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# Access and equity - the funding required to close the gap in Aboriginal and Islander health in Far North Queensland

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# Access and equity - the funding required to close the gap in Aboriginal and Islander health in Far North Queensland

## **Abstract**

This report has been commissioned by the Queensland Aboriginal and Islander Health Council (QAIHC). It follows the signing of a Deed of Commitment to support the planning of a move towards community controlled provision of primary health care (PHC) services in Northern Queensland. Two communities are the subject of this report (Cape York and Yarrabah). Yarrabah is an indigenous township approximately 40kms south east of Cairns. Cape York Peninsula covers approximately 137,000 km<sup>2</sup> and includes 17 Aboriginal communities. The health status of the people of Yarrabah and Cape York is similar to other Indigenous communities throughout Australia.

## **Keywords**

north, far, islander, health, equity, aboriginal, gap, required, queensland, access, close, funding

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## Executive summary

This report has been commissioned by the Queensland Aboriginal and Islander Health Council (QAIHC). It follows the signing of a Deed of Commitment to support the planning of a move towards community controlled provision of primary health care (PHC) services in Northern Queensland. Two communities are the subject of this report (Cape York and Yarrabah). Yarrabah is an indigenous township approximately 40kms south east of Cairns. Cape York Peninsula covers approximately 137,000 km<sup>2</sup> and includes 17 Aboriginal communities. The health status of the people of Yarrabah and Cape York is similar to other Indigenous communities throughout Australia.

QAIHC requested us to calculate the level of public funding that will be required to implement the transition to community control in Cape York and Yarrabah in a way that achieves both increased utilisation and improved health outcomes across the continuum of care.

The move towards community control in these communities needs to be considered in the bigger context of the COAG Communiqué 20th December 2007 that committed to closing "the 17 year gap in life expectancy between Indigenous and non-Indigenous Australians". "Closing the Gap" will require a whole of government approach that includes improvements in areas such as, but not limited to, education, housing and employment. That said, the provision of good quality, accessible and effective primary health care will also be essential. The QAIHC Access and Equity project is thus an important opportunity to consider the primary health care that will be required to close the gap and meet the COAG commitment.

Four options for creating a funding pool were costed using data from different sources:

### **Model 1 – Cash out**

The costs of current services are based on expenditure and funding data obtained from relevant services. The results are presented in Section 4.1.

### **Model 2.1 - Equity of input**

Results from the Australian Institute of Health and Welfare 2008 on expenditure on health for Aboriginal and Torres Strait Islander peoples 2004–05 were applied to the two communities. In doing so, Cape York was classified as remote and Yarrabah as outer regional. Costs were inflated from 2004-05 to 2007-08 and the results are presented in Section 4.2.1.

### **Model 2.2 - Equity of input adjusted for need**

Results of previous work to estimate this model were applied to the two communities, with all costs inflated to 2007/08. In addition, the benchmark for the Primary Health Care Access Program (PHCAP) was also applied. The results for Model 2.2 are presented in Section 4.2.2.

### **Model 2.3: Equity of outcome**

The costing of Model 2.3 was undertaken from two perspectives. In the first, the two communities identified the costs of additional services that they believe will be required to improve health outcomes.

The second began with a literature review to summarise the evidence on the gap between indigenous and non-indigenous health. This was framed around the National Health Performance Framework and is summarised in Appendix 2. The next stage involved convening an Access and Equity National Expert Panel to consider the evidence as summarised in Appendix 2 and to provide expert advice on the following questions:

- What is the size of the 'gap' that needs to be closed to achieve equity of outcome?
- What types and levels of health services will be required to 'close the gap' in the two communities?
- Which of these services are appropriately provided as part of primary health care?
- What is the estimated cost of these primary health care services?

The composition of the Access and Equity National Expert Panel is included as Appendix 1 and key outcomes from the panel are discussed in Section 4.2.3 and Section 5.

The table below summaries the size of the funding pool under the various models. It also includes the current funding of the two organisations, Apunipima in Cape York and Gurriny in Yarrabah, that will manage the funds pools. All figures are primary care dollars per capita expressed in 2007/08 dollars.

### ***Per capita summary of the various funds pool models 2007/08***

<b>Measure</b>	<b>Cape York</b>	<b>Yarrabah</b>
Population	16,721	2,629
Current funding (recurrent and non-recurrent) –Apunipima and Gurriny	\$215	\$663
Model 1 Cash out (including MBS and PBS)	\$2,186	\$2,977
Model 2.1 Cash up - equity of input	\$3,004	\$3,004
Model 2.2 Cash up - equity of input adjusted for need - (Deeble 2003)	\$4,889	\$4,889
Model 2.2 Cash up - equity of input adjusted for need - (Econtech 2004)	\$5,378	\$5,378
Model 2.2 Cash up - equity of input adjusted for need - (PHCAP)	\$2,242	\$1,121
Model 2.3 Cash up – equity of outcome - bottom up costing (not comprehensive)	\$2,954	\$3,805

### ***A recommended staged development approach***

1. Establish a core funding pool for each community based on Model 2.1 (equity of input). In 2007/08 dollars, this is \$3,004 per capita. This is approximately double the national average per capita spending on primary health care for non indigenous Australians in 2007/08.

This core funding consists of \$1,291 per capita contributed by the Commonwealth and \$1,713 contributed by Queensland Health.

#### **Commonwealth funding**

- For Cape York, this core allocation of \$1,291 per person is an increase of \$1,142 per person (\$149 at present, excluding MBS and PBS)
- For Yarrabah, this core allocation of \$1,291 per person is an increase of \$536 per person (\$755 at present, excluding MBS and PBS)

#### **Queensland Health funding**

- For Cape York, this core allocation of \$1,713 per person is an increase of \$222 per person (\$1,491 at present, including \$45 non-recurrent)
- For Yarrabah, this core allocation of \$1,713 per person is a decrease of \$19 per person (\$1,732 at present), but current funding includes \$52 per person that is short-term non-recurrent funding.



2. In addition, cash out and add to the pool PBS funding for Yarrabah at a rate of \$233 per person in 2007/08. This will increase the Yarrabah pool to \$3,237 per person or 8.7% more than Model 1. This addition to the pool is not necessary for Cape York because Cape York is eligible for special access to medicines through Section 100 of the National Health Act (1953).

### **Core primary health care funding for Apunipima and Gurriny**

The combined funding from recommendations 1 and 2 above forms the core funding for primary care to be transferred to community control and managed by Apunipima (\$3,004) and Gurriny (\$3,237). Apunipima and Gurriny use these funds to:

- Either provide or purchase (from Queensland Health and others) the platform of primary health care services they identify is required by their communities
- Invest in capacity development (clinical, contracting, planning and IT) as outlined in the recommendations of the Access and Equity National Expert Panel (see page 23) to ensure that services are sustainable into the future

3. In addition, allow uncapped access to fee for service payments under the MBS, including the special programs established under that scheme. These special programs include payments for practice nurses and allied health staff as well as doctors. Assuming that both communities access these at the national average for Aboriginal and Torres Strait Islander people living in remote and outer regional areas, this would increase per capita funding to \$3,447 for Cape York and \$3,724 for Yarrabah.
4. In addition, agree on a process whereby Apunipima and Gurriny can cash out additional funds from the MBS if they can establish alternative arrangements for additional clinical services outside current fee for service arrangements. For example, if a community is able to attract salaried or sessional clinicians, these would be funded by cashing out additional MBS funding. Uncapped access to fee for service payments under the MBS would continue regardless of any amounts cashed out.
5. In addition, allow Apunipima and Gurriny to make claims against the MBS on behalf of their (multidisciplinary) staff. Funding from this mechanism can then be used by the organisations to provide top-up or bonus payments as part of their staff attraction and retention schemes.
6. In addition, agree on a capital investment strategy whereby the two organisations can seek both Commonwealth and State funding for capital investments that are consistent with their service delivery plans.

### **Recommended primary health care funding strategy for Apunipima and Gurriny to close the gap**

- Core primary care funding that is double the national average primary care expenditure on non indigenous Australians
- Plus funding for pharmaceuticals
- Plus uncapped access to fee for service payments under the MBS, including the special programs established under that scheme.
- Plus ability to cash out additional funds from the MBS to fund alternative arrangements for additional clinical services outside current fee for service arrangements.
- Plus right to make claims against the MBS on behalf of staff.
- Plus capital investment strategy consistent with service delivery plans.

Finally, there needs to be a mechanism whereby fund pool contributions are regularly revised. Regular revisions to the pool are an essential element in fairly sharing the risk between the parties to the Deed of Commitment.

## 1 Background and introduction

### 1.1 *The Access and Equity Project*

In August 2006 key organisations agreed, via a Deed of Commitment, to support the planning of a move towards community controlled provision of primary health care (PHC) services in Cape York (CY). The parties to the agreement were Apunipima Cape York Health Council (ACYHC), the Office of Aboriginal and Torres Strait Islander Health (OATSIH Queensland), Queensland Health (Northern Area Health Service), the Royal Flying Doctor Service (RFDS), the Far North Queensland Division of General Practice (FNQRDGP), Mookai-Rosie and Queensland Ambulance Service (QAS). Apunipima Cape York Health Council (ACYHC) was identified as the most appropriate organisation to plan the transition.

In the Deed of Commitment the parties agreed to a number of important principles, including:

- A commitment to maintain their current level of resourcing in health care, and put any new funding towards the priorities identified in the Cape York Health Strategy.
- An agreement that existing OATSIH funded programs in Cape York would be transferred to the Cape York Health Board (a transformed version of Apunipima)
- An agreement to a “pooling” approach towards funding by government agencies and departments (broader than health portfolios), and a commitment to explore this approach further as part of the transition.

This report is concerned with the third dot point above. It has been commissioned by the Queensland Aboriginal and Islander Health Council (QAIHC) to inform negotiations about the ‘pooling’ approach to be adopted as CY moves to community controlled primary health care.

Specifically, QAIHC requested the Centre for Health Service Development (CHSD) at the University of Wollongong to provide advice on the level of public funding that will be required to implement the transition to community control in a way that achieves:

- increased utilisation and
- improved health outcomes across the continuum of care.

### 1.2 *COAG Communiqué 20th December 2007*

The move towards community control in Cape York needs to be considered in the bigger context of the COAG Communiqué 20th December 2007:

"COAG agreed the 17 year gap in life expectancy between Indigenous and non-Indigenous Australians must be closed.

COAG committed to:

- ❖ closing the life expectancy gap within a generation;
- ❖ halving the mortality gap for children under five within a decade; and
- ❖ halving the gap in reading, writing and numeracy within a decade."

It is well recognised that “Closing the Gap” will require a whole of government approach that includes improvements in areas such as, but not limited to, education, housing and employment.

That said, the provision of good quality, accessible and effective primary health care will also be essential. The QAIHC Access and Equity project is thus an important opportunity to consider the primary health care that will be required to close the gap and meet the COAG commitment.

### **1.3 The gap in Aboriginal and Torres Strait Islander health**

Appendix 2 provides a summary of the gap that COAG has committed to closing. Using the national health performance framework, this attachment does not aim to be comprehensive. Rather, the purpose is to illustrate the areas where gains will need to be made, with a particular focus on those amenable to better primary health care. The health differentials are significant on almost every indicator and suggest the range of primary care services that will need to be progressively increased to achieve both access and equity.

### **1.4 Definition of primary health care**

For the purposes of this project, we have embraced the following comprehensive concept of primary health care declared by the World Health Organisation at its Alma-Ata International Conference in 1978:

*'Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self reliance and self-determination. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process.'*

### **1.5 Cape York and Yarrabah**

Cape York and Yarrabah are both located in northern Queensland. Yarrabah is an Indigenous township in Far North Queensland, approximately 40kms south east of Cairns. Cape York Peninsula is a large peninsula located in Far North Queensland that encompasses an area of approximately 137,000 km<sup>2</sup>. There are 17 Aboriginal communities located across Cape York. The health status of the Aboriginal and Torres Strait Islander people of Yarrabah and Cape York is similar to most remote Indigenous communities throughout Australia.

#### **1.5.1 Population estimates**

The difficulties in developing accurate estimates of population size in Indigenous areas have been well documented. For this project, where available, we have used population figures that represent the most current estimates for Cape York and Yarrabah. A detailed description of the methodology used to derive these figures is provided at Appendix 3.

In summary, the population figures used in our calculations are based on ABS figures published in March 2008. They are preliminary Estimated Resident Population (ERP) figures, describing the population at June 2007. ERP estimates are based on census data but make adjustments for census undercount and population changes since the most recent census.

ERP data are not available below the level of Statistical Local Area (SLA). For this reason, we have based the population estimates for five Cape York communities not aligning with SLAs on adjusted 2006 census data. In addition, as age/sex breakdowns are not available for the most recent ERP data, we have provided age/sex population breakdown based on 2006 census data in Appendix 4.

The population estimates for Cape York communities and Yarrabah used in this report are shown in Table 1 below.

**Table 1 Population estimates – Cape York and Yarrabah**

Community	2006 census data	Estimated Resident Population as at June 2007	Adjusted 2006 census data
Aurukun	1,043	<b>1,161</b>	
Hope Vale	781	<b>844</b>	
Injinoo	416	<b>486</b>	
Kowanyama	1,021	<b>1,137</b>	
Lockhart River	551	<b>608</b>	
Mapoon	239	<b>265</b>	
Napranum	841	<b>925</b>	
New Mapoon	346	<b>397</b>	
Pormpuraaw	600	<b>674</b>	
Umagico	229	<b>282</b>	
Weipa	2,830	<b>3,222</b>	
Wujal Wujal	326	<b>356</b>	
Coen	322	Not available	<b>366</b>
Laura	225	Not available	<b>256</b>
Cooktown	1,336	Not available	<b>1,519</b>
Mossman Gorge	146	Not available	<b>166</b>
Kaurareg	486	Not available	<b>665</b>
Cape York remainder	2,984	Not available	<b>3,392</b>
<b>Total Cape York</b>	<b>14,722</b>		<b>16,721</b>
<b>Total Yarrabah</b>	<b>2,371</b>	<b>2,629</b>	

Note: Figures in bold have been used in subsequent calculations

### 1.5.2 Primary Health Care Services in Cape York and Yarrabah

Primary health care services in Cape York and Yarrabah are provided through a diverse range of service structures that reflect the remoteness and geography of these locations.

In Cape York PHC services are provided primarily by the Apunipima Cape York Health Council (Apunipima) and the Qld Department of Health. Apunipima is a community controlled Aboriginal health organisation based in Cairns that employs approximately 20 staff. It operates as a multidisciplinary health resource for the community and people of Cape York providing a range of services including preventative health, maternal and child health, men's and women's health, parenting groups and social and emotional well being services.

The Qld Department of Health delivers the bulk of primary health care services in Cape York. It operates hospitals in Weipa and Cooktown and primary health care centres at ten locations across Cape York. The range of services and the mode and frequency of delivery varies significantly depending on local factors. However, the following types of services are typically provided at some level at each primary health care centre.

<b>Centre Based Services</b>
Emergency On Call After Hours, GP Clinics, Accident & Emergency, Child & Adolescent Health, Women's Health, Mental Health, Sexual Health, Chronic Disease, Environmental Health & Disease control, Diabetes & Nutritional Health, Alcohol & Substance Use and Aged Care.
<b>Visiting Services</b>
Child Health, Obstetrician and Gynaecologist, Occupational Therapist, Chest (Thoracic) Specialist, Nutritionist/Dietitian Services, Ophthalmologist, Public Health, Environmental Health, Alcohol and Drug and STD teams, Sexual Health, Physician, Paediatrician, Mental Health, Dental Services, Women's Health, Optometrist, Family Health, Radiographer.
<b>Community Health Services</b>
Antenatal Clinics, Dental, Nutrition Health Visits, School/Child Health Screen, Women's Health Clinics, Diabetic Care, Chronic Disease Program.

In Yarrabah, PHC services are provided by Gurriny Yealamucka Health Services Aboriginal Corporation (Gurriny) and the Qld Department of Health. Gurriny is a community based Aboriginal health organisation that employs around 25 staff. It delivers social and emotional services to the people of Yarrabah. Gurriny provides a range of primary health care services including men's, women's and children's health programs, health promotion, youth crime prevention, suicide prevention, pharmacy and patient transport programs.

Again, the bulk of primary health care services in Yarrabah are delivered by the Qld Department of Health and operate out of Yarrabah Hospital. This facility provides the following services:

<b>Health Services</b>
24 hour Accident and Emergency, GP clinics, Women's Health Clinics, Chronic Disease Clinics, Child Health Clinics, Antenatal and Postnatal care and clinics.
<b>Visiting Services</b>
Obstetris/gynecology, paediatric, general physician, women's health, hearing services, ENT services, mobile health nurse.
<b>Clinics/Programs</b>
Chronic disease, health promotion, rheumatic heart clinic, adult health checks, child health, immunisation, ante natal and post natal care.

The remainder of this report examines options for pooling health funding to better meet the needs of these diverse communities.

## 2 Options for funds pooling – definitions and key ideas

There are several optional ways to pool health funds. Each is discussed briefly below.

### 2.1 *Model 1: Cash out*

In cash out models, those pooling their funds contribute funding at a level equivalent to their expenditure at the time that the funds pool is established.

The advantage of cash out models is their simplicity. A funding program that spends \$x contributes \$x to the funds pool. A funding program that spends \$y contributes \$y dollars to the funds pool.

The disadvantage of cash-out models is their potential to be both regressive and inequitable. Those communities or individuals who have historically had access to high levels of services receive large cash-outs. Those communities or individuals who have historically had poor access to services receive low cash-outs. Likewise, those funding agencies who have provided generous funding in the past contribute generously to the funding pool. Those who have historically been less generous contribute less.

The important feature of cash-out models is that they are not aimed to meet need or to achieve equity, merely to distribute funding according to historic patterns. The key issue is that cash-out models are only equitable in cases where services have historically been provided in proportion to need. When services have not been provided in proportion to need, cash-out models merely serve to reinforce the inequitable status quo.

Given what is already known about primary health care services in Cape York, the conclusion is obvious. A funds pool based on a cash-out of existing services would be inequitable.

### 2.2 *Model 2: Cash up*

Alternatives to simple cash-out arrangements can be grouped together under the umbrella term of 'cash up' models. These models are designed to be more equitable. This of course raises the important issue of how to define equity for the purposes of funds pooling. There are three options, as follows:

#### 2.2.1 **Model 2.1: Cash up to achieve equity of input**

Under this approach, equity is achieved when communities receive the same level of funding. For example, in 2006/07 services under the Medical Benefits Schedule (MBS) were funded at an average of \$560 per person. Using a model based on equity of input, the funds pool for a community would be 'cashed up' to a maximum of \$560 per person if historic utilisation was below this level. The same approach would be taken in relation to all other funding streams.

While this represents an improvement on cash-out models, its weakness is that it does not take account of the reality that different individuals and different communities have different needs.

#### 2.2.2 **Model 2.2: Cash up to achieve equity of input adjusted for need**

Under this approach, equity is achieved when communities receive the same level of funding after adjusting for their different needs. The New South Wales Resource Distribution Formula (RDF) is an example of this type of approach. The measures of 'need' for primary care in the NSW RDF model include the age and sex profile of the population (people 'need' different amounts of health care at different stages of their lives), socio-economic status, the size of the Aboriginal and Torres Strait Islander population and rurality. The model also takes account of additional input costs (eg,

higher costs associated with remoteness). A similar model is being progressively introduced by Queensland Health.

A key feature of needs-based funding models is that the measures of 'need' built into the model are defined empirically. For example, the measures of 'need' for primary care in the NSW model are based on routinely collected data (eg, census data) and evidence that these measures (eg, age, sex, socio-economic status) are good indications/proxies of the 'need' for primary care.

The national precedent for this approach was established with the funds pools established for the Aboriginal Coordinated Care Trials in the late 1990s. This approach has subsequently been continued in regions such as Katherine West as part of the Australian Government Primary Care Access Program (PHCAP).

These models represent a significant improvement on cash-out models. However, a weakness of some (but not all) needs-based funding models is that they fail to recognise that equitable inputs do not necessarily result in equitable outcomes.

### **2.2.3 Model 2.3: Cash up to achieve equity of outcome**

Under this approach, equity is achieved when communities achieve the same health outcomes. The reality is that some individuals and communities require more resources to achieve the same outcomes as others. Models based on achieving equitable outcomes recognise this. As one example, the NSW RDF includes a weighting of 2.5 for homeless people. In other words, the RDF assumes that achieving the same outcomes for homeless people will cost 2.5 times more than for others. Likewise, the NSW RDF includes a 25% loading in its Health Needs Index for Far West NSW in recognition that it sits at the NSW extreme in terms of all the standard measures of need – mortality, socio-economic status, Aboriginal population and rurality.

A key limitation of models aiming to achieve equity of outcomes is the lack of empirical evidence that can be used to determine with certainty the additional funding required to achieve equitable outcomes. Accordingly, these models inevitably involve the use of value judgements. An example of this is the judgement that homeless people should have a weighting of 2.5. This is a judgement only, with only limited evidence to support it. Nevertheless, it has been built into the model on the basis that it can be refined over time, as better evidence becomes available.

### 3 Methods

The results presented in this report have been developed using the following methods.

#### Costs of current services

The costs of current services are based on expenditure and funding data obtained from relevant services. The following financial and activity level information was compiled:

1. Apunipima and Gurriny PHC expenditure from all funding sources in 2007/08;
2. Apunipima and Gurriny PHC expenditure from funding sources in 2007/08 that are current signatories to the Deed of Commitment;
3. A breakdown of current versus non-recurrent funding for Gurriny and Apunipima;
4. Expenditure on PHC services provided directly by signatories to the Deed of Commitment;
5. Total PHC expenditure in Cape York and Yarrabah and the proportion that relates to current signatories of the Deed of Commitment.

Data were obtained from various sources including funding bodies and the funded agencies. Data compiled in a previous costing exercise undertaken in 2006 by Ben Mayson from the BCG Group<sup>1</sup> were also utilised. It has been necessary to incorporate a range of assumptions and caveats into our estimates that have been noted.

In some cases, the available costing data were for 2007/08. But, in other cases, the available cost data were for earlier periods. In these cases, costs were inflated through to 2007/08. This was done using the health inflation factors in the latest AIHW health expenditure report<sup>2</sup> to account for both cost and volume increases in the intervening period. The costs of current services (Model 1) are presented in Section 4.1.6.

#### Methods to calculate the cost of cash up models

Each of the three 'cash-up' options was costed using data from different sources.

##### Model 2.1 - Equity of input

Results from the Australian Institute of Health and Welfare 2008 on expenditure on health for Aboriginal and Torres Strait Islander peoples 2004–05 were applied to the two communities. In doing so, Cape York was classified as remote and Yarrabah as outer regional. Costs were inflated from 2004–05 to 2007–08 using the methods described above and the results are presented in Section.4.2.1.

##### Model 2.2 - Equity of input adjusted for need

Results of previous work to estimate this model by Deeble 2000<sup>3</sup> and 2003<sup>4</sup>, and Econtech 2004<sup>5</sup> were applied to the two communities, with all costs inflated to 2007/08. In addition, the benchmark

<sup>1</sup> Mason B. Community Controlled PHC In Cape York. Summary Of "Funds Pooling" Work-Stream. December 2006

<sup>2</sup> Australian Institute of Health and Welfare 2007. *Health expenditure Australia 2005–06. Health and Welfare Expenditure Series no. 30.* Cat. no. HWE 37. Canberra: AIHW

<sup>3</sup> Deeble J (2000) *How much help is needed? A needs-based funding formula for Aboriginal and Torres Strait Islander Health.* A discussion paper for the Australian Medical Assoc

<sup>4</sup> Deeble (2003) *Expenditures on Aboriginal and Torres Strait Islander health.* Public report card 2003. Aboriginal and Torres Strait Islander Health – time for action. Australian Medical Association

<sup>5</sup> Econtech (2004) *Costings Models for Aboriginal and Torres Strait Islander Health Services.* Aboriginal and Torres Strait Islander Primary Health Care Review: Consultant Report No 3



for the Primary Health Care Access Program (PHCAP)<sup>6</sup> was also applied. The results for Model 2.2 are presented in Section 4.2.2.

### Model 2.3: Equity of outcome

The costing of Model 2.3 was undertaken from two perspectives. In the first, the two communities identified the costs of additional services that they believe will be required to improve health outcomes.

The second method began with a literature review to summarise the evidence on the gap between indigenous and non-indigenous health. This was framed around the National Health Performance Framework and is summarised in Appendix 2. The next stage involved convening an Access and Equity National Expert Panel to consider the evidence as summarised in Appendix 2 and to provide expert advice on the following questions:

- What is the size of the 'gap' that needs to be closed to achieve equity of outcome?
- What types and levels of health services will be required to 'close the gap' in the two communities?
- Which of these services are appropriately provided as part of primary health care?
- What is the estimated cost of these primary health care services?

The composition of the Access and Equity National Expert Panel is included as Appendix 1 and key outcomes from the panel are discussed in Section 4.2.3 and Section 5.

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<sup>6</sup> Boffa J *The Primary Health Care Access Program (PHCAP) in the Northern Territory* Central Australian Aboriginal Congress

## 4 Results

### 4.1 Model 1: Cash out

The 'cash out' model involves pooling funds at a level equivalent to current PHC expenditure at the time that the funds pool is established. This Section provides an estimate of current primary health care expenditure in Cape York and Yarrabah in the context of estimating the level of funding that would be required under a 'cash out' approach to funds pooling.

In developing funds pool estimates, it is important to recognise the inherent complexities of both funding arrangements and service provision structures in Cape York and Yarrabah. PHC services are provided by Apunipima, Gurriny, the Qld Department of Health, other government agencies and NGOs. Funding for these services is provided through an assortment of Commonwealth and State government departments as well as non-government agencies. The funding allocation process involves both recurrent and one-off funding that is allocated through a series of uncoordinated grant arrangements. This inherent complexity has many implications including making it difficult to develop accurate estimates of current primary health care expenditure levels.

An added complexity in the context of funds pooling calculation is that currently only some funders and some providers of PHC services are currently signatories to the Deed of Commitment regarding transition to community control.

Our results are presented in Table 2 to Table 9 below. It should be noted, however that these results do not include current expenditure on the MBS or PBS. This issue is discussed separately in Section 4.1.5.

#### 4.1.1 Primary health care funding to Gurriny and Apunipima

Table 2 below shows a breakdown of funding to Gurriny and Apunipima from all sources for 2007/08. Total funding to Gurriny is \$3,037,498 and to Apunipima, \$4,230,151. The proportion of funding from Commonwealth Departments to Gurriny is 76% compared with 59% for Apunipima. The proportion of funding from Deed of Commitment signatories to Gurriny is 73% and to Apunipima is 85%.

**Table 2 Total primary health care funding - Gurriny and Apunipima 2007/08**

Funding Source	Signatory to Deed of Commitment	Gurriny	Apunipima
<b>Commonwealth Departments</b>			
Dept of Health & Ageing (OATSIH)	Yes	\$1,984,202	\$2,486,143
Dept of Family & Community Services	No	\$271,011	
Attorney-General's Department	No	\$40,000	
<b>Sub-total</b>		<b>\$2,295,213</b>	<b>\$2,486,143</b>
<b>Queensland Government Departments</b>			
Queensland Department of Health	Yes	\$244,679	\$1,114,008
Dept of Justice & Attorney General	No	\$95,000	
Dept of Communities	No	\$88,331	\$630,000
<b>Sub-total</b>		<b>\$428,010</b>	<b>\$1,744,008</b>
<b>Other Funding Bodies</b>		<b>\$314,275</b>	<b>\$0</b>
<b>Total</b>		<b>\$3,037,498</b>	<b>\$4,230,151</b>

#### 4.1.2 Recurrent /non-recurrent funding

Table 3 and Table 4 below show Apunipima and Gurriny funding in 2007/08 from all sources broken down by recurrent status.

**Table 3 2007/08 Recurrent versus one-off funding – Apunipima**

Funder	Grant	Signatory - Deed of Commitment	Status	Amount
DoHA	Operational Grant (core funding)	Yes	Recurrent	\$1,892,361
Queensland Health	Chronic Disease	Yes	Recurrent	\$359,452
<b>Total recurrent funding</b>				<b>\$2,251,813</b>
Department of Community Services	Coen Safe Haven	No	24 months only	\$630,000
DoHA	Accelerated Child Health Checks	Yes	12 months only	\$423,782
Queensland Health	Transition Funding	Yes	12 months only	\$322,178
DoHA	Governance Project	Yes	12 months only	\$170,000
Queensland Health	Mapping the Landscape	Yes	12 months only	\$103,000
Queensland Health	ATODS	Yes	12 months only	\$72,727
Queensland Health	CHIC	Yes	12 months only	\$61,401
Queensland Health	Child / Maternal Health	Yes	12 months only	\$60,250
Queensland Health	Governance Project	Yes	12 months only	\$60,000
Queensland Health	S&EWB Reform	Yes	12 months only	\$50,000
Queensland Health	Patient Transfer	Yes	12 months only	\$25,000
<b>Total non-recurrent funding</b>				<b>\$1,978,338</b>
<b>Total</b>				<b>\$4,230,151</b>

**Table 4 2007/08 Recurrent versus one-off funding – Gurriny**

Funder	Grant	Signatory- Deed of Commitment	Status	Amount
Dept of Health & Ageing	Regional health planning (core funding)	Yes	Recurrent	\$1,216,647
Dept of Justice & Attorney General. State	Indigenous Justice	No	Recurrent	\$95,000
James Cook University	Suicide Prevention Researcher	No	Recurrent	\$54,000
Dept of Health & Ageing	SDRF Action Planning	Yes	Recurrent	\$10,000
<b>Total recurrent funding</b>				<b>\$1,375,647</b>
Dept of Health & Ageing	10 Week child health check	No	12 months only	\$495,036
Dept of Family & Community Services (FACSIA)	Local Answers-Women's Group	No	24 months only	\$137,680
Dept of Family & Community Services (FACSIA)	Child Care Links Project	No	24 months only	\$133,331
Queensland Health	Health Planner	Yes	36 months only	\$107,000
Dept of Health & Ageing	Transition Planning Officer	Yes	24 months only	\$100,000
Qld Health	Health worker position	Yes	60 months only	\$77,000
University of Queensland/JCU	Priority Driven Research Project	No	24 months only	\$73,730

Funder	Grant	Signatory-Deed of Commitment	Status	Amount
Dept of Health & Ageing	GP Services Setup	Yes	12 months only	\$71,667
Mission Australia	Mission Australia - program funding	No	36 months only	\$71,000
Qld Dept communities	Demand reduction, cultural dance officer	No	36 months only	\$60,985
Qld Health	Senior Health Promotions Officer	Yes	12 months only	\$60,679
KPA Consultancy	KPA Consultancy (Transition program)	No	12 months only	\$60,000
Dept of Health & Ageing	Locum Pharmacy	Yes	12 months only	\$53,000
Attorney-General's Department Comm	NCCPP Program. National crime prevention.	No	12 months only	\$40,000
Dept of Health & Ageing	Child Health Check Feasibility Study	Yes	12 months only	\$30,000
Qld Dept communities	Demand reduction, program delivery, Justice Group	No	36 months only	\$27,346
Telstra Foundation	Healthy Family Eating Project	No	12 months only	\$27,272
AIATSI (UOQ)	Family Violence Project	No	12 months only	\$15,000
FNQDGP	Recruitment of Medical officer	Yes	12 months only	\$10,000
OATSIH	Managers higher ed training program	Yes	24 months only	\$7,852
Aust Sports Commission	Aust Sports Commission	No	12 months only	\$3,273
<b>Total non-recurrent</b>				<b>\$1,661,851</b>
<b>Total</b>				<b>\$3,037,498</b>

Several important issues emerge from these data. Apunipima and Gurriny each receive recurrent core funding from OATSIH. In 2007/08, this represented 59% and 65% of total funding respectively. A further 8% of Apunipima and 6% of Gurriny funding is recurrent from other sources. The remaining funding (Apunipima 47%, Yarrabah 48%) is made up of one-off grants from an assortment of government agencies and other bodies. In many cases, these grants reflect the current priorities of the funding body rather than the needs identified by the local community. Further, the level of funding often means that staff employed to manage projects can only be recruited on a short term and fractional basis.

These funding arrangements cause significant difficulties for Apunipima and Gurriny in developing a coordinated approach to planning and service delivery as well as raising logistical issues around staff employment and retention. This arrangement also results in the need for Apunipima and Gurriny to invest considerable resources in preparing funding submissions. This issue is illustrated by the fact that Apunipima attracted 13 grants in 2006/07, of which 11 (85%) were non-recurrent. Similarly, Gurriny attracted 23 grants in this period, of which 18 (78%) were non-recurrent.

This issue also has significant implications for establishing a funding pool based on cashing out existing funding. Specifically, whether or not non-recurrent funding is included in the pool is a critical issue. On the one hand, the granting agency has not allocated recurrent funding for these initiatives. On the other, a key reason to establish a funds pool is to reduce the administrative burden for the communities in submission writing and in managing a plethora of small program grants. For this reason, non-recurrent funding has been included in the funding calculations below.

### 4.1.3 Primary health care services provided by the Qld Department of Health

The majority of primary health care expenditure in Cape York and Yarrabah relates to services delivered by the Qld Department of Health. As noted, Qld Health operates hospitals at Weipa and Cooktown as well as ten primary health care centres across Cape York. At Yarrabah, Qld Health operate the Yarrabah Hospital which provides a range of outpatient and community based services.

Table 5 below shows Qld Health primary health care expenditure by Cape York community and Yarrabah for 2006/07. The information presented here is based on the methodology developed by Ben Mayson in December 2006. It is based on 2006/07 estimated expenditure and comprised the following steps:

- Calculate sum of each Centre's cost centre data;
- Remove costs for non-PHC services at Cooktown and Weipa.
- Add allocation for corporate R&M costs (\$612k);
- Add allocation for Cairns corporate costs (1% or ~\$0.3m) and Cape York corporate costs (50% or ~\$2.2m);
- Make equivalent adjustments for Yarrabah.

We have discussed the above methodology with Qld Health and have applied the same assumptions for this project. On this basis, Table 5 shows that total expenditure on PHC services delivered by Qld Health in 2006/07 was \$22.1m in Cape York and \$4.0m in Yarrabah.

**Table 5 PHC - Qld Health expenditure - Cape York and Yarrabah, 2006/07**

Community	2006/07 Expenditure \$m
<b>Cape York</b>	
Lockhart River	1.4
Coen	0.8
Aurukun	2.0
Laura	0.2
Pompuraaw	1.2
Kowanyama	2.6
Weipa	0.7
Napranum	1.1
Old Mapoon	0.5
Wujal Wujal	1.2
Hopevale	1.7
Cooktown	2.8
Mossman Gorge	0.4
Other Costs	5.5
<b>Sub total</b>	<b>22.1</b>
<b>Yarrabah</b>	
Yarrabah Hospital	4.0
<b>Sub total</b>	<b>4.0</b>
<b>Total</b>	<b>26.1</b>

Note: Data not available for Kaurareg, Umagico, Injinoo and New Mapoon

A range of issues emerge when considering these services in the context of funds pooling. Most importantly, it is widely agreed that PHC services delivered by Qld Health rely on existing capital infrastructure and human resources that will continue to be required following the transition to community control. The negotiation process will need to incorporate a strategy to allow funds pool holders to purchase required facilities and services from Qld Health.

#### 4.1.4 Primary health care services provided by RFDS and FNQDGP

In addition to Qld Health, PHC services in Cape York and Yarrabah are provided by the Royal Flying Doctor Service (RFDS), the Far North Queensland Division of General Practice (FNQDGP) and the Queensland Ambulance Service (QAS). Each of these organisations is a signatory to the Deed of Commitment.

RFDS provide a range of GP, child health, women's health and mental health services across Cape York and in Yarrabah. Similarly, FNQDGP operate a range of programs covering GP services, population health and health partnerships across Cape York and Yarrabah. From time to time, FNQDGP funds Gurriny or Apunipima under one of these programs. QAS provides emergency retrieval and transport for emergency transfers in Cape York and Yarrabah but QAS funding will not be pooled.

For this project, we have used information provided by OATSIH as part of the previous project referred to above to identify PHC expenditure levels. Table 6 below shows 2005/06 PHC expenditure levels for each of these agencies. As with Qld Health, it is likely that under a funds pooling arrangement, Apunipima and Gurriny will need to be able to purchase services from these organisations and that they will continue to receive QAS services funded by QAS.

**Table 6** *RFDS and FNQDGP PHC expenditure on PHC in Cape York and Yarrabah 2006/07*

Agency	PHC Expenditure
RFDS	\$1,610,279
FNQDGP	\$1,561,292

#### 4.1.5 MBS and PBS expenditure

It has not been possible to obtain data from Medicare Australia to quantify existing levels of expenditure under these schemes.

It has thus been necessary to estimate MBS and PBS expenditure by extrapolating from national expenditure data<sup>7</sup>. This was done by applying national average per capita expenditure figures for Aboriginal and Torres Strait Islanders by region of residence. As one example of this approach, national per capita MBS expenditure in 2004/05 was \$168 per person in remote and very remote areas and \$268 per person in outer regional areas. These figures were inflated to 2007/08 levels and adjusted to account for growth in per capita utilisation since 2004/05. The results were then applied to Cape York and Yarrabah respectively and are shown in Table 9.

#### 4.1.6 Total expenditure on PHC in Cape York and Yarrabah 2007/08

Table 7 summarises the information in the above tables to show total expenditure on primary health care from all sources in Cape York and Yarrabah, with all figures adjusted to 2007/08. For Cape York, total PHC expenditure is \$29.8m. For Yarrabah, total PHC expenditure is \$7.4m. Of this, 14% of Cape York expenditure and 41% of Yarrabah expenditure relates to services currently delivered by Apunipima and Gurriny respectively.

<sup>7</sup> Australian Institute of Health and Welfare 2008. Expenditures on health for Aboriginal and Torres Strait Islander peoples 2004–05. Health and welfare expenditure series no. 32. Cat. no. HWE 40. Canberra: AIHW.

**Table 7 Total PHC expenditure 2007/08**

Funding	Cape York PHC Expenditure	Yarrabah PHC Expenditure
OATSIH funded services	\$2,486,143	\$1,984,202
Qld Health funded services	\$1,114,008	\$244,679
Other funded services	\$630,000	\$808,617
Qld Health delivered services	\$23,811,512	\$4,309,776
RFDS & FNQDGP delivered services	\$1,734,985	\$7,003
<b>Total</b>	<b>\$29,776,649</b>	<b>\$7,354,277</b>

Table 8 shows the proportion of total primary health care expenditure shown in Table 7 that would be in scope under a 'cash out' funds pooling approach based on current signatories to the deed of agreement. That is, it excludes services currently funded by agencies that are not signatories to the Deed of Commitment. It shows that 98% of Cape York PHC expenditure and 89% of Yarrabah PHC expenditure would be in scope.

**Table 8 PHC expenditure in scope under funds pooling 2007/08**

Funding Source	Cape York PHC Expenditure	Yarrabah PHC Expenditure
OATSIH funded services	\$2,486,143	\$1,984,202
Qld Health funded services	\$1,114,008	\$244,679
Qld Health delivered services	\$23,811,512	\$4,309,776
RFDS & FNQDGP delivered services	\$1,734,985	\$7,003
<b>Total</b>	<b>\$29,146,649</b>	<b>\$6,545,660</b>

Table 9 summarises the results for Model 1 in 2007/08 costs. Including the estimates for MBS and PBS, per capita funding in 2007/08 is estimated to be \$2,186 per person in Cape York and \$2,977 per person in Yarrabah.

**Table 9 Model 1: Cash out per capita primary health care expenditure Cape York and Yarrabah in 2007/08**

Measure	Cape York	Yarrabah
Population	16,721	2,629
Total PHC funding, including non-recurrent but excluding MBS and PBS	\$29,146,648	\$6,545,660
Add total MBS and PBS:	\$7,407,403	\$1,280,323
MBS (national average x remoteness)	\$3,511,410	\$883,344
PBS (national average x remoteness)	\$3,895,993	\$396,979
<b>Cash out total 2007/08</b>	<b>\$36,554,051</b>	<b>\$7,825,983</b>
Total per capita funding:	\$1,743	\$2,490
State funding per capita	\$1,491	\$1,732
Commonwealth funding per capita	\$149	\$755
Other funding per capita	\$104	\$3
Plus MBS (national average x remoteness) per capita	\$210	\$336
Plus PBS (national average x remoteness) per capita	\$233	\$151
<b>Total per capita 2007/08</b>	<b>\$2,186</b>	<b>\$2,977</b>

It is important to note that these figures include non-recurrent funding. Removal of non-recurrent funding from the pool would significantly reduce its size, particularly for Yarrabah.

## 4.2 Model 2: Cash up

### 4.2.1 Model 2.1: Equity of input

Equity is achieved under this model when communities receive the same level of per capita funding, regardless of variations in need. However, in the current context it is important to note that there are significant differences in national per capita spending between Aboriginal and Torres Strait Islanders and non-Aboriginal and Torres Strait Islanders.

Excluding hospital inpatient and residential aged care services, Commonwealth and state spending in 2007/08 is estimated to be \$3,004 per capita for Aboriginal and Torres Strait Islanders and \$1,835 for non-Aboriginal and Torres Strait Islanders<sup>8</sup>. The total of \$3,004 per capita for Aboriginal and Torres Strait Islanders includes \$1,291 funded by the Commonwealth and \$1,713 funded by the states. The total of \$1,835 per capita for non-Aboriginal and Torres Strait Islanders includes \$1,214 funded by the Commonwealth and \$621 funded by the states. In both cases, funding for hospital outpatient and emergency departments is included, as it is not possible to identify the outpatient services that could appropriately be provided in a primary care setting. The main differences in spending between Aboriginal and Torres Strait Islanders and non-Aboriginal and Torres Strait Islanders are in community health expenditure.

Table 10 calculates a funding pool based on achieving the same level of funding as the national average for Aboriginal and Torres Strait Islander people. Yarrabah is close to the national average. But Cape York would require increased funding of \$818 per person (27%) to bring it up to the national average.

**Table 10 Model 2.1: Equity of input 2007/08**

Measure	Cape York	Yarrabah
Population	16,721	2,629
Estimated per capita expenditure in 2007/08	\$2,186	\$2,977
National average per capita expenditure in 2007/08 - Aboriginal and Torres Strait Islanders	\$3,004	\$3,004
Per capita difference	\$818	\$27
Total increase over Model 1	\$13,675,832	\$77,435
<b>Total funding pool 2007/08</b>	<b>\$50,229,884</b>	<b>\$7,897,516</b>

It is possible to repeat this analysis based on current expenditure on people other than Aboriginal and Torres Strait Islanders. However, the intention in the Deed of Commitment is to improve both health and health services and such an analysis would be at odds with this intention.

### 4.2.2 Model 2.2: Equity of input adjusted for need

As noted above, equity is achieved under this model when communities receive the same level of funding after adjusting for their different needs. These needs fall into two groups – population need (demand) and supply factors such as the higher costs that are associated with remoteness. They are described below as ‘cost drivers’. Agreeing on what the need is (or what drives costs) is the first step in adjusting the need.

The Access and Equity National Expert Panel agreed at its meeting of 5 June 2008 that the following factors should be taken into account in adjusting for need. These include both demand (need) and supply factors. Both should to be taken into account when calculating the size of a funding pool.

<sup>8</sup> This is based on Australian Institute of Health and Welfare 2008. Expenditures on health for Aboriginal and Torres Strait Islander peoples 2004–05. Health and welfare expenditure series no. 32. Cat. no. HWE 40. Canberra: AIHW. Costs for 2004–05 were inflated to take account of health inflation (3.8% per annum) and per capita volume growth (3.8% per annum) between 2004–05 and 2007–08



## Cost drivers

### Population

The key determinant of the cost of health care is the size of the population. But, because people need different types and amounts of health care at different times in their lives, it is also necessary to take into account the age and sex profile of the population.

### Health profile

The health status of a population is also a key determinant of health care costs. Overall, the health profile of Aboriginal and Torres Strait Islander people is approximately three times worse than that of other Australians. Increased rates of morbidity and the associated burden of disease are reflected in significantly higher costs of providing chronic disease, mental illness, substance misuse, maternal and child health and other primary health care services. In addition, those communities with more risk factors for disease require higher investment in prevention and early identification services.

### Engagement

There are additional costs in some communities associated with the critical need to invest resources in developing ongoing and trusting relationships with Aboriginal and Torres Strait Islander people and their communities. Additional costs also result from related lower levels of kept appointments and other compliance issues.

### Use of private sector services

Private sector services are largely unavailable in remote locations such as Far North Queensland. Where they are available, they are typically utilised less by Aboriginal and Torres Strait Islander people. This increases reliance on public sector services and increases the public sector costs associated with primary health care services.

### Labour costs

The bulk of primary health care services in Far North Queensland are provided in remote locations where labour costs are considerably higher than in urban and regional locations. The cost of accommodation and travel for staff in remote locations is an essential component of additional labour cost that has to be taken into account.

### Remoteness

There are additional costs that result from providing primary health care services in remote locations. These additional costs apply across all cost categories including capital, transport, goods and services, maintenance and staff costs.

### Service efficiency

In remote locations, it is often unavoidable to work within service delivery models that have inherent inefficiencies. For example, it is typically far more difficult to coordinate services between disciplines or different specialists when services are provided only on an infrequent visiting basis.

### Dispersion

Dispersion, or the geographic distribution of the population, impacts on costs and is related to service efficiency. The cost of providing health care to populations living in concentrated areas such as a city is cheaper than providing services for a population of equivalent size spread out over a large geographic area. There are diseconomies of scale and corresponding additional

costs associated in having to provide services at numerous remote locations. The key additional costs are associated with travel and staff time spent travelling as well as in the costs associated with running clinics for only a small number of patients at a time.

### **New technologies**

There are additional costs associated with introducing new technologies in remote locations. These new technologies include advances in clinical techniques such as new screening technologies as well as technologies in areas such as IT systems.

### **Flow-on additional costs due to inadequate investment in other sectors**

If investment in other sectors is inadequate, this can have flow-on costs in the provision of health services. For example, people living in over-crowded and dilapidated houses may need to be admitted to hospital for treatments that they might otherwise receive at home. Likewise, low retention rates in professional education (eg, nursing) result in workforce shortages and increase costs to the health system.

### **Capacity building**

Significant up-front investment in building local health services capacity is critical if services are to be established on a sustainable basis. There are additional and ongoing training and development costs associated with building and maintaining the expertise of staff located in remote locations. Additional funding is required for training of new Aboriginal Health Workers (AHWs) and up-skilling of existing staff. Ongoing career development and incentive pathways require additional funding to create a sustainable workforce.

### **Capital**

There are additional costs associated with building and maintaining capital infrastructure in remote locations.

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As the description of these cost drivers highlights, there is no simple multiplier that can be applied equally to all communities. That said, there is no doubt that the additional costs are significant. For example, in a study in the Northern Territory, Zhao et al<sup>9</sup> found that primary care in the NT costs three times the maximal claimable Medicare benefit.

But each community is different. The important issue is that there is agreement among experts nationally that, when calculating funds pools at the community level, a standard national multiplier cannot be simply applied. The unique circumstances of each community need to be taken into account.

### **Results of applying previous models**

While noting the important comment above about the need to consider the unique profile of each community, it is also important to investigate formulae that have been developed for other purposes. The most important reason to do so is that these are often used as the starting point in negotiations about transferring services and funds to community control.

Table 11 summarises the key findings of some previous studies that have been undertaken to estimate the additional costs required to achieve equity of funding adjusted for need.

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<sup>9</sup> Zhao Y, Hanssens P, Byron P, Guthridge S. *Cost estimates of primary health care activities for remote Aboriginal communities in the Northern Territory*. Department of Health and Community Services, Darwin, 2006

**Table 11 Model 2.2: Equity of input adjusted for need - summary of previous costing estimates**

Report	Key conclusions
Deeble 2000 <sup>10</sup> and 2003 <sup>11</sup>	Total expenditure needs to be 36% (2000) or 42% (2003) more than the national average. But, because of the low utilisation of private services, public expenditure needs to be twice the national average
Econtech, 2004 <sup>12</sup>	Per capita spending on primary health care needs to be about 2.2 times higher
Access Economics, 2004 <sup>13</sup>	\$400m per annum
Primary Health Care Access Program (PHCAP) Benchmark <sup>14</sup>	Remote = MBS x 4 Urban = MBS x 2

Table 12 shows the results of applying the results of three of these models. It was not possible to apply the Access Economics approach as it did specify a per capita figure. The results for the Deeble and Econtech models are based on average per capita spending on all health services except hospitals and residential aged care in 2005/06<sup>15</sup> with costs inflated through to 2007/08. The PHCAP model applies to Commonwealth funding only and the results are based on national average benefits paid of \$568.58 per capita in 2006/07. The PHCAP is a grant payment with communities retaining access to the Medicare Benefits Schedule and the Pharmaceutical Benefits Scheme. It is thus not the complete amount that would be included in a comprehensive funding pool. In applying the PHCAP model, Cape York was classified as 'remote' and Yarrabah as 'rural'.

**Table 12 Model 2.2: Equity of input adjusted for need 2007/08 costs**

Measure	Per capita	Cape York	Yarrabah
Population		16,721	2,629
Deeble 2000 and 2003	\$4,889	\$81,752,401	\$12,853,721
Econtech, 2004	\$5,378	\$89,927,641	\$14,139,093
PHCAP Benchmark	\$2,242	\$37,493,993	
PHCAP Benchmark	\$1,121		\$2,947,542

#### 4.2.3 Model 2.3: Equity of outcome

Equity is achieved under this model when communities achieve the same health outcomes. But, as already noted, there is only limited empirical evidence to assist in calculating the additional funding required to achieve equitable outcomes. Accordingly, these models inevitably involve the use of value judgements.

We have considered Model 2.3 from two perspectives. The first is based on the costs of additional services that the two communities have identified will be needed to improve health outcomes. The second is based on the views of the Access and Equity National Expert Panel who came together for this project.

<sup>10</sup> Deeble J (2000) *How much help is needed? A needs-based funding formula for Aboriginal and Torres Strait Islander Health*. A discussion paper for the Australian Medical Assoc

<sup>11</sup> Deeble (2003) *Expenditures on Aboriginal and Torres Strait Islander health*. Public report card 2003. Aboriginal and Torres Strait Islander Health – time for action. Australian Medical Association

<sup>12</sup> Econtech (2004) *Costings Models for Aboriginal and Torres Strait Islander Health Services*. Aboriginal and Torres Strait Islander Primary Health Care Review: Consultant Report No 3

<sup>13</sup> Access Economics (2004) *Indigenous Health Workforce Needs*. A report for the Australian Medical Association

<sup>14</sup> Boffa J *The Primary Health Care Access Program (PHCAP) in the Northern Territory* Central Australian Aboriginal Congress

<sup>15</sup> Australian Institute of Health and Welfare 2007. *Health expenditure Australia 2005–06*. Health and Welfare Expenditure Series no. 30. Cat. no. HWE 37. Canberra: AIHW

## Bottom up costing of Model 2.3

### Cape York

Table 13 shows the additional funding required to achieve improved services and outcomes in Cape York. These needs were identified and costed as part of the Cape York Investment Plan. These additional costs do not include the cost of required medical and pharmaceutical services funded through the MBS and the PBS.

The cost of funding the Cape York Investment plan equates to an additional \$768 per person per year and would take total per capita funding to \$2,954 per person. This represents an increase of 35% over Model 1 (cash out). But it still equates to \$50 per person below current national average expenditure on Aboriginal and Torres Strait Islander peoples (Model 2.1).

**Table 13 Additional funding required to implement the Cape York Investment Plan**

Service	Year 1	Year 2	Year 3	Total over 3 years
Community Managed Health Service	\$1,042,969	\$1,872,595	\$1,928,773	\$4,844,338
Health Action Teams	\$990,090	\$1,230,169	\$699,494	\$2,919,753
Health Performance Monitoring	\$154,500	\$42,665	\$43,945	\$241,110
Child Health Program	\$1,255,925	\$2,292,767	\$2,370,488	\$5,919,180
Primary Health Parenting Program	\$716,475	\$1,113,085	\$1,077,233	\$2,906,793
Oral Health Program	\$1,416,250	\$2,448,540	\$2,516,533	\$6,421,323
Hearing Health Program	\$665,750	\$1,147,162	\$1,181,577	\$2,994,489
Outstation/Homelands Primary Health Care Outreach	\$1,467,275	\$2,279,158	\$1,912,272	\$5,658,705
Outstation/Homelands First Aid	\$73,150	\$75,345	\$77,605	\$175,100
Natural Helpers Program	\$422,125	\$653,249	\$587,870	\$1,663,244
Family Wellbeing Program	\$337,250	\$478,805	\$483,625	\$1,299,680
Community based SNAP Programs	\$692,450	\$1,173,034	\$1,162,905	\$3,028,389
Cape York Smoking Cessation Campaign	\$120,000			\$120,000
Community Specific Health Education Resources	\$180,000	\$150,000		\$330,000
<b>Total</b>	<b>\$9,534,209</b>	<b>\$14,956,574</b>	<b>\$14,042,320</b>	<b>\$38,522,104</b>

### Yarrabah

A plan for Yarrabah was developed by Tracey Silvester Consulting in 2007 and, as part of its transition planning, Gurriny is developing a Yarrabah Primary Health Service Plan in 2008. While neither plan includes detailed costing, the estimated cost of providing the additional services required to improve access and outcomes is \$2,484,296 in total or \$948 per person. This represents an increase of 32% over Model 1 (cash out). It equates to \$919 per person more than the current national average expenditure on Aboriginal and Torres Strait Islander peoples (Model 2.1). Again, these additional costs do not include the cost of required medical and pharmaceutical services funded through the MBS and the PBS.

## Both communities

Table 14 summaries the results of applying Model 2.3 using the bottom-up approach described above.

**Table 14 Model 2.3: Equity of outcome 2007/08**

Measure	Cape York	Yarrabah
Population	16,721	2,629
Cash out total 2007/08 (including MBS and PBS)	\$36,554,052	\$7,825,983
Add recurrent costs for new services required to move toward equity of outcome	\$12,840,701	\$2,174,017
<b>Total funding 2007/08</b>	<b>\$49,396,939</b>	<b>\$10,002,977</b>
<b>Per capita funding 2007/08</b>	<b>\$2,954</b>	<b>\$3,805</b>

### A staged approach to Model 2.3

The Access and Equity National Expert Panel agreed on a number of key issues that have a direct impact on the cost approach to Model 2.3. These are briefly summarised below.

1. Creation of a funding pool on the basis of current utilisation and services patterns would simply reinforce inequities.
2. Additional investment will be required to close the gap. There is no simple multiplier than can be applied to every community but it can be expected to be at least two to three-fold more than current expenditure.
3. There needs to be significant up front investment in development:
  - In the first instance, additional funding will be required for (modular) training of new Aboriginal Health Workers (AHWs) and up-skilling of existing staff. Ongoing career development and incentive pathways need to be funded to create a sustainable workforce.
  - Once a sufficient and sustainable workforce is available, a comprehensive population health screening program should be undertaken to create a baseline health profile.
  - This should be followed by a comprehensive service plan that is undertaken in partnership with the community and with access to national data and national clinical experts. This plan should specify the specific services that are required and the best funding model for each program. While most can be expected to be best funded from a funds pool, others may better be provided through a fee for service model and other arrangements
  - Capital, equipment and IT investments will be required with the amount varying by community.
4. There is a much higher burden of disease in Aboriginal and Torres Strait communities, with many of the risk factors being in common. While many treatment services need to be disease specific, effective models of care need to be implemented to address the underlying risk factors (see, for example, the work of Hoy<sup>16</sup> and Panaretto<sup>17</sup> for evidence on cost effective models of care that have demonstrated health outcomes). Most risk factor programs are not suitable for funding under current fee for service arrangements. They will need significant investment from the funding pool.
5. In addition to development capacity, each community will also need the capacity to access evidence such as that cited above on the best opportunities to 'close the gap'. And that requires those making decisions about how to spend funding in the pool to have access to

<sup>16</sup> Hoy W, Kondalsamy-Chennakesavan S, Scheppingen J, Sharma S *Kidney and related chronic disease profiles and risk factors in three remote Australian Aboriginal communities* *Advances in Chronic Kidney Disease* Volume 12, Issue 1, Pages 64-70 (January 2005)

<sup>17</sup> Townsville Aboriginal and Islander Health Services (ATIHS) Mums and Babies Project <http://www.taihs.net.au/>

economic evaluations and other data to inform decisions about whether to invest in one type of program or another and how to address the specific health problems in each community.

A specific issue is to have access to information on the burden of disease and the evidence on how best to reduce this burden and close the gap. Significant work on burden of disease costing is in progress that will be able to progressively inform decision making over time.

6. The data confirm that there is a significantly higher rate of morbidity and premature mortality in remote communities. All parties to the Deed of Commitment need to recognise that, by any standards, there is a health crisis. In addition to the development tasks outlined above, there is an immediate need to deal with this emergency. Sufficient funds need to be provided to pay good people to come in and deal with the emergency over the next couple of years, meanwhile developing the workforce locally and planning for the long term goal of a workforce that is predominantly comprised of local indigenous people. These are fundamental human rights issues.
7. A key benefit of funds pooling is to reduce the red tape and administrative expenses of the present arrangement whereby communities receive small trickles of siloed funding. The current arrangements result in siloed service provision in the field and the administrative burden in many cases outweighs the benefits of the program. Funds pooling can reduce administrative costs and give communities the flexibility to invest in different ways based on local community need and available infrastructure.
8. However, the risk in comprehensive funds pooling is that the burden of disease and the cost of treatment varies by community, by disease and by age. A 'one size fits all' model can create risks for the fund holder.

Specifically, effective screening and assessment models are likely to result in significant additional case finding, with each person then requiring treatment that needs to be funded from the fixed pool. Further, as mortality decreases over time, new costs associated with the ageing of the population may emerge.

9. While the burden of disease may differ between communities (and therefore require different funding allocations), an offsetting issue is the community perception of equity. It would not be desirable to have a different per capita allocation for every community, both because this is not the way that governments work and because it would create community perceptions of inequity. A standard, transparent core per capita allocation should be agreed, with top up allocations to deal with variations in factors such as burden of disease.
10. A different approach to funds pooling, and one supported by the Access and Equity National Expert Panel, is to create a less comprehensive funds pool to cover development, core prevention, community development, community education and a range of basic primary medical services.

In this approach, risk factor management and treatment costs (which are known to vary by community and over time) sit outside the fixed pool and are uncapped. Whether risk factor management and treatment is then funded by fee for service or some other arrangement needs to be determined on a case by case basis. The rationale for uncapping all primary care risk factor management and treatment is that investment in these services in the primary care setting can be expected to reduce patient costs downstream (particular in the cost of hospital admissions).

Alternatively, if it is decided to include risk factor management and treatment costs in the funding pool, there will be a clear need for transparent risk sharing arrangements to fairly share the risk between the funds holder and the contributors to the funds pool.

11. Irrespective of whether a comprehensive or a partial primary health care funding pool is created, the size of the pool needs to take account of the additional costs of delivering services in the two communities. These additional costs were listed in Section 4.2.2.
12. The calculation of any funding pool will need to be revised over time. The evidence base is still developing on models of care, burden of disease costing is becoming increasingly

sophisticated<sup>18</sup>, the population in each community will continue to grow and the age sex profile will change. An agreed system will be required to update and refine the funding pool as the evidence base improves and as the population changes.

In summary, the Access and Equity National Expert Panel cautioned strongly against the establishment of a comprehensive primary care funding pool for each community. They proposed a more staged approach, something akin to the PHCAP model, to (in the short-term):

- Fund the additional resources and health professionals required to deal with the immediate crisis in each community
- Fund the significant costs that will be required to develop a sustainable workforce
- Fund core prevention, community development, community education and a range of basic primary medical services in each community

In addition to a funding pool sufficient for these purposes, uncapped funding (through the MBS, PBS and other arrangements) should be available for risk factor management and primary care treatment services.

As evidence on models of care and the cost of effectively treating the burden of disease improves, the funding pool can be progressively expanded. In doing so, it will be essential for the parties to the Deed of Commitment to set in place appropriate risk sharing mechanisms and a system to revise the size of the funding pool over time.

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In this approach to achieving equity of outcomes and closing the gap, the first step is to identify the services that will be required. This includes the required training and development, the breadth of services and the appropriate management and coordination of services. Outcomes are not costed directly. Rather, the focus is on the infrastructure and recurrent investments that are, based on the best available evidence at the time, likely to lead to equitable outcomes over time. As the evidence-base improves, the funding model can, and should, be refined in line with the best available evidence.

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<sup>18</sup> See, for example, the work being undertaken as a collaboration between the Centre for Burden of Disease and Cost-Effectiveness and the Australian Institute of Health and Welfare. <http://www.uq.edu.au/bodce/index.html?page=22065&pid=38659>

## 5 Summary and conclusions

Table 15 summaries the size of the funding pool under the various models. It also includes the current funding for Apunipima and Gurriny. Two conclusions are obvious. The first is that, depending on the method by which it is calculated, there is considerable variability in the size of the funding pool. The total pool varies from \$36.6m to \$89.9m for Cape York and from \$7.8m to \$14.1m for Yarrabah.

**Table 15** *Summary of the various funds pool models 2007/08*

Measure	Cape York	Yarrabah
Population	16,721	2,629
Current funding (recurrent and non-recurrent) – Apunipima and Gurriny	\$3,600,151	\$1,743,845
Current funding (recurrent and non-recurrent) – per capita	\$215	\$663
Model 1 Cash out (including MBS and PBS) total	\$36,554,052	\$7,825,983
Model 1 Cash out (including MBS and PBS) per capita	\$2,186	\$2,977
Model 2.1 Cash up - equity of input - total	\$50,229,884	\$7,897,516
Model 2.1 Cash up - equity of input - per capita	\$3,004	\$3,004
Model 2.2 Cash up - equity of input adjusted for need – total (Deeble 2003)	\$81,752,401	\$12,853,721
Model 2.2 Cash up - equity of input adjusted for need - per capita	\$4,889	\$4,889
Model 2.2 Cash up - equity of input adjusted for need – total (Econtech 2004)	\$89,927,641	\$14,139,093
Model 2.2 Cash up - equity of input adjusted for need - per capita	\$5,378	\$5,378
Model 2.2 Cash up - equity of input adjusted for need – total (PHCAP)	\$37,493,993	\$2,947,542
Model 2.2 Cash up - equity of input adjusted for need - per capita	\$2,242	\$1,121
Model 2.3 Cash up – equity of outcome – total (bottom up costing)	\$49,396,939	\$10,002,977
Model 2.3 Cash up – equity of outcome - per capita	\$2,954	\$3,805

The second is that, regardless of the methodology that is adopted, the funding pool is significantly larger than the current funds held by Apunipima and Gurriny, the two organisations that will transition to become the new fund holding organisations. This is particularly the case for Apunipima.

While both organisations are already well into transition planning, this raises a significant issue. How long will it take for both organisations to be in a position to manage what would be, under any reasonable scenario, a significantly increased funding allocation?

In considering this, the recommendations of the Access and Equity National Expert Panel are critical, particularly their caution against moving to a comprehensive primary care funding pool that cuts off access to open-ended fee for service funding streams such as the MBS.

Consistent with this advice, the following is a recommended staged development approach.

### 5.1 Recommendations

- Establish a core funding pool for each community based on Model 2.1 (equity of input). In 2007/08 dollars, this is \$3,004 per capita. This is approximately double the national average per capita spending on primary health care for non indigenous Australians in 2007/08.

This core funding consists of \$1,291 per capita contributed by the Commonwealth and \$1,713 contributed by Queensland Health.



### Commonwealth funding

- For Cape York, this core allocation of \$1,291 per person is an increase of \$1,142 per person (\$149 at present, excluding MBS and PBS)
- For Yarrabah, this core allocation of \$1,291 per person is an increase of \$536 per person (\$755 at present, excluding MBS and PBS)

### Queensland Health funding

- For Cape York, this core allocation of \$1,713 per person is an increase of \$222 per person (\$1,491 at present, including \$45 non-recurrent)
- For Yarrabah, this core allocation of \$1,713 per person is a decrease of \$19 per person (\$1,732 at present), but current funding includes \$52 per person that is short-term non-recurrent funding.

8. In addition, cash out and add to the pool PBS funding for Yarrabah at a rate of \$233 per person in 2007/08. This will increase the Yarrabah pool to \$3,237 per person or 8.7% more than Model 1. This addition to the pool is not necessary for Cape York because Cape York is eligible for special access to medicines through Section 100 of the National Health Act (1953).

### Core primary health care funding for Apunipima and Gurriny

The combined funding from recommendations 1 and 2 above forms the core funding for primary care to be transferred to community control and managed by Apunipima (\$3,004) and Gurriny (\$3,237). Apunipima and Gurriny use these funds to:

- Either provide or purchase (from Queensland Health and others) the platform of primary health care services they identify is required by their communities
- Invest in capacity development (clinical, contracting, planning and IT) as outlined in the recommendations of the Access and Equity National Expert Panel (see page 23) to ensure that services are sustainable into the future

9. In addition, allow uncapped access to fee for service payments under the MBS, including the special programs established under that scheme. These special programs include payments for practice nurses and allied health staff as well as doctors. Assuming that both communities access these at the national average for Aboriginal and Torres Strait Islander people living in remote and outer regional areas, this would increase per capita funding to \$3,447 for Cape York and \$3,724 for Yarrabah.
10. In addition, agree on a process whereby Apunipima and Gurriny can cash out additional funds from the MBS if they can establish alternative arrangements for additional clinical services outside current fee for service arrangements. For example, if a community is able to attract salaried or sessional clinicians, these would be funded by cashing out additional MBS funding. Uncapped access to fee for service payments under the MBS would continue regardless of any amounts cashed out.
11. In addition, allow Apunipima and Gurriny to make claims against the MBS on behalf of their (multidisciplinary) staff. Funding from this mechanism can then be used by the organisations to provide top-up or bonus payments as part of their staff attraction and retention schemes.
12. In addition, agree on a capital investment strategy whereby the two organisations can seek both Commonwealth and State funding for capital investments that are consistent with their service delivery plans.

### Recommended primary health care funding strategy for Apunipima and Gurriny to close the gap

- Core primary care funding that is double the national average primary care expenditure on non indigenous Australians
- Funding for pharmaceuticals
- Uncapped access to fee for service payments under the MBS, including the special programs established under that scheme.
- Ability to cash out additional funds from the MBS to fund alternative arrangements for additional clinical services outside current fee for service arrangements.
- Right to make claims against the MBS on behalf of staff.
- Capital investment strategy consistent with service delivery plans.

Table 16 summarises the outcomes of this recommended approach. This model is equivalent to a funding increase of 57.9% for Cape York and 25.1% for Yarrabah over estimated current expenditure. In addition, the communities retain access to uncapped MBS funding and to funding from agencies that are not signatories to the Deed of Commitment. The per capita allocation to Yarrabah remains higher than that to Cape York and this largely reflects the fact that Yarrabah already has much more non-recurrent funding than Cape York. However, the per capita gap between the two is much smaller than at present.

**Table 16 Summary of the recommended model 2007/08**

Measure	Cape York	Yarrabah
Model 2.1 Cash up - equity of input - per capita	\$3,004	\$3,004
Add PBS for Yarrabah		\$233
Expected claims on MBS and PBS	\$443	\$487
<b>Per capita expenditure 2007/08</b>	<b>\$3,447</b>	<b>\$3,724</b>
Difference from current	\$1,261	\$747
% difference from current	57.7%	25.1%
Non indigenous national average per capita spending on primary health care 2007/08	\$1,835	\$1,835
Difference from more than non indigenous national average per capita	\$1,612	\$1,889
<b>% increase over non-indigenous national average</b>	<b>87.9%</b>	<b>102.9%</b>

Finally, it is important to establish a mechanism whereby the contributions to the funding pool by both the Commonwealth and Queensland Health are revised on an annual basis. Evidence on models of care and on the cost of effectively treating the burden of disease is continually improving and the funding pool needs to be revised as better information becomes available. Likewise, the communities are growing, their age, sex profiles are changing and health costs will continue to increase. Regular revisions to the funding pool are an essential element in fairly sharing the risk between the parties to the Deed of Commitment.

## Appendix 1

### ***Members of the Access and Equity National Expert Panel***

#### **Health economics**

Professor John Deeble, Australian National University

A/Professor Jim Pearse, University of Wollongong

Professor Theo Vos, University of Queensland

Ms Lynne Pezzullo, Access Economics

Mr John Goss, Australian Institute of Health and Welfare

Dr Boyd Hunter, Australian National University

#### **Chronic disease**

Professor Wendy Hoy, University of Queensland

#### **Mental health and social and emotional well being**

Professor Ernest Hunter University of Queensland

#### **Substance abuse**

Professor Dennis Gray, Curtin University

#### **Child and maternal health**

Dr Katie Panaretto, QAIHC

#### **Aboriginal health**

Professor Cindy Shannon, University of Queensland

#### **Agencies and University of Wollongong**

Mr Adrian Carsan, Queensland Aboriginal Islander Health Council

Ms Jo Root, Queensland Aboriginal Islander Health Council

Ms Jody Currie, Apunipima Cape York Health Council

Ms Lisa White, Apunipima Cape York Health Council

Mr David Barid, Gurriny Yealamucka Health Services Aboriginal Health Corporation

Mr Ross Andrews, Gurriny Yealamucka Health Services Aboriginal Health Corporation

Professor Kathy Eagar, University of Wollongong

Mr Rob Gordon, University of Wollongong



## Appendix 2

### *Summary of the evidence on the gap between indigenous and non-indigenous health based on the Health Performance Framework*

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
<b>Health Status and Outcomes</b>					
Health Conditions	Low birth weight infants	Babies born 2001-03	13% of Aboriginal and Torres Strait Islander (A&TSI) babies were LBW compared to 6% for Non Indigenous (NI) babies		AIHW (2007)
		Rate of increase in LBW babies 1997-2003	1.5% for A&TSI babies and 0.2% for NI babies	Both of these rates were significant	
		Preterm deliveries 2001-03	13% for A&TSI and 7% for NI	Major contributor to LBW	
		Average birthweight of babies born in 2004	Babies born to A&TSI mothers were 3,158 grams and for Non-Indigenous mothers was 3,381 grams.	Difference of more than 200 grams	Thomson et al (2007)
		Proportion of babies born in 04 that were LBW	13.2% of A&TSI babies and 6.2% of NI babies. QLD had lowest proportion of A&TSI LBW babies (11.5%) compared to NI babies (6.4%).	LBW - a birthweight of less than 2,500 grams	
	Top reasons for Hospitalisation	Hospitalisation rate in the 2 years up to June 04.	427/100,000 for A&TSI and 305/100,000 for NI: 1.4 times higher.	Age adjusted	AIHW (2007)
		Hospitalisation involving dialysis 02-03 to 03-04.	41% of all A&TSI hospitalisations. 9% of all NI hospitalisations.	Increase in hospitalisation rate for A&TSI people from June 02 to June 04 was due to increase in dialysis.	
		Top reasons for Hospitalisations excluding dialysis 02-03 to 03-04	Two or more times higher for A&TSI compared to NI.	Top 10 reasons for hospitalisation: Injury; Pregnancy & childbirth; Respiratory system; Digestive system; Symptoms, signs etc., Mental illness; Circulatory system; Genitourinary system; Skin & subcutaneous tissue; Infectious diseases	

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference	
	Hospitalisation for injury & poisoning	Hospitalisations	More than twice as common for A&TSI than for NI	A&TSI injury/poisoning similar to NI for children and older adults but much higher for young and middle aged adults	AIHW (2007)	
		Female hospitalisation due to assault 02-03 to 03-04	Rates are 47 times higher for A&TSI women compared to NI women	Assault accounts for 37.1% of all hospitalisations in A&TSI women.		
		Male hospitalisation rate due to assault 02-03 to 03-04	A&TSI rate 10 times higher than for NI	There are similar rates between men and women for all injury/poisoning causes except assault.		
		Homicide and violence rate ratio for females in 03	A&TSI RR 11.0	RR - rate ratio of Indigenous Australian to Total Australian DALYs.		Vos et al (2007)
		Report of long term condition resulting from injury or accident, 04-05	report of a long tem condition was 1.4 times higher for Indigenous people than for non-Indigenous people.	Data from 2004-2005 Aboriginal and Torres Strait Islander Health Survey.		Thomson & Krom (2007)
	Hospitalisation for pneumonia	Episodes for years 02-03 to 03-04	A&TSI 15.7 per 1,000; 3 per 1,000 for NI: A&TSI rate is 5.5 times that for NI	Includes Qld, WA, SA, NT	AIHW (2007)	
		Hospitalisation rate for 98-99 to 03-04	Fell by 15% for males in this period but no significant drop for females			
		Lower respiratory tract infection rate ratio for males in 03	A&TSI RR 6.1	RR - rate ratio of Indigenous Australian to Total Australian DALYs.	Vos et al (2007)	
		Acute lower respiratory infection (ALRI) admission rates for WA 1990-2000 birth cohort	ALRI admission rates were 7.5 times higher in Aboriginal than non-Aboriginal children.	Although rates of ALRIs in Aboriginal children are falling and rising in non-Aboriginal children, Aboriginal children still have a greater burden of disease due to ALRIs	Moore et al (2007)	
		Pneumonia admission rates for WA 1990-2000 birth cohort	Pneumonia admission rates were 13.5 times higher in Aboriginal than non-Aboriginal children.			
Bronchiolitis admission rates for WA 1990-2000 birth cohort		Bronchiolitis admission rates were 5.8 times higher in Aboriginal than non-Aboriginal children.	There has been a diagnosis shift from asthma to bronchiolitis in children aged 2-12 months.			

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
	Circulatory disease	Self-reported prevalence rates for 04-05	A&TSI 23%; NI 20%	Difference only slight with no significant change from 2001 to 04-05	AIHW (2007)
		Hospitalisations for CD's from 02-03 to 03-04	80% higher for A&TSI compared to NI	NI decreased by 9% over the period but A&TSI rate remained the same.	
		Disability adjusted life years (DALYs) lost due to inflammatory heart disease 03	6.8 times greater for A&TSI males than for the NI males	Largest differential in burden of disease in A&TSI males. For females it was rheumatic heart disease (see below)	Vos et al (2007)
	Acute rheumatic fever & rheumatic heart disease	Prevalence in NT of RHD at end of 05	92% of all recorded cases of RHD in NT were A&TSI	Northern Territory data only except for one small study in Qld	AIHW (2007)
		Incidence of ARF 02-05	5-14 year olds 3.0 per 1,000 (56.6%); 15-24 year olds 1.5 per 1,000 (24.5%)	NI rate not stated. Northern territory is the only state with and ARF/RHD disease register	
		Disability adjusted life years (DALYs) lost due to rheumatic heart disease 03	26.4 times greater for A&TSI females than for the NI females	Largest differential in burden of disease in A&TSI females. For males it was Inflammatory heart disease (see above)	Vos et al (2007)
	High blood pressure	Prevalence of high blood pressure 04-05	14% A&TSI males and 16% of A&TSI females have high blood pressure compared to 10% of NI males and females	No national data available. Three national data sources provide an indirect indication of high blood pressure	AIHW (2007)
	Diabetes	Persons reporting diabetes/high sugar levels 04-05	12% for A&TSI and 4% for NI		AIHW (2007)
		Hospitalisation rate 04-05	6 times higher for A&TSI than for NI		
	End stage renal disease	Age adjusted incidence rate for treated ESRD for 02-04	8 times higher for A&TSI compared to NI	Greatest relative excess in the 45-54 and 55-64 age-groups	AIHW (2007)
ESRD incidence by remoteness 02-04		Remote 26 times higher; outer regional 18 times higher; very remote 12 times higher; major cities and inner regional 4-5 times higher			

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
		Registered patients in 04 who rely on dialysis or who had a kidney transplant	A&TSI - 87% dialysis and 13% transplant: NI- 54% dialysis and 46% transplant		
		Mortality rates for Indigenous people receiving renal replacement (RRT) therapy (dialysis or transplant), 91 to 00	Mortality rates across all modes of RRT were 70% higher for Indigenous people than for non-Indigenous people.	Data from the Australian and New Zealand Dialysis and Transplant Registry.	McDonald & Russ (2003)
	Oral health	Decayed/missing/filled teeth in children	between 1.6 and 2.8 times higher for A&TSI children	Data for NSW 00, SA 03 and NT 02	AIHW (2007)
		Adults with no remaining teeth 01-02	16% for A&TSI and 11% for NI	decayed and filled teeth for was higher for A&TSI adults across all age groups	
	HIV/AIDS, Hep C, STIs	HIV incidence 02-04	A&TSI 5.4 per 100,000 NI 4.4 per 100,000	HIV incidence in A&TSI females is 3.8 times that for NI females	AIHW (2007)
		AIDS rate of diagnosis 02-04	A&TSI 2.6 per 100,000 NI 1.1 per 100,000		
		Notifications for syphilis 02-04 in WA,NT & SA	79% of cases were in A&TSI	WA, SA and NT data	
		Notification of Donovanosis 02-04	41 of 42 cases were in A&TSI people	These all occurred in WA, NT or Qld.	
		Age adjusted notification rate for Chlamydia 02-04	A&TSI 1,084 per 100,000; NI 152 per 100,000	WA, SA and NT data	
		Age adjusted notification rate for Gonorrhoea 02-04	A&TSI 1,228 per 100,000; NI 24 per 100,000	WA, SA and NT data	
		Age adjusted notification rate for Hep C 02-04	A&TSI 25 per 100,000 NI 5 per 100,000	WA, SA and NT data	
	Child hearing loss	Prevalence of child (0-14yrs hearing loss 04-05	A&TSI 10% and NI 3%		AIHW (2007)
		Hospitalisation rate for all ear diseases in the period 98-99 to 03-04	30% lower for A&TSI children aged 0-4 years but 30% higher for A&TSI children aged 5-14 years		



Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
Life expectancy & well-being	Life expectancy at birth	Male life expectancy at birth	77years for all Australians and 59 years for A&TSI	ABS unpublished data (Qld 58.9)	AIHW (2007)
		Female life expectancy at birth	82 years for all Australians and 65 years for A&TSI	ABS unpublished data (Qld 62.6)	
		Health adjusted life expectancy 03	A&TSI males 56 years and NI males 71 years; A&TSI females 60 years and 75 years for NI females	Gap of approximately 15 years between indigenous and other Australians	Vos et al (2007)
		Proportion of people over the age of 65 in 06	A&TSI 2.6%; NI 12%		Thomson et al (2007)
	Well being	Prevalence of at least one stressor 02	A&TSI 1.5 times more likely to report at least one stressor compared to NI	Most common stressors reported by A&TSI were the death of family member or friend, serious illness or disability and unemployment	AIHW (2007)
		Proportion of 4-17 year olds at high risk of clinically significant emotional/behavioural difficulties in 02	A&TSI 24% and NI 15%	Males twice as likely to have difficulties and those in extreme isolation at less risk than those in urban areas.	
		Age adjusted mortality rate from mental health conditions in 02-04	A&TSI 1.8 times higher than for NI (2.5 for males and 1.3 for females)	Excess mortality was highest in 35-54 years age-group	
		Hospitalisation rate for mental health related conditions in the period 02-03 to 03-04	A&TSI were 1.6 times more likely than for NI (males 2 times and females 1.4 times more likely)	Greatest excess in 25-34 years	
Deaths	Infant mortality rate	IMR for 99-01 to 02-04 for WA, NT, Qld, SA	A&TSI decreased from 14.3 to 11.5 deaths per 1,000 live births; NI decreased from 4.7 to 4.1	Represents a 205 decrease for A&TSI and a 13% decrease for NI WA,NT, SA, Qld data only	AIHW (2007)
		Probability of dying before age five 03	A&TSI 1.6% for males and 1.4% for females, NI 0.7% and 0.6% respectively		Vos et al (2007)
	Perinatal mortality			A&TSI perinatal mortality decreased by 55% between 91 and 03. WA, NT, Qld, SA data	AIHW (2007)
	SIDS	Mortality 00-04	A&TSI 1.3 per 1000 live births; NI 0.3. Rate is 4.8 times Higher for A&TSI.	WA, SA and NT data	AIHW (2007)

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
	All causes age standardised death rate (ASDR)	Age adjusted mortality rate for 00-04	2.1 times higher for A&TSI than for NI (13 compared with 6 deaths per 1,000)	ASDR for 25-64year old A&TSI was 4-5 times higher than for NI	AIHW (2007)
		Probable mortality for ages 15 to 60 years in 03	A&TSI males 33% and females 23%; NI males 10% and females 6%)		Vos et al (2007)
		Age-sex-specific death rates for 00-04	Death rate for A&TSI was 4 times higher than for the total Australian population	Rate should be taken with caution as it is estimated that only 56% of A&TSI deaths Australia-wide were identified correctly.	Thomson et al (2007)
	Indigenous death rate ratio per 1000 population in Qld by age, 97 to 00.	0-4yrs: Indigenous rate 4.5 times more in a very remote area and 1.2 times more in a major city; 5-14yrs rate ratios were 6.4 and 0.8 respectively; 15-24 yrs: 4.9 and 1.8; 25-44 yrs: 5.9 and 2.7; 45-64 yrs: 7.0 and 2.6; 65+ 2.5 and 1.0.	Rate Ratio (RR): Indigenous rate divided by non-Indigenous rate. Equals number of times greater one rate is above the other.	Andreasyan et al (2007)	
		Mortality rate for decentralised Aboriginal community in NT compared Indigenous people in NT ≥ 15 yrs and All people in NT ≥ 15 yrs, 95 to 04	Indigenous community had a mortality rate that was 0.64 times that of all Indigenous people in NT but was 2.11 times higher than all people in NT.		Rowley et al (2008)
	Leading causes of mortality	Circulatory diseases mortality rate 00-04	1.7 times higher for A&TSI than for NI		AIHW (2007)
		Injury/poisoning mortality rate 00-04	2.3 times higher for A&TSI than for NI		
		Cancer mortality rate 00-04	1.3 times higher for A&TSI than for NI	4.6 times higher for cervical cancer for A&TSI	
		Endocrine diseases mortality rate 00-04	7 times higher for A&TSI than for NI	includes metabolic and nutritional disorders	
		Respiratory diseases mortality rate 00-04	2.6 times higher for A&TSI than for NI		
Avoidable/ preventable deaths	Proportion of deaths from avoidable causes 00-04	A&TSI 76%; NI 70%. Top 4 avoidable causes of death were ischemic heart disease, cancer (especially lung cancer), diabetes and suicide.		AIHW (2007)	
	Proportion of avoidable deaths amenable to health care 00-04	A&TSI 22%; NI 11%			

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
		Age standardised rate avoidable mortality 00-04	3.9 times higher for A&TSI and 5-6 times higher for age groups between 35 and 64 years		
		Proportion of cancer explained by tobacco use in 03	A&TSI was 35% compared to the total Australian population at 21%		Vos et al (2007)
		Proportion of A&TSI disease burden avoided if gap reduced	29% for 11 selected risk factors.	For 11 selected risk factors 29% of the A&TSI disease burden could be avoided if burden rates were the same as for the total Australian population	Vos et al (2007)
	Proportion of all disability adjusted life years (DALYs) lost by cause, 03	Cardiovascular disease	A&TSI: 17%; NI:18%		Vos et al (2007)
		Mental disorders	A&TSI: 15%; NI: 13 %		
		Chronic respiratory disease	A&TSI: 8%; NI 7%		
		Diabetes	A&TSI: 8%; NI 5%		
		Cancers	A&TSI 8%; NI 19%		
		Unintentional injuries	A&TSI: 7%; NI 5%		
		Intentional injuries	A&TSI: 5%; NI 2%		
		Other	A&TSI:32%; NI 31%		
<b>Determinants of Health</b>					
Environmental factors	Overcrowding in housing	Proportion living in overcrowded conditions in 02	26% of all A&TSI over 15 years in age	Based on Canadian National Occupancy Standard	AIHW (2007)
		Proportion of overcrowded households in 01	15% of all A&TSI households	2001 Census data	
		Rate of overcrowded households in 2001	Approximately 5 times more A&TSI households classified as overcrowded compared to other households	Based on <i>Proxy Occupancy Standard used to assess overcrowding</i> in Commonwealth/State Housing Agreement data.	

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
Socioeconomic factors	Years 10&12 retention and attainment	Year 7/8 to year 10 retention rate 98-05	88.3% for A&TSI compared to 98.6% for NI	Retention rates for yrs 7/8 to yr 12 for Qld was 54%. This was the second highest retention rate for all the states/territories	AIHW (2007)
		Year 7/8 to year 12 retention rate 98-05	39.5% for A&TSI compared to 76.6% for NI		
Health behaviours	Tobacco use	Prevalence of smoking in adults for 04-05	Half of A&TSI report being current smokers (48%). This is double the number for NI adults (23%).	This figure has not changed since 1995. There are no figures for A&TSI under 18 years of age.	AIHW (2007)
	Risky and high risk alcohol consumption	Alcohol dependence and harmful use rate ratio in 03	A&TSI RR 7.9	RR - rate ratio of Indigenous Australian to Total Australian DALYs.	Vos et al (2007)
		Proportion of adult population who drink at risky or high risk levels 04-05, age adjusted	A&TSI 15%, NI 14%	29% of A&TSI were abstainers compared to 15% of NI	AIHW (2007)
		Proportion of adult population drinking at risky/ high risk levels at least once a week, 04-05	A&TSI 17%, NI 8%	Age standardised,	
		Proportion of males and females who drank at risky/high risk levels at least once a week, 04-05	A&TSI Males 21% and NI males 12%; A&TSI females 14% and NI females 5%	Age standardised,	
	Level of physical activity	Prevalence of sedentary and low levels of physical activity in person 15 years and older in non-remote areas, 04-05	Sedentary levels: A&TSI 47% and NI 33%; Low levels: A&TSI 28% and NI 36%	When age adjusted sedentary A&TSI rose to 51% and A&TSI with low levels of physical activity dropped to 27%. NI did not change.	AIHW (2007)
	Breastfeeding practices	Prevalence of breastfed infants aged 0-3 years in non-remote areas, 04-05	A&TSI 79% and NI 88%	Indications that a higher proportion of infants in remote areas were being breastfed compared to non-remote areas	AIHW (2007)
		Proportion of infants given first solid food within first 3 months of life, 04-05	A&TSI 18% and NI 10%	Main reason A&TSI mothers stopped breastfeeding was because they were no longer producing any or adequate milk (32%)	

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference	
Person related factors	prevalence of overweight and obesity	Rate of obesity (BMI greater than 30) in 04-05 by sex	A&TSI males were 1.5 times more likely to be obese than NI males and A&TSI females were 1.9 times more likely to be obese than NI females	Levels of overweight and obesity were higher for A&TSI in all age groups over 18 years. There were no current data for the prevalence of overweight and obesity on A&TSI children.	AIHW (2007)	
<b>Health System Performance</b>						
Effective/ appropriate/ efficient	Antenatal care	Antenatal care services used at least once during pregnancy, 03	A&TSI 96.7% and NI 99.6%	Data available only for NSW, Qld, SA, and NT only. Patterns of antenatal care have not varied greatly over time (98-03) or between states/territories in that period	AIHW (2007)	
		Proportion of mothers attending 5 or more antenatal care sessions in Qld in 03	A&TSI 74.6% and NI 93.3%	NSW and NT data show that A&TSI mothers tend to access antenatal care later in their pregnancy. Qld data not available.		
	Immunisation (child & adult)	Rate of vaccination for children at one year of age in 05	A&TSI 85% and NI 91%		This gap closed at two years of age and was essentially the same as for A&TSI as for NI children at 6 years of age.	AIHW (2007)
		Proportion of adults in target vaccination group vaccinated for influenza in last 12 months, 04-05	A&TSI 60% and NI 73%		The A&TSI vaccination target group was 50 years and over. The target vaccination group for NI was 65 and over.	
		Proportion of adults in target vaccination group vaccinated for pneumonia in last 5 years, 04-05	A&TSI 43% and NI 43%			
	Ambulatory care sensitive hospital admissions	Hospitalisations for vaccine preventable conditions, 03-04	A&TSI admissions were 1.4 per 1,000 persons and 0.4 for NI		Data from Qld, WA, SA and NT	AIHW (2007)
		Hospitalisation for acute ambulatory care sensitive conditions 03-04	A&TSI 35.6 per 1,000 persons compared to NI 12.5 per 1,000 persons			

Group	Indicator	Measurement	Assessment of Gap	Comment	Reference
		Hospitalisation for chronic ambulatory care sensitive conditions 03-04	A&TSI 154 per 1,000 persons compared to 18.5 per 1,000 NI persons		
Accessible	Access to services by types of services compared to need	Visits to a casualty department/ outpatient clinic for those reporting fair or poor health, 04-05	11% of A&TSI people compared to 6% of NI people attended casualty/outpatient clinic.	Indigenous Australians were twice as likely to visit casualty/outpatients and half as likely to see a dentist.	AIHW (2007)
		Visits to a GP for those reporting fair or poor health, 04-05	40% of A&TSI people compared to 42% of NI people visited a GP in the past two weeks.		
		Private health care coverage in non-remote areas, 04-05	17% of A&TSI had private health cover compared to 51% of NI	The main reason for A&TSI people not having private health insurance was because they could not afford it.	
Sustainable	Expenditure on Aboriginal and Torres Straight Islander health compared to need	Per person average health expenditure 01-02	\$3,901 for A&TSI people and \$3,308 for NI people	In contrast measures of mortality, infant mortality and a broad range of health measures are much higher for A&TSI people compared to NI people.	AIHW (2007)
		Estimated increase in health expenditure per person for 98-99 to 01-02	Expenditure increased by 17% for A&TSI people compared to an increase of 19% for NI people		

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## Appendix 3

### *Methodology for deriving population estimates*

The ERP figures are based on census counts by usual place of residence. ABS make adjustments for census undercount, residents who were temporarily overseas at the time of the census, residents who have moved overseas since the census, births, deaths and state level migration.

The June 2006 ERP figures for SLAs differ from the census 2006 figures due to a slight difference in reference period (June 2006 compared with August 2006), but mainly due to the ERP figures being adjusted for census undercount. Across the SLAs, the average difference between the census and the ERP for 2006 is +10.7%. ERP figures are not available below SLA level. Hence population estimates for the five remaining communities are only available from census data. In order to align these figures with the June 2007 ERP figures for SLAs, two adjustments have been made. Firstly, the +10.7% increase in the SLA populations has been applied to adjust for undercount. Secondly, the population increase of +2.7% between June 2006 and June 2007 (averaged over the SLAs) has been applied. The details of the SLA level adjustments are shown in Table 17.

**Table 17** *Comparison of census counts, ERP 2006 and ERP 2007 by SLA*

SLA	Census (Aug 06)	ERP (Jun 06)	ERP (Jun 07)	Difference (ERP 06-census)	Difference (ERP 07- ERP 06)
Aurukun	1043	1138	1161	+95 (+8.3%)	23 (+2.0%)
Hope Vale	782	856	844	+74 (+8.6%)	-12 (-1.4%)
Injinoo	416	463	486	+47 (+10.2%)	23 (+5.0%)
Kowanyama	1021	1112	1137	+91 (+8.2%)	25 (+2.2%)
Lockhart River	551	605	608	+54 (+19.2%)	3 (+0.5%)
Mapoon	239	262	265	+23 (+16.8%)	3 (+1.1%)
Napranum	841	921	925	+80 (+15.3%)	4 (+0.4%)
New Mapoon	346	381	397	+35 (+16.3%)	16 (+4.2%)
Pormpuraaw	600	653	674	+53 (+8.1%)	21 (+3.2%)
Umagico	229	267	282	+38 (+14.2%)	15 (+5.6%)
Weipa	2830	3029	3222	+199 (+6.6%)	193 (+6.4%)
Wujal Wujal	326	361	356	+35 (+9.7%)	-5 (-1.4%)
Yarrabah	2371	2599	2629	228 (+8.8%)	30 (+1.2%)
<b>Total</b>	<b>11595</b>	<b>12647</b>	<b>12986</b>	<b>+1052 (+10.7%)</b>	<b>339 (+2.7%)</b>

## Appendix 4

### *Age/Sex Population Estimates – 2006 Census Data*

Community	Geographic Unit	By sex		By age						Median age	By Indigenous status		Total
		Males	Females	0-4	5-14	15-24	25-54	55-64	65+		Ind	Non-Ind	
Lockhart River	SLA	263	288	78	97	99	227	36	14	25	488	63	551
Aurukun	SLA	504	539	132	205	168	441	66	31	25	935	108	1,043
Coen	Suburb	182	140	22	58	50	148	24	21	32	213	109	322
Kowanyama	SLA	476	545	105	181	169	451	79	37	28	945	76	1,021
Pormpuraaw	SLA	310	290	70	92	74	269	70	23	31	536	64	600
Laura	Suburb	120	105	14	30	14	120	33	13	38	44	181	225
Weipa	SLA	1,547	1,283	269	523	327	1,511	165	36	31	482	2,348	2,830
Napranum	SLA	427	414	107	175	144	334	50	29	24	780	61	841
Old Mapoon	SLA	130	109	32	33	34	109	15	17	29	218	21	239
Wujal Wujal	SLA	170	156	27	69	52	136	29	12	28	309	17	326
Hopevale	SLA	404	377	82	135	144	325	51	43	27	727	54	781
Cooktown	Ind Loc	691	645	101	163	116	589	185	182	41	202	1,134	1,336
Mossman Gorge	Suburb	77	66	14	21	31	74	3	0	-	143	3	146
Kaurareg	Ind Loc	213	273	78	125	82	223	45	33	25	360	126	486
Umagico	SLA	110	119	40	53	40	79	10	6	19	222	7	229
Injinoo	SLA	203	213	53	99	80	150	18	15	20	398	18	416
New Mapoon	SLA	171	175	40	103	67	115	14	6	18	320	26	346
Yarrabah	SLA	1,162	1,209	345	544	450	886	82	64	21	2,298	73	2,371