

**MAKING A DIFFERENCE IN INDIGENOUS HEALTH
SOME COST-EFFECTIVE RECOMMENDATIONS**

Lesley M Russell & Stephen R Leeder

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AN OVERVIEW

The tragic state of Indigenous health is typified by life expectancies that are fifteen or more years less than the average life expectancy for non-Indigenous Australians. Social structures, education, employment opportunities, transportation and food supply all contribute to the incidence of low birth-weight babies, alcohol abuse, mental illness, hearing and eye problems, heart disease and diabetes and to the health inequalities that beset Indigenous communities.

The importance of consultation with Indigenous people when proposing ways in which these health problems might be ameliorated is, increasingly, understood. So also is the need to tackle the roots of the health problems and not just the branches. These approaches must be respected, adhered to and built into the strategies for delivering social justice and for providing comprehensive community rehabilitation and development that will be required to bring Indigenous Australians' health up to levels comparable to those of other Australians.

While large, social structural changes are essential in the long term in improving Indigenous health, there is a range of small, cost effective interventions that commend themselves for discussion and rapid implementation, assuming that Indigenous communities find them acceptable. These are not radical and not expensive but they have the capacity to make things better for Indigenous Australians because of their potential to prevent some forms of serious illness and ameliorate others. These initiatives are not the ultimate solution to the problems of Indigenous health, but they will help improve mortality and morbidity and the quality of life. Moreover, the estimated costs of implementing them are minute in comparison with the costs of doing nothing

We commend these proposals to those interested in Indigenous health, as a basis for discussion and exploration about ways in which we can begin, right now, to make small contributions to a healthier future for Indigenous Australians.

1. REDUCING SMOKING RATES IN INDIGENOUS COMMUNITIES

THE ISSUE:

Half the adult Indigenous population is smokers and smoking rates are even higher in younger age groups, reaching 57 percent for men aged 35-44 and 54 percent for women aged 25-44¹. Over 50 percent of Indigenous mothers report having smoked during pregnancy². Unlike the general Australian community, where smoking rates are now at 17.4 percent³, there has been no significant fall in smoking rates among Indigenous people.

THE IMPACT:

Indigenous smoking is linked with higher rates of disability and long-term health problems, psychological distress and illicit substance use⁴.

THE RECOMMENDATION:

Achieving the current smoking rate, among the lowest in the world, in the general population has been done with a miniscule investment. Tobacco harm reduction measures receive \$2.2 million a year in federal funds. Since 1997 there has been a total of \$24.93 million spent on campaigns (including media buys, research and production)⁵.

Taking just a small level of funding and targeting it in ways that will reach effectively to Indigenous communities will reduce health problems due to low birth weight, cardiovascular disease, cancer, and respiratory diseases which are the major, proximate causes of premature morbidity and mortality in Indigenous communities (Table1).

The Australian Centre for Health Promotion at the University of Sydney has recently launched a training program aimed at ensuring that health professionals have the cultural-specific skills and expertise they need to encourage and help their patients to quit smoking.

Even non-smokers will benefit from anti-smoking interventions with reductions in passive smoking and improvements in community participation due to decreased levels of disability.

THE COST:

\$3 million / year.

¹ Tobacco Smoking – Aboriginal and Torres Strait Islander people: A snapshot, 2004-05
www.abs.gov.au/AUSSTATS/abs@.nsf/mf/4722.0.55.004?OpenDocument accessed 9 November 2007.

² Australian Institute of Health and Welfare's (AIHW) National Perinatal Statistics Unit. Smoking and pregnancy

³ <http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/health-publth-strateg-drugs-tobacco-overview.htm>

⁴ ⁴ Tobacco Smoking – Aboriginal and Torres Strait Islander people: A snapshot, 2004-05
www.abs.gov.au/AUSSTATS/abs@.nsf/mf/4722.0.55.004?OpenDocument accessed 9 November 2007.

⁵ <http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/health-publth-strateg-drugs-tobacco-overview.htm>

Table 1: Impact of smoking on Indigenous health

Health condition	Indigenous mortality and morbidity
Cardiovascular disease ^{6 7}	<ul style="list-style-type: none"> • Indigenous people are much more likely to die from cardiovascular disease than other Australians at any age, but especially so in younger age groups. • More than one in four Indigenous deaths in 1999-2003 were caused by cardiovascular disease. • The cardiovascular disease death rate among Indigenous people aged between 25 and 54 years is at least eight to ten times, and possibly as high as 15 times, that of other Australians.
Cancer ^{8 9}	<ul style="list-style-type: none"> • Indigenous people have higher rates of smoking-related cancers than non-Indigenous people. • Lung cancer is a leading cause of cancer deaths.
Respiratory diseases ^{10 11}	<ul style="list-style-type: none"> • About one in ten deaths of Indigenous people in 1999-2003 was due to a respiratory disorder. • Deaths from respiratory disorders are up to 30% higher in the Indigenous population. • In 2003-04, hospitalizations for respiratory diseases were twice as high for Indigenous people than those for non-Indigenous people.
Low birth weight ^{12 13}	<ul style="list-style-type: none"> • Babies born to Indigenous women are more than twice as likely to be of low birth weight (less than 2,500 grams) than those born to non-Indigenous women. • There are significant links between low birth weight and hypertension and renal disease in later life.

⁶ Australian Bureau of Statistics, Australian Institute of Health and Welfare (2005) *Health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*. (ABS catalogue no. 4704.0) Canberra: Australian Institute of Health and Welfare and the Australian Bureau of Statistics.

⁷ Australian Bureau of Statistics, Australian Institute of Health and Welfare (2003) *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2003*. (ABS Cat no.4704.0, AIHW Cat no. IHW11) Canberra: Australian Bureau of Statistics

⁸ Condon JR, Barnes T, Cunningham J, Armstrong BK (2004) Long-term trends in cancer mortality for Indigenous Australians in the Northern Territory. *Medical Journal of Australia*; 180(10):504-511.

⁹ Australian Bureau of Statistics, Australian Institute of Health and Welfare (2005) *Health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*. (ABS catalogue no. 4704.0) Canberra: Australian Institute of Health and Welfare and the Australian Bureau of Statistics

¹⁰ (Australian Bureau of Statistics, Australian Institute of Health and Welfare (2005) *Health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*. (ABS catalogue no. 4704.0) Canberra: Australian Institute of Health and Welfare and the Australian Bureau of Statistics 8. Australian Bureau of Statistics (2002) *National Health Survey: Aboriginal and Torres Strait Islander results, Australia 2001*. (ABS Catalogue no. 4715.0) Canberra: Australian Bureau of Statistics)

¹¹ http://www.healthinfonet.edu.au/html/html_keyfacts/keyfacts_plain_lang_summary.htm#9#9.

¹² Laws PJ, Sullivan EA (2004) *Australia's mothers and babies 2001*. (AIHW cat. no. PER 25)

Sydney: AIHW National Perinatal Statistics Unit

¹³ (http://www.mja.com.au/public/issues/179_10_171103/sin10228_fm.html)

2. ELIMINATING THIRD WORLD DISEASES

THE ISSUE:

Indigenous Australians, especially those in remote communities, suffer an unnecessary burden of illness as a consequence of a number of infectious diseases that are virtually unknown in the rest of Australia. While crowded housing, lack of clean water and poor sanitation are contributing factors, targeted medical interventions are required.

The primary diseases are:

- Trachoma, a bacterial infection that can lead to blindness if untreated. Australia is the only developed country in the world where trachoma still exists.
- Ear infections (otitis media) that can cause permanent hearing loss.
- Skin infections, of which the most common are scabies (caused by a mite) and streptococcal (bacterial) infections.
- Rheumatic fever. Recurrent infections of rheumatic fever lead to long-term heart damage.

THE IMPACT:

These diseases impact on the ability of young indigenous people to learn and earn a living

Trachoma

Active trachoma prevalence of up to 40% has been reported in children from remote areas in Western Australia and the Northern Territory. The prevalence of trichiasis (due to recurrent infection) in inland desert areas of the Kimberley and Central Australia has been reported at 9-12%¹⁴.

Otitis media

According to the 2001 National Health Survey, almost 1 in 5 Indigenous people had some degree of hearing loss, compared to around 1 in 7 non-Indigenous people¹⁵. Other studies have much higher estimates of hearing loss, with up to 70% of people affected.

This higher frequency of hearing loss reflects primarily the much higher levels of otitis media that Indigenous people experience in their childhood years. It is estimated that Indigenous people spend nearly 32 months with middle ear infections between the ages of 2 and 20 years, while non-Indigenous people have only about 3 months of middle ear infection in these years¹⁶

¹⁴ Mak et al. (2006) *Prevalence and control of trachoma in Australia, 1997-2004*. Communicable diseases Intelligence; 30(2). Accessed at <http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/cda-cdi3002h.htm>

¹⁵ ABS (2002) *National Health Survey: Aboriginal and Torres Strait Islander results, Australia 2001*.

¹⁶ NACCHO (2001) *The management of middle ear infection in Aboriginal and Torres Strait Islander populations*.

It has been estimated that 1 in 7 Indigenous children under 10 years of age has a perforated eardrum¹⁷. This level puts Indigenous children within the WHO's 'extremely high risk' category.

Skin infections

Skin diseases are linked to serious conditions, for example scabies infection is linked to rheumatic fever¹⁸. Up to half the children in remote communities may be infected with scabies.

Skin disease account for around 1 in 40 hospital separations for patients identified as Indigenous, at a rate around 2.5 times that of non-Indigenous people¹⁹.

Rheumatic fever

The incidence of acute rheumatic fever among Indigenous children aged 5-14 years in the Top End of the Northern Territory is about 250 per 100,000 and in Central Australia it is about 150 per 100,000. High incidence rates have also been reported in the Kimberley Regions of WA and in Far North Queensland. Cases of rheumatic fever in non-Indigenous children are now almost unknown. There is some evidence of increasing rates in Central Australia²⁰.

The prevalence of rheumatic heart disease is around 17 per 1,000 among Indigenous people in the NT and less than 2 per 1,000 among other Australians. In Central Australia the prevalence is around 13 per 1,000 Indigenous people compared to less than 1 per 1,000 for other Australians living in the region²¹.

Indigenous people are 6-8 times more likely to be hospitalised for acute rheumatic fever and rheumatic heart disease and 20 times more likely to die from these diseases as other Australians. Among Indigenous people receiving heart valve surgery for rheumatic heart disease, nearly 45% are less than 25 years of age. By contrast, just 4% of these procedures are performed on other Australians of the same age²².

THE RECOMMENDATION:

Treating these infections and their consequences requires tracking down infected patients, education on hygiene, keeping records to ensure compliance with medical treatment for trachoma and rheumatic fever, surgery for trichiasis and audio logical treatment for hearing problems. These can all be done by traveling health teams, which can also address health issues associated with a range of chronic illnesses.

¹⁷ Morris (1998) A systematic review of clinical research addressing the prevalence, aetiology, diagnosis, prognosis and therapy of otitis media in Australian Aboriginal children, *Journal of Paediatrics and Child Health*; 34(6): 487-497.

¹⁸ AIHW (2004) *Rheumatic heart disease: all but forgotten in Australia except among Aboriginal and Torres Strait Islander peoples*.

¹⁹ AIHW (2005) *Australian hospital statistics 2003-04*.

²⁰ Ibid

²¹ Ibid

²² Ibid

There is growing evidence that the introduction of swimming pools into remote communities has substantial health, educational and social benefits²³. These benefits include substantial reductions in skin diseases, hearing loss through ear infections and respiratory disease.

THE COST:

See Section 4 Health Teams and Section 5 Swimming Pools.

Cost to address trachoma \$3.645 million / year

10 regional teams to coordinate examination / screening and treatment
and health education \$3.3 million

National coordination and training \$345,000
(in addition to current \$400,000 commitment to states 2006-09)

²³ WA Parliament Report No 2 (2006) *Swimming Pool Program in Remote Communities* Education and Health Standing Committee Report

3. CHRONIC ILLNESSES

THE ISSUE:

Indigenous Australians have higher mortality rates from cardiovascular and respiratory diseases, diabetes and renal disease²⁴.

The Aboriginal and Torres Strait Islander Primary Health Care Review Consultant Report No 2 (2004)²⁵ found that projected funding allocations will not be able to cater for treatment of the growing burden of chronic disease in the Indigenous population.

THE IMPACT:

Cardiovascular Disease

Cardiovascular disease accounts for 1 in 4 deaths in the Indigenous population²⁶. In the age group 25-44 years death rates for Indigenous males were 10 times higher than for non-Indigenous males, and in the 35-54 years age group, death rates for Indigenous females were 13 times those for non-Indigenous females.

In the 2001 National Health Survey about one in ten Indigenous people reported having a long term cardiovascular condition²⁷. Hypertension (high blood pressure) was the most commonly reported condition.

Type 2 Diabetes

The best evidence suggests that type 2 diabetes is between 2 and 4 times more common among Indigenous people than among non-Indigenous people, and that Indigenous people are more likely to be diagnosed with diabetes at an earlier age. The incidence of type 2 diabetes in Indigenous children and adolescents is sufficiently high to warrant screening for this condition in this age group²⁸

Death rates from diabetes are up to 43 times those for the non-Indigenous population²⁹.

In the 2001 National Health Survey five out of every 100 Indigenous people reported that they had diabetes as a long term health condition. This is likely to be a severe under-reporting of the incidence.

²⁴ Wilson AJ, Oldenburg BF, Lopez AD. Targeted approaches for reducing inequities in chronic diseases. *Medical Journal of Australia* 2003; 179(5):231-232.

²⁵ Beaver c & Zhao Y. Investment analysis of the Aboriginal and Torres Strait Islander Primary Health Care Program in the Northern Territory. The Aboriginal and Torres Strait Islander Primary Health Care Review Consultant Report No 2 (2004)

²⁶ ABS, AIHW (2005) *Health ad welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*

²⁷ ABS (2002) *National Health Survey: Aboriginal and Torres Strait Islander results, Australia 2001.*

²⁸ Carig ME, Fernia G, Broyda V et al. Toe 2 diabetes in indigenous and non-Indigenous children and adolescents in New South Wales. *Medical Journal of Australia* 2007; 186(10):497-499.

²⁹ ABS, AIHW (2005) *Health ad welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*

Renal Disease

Rates of End Stage Renal Disease (ESRD) are much higher for Indigenous people than for non-Indigenous, particularly in remote areas where they are up to 30 times higher³⁰.

Death rates from chronic kidney disease are 8 times higher for Indigenous people than non-Indigenous³¹,

In 2003, 6.5% of people on the Australian and New Zealand Dialysis and Transplant Registry were identified as Indigenous, although Indigenous people make up only 2.4% of the population.

Indigenous people are 8 times more likely to be hospitalised for dialysis treatment than non-Indigenous people. Dialysis accounts for more than one-third of all hospital admissions for Indigenous people³².

Respiratory Disease

About 1 in 10 deaths of Indigenous people is due to a respiratory disorder³³. For the 35-44 years age group the death rate is around 16 times higher than for non-Indigenous Australians.

Hospitalisations for respiratory diseases are most common among the young and the old and are twice as high as for non-Indigenous people.

THE RECOMMENDATION:

It is estimated that Commonwealth investment in primary care in the Northern Territory through funding provided through the OATSIH grants program (\$38 million in 2001-02) saved health care costs elsewhere in the system of at least \$136 million over 5 years and as much as \$1,26 billion over 20 years.

Using a model that looked at the impact of health funds across the continuum of care, the report's authors concluded that the greatest value lies in investments in primary care, particularly in identifying and treating new cases and enhancing treatment for current cases. Action in areas such as respiratory infection, renal diseases and skin infection can be expected to bring the greatest benefits.

Analysis showed that it might be possible to increase the benefits of primary health interventions by around 35% if local services can be delivered in a way that more

³⁰ Cass et al. (2001) Regional variance in the incidence of end-stage renal disease in Indigenous Australians *Medical Journal of Australia*; 175: 24-27.

³¹ ABS, AIHW (2005) *Health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*

³² AIHW (2005) *Australian hospital statistics 2003-04*.

³³ ABS, AIHW (2005) *Health ad welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*

effectively meets the needs of people at the local level and enables people to take greater responsibility for their health.

It is considered that in remote areas traveling health teams can address the burden of chronic illness by ensuring early diagnosis and treatment of risk factors such as high blood pressure, high cholesterol, high blood glucose and proteinuria, and better management of diabetes, respiratory diseases, kidney diseases and rheumatic heart disease.

THE COST:

See Section 4 Health Teams.

4. HEALTH TEAMS

THE ISSUE:

Getting culturally sensitive health care to Indigenous communities, especially those in remote areas.

THE IMPACT:

Improvements in infectious disease rates and the better management of chronic illness.

THE RECOMMENDATION:

To boost the resources available to health services in rural and remote Indigenous communities by the provision of health teams, made up of 2-4 nurses, allied health professionals and health care workers, which will specifically address the prevention and management of infectious diseases and chronic illnesses in these communities.

These teams will tackle infectious disease such as trachoma, ear infections, scabies, sexually transmitted diseases and rheumatic fever to ensure that they are diagnosed and treated early and that prophylactic treatment to prevent their recurrence is delivered.

The teams will also address the current burden of chronic illness by ensuring early diagnosis and treatment of risk factors such as high blood pressure, high cholesterol, and proteinuria, and better management of diabetes, respiratory diseases and rheumatic heart disease.

Effective management of patients identified with these conditions will include family education and awareness, advice on diet and exercise, and regular follow-up to ensure compliance with medications and to assess health outcomes.

The distribution and composition of individual teams should be determined in consultation with the States and Territories, with Aboriginal Community Controlled Health Organisations, and with other relevant stakeholders such as the Aboriginal Medical Service.

Teams will generally to consist of 2 to 4 health care workers, made up of nurses, allied health professionals, Aboriginal Health Workers and Indigenous healers, with the exact structure to depend on community size and needs. Each team will be based at an established health clinic, and linked to a designated GP and designated specialist services (cardiology, ophthalmology, renal) as needed.

The teams will undertake the following activities, working in conjunction with current Indigenous health care providers:

- Patient screening and assessment;
- Treatment plans delivered in accordance with agreed evidence-based guidelines;
- Data collection and coordination of patient records and follow-up, with intervention and outreach as required;
- Patient and family education and medication management;

- Diet, nutrition and exercise; and
- Allied health services as appropriate (physiotherapy, audiology, diabetes education, etc).

Financial assistance with training, travel, computerisation and management of data, etc will be provided. Needed medicines will be provided through the PBS, with special arrangements for dispensing if required.

An important aspect of the teams is that there will be an emphasis on evidence based treatments, measuring service quality and outcomes, and the national collection of data.

Community involvement and ownership is considered to be essential for the success of the program. Where services can be provided by community members, these people will be trained and paid to provide them.

Capital funds:

A major disincentive to attracting health workers to outback Australia is housing availability and cost. Therefore the package should include some assistance with housing. It costs \$225,000-\$350,000 to build a house in remote Australia³⁴. On-going maintenance funds would also be required

THE COST:

Up to 50 teams of 3-4 people, together with overheads of up to \$150,000 / team would cost \$18.75 million a year.

A fund of \$5 million would provide up to 15 houses, depending on whether funds were also allocated for maintenance. Alternatively, States and Territories could be required to provide maintenance.

³⁴ Altman et al (2005) *Land Rights and Development Reform in Remote Australia* CAEPR Discussion Paper #276/2005

5. SWIMMING POOLS

THE ISSUE:

There is growing evidence that the introduction of swimming pools into remote communities has substantial health, educational and social benefits³⁵.

The Howard Government has indicated its willingness to provide pools to remote communities in the COAG trials under Shared Responsibility Agreements³⁶ (although it is noted that a request from the NT to assist with the costs of a pool at Wadeye was rejected). Western Australia and the Northern Territory have programs under which remote communities are provided with swimming pools.

THE IMPACT:

The benefits of swimming pools include significant reductions in skin diseases, hearing loss through ear infections and respiratory disease. Swimming pools play an important part in improving school attendance rates, and training programs in pool management can help employment opportunities.

The presence of a pool in the community would also provide a suitable location for the work of the proposed Health Teams.

THE RECOMMENDATION:

To work with the States and Territories to provide swimming pools and related facilities and training programs to Indigenous communities.

WA has built 3 pools at a cost of \$4 million, including all outbuildings, landscaping and the houses for the new pool managers. On-going management costs for the 3 pools are approximately \$0.6 million pa³⁷. Similar costs were reported by Senator Amanda Vanstone in a press release for a pool at Warmun funded by the Commonwealth³⁸.

THE COST:

Establishment costs per pool	\$1.5 million
Ongoing maintenance costs per pool	\$200,000 pa

³⁵ WA Parliament Report No 2 (2006) *Swimming Pool Program in Remote Communities* Education and Health Standing Committee Report

³⁶ Answers to Senate Estimates Questions on Notice E03-085.

³⁷ WA Parliament Report No 2 (2006) *Swimming Pool Program in Remote Communities* Education and Health Standing Committee Report.

³⁸ Press release 2 August 2005

6. AFFORDABLE PRICES FOR NUTRITIOUS FOOD IN REMOTE AREAS

THE ISSUE:

The Healthy Food Access Basket (HFAB) surveys show that, to meet their families' basic food needs, Australians living in very remote areas pay an average of about 30% (\$114) more each fortnight than people living in cities. The price disparity is greater for basic health foods than for items such as takeaway food, soft drinks and tobacco. Between 2001 and 2004 the cost of the HFAB in very remote areas increased by 18% (\$77:00) which was greater than the rise in the Consumer Price Index³⁹.

Indigenous Australians are doubly disadvantaged as they have the lowest incomes of any population group. One study found that food costs accounted for 35% of basic living costs in a remote Indigenous community⁴⁰. In contrast, Australians generally spend less than 20% of family income on food⁴¹.

THE IMPACT:

The poor health and nutritional status and the high levels of obesity of Indigenous Australians is linked the difficulty they face in making healthy food choices⁴².

THE RECOMMENDATION:

Active support for current initiatives such as:

- Remote Indigenous Stores and Takeaways project.
- Outback stores, established by Indigenous Business Australia with federal funding.
- Buying groups to assist with bulk buying at wholesale prices.
- Guidelines to improve the efficiency of cold-chain perishable food transport to remote areas.
- Local banking services.
- Pro bono support from leaders in the retail grocery industry.

Active consideration of new initiatives such as:

- Public-private partnerships to provide retail and business training for Indigenous communities.
- Government policy to minimize GST costs and subsidise food transport costs.
- Evaluation of current programs to ensure they lead to reduced prices and other expected benefits.
- The development of a regular national food price monitoring system.

³⁹ Harrison MS, Coyne T, Lee AJ et al. The increasing cost of the basic foods required to promote health in Queensland. *Medical Journal of Australia* 2007; 186:9-14.

⁴⁰ Tregenza J, Tregenza E. Anangu Pitjantjara Services Resource Management Project. Budgeting household resources. Alice Springs: N Kutjara Consultants, 1998.

⁴¹ Australian Bureau of Statistics. Household expenditure survey, Australia: summary of results, 2003-04. ABS Cat.No. 6530.0)

⁴² Webb KL & Leeder SR. New Year's resolution: let's get rid of excessive food prices in remote Australia. *Medical Journal of Australia* 2007; 186(1): 7-8.

THE COST:

Current federal government commitment to the Remote Indigenous Stores and Takeaways project and Outback stores is of the order of \$19 million / year.

Could consider doubling this to \$38 million / year.

CONCLUSION

We have proposed an investment of some \$50 million annually in programs that would have a significant impact on Indigenous health and welfare, with the focus on rural and remote communities.

In particular, the proposal for health teams would help treat, and in some cases eliminate, those third world diseases that are now seen only in Indigenous communities. For example, the wise expenditure of \$18 million would eliminate trachoma within five years.

There are many issues left unaddressed, most notably in the area of alcohol and substance abuse. However the expertise to tackle these problems already exists within the University of Sydney, and evaluations are available to direct spending in the most effective and culturally relevant ways^{43 44}. We are currently working with A/Prof Kate Conigrave to develop a costed proposal in this area.

⁴³ Lee KSK, Conigrave KM, Clough AR et al. Evaluation of a community-driven preventive youth initiative in Arnhem Land, Northern Territory, Australia. *Drug and Alcohol Review* 2008: 27:75-82.

⁴⁴ Brady M. Indigenous residential treatment programs for drug and alcohol problems: Current status and options for improvement. Discussion paper No 236. Centre for Aboriginal Economic Policy Research, ANU, Canberra. 2002