth.
EA	Evacuation to Alice.
EAd	Evacuation to Adelaide.
RK	Referral to Kalgoorlie.
RA	Referral to Alice.
RP	Referral to Perth.
Rad	Referral to Adelaide.

Figure A15-1 TOTAL EVACUATIONS AND REFERRALS BY COMMUNITY, 1996-1998



EK Evacuation to Kalgoorlie.
EP Evacuation to Perth.
EA Evacuation to Alice.
EAd Evacuation to Adelaide.
RK Referral to Kalgoorlie.
RA Referral to Alice.
RP Referral to Perth.
Rad Referral to Adelaide.

Table A15-2 TOTAL REFERRALS/EVACUATIONS, 1996-1998

	1996	1997	1998
Warburton	202	219	191
Warakurna	79	80	69
Wingellina	69	68	61
Wanarn	19	27	20
Cosmos	80	49	50
Tjirkarli	49	49	20
Jamison	34	19	25
Blackstone	48	35	51
Kiwikurru	52	53	35
Tjukurla	35	34	29
Total	**667**	**633**	**551**

APPENDIX 16

ALLOCATION OF POSTCODES TO HEALTH SERVICE

Table A16-1 WESTERN AUSTRALIA CLASSIFICATION OF POSTCODE BY SLA, HEALTH SERVICE AND HEALTH ZONE, 1999-2000

Health Zone	Health Service	SLA's	Postcodes
South East Metro	Armadale – Kelmscott	Armadale	6111, 6112
		Canning (61%)	6147-6148, 6155
		Gosnells	6108-6110
		Serpentine-Jarrahdale	6113, 6201-6203,6204-6206, 6121-6126
Midlands	Avon	Northam Shire	6401, 6403, 6560, 6562, 6564
		Northam Town	-
		Toodyay	6566-6567
		York	6302, 6380
South East Metro	Bentley	Belmont	6103-6105
		Canning (39%)	6102, 6106-6107
		South Perth	6151-6152
		Victoria Park	6100-6101
South West	Bunbury	Bunbury	6229-6233
		Capel	6237, 6271
		Dardanup	6228, 6236
Midlands	Central Wheatbelt	Beverley	6304
		Bruce Rock	6385-6386, 6417-6419, 6428
		Corrigin	6373, 6375-6377
		Cunderdin	6405, 6407
		Quairading	6383-6384
		Tammin	6409
Great Southern	Central Great Southern	Broomehill	6318
		Gnowangerup	6335-6336
		Katanning	6317
		Kent	6341, 6343
		Kojonup	6394-6395

Health Zone	Health Service	SLA's	Postcodes
		Tambellup	6320
		Woodanilling	6316
Midlands	Eastern Wheatbelt	Kellerberrin	6410-6411
		Koorda	6470-6471, 6475
		Merredin	6412-6415, 6480
		Mount Marshall	6472-6473, 6476-6477
		Mukinbudin	6479
		Narembeen	6368-6369
		Nungarin	6490
		Trayning	6487-6489
		Westonia	6421-6423
		Wyalkatchem	6463, 6485
		Yilgarn	6420, 6424-6427, 6484
Pilbara	East Pilbara	East Pilbara	6723-6724, 6753, 6758, 6760-6762
		Port Hedland	6721-6722, 6755
South West Metro	Fremantle Hospital	Cockburn	6161, 6163-6164, 6166
	Health Service	East Fremantle	6158
		Fremantle Inner	-
		Fremantle Remainder	6159-6160, 6162
		Melville	6149-6150, 6153-6154, 6156-6157
Midwest	Gascoyne	Carnarvon	6701
		Exmouth	6707
		Shark Bay	6537
		Upper Gascoyne	6705
Midwest	Geraldton	Geraldton	6528, 6530-6531
		Greenough	-
South West	Harvey-Yarloop	Harvey	6218, 6220-6221, 6223-6224, 6226-6227
East Metro	Inner City & RPH	Perth Inner	-
	Health Service	Perth Remainder	6000, 6003-6005
		Stirling South-Eastern	6050-6052, 6053
		Vincent	6006-6007
East Metro	Kalamunda Hospital & HS	Kalamunda	6057-6058, 6076
Kimberley	Kimberley	Broome	6725-6726
		Derby-West Kimberley	6728, 6731, 6733, 6765

Health Zone	Health Service	SLA's	Postcodes
		Halls Creek	6770
		Wyndham-East Kimberley	6740, 6743
Great Southern	Lower Great Southern	Albany Town	-
		Albany Shire	6327-6328, 6330-6332
		Cranbrook	6321-6322, 6396
		Denmark	6333
		Jerramungup	6337-6338
		Plantagenet	6323-6324, 6326, 6397
Midwest	Midwest	Carnamah	6517-6518
		Chapman Valley	6532
		Coorow	6514-6515
		Irwin	6525
		Mingenew	6522
		Morawa	6623, 6625, 6627
		Mullewa	6628, 6631-6632
		Murchison	6630
		Northampton	6535-6536
		Perenjori	6614, 6616, 6618, 6620
		Three Springs	6519
		Yalgoo	6612, 6635
Midwest	Murchison	Cue	6640
		Meekatharra	6642
		Mount Magnet	-
		Sandstone	6439, 6638-6639
		Wiluna	6646
North Metro	North Metro	Cambridge	6014-6015
		Claremont	6010
		Cottesloe	6011
		Mosman Park	6012
		Nedlands	6009
		Peppermint Grove	-
		Stirling – Central	6016-6017, 6021-6022, 6059-6061
		Stirling – Coastal	6018-6019, 6029
		Subiaco	6008
		Wanneroo Central Coastal	6027-6028

Health Zone	Health Service	SLA's	Postcodes
		Wanneroo North East	6031, 6035, 6065, 6085
		Wanneroo North West	6030, 6032-6034, 6037
		Wanneroo South East	6064
		Wanneroo South West	6020, 6023-6026
Goldfields	Northern Goldfields	Coolgardie	6429, 6441-6442, 6444
		Kalgoorlie/Boulder	6430- 6434,6449
		Laverton	6440
		Leonora	6435, 6437-6438
		Menzies	6436
		Ngaanyatjarraku	872
South West Metro	Peel	Mandurah	6207, 6210-6211
		Murray	6208, 6213-6214
		Waroona	6215
South West Metro	Rockingham- Kwinana	Kwinana	6165, 6167, 6170
		Rockingham	6168-6169, 6171-6176
Goldfields	South East Coastal	Dundas	6443
		Esperance	6445-6448, 6450
		Ravensthorpe	6346, 6348
East Metro	Swan	Bassendean	6054
		Bayswater	6062
		Mundaring	6070-6074, 6553-6556, 6558
		Swan	6055-6056, 6063, 6066-6069, 6081-6084, 6090
Great Southern	Upper Great Southern	Boddington	6390
		Brookton	6306
		Cuballing	6309, 6311
		Dumbleyung	6350, 6352
		Kondinin	6358-6359, 6367
		Kulin	6363, 6365
		Lake Grace	6353, 6355-6357
		Narrogin Shire	6312-6313
		Narrogin Town	-
		Pingelly	-
		Wagin	6315, 6351
		Wandering	6308
		West Arthur	6392-6393

Health Zone	Health Service	SLA's	Postcodes
		Wickepin	6361, 6370, 6372
		Williams	6391
South West	Vasse - Leeuwin	Augusta-Margaret River	6284-6286, 6288, 6290
		Busselton	6280-6282
South West	Warren - Blackwood	Boyup Brook	6244
		Bridgetown-Greenbushes	6254-6256
		Manjimup	6258, 6260, 6262, 6398
		Nannup	6275
South West	Wellington	Collie	6225
		Donnybrook-Balingup	6239-6240, 6243, 6251-6253
Pilbara	West Pilbara	Ashburton	6710, 6711-6712, 6716, 6751-6752, 6754
		Roebourne	6713-6715, 6718, 6720
Midlands	Western	Chittering	6500-6502, 6504-6505
		Dalwallinu	6468, 6608-6609, 6613
		Dandaragan	6507-6508, 6511, 6516, 6521
		Dowerin	6461-6462, 6464-6465
		Gingin	6041-6044,6503
		Goomalling	6460
		Moora	6510, 6512-6513, 6574-6575
		Victoria Plains	6506, 6509, 6568-6569, 6571-6572
		Wongan-Ballidu	6466-6467, 6603, 6605-6606

APPENDIX 17

AGREEMENT BETWEEN THE COMMONWEALTH GRANTS COMMISSION AND THE HEALTH DEPARTMENT OF WESTERN AUSTRALIA (OFFICE OF ABORIGINAL HEALTH)

INTERPRETATION

1. In these conditions unless the contrary intention appears or the conditions otherwise require:

- "Commonwealth" means the Commonwealth of Australia;
- "Commission" means the Commonwealth Grants Commission;
- "funding" means the provision of financial support for the project under these conditions;
- "project" means the activity for which the funding has been approved;
- "Assistant Secretary" means the Assistant Secretary of the Commission's Indigenous Funding Inquiry or authorised officer and includes any person who is for the time being performing the duties of the office of the Assistant Secretary of the Commission;
- "State" for the purposes of these conditions means the State of Western Australia, represented by the Health Department of Western Australia, Office of Aboriginal Health.

Operation of Conditions

2. These conditions apply to the provision of funding by the Commission. These conditions, schedules (if any) and the formal written acceptance of the funding, together form the contract governing the payment of the funding. The State shall observe the provisions of these standard conditions and such special conditions, if any, as are attached. The agreement shall bind the State and the Commonwealth.

Written Acceptance of Conditions

3. Prior to any funding being paid, a letter of acceptance of the funding conditions (Schedule A) shall be signed by an authorised officer of the recipient body and returned to the Commission.

Limitations on the Use of Funds

(i) The funding is paid to the State specifically for the purpose and costs described in this agreement.

(ii) The prior approval, in writing, of the Assistant Secretary is required to vary the purpose or any condition of the funding.

(iii) Funds which are not used within a prescribed period of time, as stipulated in this agreement, may be offset against a subsequent payment of funds or be required to be repaid to the Commission.

(iv) The parties recognise that the Commission's funding does not represent the full cost of the project and that these additional costs (unless otherwise agreed) will be met by the State.

Evaluation

4. As and when required by the Commission, the State shall co-operate or participate in evaluation of the project's activities.

Inspection of Progress

5. The State will keep such records as will allow separate identification of the funding from other income and enable expenditure to be verified. The State shall permit these records to be inspected and the project to be visited at any reasonable time by the Assistant Secretary or his nominee.

FINANCIAL PROVISIONS

Payment of Funding

6. Within 3 months of the completion of the project the State shall forward to the Commission:

(a) A statement of compliance signed by an appropriate officer appointed by the State for the purposes of administering the funding.

This statement shall set out whether:

(i) The funding has been used for the purpose for which it was provided; and

(ii) The conditions included in the agreement have been met.

(b) A Statement of Receipts and Payments certified by an appropriate officer, in respect of the funding.

This statement shall include:

(i) receipts and payments in respect of the funding; and

(ii) Certification that salaries and allowances paid to people employed under the funding are in accordance with award salary rates or the general rates in force at the institution.

7. An initial payment of $18,000 will be made within 14 days of acceptance of funding. A final payment of $16,000 will be made upon receipt of the Final Project Report.

Acquittance of Funding

8. If the requirements set out in the Conditions are not met by the due date to allow the satisfactory acquittance of the funding, further funding will be withheld.

9. Any funds not expended or committed by the date specified in these conditions, shall be offset against any subsequent funding approval, or be required to be repaid to the Commission (subject to any approved extension of the completion date).

Schedule A

ACCEPTANCE OF FUNDING OFFER

Commonwealth Grants Commission

Organisation: Health Department of Western Australia, Office of Aboriginal Health

Purpose of Funding: The Commission's contribution to the development of a detailed data mapping and analysis of health needs of Aboriginal and Torres Strait Islanders as outlined in Schedule C.

Funding Amount: $34,000.00

Funding Period: 1 August 2000 to 31 January 2001

Health Department of Western Australia, Office of Aboriginal Health accepts the offer of the above funding to be paid pursuant to the Funding Agreement and Schedules on and from the date shown below.

Affix common seal in this *space*

{ }

{ }

{ }

The Common Seal of _____ { }

was hereunto affixed in the presence of the undersigned in accordance with the rules of our organisation.

_____	_____
(Signature)	(Signature)
_____	_____
(Name and Position)	(Name and Position)
_____/_____/_____	_____/_____/_____

Schedule B

1. Organisation: Health Department of WA
   Office of Aboriginal Health

2. Funding ID

3. Purpose of Funding: The Commission's contribution to the development of a detailed data mapping and analysis of health needs of Aboriginal and Torres Strait Islanders as outlined in Schedule C

4. Performance Indicator: Receipt of Reports within agreed timeframes (Schedule D).

5. Budget:

Financial year	Program	Salaries	Operational (Travel)	Capital	One-off payment	TOTAL
2000/2001	Health Needs Analysis	34 000	0	0	0	34 000

Note:

Salaries means staff wages and allowances, superannuation, leave loadings and all administrative on-costs.

Operational means other administrative and travel expenses and consumables (such as medical supplies and stationery) associated with the operation of the health service including the purchase and maintenance of minor equipment furniture and ongoing maintenance of buildings.

Travel expenses will be met by the Commission as an additional payment if travel is required.

Capital and One-Off Payment(s) means real property that does not represent a recurrent cost. For the purpose of this Budget it also means large equipment items such as vehicles, office and medical equipment.

6. Reporting Frequency:

7. Financial Statements: Not required

8. Service Activity Reports: As shown in Schedule D

9. Audit Reports: by 30 April 2001

10. Commission Contact: Malcolm Nicholas

11. State Contact: Shane Houston

6.	Service Activity Reports:	As shown in Schedule D
7.	Audit Reports:	by 30 April 2001
8.	Commission Contact:	Malcolm Nicholas
9.	State Contact:	Shane Houston

Schedule C

HEALTH ANALYSIS

10. The aim of the project is to prepare material that will allow the Commission to build a picture of health needs of indigenous people in various regions. It will also examine other issues that are relevant to the allocation of resources among regions.

11. It is envisaged that work would consist of the following major components:

- developing an understanding, based on Western Australian data, of matters relevant to the measurement of health status (needs) with the aim of approximating health status using readily available proxies and applying those proxies to data from other States — this might include establishing the major relationships on a regional basis between Indigenous population distribution, socio-economic circumstances and health status;

- developing an understanding of, and measuring, factors that might affect Indigenous access to and use of services, including physical availability of health services relative to population location, and cultural and social issues that affect access to and use of services — an awareness of the existing use of services would inform this work;

- examining other issues that are relevant to an allocation of resources among regions, especially differences in the costs of providing services in various regions.

The focus of the work would be on primary health care, although, where possible, it should cover acute care.

12. Some of the tasks that it would be desirable to do include:

(A) Identifying, measuring and mapping by region:

(i) Indigenous population (since this material is a basic building block for the other investigations relating to health needs, population be sub-divided by age groups, if possible);

(i) Non-Indigenous population (again by age group);

(ii) Mortality;

(iii) Morbidity by major disease category – it would be desirable to distinguish between place of treatment and place of residence;

(iv) Socio-economic characteristics which have a significant link with health status. It will be necessary to consider whether this work

should be based on the socio-economic characteristics of the whole population or those of the Indigenous population in each region.

(B) Examining material from (A)(i) to (v), to see which indicators (or combination of indicators) provide the best proxies for Indigenous health status or the best method for estimating Indigenous health needs.

(C) Identifying, measuring and mapping by region:

(i) Physical access of Indigenous people to health facilities – if possible this would result in separate data for:

- primary health care facilities, preferably with distinctions between:
- community controlled services,
- State provided community health services — it will be necessary to consider how should these be defined to ensure the results are meaningful and the task is feasible – possibly restrict this to substantial centres, being ones that have a registered nurse or which provide services comparable with community controlled centres; and
- accident and emergency/outpatient department of hospitals;
- private GPs. (This may require some documentation of the extent to which there is substitution between Government funded services and the 'normal' private provision model and between primary care and the more expensive secondary care.)
- Mobile or flying doctor services in remote areas;
- Secondary and tertiary facilities.

(D) Identifying and measuring indicators of cultural barriers to access to health services and social cohesion of communities, as it affects health status.

(E) Other tasks would include preparation of regional data on:

(i) Indigenous use of the health facilities in (C) (i). How far could any such data be usefully disaggregated? Information on relative use of Community controlled and State services would be useful – this might merge into the elements of the task relating to cultural barriers. This could also include information on regional patterns of service use derived from the 'Data link project'.

(ii) Resources available for health services to Indigenous people, sub-divided by government providing the funds. Would such analysis also have to consider resources for non-Indigenous people?

(iii) Differences between regions in the costs of providing services.

13. While, the Commission's terms of reference indicate that ATSIC regions are the preferred basis for regions, State health regions are a practical alternative. However, where possible work should be based on smaller regions to avoid masking important variations.

Schedule D

TIMETABLE

4 August 2000	Commencement of Project (Project Agreement to be signed by 4 August 2000)
31 August 2000	Preliminary Data Report for Western Australia (Data by region to include morbidity, mortality, access, remoteness, socio-economic factors, cost profiles)
15 September	Visit to WA by CGC Staff (Feedback on data report and discussion of early draft of first project report)
29 September	First Project Report (Data for WA and Australia, relationships between data, options for needs assessments)
20 October	Informal feedback on First Project Report Revisions to data/analysis requirements, selection of preferred option for further work)
15 November	Formal feedback on First Project Report (Possible visit to WA by CGC Staff to discuss issues/options)
22 December	First Draft of Final Project Report
10 January	Feedback on Draft Final Project Report (Possible visit CGC staff to discuss issues/options)
31 January	Final Project Report

COMMENTS ON REMOTENESS COSTS FROM HEALTH SERVICES

Health Service 1

1) Definition – Rural/Remote Access Subsidy - Special funding that recognises the additional cost if services in rural and remote areas due to the size of the unit and the cost of dispersion. It includes Minimum Location Cost, Service Delivery Mode/disability allowance and remote location allowances. The subsidy is the additional amount assessed for the locality and is unique to each Health Service. This associated with cost of service dispersion and remoteness.

2) Problem – Identification of concern that relate to rural and remoteness within the Pilbara and Kimberley Health Services and to take a consistent approach to quantification.

3) Patient Travel to metropolitan hospitals – Inter hospital transfers due to complexity of treatment of patient.

4) Work related travel – Travel costs for staff development, conferences, business meetings and the like. Ravel costs unique to isolation includes airfare and vehicle costs.

5) Award related travel – travel costs for staff and dependants on an annual basis equivalent to a return economy airfare to Perth.

6) Award related leave – The North west leave arrangements allow for an additional one weeks leave after 12 months together with two travelling days.

7) Staff accommodation – A requirement to attract staff into the Northwest cost involved include rates, repair and maintenance and refurbishment such as white goods, furniture, air conditioners, etc.

8) Staff energy needs – An air conditioner subsidy relating to electricity is mandatory under Circular A6669 – Air conditioning subsidy.

9) Business energy needs – Energy consumption costs are higher in the Northwest.

10) Freight and Cartage – freight charged due to the tyranny of distance.

11) Repairs and Maintenance – repairs and maintenance incurred due to the climatic nature of the region.

12) Communication costs – communication costs are higher in the North west as against, say the metro area.

13) Vehicle costs – vehicle allocation for senior staff, doctors and engineering is a fact of life for staff recruitment in the Northwest.

14) Staff recruitment – staff recruitment costs – advertising and associated costs are more frequent in remote areas due to the geography, climate and the perceived lack of opportunities (career wise)

15) District Allowance – A district allowance is paid to all staff as a remote location allowance for being in the Northwest.

Health Service 2

1) The cost of maintaining an active doctor presence in the Ng Lands is complicated by a number of compounding factors. If a doctor could be found to reside in the Lands, the cost of maintaining that person would not be dissimilar that recorded above (referring to cost data given). The workload, call out rates and travelling between communities are factors that would eventually cause practitioner burnout. Professional isolation and the need for extended relief add to the burden of such positions, and consequently, their cost. Equal, it would not be possible to manage the medical needs of the Communities with one practitioner therefor the cost of an additional doctor to provide the same medical coverage as exists today is estimated to be approximately 70% of $574,898 or $402,428.

2) The cost of air charters currently incurred in flying doctors to the Lands would be offset by the need to provide housing, motor vehicles, medical equipment, reliable communications (which are pressing need regardless) and the like. The capital costs to put full time doctors in the Lands are estimated to be approximately $320,000-$350,000.

3) The cost of insurance is not possible to identify at this time as all premiums are embodied in the blanket cover held by Ngaanyatjarra Council. It is estimated that these premiums range between $30,000 and $50,000.

4) The cost of maintaining and operating facilities are loaded into the nurse category. This had been dome to reflect the fact that the primary resource in each community is the nurse who has a 24hr/7day presence during duty rotations.

Health Service 3

1) Most of the doctors who visit the hospital come as VMOs (visiting medical officers) which are local GPS etc. we have 5 medical doctors on the books in our ED area and their salaries range from $120,000 to $165,000 depending on shifts, penalties etc.

Health Service 4

1) Basic costs are attached, but there are many variables:

    a. Accommodation supplied or not

    b. Local recruitment

c. Grams services out into Murchison – costs different out there

d. Motor vehicle usage defines cost and may vary

e. Workers compensation rates vary from 0.44% to 2.5% depending on industry classification

f. Collection rates from Medicare depend on doctors classification

g. There is a threshold point for fixed costs that offer savings if larger

h. Costs associated with practise accreditation

i. Petrol prices going up all the time

j. Medication costs in more remote is less because of section 100 exemption for some AMS's

k. Recruitment costs vary year by year by as much as $15,000 for doctors.

Health Service 5

1) Annual leave travel concession – For Gascoyne it is up to 4 days travelling time plus and airfare for them and dependent members of family. Airfare +2 days from $1,200 to $3,000 depending on claims made.

2) Additional weeks leave at the completion of the first year, then pro-rata from that point forward. (level 18-$2,160)

3) District Allowance – from $1,000 to $4,000 per year depending on dependants and location

4) Air Conditioning subsidy – Maximum value around $500 per year.

5) Availability of relief staff – usually 2+ breaks per year – therefore advertising, travel for locum (and family) average $2K per locum visit.

6) Accommodation – where to start – if available etc

7) Gratuity payment after 3 year service in NW (4 weeks per year of service) $8,500 per year.

8) Commitments for overseas study leave after 5 years in NW.

9) GP are placed on higher increments equivalent to specialists in the metro area, ie base salary

10) Provision of a car with limited private use

11) Provision of a house

12) Drs are on the A&E roster – accrual of Public Holiday leave (ie greater leave liability). For this they get a 25% loading of base bringing them to approximately $111K per year salary

13) Housing can be as much as $5,000 per year for rental offset. This is expected to rise with the newer and lower GEHA rates.

14) Nurses get an accommodation subsidy, but no car unless in a remote area and generally not for private use.

APPENDIX 18

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