Government of **Western Australia**
Department of **Health**

A Promising Future: WA Aboriginal Health Programs

Review of performance with recommendations for consolidation and advance

Emeritus Professor D'Arcy Holman

December 2014

health.wa.gov.au

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Acronyms and Abbreviations

Aboriginal Affairs Cabinet Sub-Committee	AACSC
Aboriginal Alcohol and Drug Service	AADS
Aboriginal community controlled health organisation	ACCHO
Aboriginal Health Council of Western Australia	AHCWA
Aboriginal Health Improvement Unit	AHIU
Aboriginal and Torres Strait Islander	ATSI
Angiotensin II receptor blocker	ARB
Angiotensin converting enzyme inhibitor	ACEi
Accessibility/Remoteness Index of Australia	ARIA
Australian Bureau of Statistics	ABS
Australian Institute of Health and Welfare	AIHW
Australian Medical Association	AMA
Blood borne virus	BBV
Body mass index	BMI
Closing the Gap (strategy)	CtG
Closing the Gap in Indigenous Health Outcomes (program)	CtGIHO
Commonwealth (of Australia)	Cth
Continuous quality improvement	CQI
Child and Adolescent Health Service	CAHS
Chronic Disease Prevention Directorate of WADoH	ChronDP
Communicable Disease Control Directorate of WADoH	ComD
Community Services Procurement Directorate of WADoH	CSP
Council of Australian Governments	COAG
End stage kidney disease	ESKD
Environmental Health Directorate of WADoH	EnvH
Foetal alcohol spectrum disorder	FASD
Footprints to Better Health (program)	FBH
Glycated haemoglobin	HbA1c
Graduated project evaluation	GPE
Goods and services tax	GST
Human immunodeficiency virus	HIV
Indigenous Early Childhood Development (program)	IECD
Information and communication technology	ICT
Kimberley Aboriginal Medical Services Council	KAMSC
Medical Benefits Schedule	MBS
Memorandum of understanding	MoU
National Health and Medical Research Council	NHMRC
National Indigenous Reform Agreement (Closing the Gap)	NIRA
National Partnership Agreement	NPA

New South Wales	NSW
Non-government organisation	NGO
North Metropolitan Health Service	NMHS
Northern Territory	NT
Office of Aboriginal Health, as it was known historically and subsequently known as the Aboriginal Health Division of WADoH and now just 'Aboriginal Health'	OAH
Office of the Registrar of Indigenous Corporations	ORIC
Per annum	pa
Person-years of life lost	PYLL
Person-years of life lost as an object for closing the gap in life expectancy	$PYLL_G$
Primary medical care	PMC
Public Health and Clinical Services	PHCS
Queensland	Qld
Randomised controlled trial	RCT
Reach, effectiveness, adoption, implementation, maintenance	RE-AIM
Rural Health West	RHW
Sexually transmissible infection	STI
Short message service	SMS
South Australia	SA
South Metropolitan Health Service	SMHS
Specific, measurable, attainable, relevant, time-bound	SMART
Statewide Aboriginal Health Planning Forum	SAHPF
Surgery for trichiasis, antibiotics, facial cleanliness and environmental health improvements	SAFE
Television	TV
Western Australia	WA
WA Country Health Service	WACHS
Western Australian Department of Corrective Services	WADCS
Western Australian Department of Health	WADoH
World Health Organization	WHO

Note on Terminology

In this report, references are made in the national context to Indigenous Australians and Aboriginal and Torres Strait Islander (ATSI) people. However, when referring to the WA context, the use of language changes to Aboriginal people. This editorial policy is based on the advice received by the WA Department of Health (WADoH) from the WA Aboriginal health forums that the term Aboriginal be used in preference to ATSI in recognition that Aboriginal people were the original inhabitants of WA. No disrespect is intended to people of Torres Strait Islander background.

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Terms of Reference

Scope

The review will consult with key stakeholders to gather views, information and evidence to evaluate the effectiveness of all the current State-funded Aboriginal health programs in measuring and achieving their stated clinical health outcomes.

The review is to:

a) Examine the roles and responsibilities within the Department of Health and the Health Services for Aboriginal health programs, including processes to determine priorities, governance, procurement and contract monitoring and evaluation;

b) Consider research evidence for program design and delivery;

c) Examine the resources currently provided within each of the programs to ensure the outcomes can be reached;

d) Review the effectiveness and value-for-money of individual programs;

e) Examine the working relationships of each of the State government funded Aboriginal health programs to ensure there is no duplication or overlap with other programs being delivered in the same community;

f) Examine use of measures of effectiveness and efficiency to demonstrate program deliverables and progress in achieving stated outcomes;

g) Provide advice to the Aboriginal Affairs Cabinet Sub-committee (AACSC) highlighting examples of what has worked, what has failed, and any risks and opportunities for improvement; and

h) Make recommendations, if appropriate, for change, enhancement or improvement in all of a) to g).

Timeline

It is expected the review will take a maximum of six months to carry out, will commence in early May 2014 and must be handed to the Acting Director General of Health by 30 November 2014 in order to be given to the Aboriginal Affairs Cabinet Sub-Committee by 31 December 2014.

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Summary of Findings

The Western Australian Aboriginal health sector has a promising future, albeit that the transformation of the sector is a journey making good progress that has not yet reached its destination.

The review commends the Government of Western Australia (WA) for redressing a trend that had seen the State's commitment to the sector run down during the 1990s and the first new millennial decade. In 1988-89, designated Aboriginal health programs funded through the WADoH drew 0.30% of the WA State budget and this would have fallen to 0.07% by 2013-14 without the recent initiatives.[1] However, policy decisions favourable to Aboriginal health saw the funds grow from $21.5 million in 2009-10 to $90.7 million in 2014-15, restoring the proportion of the WA State budget to 0.36%.[2] This restitution was given considerable impetus by the Council of Australian Governments (COAG)-related national agenda of Indigenous health reform and was timely for WA, where State expenditure on prevention and primary care of $1,211 per Aboriginal person by 2010-11 was still well below the comparable jurisdictions of South Australia (SA), Northern Territory (NT) and Queensland (Qld) at an average of $2,502.[3] This former neglect of the sector, now redressed, appears to have been associated with human and economic costs. In 2010-12, the gap in life expectancy in WA was the largest found in any Australian jurisdiction, being a deficit of 15.1 years in Aboriginal males and 13.5 years in Aboriginal females,[4] and WA's public hospital costs of Aboriginal ill-health in 2010-11 were $5,183 per Aboriginal person compared with an average of $4,277 in SA, NT and Qld and a national average of $3,533.[5]

With this chequered history of support made good, there are now reasons for considerable optimism. The WA Aboriginal health sector is poised to make strides in closing the life expectancy gap and reducing excessive hospital costs during the next 25 years, provided that commitment and funding can be sustained and the sector can be tuned up to consolidate what has been a somewhat chaotic period of rapid growth. Indeed, the sector must prepare itself for a looming surge in the Aboriginal chronic disease case load, driven by the epidemiologic transition to an older age profile, the anthropogenic ailments of modern living and well above-average growth of the WA Aboriginal population.[6]

Resource allocation and governance

The total allocation of $420.6 million over the six years of 2009-10 to 2014-15 supported 401 separate 'projects' (ie, lines of funding) falling within 21 different areas of health focus.[7] Of these projects, 46% were COAG-related initiatives and the remainder a growing investment of recurrent WADoH funds separate from COAG. A person-years of life lost (PYLL) analysis provided an impartial indication of how resources should be allocated across different regions and areas of health focus.[8] After adjustment for regional cost variations, it showed that the Pilbara and

1 See pages 5 and 17-18, including Tables 2-3.
2 See pages 5 and 17-18, including Tables 2-3.
3 See pages 99-100, including Table 32.
4 See page 5.
5 See pages 99-100, including Table 32.
6 See pages 7-8, 13 and 15.
7 See page 17, including Table 2.
8 See pages 19-20.

Wheatbelt were relatively underfunded.[9] The Goldfields and South Metropolitan regions were funded generously relative to other regions; however, local decisions to invest in merit programs should be taken into account when using this information, thus avoiding 'punishment for good behaviour'.[10] Contrary to speculation, the Kimberley region was not over-resourced relative to its high needs.[11]

In examining how resources were allocated across different health programs, nutrition education and food security as well as alcohol education and rehabilitation were grossly underfunded, and smoking and environmental health interventions were funded at around one half of their levels of priority.[12] Road trauma and other injury prevention were also grossly underfunded, albeit the responsibility for road safety is shared across a number of State government departments.[13] Some treatment services were over-allocated relative to their contributions to lost life-years and this was grossly so in the case of renal dialysis, a program with poor cost-effectiveness attributes, but also one that poses a significant ethical dilemma.[14]

The review identified complementary strengths of the Department's Aboriginal Health Improvement Unit (AHIU) and the Office of Aboriginal Health (OAH), the former having a commendable track record in program implementation and contract management under pressured conditions; and the latter offering strong credentials in policy development. There is considerable scope to improve communication and synergy between the AHIU and the OAH; and also to increase such interactions with the Public Health and Clinical Services (PHCS). However, it would be detrimental at this time to integrate the units by structural reorganisation, as it would serve only to damage the Department's capacity to support the sector with urgently required co-leadership, policy setting, planning, standards, guidelines, contracting, coordination, monitoring performance and evaluation.[15] Rather, a dynamic (not structural) re-organisation is strongly advised.[16]

The review confirmed that the existing governance structure consisting of nine metropolitan and regional Aboriginal Health Planning Forums feeding into a Statewide Aboriginal Health Planning Forum (SAHPF) has delivered to the sector essential machinery for communication and coordination in an operating environment where multiple funders and providers has become the norm.[17] The performances of the forums has been mixed and, because they are essential, the time has come to build on existing strengths and redress weaknesses to raise their governance and effectiveness to the next level.[18] The same applies to the standards of corporate governance in service providers.[19]

Evidence base and translation

Systematic evidence reviews were completed on interventions used in 15 areas of health focus comprising 99.7% of total spending on interventions. A sound evidence base was uncovered, with the combination of quantitative and qualitative reviews resulting in final evidence classifications in

[9] See pages 23-24, including Tables 6-8.
[10] See pages 23-24, including Tables 6-8.
[11] See Table 8.
[12] See pages 26-31, including Tables 9-13.
[13] See pages 26-30 and 32-33, including Tables 9-13.
[14] See pages 26-30 and 34-35, including Tables 9-13.
[15] See pages 39-41.
[16] See page 41.
[17] See pages 41-42.
[18] See pages 42-45.
[19] See pages 45-46.

the range of Grade A (unqualified reliability to guide practice), Grade B (qualified reliability to guide practice) and Grade C (support for practice with care taken in application).[20]

The review selected 184 larger, active 'projects' conducted in over 30 different towns and communities for site visits, face-to-face interviews and heavily detailed individual evaluations of project performance.[21] They represented 90% (184/204) of the projects on foot in 2014-15 and 93% of the funds for that year ($84.7 million / $90.7 million) or 88% of the total historical funding ($371.8 million / $420.6 million).

After excluding 11 projects concerned with training, capacity building or administration, the review found that 99.1% of the remaining $354.4 million in funds (98.3% of 173 projects) were invested in interventions attracting at least a Grade C classification on strict quantitative National Health and Medical Research Council (NHMRC) criteria alone.[22] Three mental health projects were the only ones to be assigned a strict Grade D classification (weak support with caution applied in application), but the strength of qualitative evidence in these instances was sufficient to increase the rating to Grade C. Some 51.2% of the funds were invested in interventions with strict Grade A-B classifications and when supplemented by qualitative evidence this proportion rose to 81.4%. The review concluded that interventions in the sector were underpinned by particularly high standards of prior scientific evidence.

There was a disconnect between the findings above, which clearly indicate that no general problem exists with the scientific standing of the interventions delivered by the sector, and what the review observed first hand as weak familiarity of service providers and some sections of the Department with the cost-effectiveness of the interventions they were promoting or delivering. This disconnect was illustrated by an assessment of original, formal, structured proposals that had been submitted for scrutiny and local prioritisation via the system of regional and statewide forums. The review found that while the levels of justification proffered in regard to the need for the intervention and capacity to deliver it were adequate in 82-89% of proposals, the same could not be said for the justifications of effectiveness and cost, which were adequate in only 20-27% of proposals.[23] The review surmises that, because much of the growth of the sector took place within a well-supported national framework, an effective evidence base was drawn from that source. However, into the future it is essential that the WA sector develops its own strong familiarity with its evidence base and a strong commitment to evidence translation such that science and culture become a powerful mix. The review has provided advice to this effect.

Program inputs including workforce

The capacity to deliver services was profoundly dependent on the availability, quality, locations and appropriate ethnic mix of the sector's workforce.[24] The average proportion of staff employed on the 184 selected projects who were Aboriginal people was 61.1%. Professional development opportunities had been offered to staff in 86.6% of the projects.

However, the review found that the sector remained highly vulnerable in its ability to sustain a workforce sufficiently equipped to deliver complex interventions in a complex service environment, particularly where success depends on earning community trust through an enduring

[20] See pages 47-68, including Table 14-16.
[21] See pages 68-70.
[22] See pages 70-71, including Table 17.
[23] See page 72-74, including Table 18.
[24] See pages 75-78, including Tables 19-20.

commitment.[25] There was no point of distress more sorely felt and more universally expressed to the review by service providers than their sense of being let down by ephemeral funding arrangements that did not provide for the necessary stability of workforce required to achieve longer term health advances. Using the 'maintenance' dimension of the reach, effectiveness, adoption, implementation, maintenance (RE-AIM) evaluation framework, the review found that only in 19.0% of the 184 evaluated projects was there evidence that staff could be replaced without a significant loss of functional capacity, whereas in 35.2% the sustainability of the workforce as it stood was found to be quite weak.[26] In what one respondent described as "trashing workforce dynamics", the review agrees that the provision of a single year of funding in 2013-14, followed by a further 7-12 months of funding in 2014-15, has been detrimental to the Aboriginal health sector. The problems have been exacerbated by the late formal notification of decisions on continuation of funding received by the non-government organisations (NGOs), typically well after existing contracts have expired. This has placed some in the invidious position of operating illegally while technically insolvent or dismissing staff, who have become fully functional only with the passage of some years of investment, training and building trust in the community. This is a serious issue and it should cause no surprise that the review's first key recommendation addresses this problem.

Program delivery and value for money

Value for money delivered by each of the 184 evaluated projects was assessed independently by the review on the basis of five considerations: contribution to the gap in life expectancy; grade of prior evidence; potential for cost-effectiveness; project audit review score assigned by the review; and actual performance of the intervention measured using the RE-AIM and graduated project evaluation (GPE) systems.[27] Projects were classified as delivering poor, marginal, good, excellent or outstanding value for money. Poor value meant that the project delivered less than 65% of what an alternative use of the funds could have delivered; outstanding value meant the project exceeded its opportunity cost by 50%. The distributions of the 184 evaluated projects and the associated funds were as follows:

Basis for distribution	Value for money				
	Poor	Marginal	Good	Excellent	Outstanding
% of 184 projects	2.7	6.0	56.5	21.2	13.6
% of funds 2009-15	8.8	3.1	58.4	17.7	12.0

A strong majority of projects (91.3% representing 88.1% of funds) delivered good, excellent or outstanding value for money. Most projects delivering poor or marginal value for money were of two types: renal dialysis projects were precluded from achieving good value for money due to their poor cost-effectiveness as a means of generating disability-free life years; and prison health projects under-performed for operational reasons.[28]

With respect to the review's independent project audit review scores, these were compared to similar scores assigned to the same projects in-house by two different systems within the WADoH: a 'FBH score' assigned during 2013 in the lead up to the WA Footprints to Better Health Strategy 2014-2018 (FBH) business case; and a 'report score' assigned by the AHIU on the basis of the most recent six monthly service activity report. The results indicated that while the review's scores

[25] See pages 79-81.
[26] See page 80, including Tables 21-22.
[27] See pages 83-84 and 89-90.
[28] See pages 84-86, including Tables 23-25.

were slightly less favourable than the FBH scores, the difference was of no practical significance and easily explained by chance. The review scores were more favourable, on average, than the AHIU report scores, due to the review's greater willingness to employ the full range of scores.[29] The report discusses possible reasons for this variation, including the fact that the AHIU did not have access to the RE-AIM evaluation system. Most projects performed well on the RE-AIM criteria, with a point of strength being that one half had evaluated their results, which was double the proportion required contractually to do so.[30]

A factor contributing to the generally good to outstanding value for money achieved by the 184 evaluated projects was past decisions made by the AHIU to withdraw funds from 22 projects that had achieved limited progress. Thus the review's findings pertained to the relatively healthy survivors of this culling process.[31] The review noted that 19.6% of the 184 evaluated projects had been recognised by a competitive WA State or national award and in the case of those rated outstanding value for money, 36% had been similarly recognised. Notwithstanding these favourable assessments, it was clear that many good to excellent projects could have achieved a great deal more with appropriate reorientation and, moreover, the distribution of funding across areas of health focus relative to value for money is yet to be optimised.[32]

Multiplicities of funders and service providers

WA and the Commonwealth made similar sized investments in the WA Aboriginal health sector (approximately $1 State for every $1.36 Commonwealth in 2010-11) and the sector has become characterised by a dense network of 2-20 service providers per health region. However, the review observed no evidence of duplication of funding (ie, service activities funded twice) nor duplication as over-servicing, whereby a single or multiple providers might have systematically used a glut of funds to deliver unnecessary services.[33] There was an administrative overburden due to duplication of reporting and some potential for duplication of fixed costs within the devolved service networks, although the latter was confounded by consumer preference.[34] The large mortality gap, very high rates of hospitalisation, poorer uptake of preventive medical services and historically low expenditure on prevention and primary care by WA relative to other states, as well as the review's direct observations during months of fieldwork, together with the findings of parallel reviews of ear health (a program with conspicuous multiplicities of funders and providers) have led to a conclusion that there remains a degree of under-servicing by the WA Aboriginal health sector.[35] Moreover, rather than duplication, the major issue that demands attention has become fragmentation of service delivery at the regional level.

With only occasional exceptions, the review found that Aboriginal health programs were lacking sufficient integrated systems for regional governance, region-wide operational plans, joint service ventures, basic clinical registers, quality improvement systems and workforce reform.[36] De-fragmentation is urgently required.

[29] See pages 86-88, including Tables 26-28.
[30] See pages 89-90.
[31] See page 91.
[32] See pages 91-95, including Table 29.
[33] See pages 97-101 and 103-104, including Tables 30-32.
[34] See pages 101-103.
[35] See pages 103-104 and 106.
[36] See pages 104-107.

Program evaluation

The review found that diversity in the lexicon of program evaluation had caused confusion and misunderstandings, which should be preventable into the future.[37] The existing contractual reporting framework was mostly a legacy system instigated during the initial years of COAG-related funding and designed around Commonwealth requirements that focussed on outputs rather than results.[38] Thus while all 184 projects selected for individual evaluation had been required to report on output measures, usually in minute detail, only 21.7% (40 projects) had been obligated to report at least one results measure.[39] However, in a further 51 projects the service providers had taken it upon themselves to collect data and evaluate results that went beyond service activity levels even though not contractually obliged to do so. Thus, in total, in one half of the projects (91 out of 184) results were evaluated either by the WADoH or solely in-house.

Where results measurement had been mandated in the contract, the review assessed the design of the measures against the WA Treasury's specific, measurable, attainable, relevant, time-bound (SMART) criteria. The measures performed well on the criteria of being 'specific', 'measurable' and 'attainable'; but 'relevance' was achieved in only one half of instances and 'time-bound' in two thirds. Result measures that failed on 'relevance' were not sufficiently encompassing to drive the project forward and failure on being 'time-bound' was usually because a timeframe was not stated.[40]

The frequency of mandatory service activity reporting was high and imposed a questionable administrative burden on providers and the WADoH, generating in excess of ten thousand pages of reports per annum. The review was concerned to note an inverse relationship between the dollar value of a contract and the frequency of reporting, the tendency being to require more frequent reports on smaller contracts.[41]

There is a strong groundswell of support within the sector and emerging leadership from the WADoH to move beyond outputs to a results-based performance framework, a direction that this review encourages strongly.

Learning from successes and failure

The operational challenges faced by the prison health program have provided an opportunity to reflect on the factors that have led it to struggle in most regions. This report also identifies a diverse set of examples of excellent and outstanding projects and explains some of the reasons for their success. These case studies stand among the many lessons taken from fieldwork observations and dialogue, project evaluations, detailed analysis of financial and Aboriginal health data and extensive review of relevant literature that have enabled this review of the sector's performance.

Accordingly, the following key recommendations are made to consolidate and advance the WA Aboriginal health sector as it prepares for the oncoming surge of chronic diseases and the next crucially important stage of its journey towards equality in health outcomes.

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[37] See pages 109-110.
[38] See page 113.
[39] See pages 111-113, including Tables 33-34.
[40] See page 112, including Table 34.
[41] See pages 113-114, including Table 35.

Key Recommendations

1 An Aboriginal Health Guarantee

That in return for a stronger commitment to a results-based performance framework, the WA Government guarantees that the minimum term of a service agreement within the WA Aboriginal health sector is three years with an automatic extension for a further three months if the WA Government does not offer in writing a renewal of funding prior to the end of the agreement.

2 Investment Where Money Counts

That the Department re-allocates resources to the WA Aboriginal health sector so as to better reflect the objective needs of the different regions and health programs. This should include:

(1) re-allocation of some existing resources to the Pilbara and Wheatbelt;

(2) re-allocation of some existing resources to environmental health, nutrition education and food security, alcohol education and rehabilitation, and smoking control and re-orientation to strengthen those programs;

(3) absorption of prison health objectives into the alcohol and primary medical care programs; and

(4) mainstreaming of the funding for renal dialysis and dental health.

3 Strong Governance, Strong Evidence, Strong Culture

That the Department elevates the standards of governance, evidence translation and cultural security at three levels through the following actions:

(1) adoption of a set of minimum governance standards for non-government service providers proportional to the values of service agreements;

(2) strengthening of the metropolitan and regional Aboriginal Health Planning Forums with respect to terms of reference, governance principles, executive support, evaluation and accountability;

(3) dynamic (not structural) reorganisation of the OAH, AHIU and PHCS to integrate scientific needs assessment and evidence translation with the existing successes in contract management, policy, partnerships and cultural security.

4 De-Fragmentation in the Regions

That the Department engages with the WA Aboriginal health sector to achieve integration of funding inputs and service outputs and results at the regional level through the following actions:

(1) strengthening of regional program governance, region-wide operational plans and statewide evaluation of regions;

(2) implementation of regional joint service ventures, clinical registers and statewide quality improvement systems for regions; and

(3) commencement of the de-fragmentation process by addressing the immediate priorities of ear health and chronic disease management.

5 A Focus on Results

That the Department works with the WA Aboriginal health sector to move from the historical focus on measurement of service activity outputs towards a focus on results, including the implementation of a results-based performance framework that addresses the following criteria:

(1) harmonisation of reporting requirements across different contracts and programs;

(2) the principles of parsimony of content and frequency; proportionality to investment; proximity to service delivery; and insistence on performance standards; and

(3) standardisation so as to support aggregate reporting of results at the regional and statewide levels.

Justifications and Advisory Notes

Each key recommendation is justified by a number of sections in this report and is supported by more details to be found in one or more 'advisory notes'. These notes are statements of advice to the Department, often somewhat detailed and technical in nature, to assist in the implementation of the key recommendations. The following is a guide as to where the justification for each key recommendation and the corresponding advisory notes may be found in the report.

Key Recommendation	Report sections & pages	Advisory Notes corresponding to the key recommendation	Report section & page
1. An Aboriginal Health Guarantee	s 1.1; pp 1-4 s 1.2; pp 5-8 s 4.2; pp 79-81	10. An Aboriginal health guarantee	s 4.2; p 81
2. Investment Where Money Counts	s 2.2; pp 21-31 s 2.3; pp 31-36 s 5.4; pp 91-95	1. Person-years of life lost analysis	s 2.2; p 22
		2. Externalities in regional resource allocation decisions	s 2.2; p 25
		3. Premature mortality attributable to poor environmental health	s 2.2, p 31
		4. Aboriginal health sector's contribution to road safety	s 2.3; p 33
		11. Resource allocation reform	s 5.4; p 92
		12. Re-orientation of Aboriginal environmental health interventions	s 5.4; p 93
		13. Re-orientation of Aboriginal nutrition, smoking and alcohol interventions	s 5.4; p 94
3. Strong Governance, Strong Evidence, Strong Culture	s 2.4; pp 36-41 s 2.5; pp 41-46 s 3.3; pp 70-74	5. WADoH statewide program concepts and accountability	s 2.4; p 38
		6. Dynamic (not structural) re-organisation of WADoH statewide coordination of Aboriginal health	s 2.4; p 41
		7. Minimum standards for metropolitan and regional Aboriginal health planning forums	s 2.5; p 43
		8. Strengthening corporate governance standards in service providers	s 2.5; p 46
		9. Evidence translation	s 3.3; p 74
4. De-Fragmentation in the Regions	s 6.3; pp 104-107	14. De-fragmentation in the regions	s 6.3; p 105
5. A Focus on Results	s 7.1; pp 109-110 s 7.2; pp 110-114 s 7.3; pp 115-119	15. Program evaluation concepts and terms	s 7.1; p 110
		16. Frequency of reporting	s 7.2; p 114
		17. Design criteria for a results-based performance framework	s 7.3; p 116
		18. Reverse engineering of a performance standard	s 7.3; p 118

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1. Introduction to the WA Aboriginal Health Sector

1.1 International and national contexts of closing the gap

'Closing the gap in a generation' was the title of the long-awaited 2008 report of the World Health Organization's (WHO's) Commission on Social Determinants of Health.[42] It called for a new global agenda between and within member countries for existing knowledge to be applied to diminish unacceptable differences in people's life chances and hence achieve marked improvements in health equity. The Commission's call to close the gap in a generation was an aspiration and not a prediction. Its recommendations were grouped under three broad principles of action: (1) improve the conditions of daily life; (2) tackle the inequitable distribution of power, money and resources – the structural drivers of those conditions; and (3) measure the problem, evaluate action, expand the knowledge base, develop a workforce trained in the social determinants of health and raise public awareness about these determinants.

The international developments paralleled those in Australia, where in 2005, the report of the Aboriginal & Torres Strait Islander Social Justice Commissioner had recommended, "That the governments of Australia commit to achieving equality of health status and life expectation between Aboriginal and Torres Strait Islander and non-Indigenous people within 25 years".[43] The Commissioner went on to recommend that relevant negotiated benchmarks and targets should be set out in the *Aboriginal and Torres Strait Islander Health Performance Framework*.

In December 2007, the COAG formally committed to redressing the difference in life expectancy between Indigenous and non-Indigenous Australians and each member government agreed to be accountable for reaching this goal within a specific time frame. The strategy initiated at that time became known in Australia as 'Closing the Gap'. Subsequently, in November 2008, the member governments of the COAG executed the *National Indigenous Reform Agreement* (NIRA), in which they recognised, "that overcoming Indigenous disadvantage will require a long-term, generational commitment that sees major effort directed across a range of strategic platforms".[44] These 'building blocks' were concerned with early childhood; schooling; health; economic participation; healthy homes; safe communities; and governance and leadership. Closing the Gap (CtG) was seen by the COAG as a long-term, ambitious framework that built on the foundation of respect and unity provided by the apologies to Aboriginal and Torres Strait Islander people made by every state and territory government between 1997 and 2001,[45] and culminating in the national apology on 13 February 2008. It acknowledged that improving opportunities for Indigenous Australians would require intensive and sustained effort from all levels of government, as well as the private and not-for-profit sectors.

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[42] Commission on Social Determinants of Health. Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization, 2008.

[43] Aboriginal & Torres Strait Islander Social Justice Commissioner. Social Justice Report. Sydney: Office of the Aboriginal & Torres Strait Islander Social Justice Commissioner, 2005.

[44] Council of Australian Governments. *National Indigenous Reform Agreement (Closing the Gap)*. Canberra: Council of Australian Governments, 2009.

[45] The motion of apology by the WA Parliament was passed with bipartisan support on 27 May 1997.

Specific targets were set in the NIRA only with respect to vital longevity, education and economic participation, as follows:

(a) closing the gap in life expectancy within a generation;
(b) halving the gap in mortality rates for Indigenous children under five within a decade;
(c) ensuring all Indigenous four year olds in remote communities have access to early childhood education within five years;
(d) halving the gap for Indigenous students in reading, writing and numeracy within a decade;
(e) halving the gap for Indigenous people aged 20-24 in Year 12 attainment or equivalent attainment rates by 2020; and
(f) halving the gap in employment between Indigenous and non-Indigenous Australian within a decade.

To progress the achievement of these targets, the COAG collectively committed $4.6 billion in Indigenous-specific funding over 10 years commencing from 2009-10, as a series of national partnership agreements (NPAs) to drive fundamental reforms in remote housing, health, early childhood development, jobs and improvements in remote service delivery.[46] The two NPAs relevant to this review were:

- the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (CtGIHO), which collectively committed the COAG members to $1.58 billion over four years ($805.5 million from the Commonwealth and $771.5 million from the states and territories, including $117.43 million from WA); and
- the *National Partnership Agreement on Indigenous Early Childhood Development* (IECD) valued collectively at $564.9 million over six years ($489.9 million from the Commonwealth and $75.0 million from the states and territories, including $11.25 million from WA).

In April 2013, the Australian Government committed a further $777 million over three years to 30 June 2016 in support of its share of a renewed *NPA on Closing the Gap in Indigenous Health Outcomes* and asked state and territory governments to continue their investments.

From 2009 to 2014, the Prime Minister released a series of annual reports that outlined the progress made towards meeting the six targets set out by the COAG. In the 2014 report,[47] the Prime Minister stated that there had been significant improvements in Indigenous child mortality at ages 0-4 years, such that the target to halve the gap in this area within the decade to 2018 was on track. From 1998 to 2012 the Indigenous child mortality rate fell by 32%, outpacing the decline in non-Indigenous children and narrowing the gap by 37%. In 2010-12, Indigenous life expectancy was 69.1 years in males and 73.7 years in females with the corresponding national gaps being 10.6 and 9.5 years respectively. Over the five years to 2012, there had been small reductions in the gap of 0.8 years in males and 0.1 in females and it was noted that the rate of progress would need to gather considerable pace if the target was to be met by 2031. It was also noted that life expectancy in Indigenous people living in outer regional and remote areas was 0.7 years (male) and 0.8 years (females) less than in those living in more urban locations. Progress on education targets was mixed and no progress was noted against the target to halve the employment gap.

[46] Council of Australian Governments. National Integrated Strategy for Closing the Gap in Indigenous Disadvantage. Canberra: Council of Australian Governments, 2009. The five relevant NPAs were entitled: Closing the Gap in Indigenous Health Outcomes; Indigenous Early Childhood Development; Remote Indigenous Housing; the Aboriginal and Torres Strait Islander Education Action Plan; and Remote Service Delivery.

[47] Closing the Gap. Prime Minister's Report 2014. Canberra: Commonwealth of Australia, 2014.

Review comment: Whilst it is not the primary function of this review to critique national targets, the following comment is offered to the WA Government on the target to close the gap in life expectancy between Indigenous and non-Indigenous Australians within a generation. The statement is an appropriate aspirational goal in the spirit that the WHO had intended. However, as a specific target to which evaluation and accountability are attached, it is well beyond the realm of practicality, even under the most favourable conditions. As noted at the time of the NIRA, unless a future slowing occurs in the upward trend in non-Indigenous life expectancy, for Indigenous people to catch up by 2031, it will require average national gains of not merely an extra decade of life, but rather 21 additional years in males and 16 additional years in females.[48] Gains in life expectancy of this magnitude have taken around 60 years to achieve in the Australian population as a whole.

Moreover, preconditions for completely closing the gap in life expectancy must inevitably include normalisation of the socio-economic profile of Indigenous Australians. Given that socio-economic status is a powerful determinant of mortality rates in Australia, for as long as Indigenous people remain far more highly represented at lower socio-economic levels, a complete closure of the gap will require Indigenous Australians to live longer than non-Indigenous Australians within each socio-economic stratum.

For example, in WA in 2010-12, 45% of Aboriginal people fell within the highest quintile of social disadvantage, while only 4% fell within the quintile of lowest social disadvantage. The corresponding proportions for non-Aboriginal people were 16% and 21% respectively.[49] There was roughly a +50% gradient in mortality rate across the five quintiles in WA.[50] Thus in the absence of improvement in socio-economic profile, the average WA Aboriginal person would most certainly need to live longer than the average non-Aboriginal person in the same stratum, a public health result well beyond our State's capacity to deliver.

To reduce the proportion of Aboriginal people in the most disadvantaged quintile from 45% to 20% and a corresponding increase from 4% to 20% in the least disadvantage quintile will demand the successful prosecution of a very broad agenda, including huge improvements in education, employment and wealth. Good health status is both a prerequisite for and an outcome of such economic prosperity, a virtuous cycle that will require more than one generation to complete.

Thus a more realistic target would be to halve the gap in life expectancy between Indigenous and non-Indigenous Australians within a generation with a vision to achieve full comparability within 50 years. This would require the gap to reduce by around two years every decade. Whilst this is a stretch target, in my professional opinion it is at least achievable in substantial part, provided that commitment and funding are sustained.

[48] Council of Australian Governments. *National Indigenous Reform Agreement (Closing the Gap)*. Schedule G. Canberra: Council of Australian Governments, 2009.

[49] Data provided by the Epidemiology Branch, Western Australian Department of Health.

[50] See the following for similar information from the Northern Territory: Zhao Y, Wright J, Begg S, Guthridge S. Decomposing Indigenous life expectancy gap by risk factors: a life table analysis. *Popul Health Metr* 2013; 11: 1.

The NPA on *Closing the Gap in Indigenous Health Outcomes* set out five areas for action, each with specific funding commitments by each of the COAG member governments. These were:

Area 1: ***Tackling smoking*** to reduce smoking and the burden of tobacco-related disease in Indigenous communities (12.6% of national funds; 5.9% of WA funds).

Area 2: ***Healthy transition to adulthood*** to increase social and emotional wellbeing, reduce uptake of alcohol, tobacco and illicit drugs, reduce sexually transmissible infections (STIs), reduce violence and injury and excess mortality and morbidity in Indigenous men (7.4% of national funds; 38.1% of WA funds).

Area 3: ***Making Indigenous health everyone's business*** to improve multi-agency collaboration, improve interventions in high need families; reduce waiting times for health services and reduce early mortality in men (3.3% of national funds; 8.3% of WA funds).

Area 4: ***Primary health care service that can deliver*** to implement best practice standards and accreditation, increase uptake of services funded by the Medical Benefits Schedule (MBS); improve coordination of care for chronic diseases and patients with complex needs and improve the cultural competence of the primary care workforce men (49.4% of national funds; 30.1% of WA funds).

Area 5: ***Fixing the gaps and improving the patient journey*** to reduce length of hospital stay, improve engagement between patients and service providers to deliver better referral and follow-up processes, improve provider choice; improve patient satisfaction with care and reduce hospital admissions with incomplete treatment (27.2% of national funds; 17.5% of WA funds).

The NPA on *Indigenous Early Childhood Development* covered three elements, each with specific funding commitments by either the Commonwealth or the states and territories. These were:

Element 1: ***Integration of early childhood services through children and family centres*** whereby the Commonwealth committed to establishing a minimum of 35 centres (51.8% of national funds; 0% of WA funds).

Element 2: ***Increased access to antenatal care, pre-pregnancy and teenage sexual and reproductive health*** whereby the Commonwealth committed to improve access to antenatal care by young Indigenous mothers, and support young Indigenous women to make informed decisions about their sexual and reproductive health (18.9% of national funds; 0% of WA funds).

Element 3: ***Increased access to, and use of, maternal and child health services by Indigenous families*** whereby all member governments committed funds to improve access and service delivery across a broad range of antenatal, postnatal and child health services (29.3% of national funds; 100% of WA funds applied mostly to postnatal, child and parent health services).

1.2 Closing the gap in Western Australia

The difference in life expectancy between Aboriginal and non-Aboriginal people in WA is the largest gap found in any Australian jurisdiction, exceeding the second largest difference found in the Northern Territory. In 2010-12, the gap in life expectancy in WA was 15.1 years in males (80.1 vs 65.0 years of age) and 13.5 years in females (83.7 vs 70.2 years of age).[51]

Public policy rightly dictates that the deeply troubling wrongs against Aboriginal people committed by European colonists and the government institutions that they established should not be veiled or denied. It is also fair to acknowledge, however, that since the 1960s the WA Government has demonstrated a commitment to Aboriginal social justice and health advances. Aboriginal people became eligible to vote in State elections in 1962, five years prior to 1967 when a successful Australian Constitutional Referendum was held on the question of a concurrent power of the Commonwealth Parliament to legislate for the wellbeing of Indigenous Australians. In 1968, the WA Public Health Department (as it was then) began to establish Aboriginal community carers (known as 'camp nurses') in the Kimberley and in 1969 in Broome, the Department employed the first Aboriginal health worker in Australia.[52]

Community Health Services was established in the Department in 1972, soon assisted by funds flowing from the Commonwealth's *Aboriginal Advancement Program*. This service comprised a statewide network of Aboriginal health workers, community nurses and physicians, whose activities were devoted predominantly to the advancement of Aboriginal health. The financial resources available to Community Health Services grew to around $12.7 million by 1988-89, a figure equivalent to $24.6 million in 2013 dollars.[53] However, during the 1990s and early years of the new millennium, the statewide program of Community Health Services was largely dismantled, at first by regionalisation and then by outsourcing to the emerging Aboriginal community controlled health organisations (ACCHOs). The latter had been growing in number and strength, mostly with direct Commonwealth funds, since the first ACCHO, the Perth Aboriginal Medical Service (now Derbarl Yerrigan) opened in 1973. In effect, for almost two decades, designated State resources per capita for Aboriginal health declined substantially in real terms.

The achievements of Community Health Services and its precursors, as the first specialised Aboriginal health program in WA, were mostly delivered within the first two decades of their existence (ie, 1968-1987) and concerned the priorities of the day, being the high rates of serious infectious diseases. They included the eradication of leprosy, control of trachoma, a dramatic reduction in hospital care and deaths from infantile gastroenteritis, and the achievement of almost complete population coverage with immunisation.[54] For most of that time, the scourges of diabetes, heart disease, renal failure and the cross-generational consequences of alcohol misuse, anomic depression,[55] and diminished authority of elders had not yet fully emerged.

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[51] Australian Institute of Health and Welfare. Mortality and Life Expectancy of Indigenous Australians: 2008 to 2012. Canberra: AIHW, Cat. no. IHW 140, 2014.

[52] Holman CDJ, Coster HM. Report of the Special Consultant on Community and Child Health Services, Volume I. The History of Community and Child Health Services in Western Australia. Perth: Health Department of Western Australia, 1991.

[53] Figures based on Holman and Coster, 1991, adjusted using the Reserve Bank of Australia inflation calculator.

[54] New cases of leprosy in WA fell from 39 in 1969 to 2 in 1984 and the Derby Leprosarium was closed in 1986. Aboriginal infant mortality fell from 45.6/1,000 livebirths in 1976 to 18.3/1,000 in 1987. See Holman and Coster, 1991.

[55] Anomic depression is 'an affective, psychophysiologic and behavioural syndrome developing in reaction to alienation from Aboriginal culture under Westernizing influence'; Hart B. Parting dark clouds. *MJA Insight*, 16 June 2014.

The WA Barnett Government was first formed after the State election of 6 September 2008. It was a signatory to the NIRA and became a participant in the two NPAs to deliver programs to redress the disadvantage faced by Indigenous Australians in life expectancy and child mortality; ie, CtGIHO and IECD. The financial commitments made by the State were the largest investments in Aboriginal health by any WA government to that time, consisting of:

- a three-year commitment (2009-10 to 2012-13) of $117.43 million across all five priority areas of the CtGIHO agreement towards closing the gap in life expectancy within a generation; and
- a four-year commitment (2009-10 to 2013-14) of $11.25 million under Element 3 of the IECD agreement towards halving the gap in mortality rates for Indigenous children under five within a decade. This complemented a Commonwealth commitment over the same period of $17.12 million directed through the WADoH under Element 2 of the IECD agreement (sexual and pre-pregnancy health and antenatal care for Aboriginal women).

In April 2013, the WA Premier announced the establishment of an Aboriginal Affairs Cabinet Sub-Committee (AACSC) tasked with reducing duplication and making better use of WA's investment in Aboriginal health.[56] Subsequently, the WA Minister for Health announced in July 2013 an allocation of a further single year of funding of $31.418 million to support the delivery of existing CtGIHO programs in 2013-14 in the context that an internal review of the programs and a new funding submission were being prepared for the consideration of the AACSC for future support commencing in 2014-15. The business case foreshadowed by the Minister for Health became known as the *WA Footprints to Better Health Strategy 2014-2018*.[57] It contained a number of fundamental differences from the CtGIHO and IECD programs, including an outcome-based management framework; a procurement strategy consistent with the WA Government's *Delivering Community Services in Partnership Policy*;[58] service delivery based on a life course model; and a comprehensive evaluation plan.

The FBH strategy was structured according to six priorities to achieve the WA Government's goal to reduce the life expectancy gap between Aboriginal and non-Aboriginal Western Australians:

Priority 1: ***Improve child and maternal health outcomes*** by Aboriginal children having increased access to timely and relevant health services that support their growth and development.

Priority 2: ***Promote a healthy transition to adulthood*** by Aboriginal youth receiving support services that increase their awareness and knowledge of risks associated with drug, alcohol and tobacco use.

Priority 3: ***Encourage healthy lifestyles*** by Aboriginal people receiving services that improve their knowledge of healthy lifestyle behaviours.

Priority 4: ***Prevent or reduce the impact of chronic disease*** by Aboriginal people having increased access to chronic disease screening and care planning.

Priority 5: ***Improve continuity of care across the life course*** by Aboriginal people being supported to access timely and culturally appropriate continuity of care.

[56] The term 'duplication' has several different possible meanings; see section 6.1.

[57] WA Footprints to Better Health Strategy 2014-2018. Western Australia's Strategy for Closing the Gap in Aboriginal Health outcomes and Indigenous Early Childhood Development. Perth: WA Department of Health, 2013. This document embodied a request of $169.54 million; the formal request was subsequently reduced to $149.09 million.

[58] Delivering Community Services in Partnership Policy. A Policy to Achieve Better Outcomes for Western Australian through the Funding and Contracting of Community Services. Perth: Government of Western Australia, 2011.

Priority 6: ***Improve mental health*** by Aboriginal people experiencing accessible and culturally responsive mainstream mental health services, a priority to be addressed separately by the Mental Health Commission.

The FBH strategy was endorsed by the AACSC in December 2013, and in March 2014 the Economic and Expenditure Review Committee approved a further single year's Treasury allocation of $30.3 million for 2014-15. An additional $1.98 million was then taken from the general health budget, resulting in a total of $32.3 million for the year. It was recommended that the WADoH engage an independent expert in health services to undertake an external evaluation of all State-funded Aboriginal health programs to be reported to the AACSC by 31 December 2014. Accordingly, the performance review reported in this document came about with its brief to:

(a) examine resource allocation systems and governance;

(b) consider the evidence base and its translation;

(c) examine program inputs, including workforce;

(d) review program delivery and value for money;

(e) examine multiplicities of funders and service providers;

(f) examine program evaluation;

(g) advise on examples of success and failures; and

(h) make recommendations for change, enhancement or improvement in (a) to (g).

Each of chapters 2 to 8 of this report corresponds to one of the terms of reference (a) to (g) listed above and the recommendations required by term of reference (h) appear at the front of the report, referenced to a system of more detailed advisory notes found throughout the report.

The *ATSI Health Performance Framework 2012 Report for WA*,[59] the most recent in the series, provided baseline health statistics from time periods mostly just prior to the CtGIHO and IECD initiatives. The health concerns identified by the report included the following:

- Mortality rates from chronic diseases were much higher in Aboriginal people (nine times the rate of non-Aboriginal people for diabetes and twice the rate for circulatory diseases); the prevalence of diabetes was 3.5 times higher than in non-Aboriginal people.
- There was no reduction in incidence rates of treated end-stage kidney disease (12 times the rate in non-Aboriginal people).
- There were high rates of hospitalisations and deaths due to injury (particularly assault, suicide and transport trauma); hospitalisation rates for assault were elevated 21-fold above those of non-Aboriginal people and for intentional self-harm they were twice as high.
- Some 35% of Aboriginal people were obese compared with 17% of non-Aboriginal people; and Aboriginal people were seven times more likely to report no usual daily intake of vegetables and twice as likely to report no usual daily fruit intake.
- There was 2.5-fold elevation of the prevalence of current smoking (41% of those aged 15+ years).

[59] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012. Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

- The prevalence of smoking during pregnancy was even higher (51%) and low birth weight was nearly three times higher in Aboriginal babies (15% vs 6%).
- Higher proportions of Aboriginal Western Australians reported problems accessing hospitals (8%), doctors (11%) and dentists (21%); and had relatively low rates of procedural care in hospitals.
- Discharge from hospital against medical advice was six times higher than the proportion in non-Aboriginal people.

These disturbing health statistics contrasted with favourable longer term mortality trends from 1991 to 2010, when there had been a 35% decline in the mortality rate of WA Aboriginal people (mostly in the 1990s), including a 44% fall in childhood mortality and a 62% fall in infant mortality.

Review comment: How is it possible for severe levels of health disadvantage in WA Aboriginal people to exist, following a 35% decline in their mortality rate? A part-answer is offered by what in the field of population health is known as the *epidemiological transition*, wherein infectious diseases are brought under control, but replaced by the degenerative and anthropogenic diseases associated with modern living.[60] The non-Aboriginal population of WA passed through the epidemiological transition largely during the middle decades of the twentieth century; the Aboriginal people of the State appear to be making this transition some 50 years later. Thus, the mortality rate from circulatory disease in WA Aboriginal males has been rising since 2002,[61] just as had occurred in non-Aboriginal males followed by females during the 1950s-1960s, driven by the widespread adoption of smoking and an atherogenic diet during and after the Second World War. Preventive measures and improved treatments have since brought down the mortality rate from circulatory diseases in non-Aboriginal people and now need to be applied effectively across the whole community.

A challenge for Aboriginal health programs during the early degenerative era of epidemiological transition is that social disadvantage is just as powerful a driver of chronic disease risk factors and rates as it has been for infectious diseases. To this fact must be added the complexities of the historical context and cross-generational anomic depression affecting Aboriginal people, which have conspired to cause an aggressive onset of the disease afflictions of modern living in this population. Control measures will need to be equally forceful to achieve success.

[60] Zhao Y, Dempsey K. Causes of inequality in life expectancy between Indigenous and non-Indigenous people in the Northern Territory, 1981-2000: a decomposition analysis. *Med J Aust* 2006; 184: 490-494.

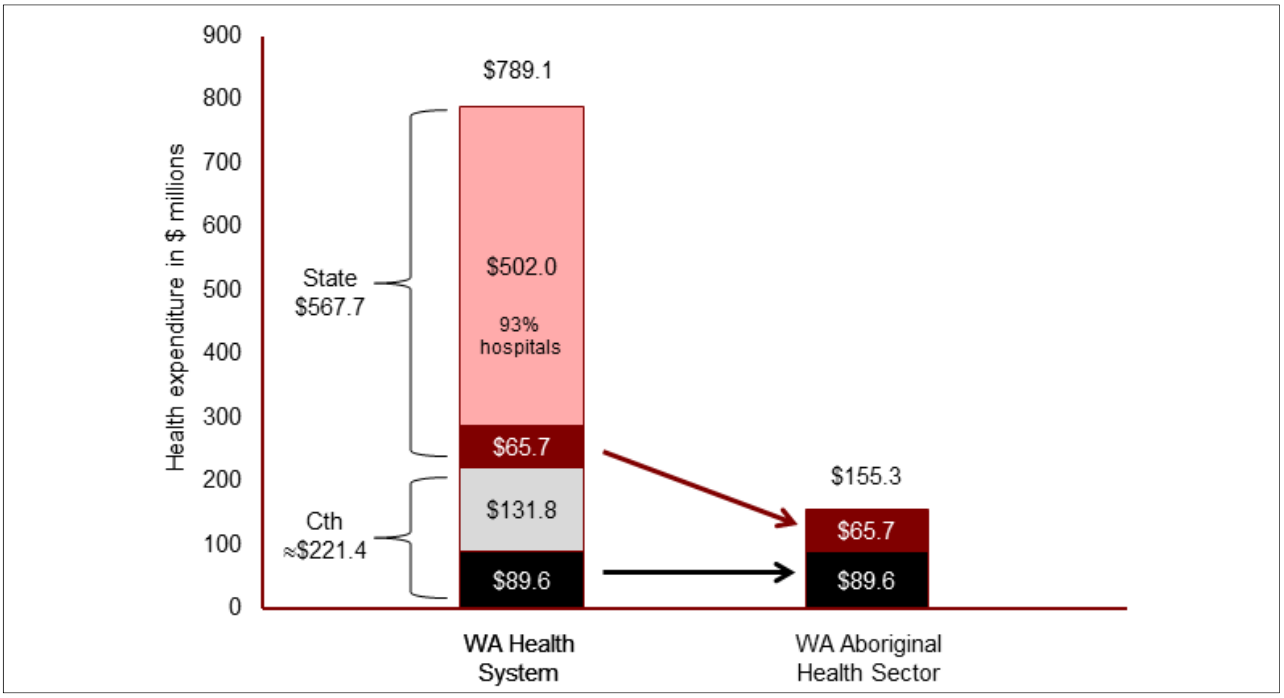
[61] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013. See Figure 1.23.1, page 60.

1.3 The place of the sector within the health system

In Australia, approximately 91% of Indigenous health expenditure has been funded by governments compared with 68% for non-Indigenous people.[62] In 2010-11, annual per capita health expenditure on each Indigenous person was $7,995 compared with the $5,437 spent on each non-Indigenous person, a ratio of 1.47. Some 65% of this difference was explained by the higher rate of hospitalisation of Indigenous Australians, whereas per capita expenditure on services with a significant component of out-of-pocket expense, such as dental care, medications and disability aids, was 58-82% lower in Indigenous than non-Indigenous Australians.

As it stands, there exists in WA an identifiable Aboriginal health sector that provides environmental and preventive health services to address the pressing health priorities of Aboriginal people; and provides primary treatment services, in some parts of the State as a more culturally secure alternative to mainstream services and in other parts as the only available service. Within the secondary and tertiary hospital treatment environments there is an Aboriginal liaison service to facilitate access to mainstream care and within some remote parts of WA, notably in the Kimberley, there exist specialised programs for the provision of renal dialysis to Aboriginal patients with end stage kidney disease (ESKD). The present report refers to this specialised or separate provision of health services as the 'Aboriginal health sector' or 'designated Aboriginal health activities' (see Figure 1).

Figure 1: **Total government expenditure on Aboriginal health in WA in 2010-11, showing what part comprised expenditure within the specialised Aboriginal health sector**



According to the Australian Institute of Health and Welfare (AIHW),[63] the total health spend by the WA Government on Aboriginal people in 2010-11 was $567.7 million. The review estimates that 12% of this amount (approximately $65.7 million, divided between $57.7 million from the WADoH

[62] Australian Institute of Health and Welfare. Expenditure on health for Aboriginal and Torres Strait Islander People 2010-11. Health and Welfare Expenditure Series no. 48. Canberra: AIHW, Cat. no. HWE 57, 2013.

[63] AIHW, Cat. No HWE 57, 2013. See Table 2.6 on page 15.

and $8.0 million from the WA Mental Health Commission) consisted of WA Government support for the Aboriginal health sector. Almost all (93%) of the remaining funds expended by the WA Government were used to provide hospital services to Aboriginal people.

The proportion of Commonwealth health expenditure in WA devoted to the sector is more difficult to gauge based on the data available. A rebuttable presumption that the 0.39 ratio of Commonwealth to State government spending on Indigenous health is constant across the nation suggests that the total health spend by the Commonwealth on WA Aboriginal people in 2010-11 was approximately $221.4 million. It seems likely that around 35-46% ($77.5-$101.8 million with $89.6 million used as an indicative amount in Figure 1) of this funding was used to support the Aboriginal health sector. The need for a range of estimates reflects uncertainty over the proportion of total un-referred MBS claims that arose from services provided by the ACCHOs.

The points to be drawn from this financial analysis are that the provision of mainstream hospital services to Aboriginal people in WA are the dominant cost of their health service utilisation, whereas the separate Aboriginal health sector is the major player within the much smaller domains of primary health care and primary prevention. In essence, the public cost burden of poor health status has been carried mostly by the State's public hospitals; whereas the opportunities to invest in interventions to reduce hospital costs and premature deaths lie mostly within a specialised Aboriginal health sector funded jointly by the State and Commonwealth in roughly a 40:60 ratio.

Scope of this performance review

This review was restricted to that part of the Aboriginal health sector funded by the WADoH, albeit that it was open to the review to comment on relevant and related activities funded by the Commonwealth and by the WA Mental Health Commission. In June 2014, the Acting Director General of Health provided the following guidance to the review to assist defining the scope of activities to be included.

Aboriginal health activities covered by this performance review

Aboriginal health activities covered by the performance review fall into either of two categories:

A. All activities conducted or financially supported by the WADoH during 2009-15 with the use of funds from the CtGIHO, IECD-Cth, IECD-WA or FBH programs, regardless of whether the service provider is a NGO or WADoH itself.

B. All activities conducted or financially supported by the WADoH during 2009-15 with the use of recurrent funding, where the activity is specifically designated as an Aboriginal health unit, program, project or service. This designation may be explicit in the title of the activity or implicit from the stated objectives. Activities conducted by the AHIU and OAH are included under this heading.

Activities of community organisations supported directly by the Commonwealth (ie, there is no WADoH budget line) and activities conducted or supported by the Mental Health Commission are excluded. However, the review may provide relevant commentary on these activities to the extent that they interact with those in categories A or B above.

For the avoidance of doubt, service activities of the WADoH with no explicit or implicit Aboriginal health designation are not in scope, even if the majority of the service constituency consists of Aboriginal people.

Since the time that the guidance was issued, the review has become aware of a small line of health activities funded directly by the WA Department of Aboriginal Affairs and amounting in total to $0.405 million during 2012-13 to 2014-15. These activities have not been included.

Service providers

The service providers making up the Aboriginal health sector under review have consisted of:

- the 21 member and associate member ACCHOs of the Aboriginal Health Council of Western Australia (AHCWA);
- other Aboriginal corporations contracted to provide a specific service, such as an Aboriginal environmental health, tobacco control or 'stolen generation' service;
- other NGOs, including statewide and metro-wide Perth-based NGOs, as well as Medicare Locals, contracted to provide a specific service;
- some local governments in remote areas, which have been contracted to provide Aboriginal environmental health services;
- two quasi-independent Aboriginal health centres in Northam and Albany administrated by the WACHS;
- Aboriginal health teams found within the regional structures of the WACHS, North Metropolitan Health Service (NMHS), South Metropolitan Health Service (SMHS) and the Child and Adolescent Health Service (CAHS); and
- the Office of Aboriginal Health (OAH) and Aboriginal Health Improvement Unit (AHIU) located within the central offices of the WADoH.

Some service providers, notably the ACCHOs and regional Aboriginal health teams, exclusively operate within the Aboriginal health sector; whereas others such as local government, Medicare Locals and various NGOs have a wider remit. However, in the latter instances it is rare for a service funded by the WADoH under a contract specific for Aboriginal health to benefit a non-Aboriginal person.

Strangely, the ACCHOs are in a somewhat different position and do provide a small percentage of their services to non-Aboriginal people (the review estimates in the range of 1-10% per ACCHO).[64] The reasons for this are readily apparent. First, in some locations the ACCHO is the only provider to an entire community, which includes a small minority of non-Aboriginal people. Thus a non-Aboriginal teacher stationed at Jigalong or Balgo Hills will rely on the ACCHO-provided health clinic for their primary medical care (PMC). Another example is the network of renal dialysis services operated exclusively by the Kimberley ACCHOs. As at September 2014 they serviced 86 patients with renal failure; 84 were Aboriginal people and two were non-Aboriginal.

The second reason is the existence of mixed marriages and other family relationships between Aboriginal and non-Aboriginal people, where the entire family may prefer a single health care provider. The third reason is that infrequently a non-Aboriginal person may seek treatment at an ACCHO because of personal preference or an emergency situation. It has become clear to the review that the ACCHOs take pride in their policy never to turn away a sick person of any race. In fact, for any health service to do otherwise would be a culpable form of discrimination.

The service providers are spread across the State in the locations shown in Figure 2.

[64] Reference is sometimes made to a proportion higher than 10% at the Murchison Outreach Clinic in Mt Magnet. However, this clinic is not an entire ACCHO, but rather a smaller outreach clinic of the larger Geraldton Regional Aboriginal Medical Service.

Figure 2: **Locations of service providers comprising that part of the Aboriginal health sector within the scope of this performance review**

Review comment: Commencing from the late 1960s, the separate Aboriginal health sector arose initially through activism and subsequently through public policy in response to the poor health status of Aboriginal people and the barriers many of them encountered in accessing mainstream care. Not surprisingly, several respondents to this review have posed the question, "What is the future of Aboriginal health separatism?"

One view is that all Aboriginal people should have ready access to both Aboriginal-specific and mainstream health services and should be able to choose which they would prefer to use. The review questions if this aspiration is feasible in metropolitan Perth, let alone in remote areas, where just one service provider of any description would be welcome.

The review has discussed the separatist question with a small number of very senior Aboriginal health leaders and has found their views especially helpful. A highly relevant observation is that there is a looming Aboriginal chronic disease surge of immense human and economic cost to the State. For example, in the Kimberley alone there are presently 45 Aboriginal patients with stages 4-5 renal impairment, who are expected to require renal dialysis in the foreseeable future. Neither mainstream health services nor the most disadvantaged sections of the Aboriginal population are in a position to reverse these unfavourable trends without a culturally specialised and well-resourced vertical program, at least until the epidemiological transition for Aboriginal people runs its course. Public health calamities on a mass scale have been controlled effectively the world over with intense vertical programs; but after the calamity has passed, the need for a specialised program no longer exists. This leads the review to offer somewhat different 20-year and 50-year visions:

The 20-year vision: An even stronger and more distinct Aboriginal health sector exists, led by Aboriginal people in cooperative partnerships between peoples of all racial backgrounds and an effective funding partnership between the State, Commonwealth and other sources. The Aboriginal health sector has successfully led the fight against chronic disease and despair; and both physical and psychosocial health status are on the rise. Mainstream access problems are increasingly unusual.

The 50-year vision: There no longer exists a distinct Aboriginal health sector. There are health service providers that have these proud historical origins, but they have evolved into mainstream services with a client profile little different from any other health service. There is equitable participation of Aboriginal people in all aspects of a successful multi-cultural society, and a beyond-reproachable level of access to a singular health system. The chronic disease surge has passed, anomic depression has become but a memory of more difficult times, and the gap has been closed. It is an entirely unremarkable event that the Director General of Health is sometimes a person of Aboriginal background.

Put in another way, the journey of the Aboriginal health sector from dependence to independence is not yet complete at this time. As with all manner of relationships, whether between individuals, organisations or important population subgroups, it is only from a position of mutual independent strength that true inter-dependence may then become possible.

Aboriginal service constituency

This review acknowledges that prior to European colonisation, Australia was a continent whose peoples were made up of many Aboriginal nations with different languages and cultural traditions. Thus the demographics of Aboriginal people as a whole represent the aggregate of these ethnic groups. Many of the cultural distinctions continue today. In some areas of the State they remain strong and even a source of conflict where different ethnic groups were forcibly settled in one location. Otherwise, ethnic diversity may also contribute to the complexities of Aboriginal politics, including potential influences and issues regarding resources allocation.

In the census year of 2011, the Aboriginal population of WA was estimated to be 88,270 (see Table 1).[65] Two fifths of this population were resident in metropolitan Perth, whereas one fifth was in the Kimberley and the other two fifths were spread across the remainder of the State.

Table 1: **Estimated Aboriginal population of WA in 2011 by health region**

Health region	Aboriginal population 2011			
	Total number	% of 88,270	Number in permanent remote Aboriginal communities	% of region in permanent remote Aboriginal communities
Kimberley	17,022	19.3	8,167	48.0
Pilbara	9,926	11.2	1,492	15.0
Midwest	8,472	9.6	386	4.6
Goldfields	6,851	7.8	2,068	30.2
Wheatbelt	4,260	4.8	0	0.0
Great Southern	2,577	2.9	0	0.0
South West	4,178	4.7	0	0.0
Total Country	**53,286**	**60.4**	**12,113**	**22.7**
North Metropolitan	16,082	18.2	0	0.0
South Metropolitan	18,902	21.4	0	0.0
Total Metropolitan	**34,984**	**39.6**	**0**	**0.0**
All regions	**88,270**	**100.0**	**12,113**	**13.7**

[65] Regional population estimates provided by the Epidemiology Branch, Western Australian Department of Health.

The WA Department of Aboriginal Affairs has defined a remote Aboriginal community as "a discrete geographic location, bounded by physical or cadastral boundaries and inhabited or intended to be inhabited wholly or principally by persons of Aboriginal descent and generally classified as either remote or very remote under the Accessibility/Remoteness Index of Australia (ARIA)".[66] Based on this definition the Department has enumerated 205 permanent remote Aboriginal communities in WA, 69 that are seasonally or occasionally occupied and 15 that are either abandoned or demolished. Based on the Department's Aboriginal Community Profile System, it was estimated that 12,113 WA Aboriginal people lived in permanent remote Aboriginal communities, forming around one seventh of the State population, but as much as one half of the Aboriginal population of the Kimberley (see Table 1).

The Aboriginal population is highly weighted towards children aged 0-14 years, who in 2011 at 30,889 comprised 35.0% of the total number. The 1,489 elderly Aboriginal people aged 70+ years constituted only 1.7% of the total population. This population profile is indicative of a demographic that is yet to fully navigate the epidemiological transition. With the rapid fall in infant and childhood mortality rates, there will be shift to an older Aboriginal population, a factor that will contribute further to the oncoming surge in the chronic disease case load.

From 2011 to 2031, the Aboriginal population of WA is projected to grow from 88,270 to 146,106.[67] This rate of increase substantially exceeds projections for the non-Aboriginal population, such that the Aboriginal proportion of people in the State is expected to increase from 3.8% to 5.2% over that period. One of the drivers of this increase is the high frequency of mixed marriages and the growing preference for the offspring of these marriages to identify themselves as Aboriginal people.[68] This phenomenon suggests that Aboriginal interests are destined to become a growing socio-political force.

[66] Remote Aboriginal Community Demographics – Western Australia. Perth: Department of Aboriginal Affairs, 2014.

[67] Biddle N. CAEPR Indigenous Population Project 2011 Census Papers. Paper 14, Population Projections. Canberra: Centre for Aboriginal Economic Policy Research, Australian National University, 2013.

[68] Biddle N. CAEPR Indigenous Population Project 2011 Census Papers. Paper 15, Indigenous and Non-Indigenous Marriage Partnerships. Canberra: Centre for Aboriginal Economic Policy Research, Australian National University, 2013.

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2. Resource Allocation and Governance

This section deals with term of reference (a) of the review:

a) *Examine the roles and responsibilities within the Department of Health and the Health Services for Aboriginal health programs, including processes to determine priorities, governance, procurement and contract monitoring and evaluation.*

2.1 Funding allocations and trends

The review has completed a detailed financial analysis of the Aboriginal health activities contained within its scope, funded by the WADoH in any of the financial years from 2009-10 to 2014-15. In the course of identifying the relevant lines of funding, it became clear that different dollar amounts were possible according to the step in the financial allocation process from which they were derived. For example, approved State budget allocations to the WADoH from the Treasury normally differ to some degree from aggregate funding amounts written into service agreements. In turn, the latter figures normally differ from funds actually disbursed, retained and spent by service providers, due to deeds of variation, carry-overs, returns of unspent funds, and other contingencies requiring financial management responses.

For the purpose of its main analysis, the review has used financial data derived from schedules of payments contained within service agreements, grants, memorandums of understanding (MoUs) and in divisional WADoH budget allocations, as adjusted by deeds of variation. This particular observation point in the resource allocation process is interpreted as providing a financial measurement of the WADoH's intentions for the use of the funds at the service interface.

Whilst every effort was made to identify all of the lines of funding that fell within scope, the review was ultimately dependent on many different sections of the Department to identify all relevant activities and costs. The task was a large and complex one and, inevitably, the risk of omission errors was up from zero. Nevertheless, given the high levels of cooperation and thoroughness of the search strategies, the review would expect any omissions to be of limited proportional significance. In the great majority of instances it was possible to verify the figures by reference to the relevant historical documents.

Based on the observation point defined above, the funds allocated by WADoH to the Aboriginal health sector during the period under review were as shown in Table 2. Annual spending rose steeply from $21.5 million in the first year to $60.6 million in the second, as the COAG-related CtGIHO and IECD initiatives brought significant new resources into the sector. More recently, the annual spend has stabilised at around $90 million per annum.

The total allocation of $420.6 million over six years supported 401 separate 'projects', the average financial investment per project being $1.05 million, albeit the actual six-year investments in individual projects ranged from $5,000 for a number of small grants to $21.1 million for the provision of an enhanced primary medical care service in the Kutjungka; ie, the Balgo Hills, Billiluna and Mulan communities in the Kimberley.

In terms of the sources of funds over the six years, the COAG-related CtGIHO, IECD and FBH initiatives credited 46% ($191.5 million) towards the total, whereas the remaining 54% ($229.1 million) represented a growing investment of recurrent WADoH funds separate from COAG.

Table 2: **Total funds allocated by the WADoH to the Aboriginal health sector according to funding stream from 2009-10 to 2014-15**[69]

Funding stream	2009-10 $	2010-11 $	2011-12 $	2012-13 $	2013-14 $	2014-15 $	Total $
Partnership Initiatives							
CtGIHO A1	306,808	1,671,564	2,005,444	2,175,140	1,972,109	1,961,531	10,092,596
CtGIHO A2	1,290,483	6,556,623	6,954,742	7,584,409	6,888,951	6,885,676	36,160,884
CtGIHO A3	154,799	1,520,044	3,019,183	3,349,000	3,503,654	2,124,551	13,671,230
CtGIHO A4	1,237,548	9,841,860	10,937,719	12,019,943	11,785,392	11,885,708	57,708,170
CtGIHO A5	942,488	6,994,390	7,093,797	7,108,531	7,001,045	6,223,741	35,363,992
IECD E2	1,103,120	2,858,428	4,008,258	4,868,400	4,454,538	6,097,443	23,390,186
IECD E3	681,560	2,712,974	2,686,388	3,172,240	2,835,131	3,063,109	15,151,401
Subtotal	**5,716,806**	**32,155,883**	**36,705,531**	**40,277,663**	**38,440,820**	**38,241,759**	**191,538,459**
Recurrent Funding							
WACHS	9,042,533	15,889,306	24,506,796	26,942,480	33,457,429	36,120,475	145,959,020
N&SMHS	529,176	1,212,921	2,316,794	2,381,793	2,204,366	2,534,972	11,180,022
CAHS	1,603,387	2,745,456	2,410,747	2,067,250	4,070,824	2,827,958	15,725,622
EnvH	1,283,254	4,340,204	5,340,484	5,676,765	6,259,984	6,666,282	29,566,974
ComD	1,326,541	1,269,712	1,018,544	1,131,674	1,066,107	529,654	6,342,232
ChronDP	654,506	695,682	878,000	1,259,400	945,000	0	4,432,588
CSP	393,192	665,919	166,567	417,915	908,156	484,419	3,036,169
OAH	975,882	1,627,648	2,311,830	2,102,238	2,493,323	3,329,003	12,839,924
Subtotal	**15,808,471**	**28,446,848**	**38,949,762**	**41,979,515**	**51,405,189**	**52,492,763**	**229,082,551**
All streams	**21,525,276**	**60,602,731**	**75,655,293**	**82,257,179**	**89,846,010**	**90,734,523**	**420,621,012**

A comparison was made between the present level of funding of the sector through the WADoH and that in 1988-89, when its one major commitment to the sector was the provision of Community Health Services. The figures in Table 3 shows how the present commitment as a proportion of the total WADoH budget and total WA State budget represents a modest 20% relative improvement on the level of support 25 years earlier (1.33% vs 1.11% in the case of the WADoH budget). However, in the absence of the partnership initiatives and parallel growth in recurrent funding, the sector would be some 77% less relatively well funded than 25 years ago. This analysis underlines how the sector was permitted to run down in relative terms during the 1990s and early years of the new millennium, during an era of regionalisation and outsourcing.

[69] The tables of figures in this report may contain minor row and column discrepancies due to rounding.

Table 3: **Comparison of WADoH funds allocated to the Aboriginal health sector in 1988-89 and 2013-14**

Parameter	Community Health Services 1988-89 (indexed to 2013 dollars)[70]	Aboriginal health sector 2013-14 (actual dollars)[71]
Aboriginal health funds	$24.6m	$89.8m
WADoH budget	$2,226m	$6,763m
% of WADoH budget	1.11%	1.33%
WA State budget	$8,313m	$25,281m
% of WA State budget	0.30%	0.36%
Component of 2013-14 attributable to recurrent funding only held constant at the 2009-10 level		
Aboriginal health funds	$24.6m	$17.4m
% of WADoH budget	1.11%	0.26%
% of WA State budget	0.30%	0.07%

Table 4: **Total funds allocated by the WADoH to the Aboriginal health sector according to health region from 2009-10 to 2014-15**

Health region	2009-10 $	2010-11 $	2011-12 $	2012-13 $	2013-14 $	2014-15 $	Total $
Kimberley	3,312,714	14,708,818	20,419,675	23,447,598	28,931,951	29,076,279	119,897,035
Pilbara	642,547	6,740,726	7,404,249	7,527,982	7,186,875	7,657,940	37,160,320
Midwest	1,868,007	4,518,848	4,981,411	5,339,574	5,658,335	5,776,713	28,142,888
Goldfields	4,700,751	8,223,911	9,447,401	9,765,882	10,020,073	9,605,557	51,763,575
Wheatbelt	310,392	1,949,842	2,325,101	2,429,446	2,329,449	2,254,824	11,599,054
Gt Southern	170,004	1,105,175	1,429,321	1,529,349	1,374,420	1,283,637	6,891,906
South West	180,657	1,377,043	1,533,068	1,752,971	2,313,549	1,644,345	8,801,633
Total country	**11,185,072**	**38,624,363**	**47,540,226**	**51,792,802**	**57,814,652**	**57,299,295**	**264,256,411**
N Metro	315,696	2,502,271	3,269,321	3,139,060	2,845,005	3,124,160	15,195,513
S Metro	1,074,680	3,718,221	7,484,629	8,511,923	8,580,900	7,265,179	36,635,532
Metro-wide	5,025,020	9,724,898	9,993,228	10,319,502	12,377,526	12,803,009	60,243,183
Total metro	**6,415,396**	**15,945,390**	**20,747,178**	**21,970,485**	**23,803,431**	**23,192,348**	**112,074,228**
Statewide	3,924,808	6,032,978	7,367,889	8,493,892	8,227,927	10,242,879	44,290,373
All regions	**21,525,276**	**60,602,731**	**75,655,293**	**82,257,179**	**89,846,010**	**90,734,523**	**420,621,012**

[70] Figures based on Holman and Coster, 1991, adjusted using the Reserve Bank of Australia inflation calculator.
[71] Figures based on 2012-13 Budget Statements presented to the WA Legislative Assembly, 17 May 2012.

Table 5: **Total funds allocated by the WADoH to the Aboriginal health sector according to health focus from 2009-10 to 2014-15**

Health focus	2009-10 $	2010-11 $	2011-12 $	2012-13 $	2013-14 $	2014-15 $	Total $
Environ. health	1,503,479	4,340,204	5,340,484	5,476,765	6,159,984	6,666,282	29,487,199
Smoking	306,808	1,831,564	2,165,444	2,675,140	2,317,109	1,961,531	11,257,596
Nutrition, phys. activ. & healthy lifestyles	113,707	1,170,248	1,482,387	1,984,515	1,769,449	765,647	7,285,953
Alcohol & drugs	482,877	1,212,203	1,146,607	1,690,488	1,712,055	1,639,765	7,883,995
Sexual health, STIs & BBVs	1,493,629	1,667,457	1,647,849	1,718,350	1,708,770	1,312,509	9,548,564
Road trauma	0	37,050	0	0	0	0	37,050
Other injury	163,889	20,580	5,000	0	10,000	0	199,469
Antenatal care (+/- sexual health)	728,926	2,031,613	3,065,827	3,234,479	3,059,234	3,952,541	16,072,620
Alcohol in pregnancy	311,296	422,473	489,179	489,179	883,317	524,200	3,119,644
Birth to school entry (+/- antenatal)	2,497,602	5,540,085	5,167,954	4,994,107	7,818,046	6,584,181	32,601,974
Ear health	301,583	682,310	891,419	933,155	1,000,446	2,084,521	5,893,434
Dental health	0	0	130,000	270,000	282,000	291,000	973,000
Mental health[72] [+/- (wo)men's health]	611,805	1,209,705	1,020,421	1,336,692	1,062,383	941,585	6,182,591
Youth health (+/- school health)	844,787	5,778,656	6,143,913	6,145,634	5,790,738	5,636,196	30,339,924
Prison health & community re-entry	0	665,333	2,266,175	2,551,291	2,867,775	1,588,436	9,939,007
Enhanced PMC, diabetes (+/- eyes), chron. dis. man.	7,827,067	2,070,529	26,138,209	7,816,172	30,285,144	30,543,884	144,681,006
Renal dialysis	1,464,593	1,768,084	6,673,998	8,078,527	10,529,846	11,952,291	40,467,339
Patient liaison & transport	1,327,187	5,550,111	5,774,885	6,630,307	6,458,878	7,691,537	33,432,906
Training & workforce	142,500	459,113	193,236	417,822	809,742	762,320	2,784,733
Capacity[73]	427,657	1,296,014	2,030,147	2,224,044	2,324,758	1,723,548	10,026,168
Administration	975,882	2,849,399	3,882,160	3,590,512	2,996,337	4,112,548	18,406,838
All focus areas	**21,525,276**	**60,602,731**	**75,655,293**	**82,257,179**	**89,846,010**	**90,734,523**	**420,621,012**

[72] Consistent with the review's terms of reference, funding of the WA Aboriginal health sector by the WA Mental Health Commissions is excluded. In 2014-15, the MHC's support for the sector amounted to $9.4m.

[73] Capacity includes information systems, guides and resources for service providers, and small innovation grants.

When the geographic distribution of funds was examined (see Table 4), it was found that 63% ($264.3 million) went to country areas, 27% ($112.1 million) to metropolitan Perth and the remaining 10% ($44.3 million) was invested in statewide programs and supports.

The $420.6 million was invested in 21 distinct areas of 'health focus', when classified by target condition or service enhancement (see Table 5). The most heavily funded areas were enhanced primary medical care, including the management of diabetes and other chronic diseases ($144.7 million, 34.4% of total);[74] renal dialysis ($40.5 million, 9.6%); patient liaison and transport ($33.4 million, 7.9%);[75] birth to school entry ($32.6 million, 7.8%); youth health ($30.3 million, 7.2%); environmental health ($29.5 million, 7.0%); and antenatal care ($16.0 million, 3.8%). These seven areas accounted for just over three quarters of the available resources. Central administrative costs incurred in policy development, planning, managing and evaluating service agreements were relatively low at 4.4% ($18.4 million).

2.2 Comparison between priorities and funding

The first of several big questions for this performance review is: *What are the disease burdens that drive the gap in life expectancy; and how do these priorities compare with where the funds are currently distributed?* Some respondents have been concerned about the existing distribution of resources and whether it appropriately reflects the priorities for cost-effective interventions or whether distributional justice is being achieved across the health regions.

To examine this question, the review has undertaken, with assistance provided by the WADoH Epidemiology Branch, a series of needs assessments based on premature mortality in the WA Aboriginal population. The first of these was a premature years of life lost (PYLL) analysis in Aboriginal people in WA in the period 2004-2008; ie, immediately before the major programs under review commenced. A premature death in an Aboriginal person was defined as one that occurred before the life expectancy in a non-Aboriginal person in WA of the same sex (age 79 years in males and 83 years in females). PYLL before these non-Aboriginal life expectancies, which are hereon denoted by $PYLL_G$, were used as a measure of relative need across different regions, age groups, diseases and risk factors in relation to closing the gap in life expectancy. It should be noted that the method of calculation of $PYLL_G$ differs from the methods employed by the AIHW to measure the existing contribution of different diseases to the gap.[76] The reason for this difference is explained in Advisory Note 1. Essentially, different approaches are justified according to whether the aim of analysis is to describe the nature of the gap or to intervene to close it based on the highest priorities.

The point above can be explained in non-technical terms using a hypothetical. Suppose that WA is gripped by a terrible Ebola virus epidemic, affecting everyone equally such that life expectancy fell by 10 years in both the Aboriginal and non-Aboriginal people of the State. Thus Ebola would

[74] Enhanced primary medical care is general (medical) practice enhanced by a planned and targeted approach to chronic disease management, antenatal care, early childhood development, sexually transmitted infection control and health education. In fact, the reviewer estimates on the basis of interviews and data collected in the field that approximately 80% of enhanced primary medical care was devoted to chronic disease management.

[75] Patient liaison is a form of care coordination by a case manager, who advocates for the patients to gain access to services and assists the patient to present at the various health service outlets where their needs will be addressed. Patient liaison may include provision of patient transport services.

[76] Australian Institute of Health and Welfare. Contribution of chronic disease to the gap in adult mortality between Aboriginal and Torres Strait Islander and other Australians. Canberra: AIHW, cat. No. IHW 48, 2010.

become a severe cause of premature loss of life in Aboriginal people, but it would make no contribution to the gap and would thus be assigned a rating of zero by an analysis using AIHW methods. Would we then expect the Aboriginal health sector to ignore the control of Ebola, because it is gap-neutral? There are two points to be made by this illustration. The first is that whilst there is only one gap, there are many different ways to close it, and closing it in a way that seeks to achieve a future mortality profile in Aboriginal people that is identical to the present non-Aboriginal mortality profile is not the best way, given that the latter profile is hardly ideal. The second related point is that ignoring Ebola in the Aboriginal health sector in this scenario would most certainly be destined to widen the gap into the future.

In general, the AIHW descriptive approach tends to discount a number of major causes of premature death during youth, which are a problem for Aboriginal and non-Aboriginal people alike. Youth suicide is an example. The approach to PYLL analysis taken by this review does not infer that one half of suicides in Aboriginal youth are to be ignored in priority setting, because they would have occurred anyway if the deceased had been non-Aboriginal.

Advisory Note 1: Person-years of life lost analysis

$PYLL_G$ as defined in this report represents just one of many possible approaches to analysis, reflecting that there are many possible ways of closing the gap in life expectancies between Aboriginal and non-Aboriginal peoples. The Australian Closing the Gap framework has been silent on this point and has provided no guidance on the distributive dimension of how the gap is to be closed. One possible end-point would be to achieve exactly the same life table outcomes in every age group in males and females; resulting in survival curves in Aboriginal and non-Aboriginal peoples that are identical. This would require prevention of deaths of quite old Aboriginal people as well as younger people.

However, achieving exact life table parity with non-Aboriginal people is unlikely to be the best way to close the gap, not least because existing life table outcomes for non-Aboriginal people are themselves an object for public policy on the prevention of premature deaths and are likely to improve into the future.

A better way to close the gap is to prevent the premature deaths of relatively younger Aboriginal people, who die before the relevant life expectancy (male or female) in the non-Aboriginal population. If life tables in non-Aboriginal people were to remain constant, this would lead to survival curves in Aboriginal people skewed by a lower occurrence of younger deaths than in non-Aboriginal people, even though average durations of life are the same.

To close the gap in this way does not require that all Aboriginal deaths before non-Aboriginal life expectancies are prevented. In fact, that outcome would yield Aboriginal life expectancies superior to those existing for non-Aboriginal Australians. Nevertheless, each $PYLL_G$ in Aboriginal people represents a desirable target of reasonably equal merit for the purposes of planning and evaluation of the achievement of the Closing the Gap target. The method also has an advantage of considerable statistical tractability, such as the ability to assign $PYLL_G$ to deaths in different regions and age groups or to attribute them to different diseases or risk factors.

$PYLL_G$ can be calculated using the method of Hakulinen and Teppo (1976),[77] but with age-specific $PYLL_G$ assigned to the age groups in which the deaths occurred rather than the usual approach of assignment to the age groups in which the life-years were lost. The former approach provides a better indication of the contribution to the gap of deaths in childhood and youth.

[77] Hakulinen T, Teppo L. The increase in working years due to elimination of cancer as a cause of death. *Int J Cancer* 1976; 17: 429-35.

Priority ranking and funding by health region

The following (Table 6) were the $PYLL_G$ in WA Aboriginal people by health region in 2004-2008. Three quarters of the target for closing the gap fell in country regions of the State. The Kimberley comprised 30.5% of the total object for closing the gap compared with 26.4% in metropolitan Perth. The Pilbara and Midwest together accounted for 23.0%, the Goldfields and Wheatbelt for 15.9% and the Great Southern and South West for just 4.2%. The relevance of these results is that, all other things being equal (which they are not – see Advisory Note 2 on external considerations), they offer an impartial indication of how program funds to close the gap should be distributed across services delivered to the WA Aboriginal populations situated in different health regions.

Table 6: **$PYLL_G$ in WA Aboriginal people by health region in 2004-2008**[78]

Health region	Males		Females		Persons	
	$PYLL_G$	% of total	$PYLL_G$	% of total	$PYLL_G$	% of total
Kimberley	12,024	30.1	8,785	31.1	20,809	30.5
Pilbara	5,695	14.3	3,596	12.7	9,291	13.6
Midwest	3,409	8.5	2,986	10.6	6,395	9.4
Goldfields	4,280	10.7	3,456	12.2	7,736	11.3
Wheatbelt	1,999	5.0	1,136	4.0	3,134	4.6
Gt Southern	707	1.8	589	2.1	1,296	1.9
South West	694	1.7	853	3.0	1,547	2.3
Total country	**28,808**	**72.1**	**21,401**	**75.7**	**50,208**	**73.6**
North Metro	5,360	13.4	2,962	10.5	8,322	12.2
South Metro	5,775	14.5	3,876	13.7	9,651	14.2
Total metro	**11,135**	**27.9**	**6,838**	**24.2**	**17,973**	**26.4**
All regions	**39,943**	**100.0**	**28,239**	**100.0**	**68,181**	**100.0**

One of the factors normally taken into account in the equitable distribution of resources is the relative costs of delivering the same health service in different parts of the State. The WADoH has developed a regional cost index for this purpose, which weights the costs of service delivery in each health region relative to metropolitan Perth. The values of the composite version of these indices are as shown in Table 7.

As a correction for the relative costs of service delivery, the $PYLL_G$ for each region was weighted by the corresponding relative cost index. The adjusted proportional distribution of $PYLL_G$ resulting from this procedure is shown in the third column of Table 8, where it is compared with the distributions of funds over the entire period of 2009-15 and the most recent year of 2014-15. In the latter instance, a 'fair distribution index' has been calculated as the ratio of proportion of funds allocated in 2014-15 to the adjusted proportion of $PYLL_G$. A fair distribution index of <1.0 suggests under-funding; whereas an index >1.0 suggests over-funding compared with other regions.

[78] There were 16 deaths where the health region was unknown.

Table 7: **Composite regional costs index for delivering health services in WA 2010**

Kimberley	Pilbara	Midwest	Goldfields	Wheatbelt	Gt Southern	South West	North metro	South metro
117.58	121.04	104.70	108.44	103.23	100.06	101.48	100.00	100.00

Table 8: **Comparison of the distributions of gap measures and resources allocated by the WADoH to the Aboriginal health sector across health regions**

Health region	Aboriginal population 2011 % of 88,270	Gap measures		Resource allocation[79]		
		$PYLL_G$ % of 68,181	$PYLL_G$ % weighted by RCI composite[80]	2009-15 % of $376.3m	2014-15 % of $80.5m	2014-15 fair distribution index
Kimberley	19.3	30.5	32.7	36.1	31.9	0.976
Pilbara	11.2	13.6	15.0	9.5	9.9	0.660
Midwest	9.6	9.4	8.9	7.2	7.5	0.843
Goldfields	7.8	11.3	11.2	11.9	13.8	1.232
Wheatbelt	4.8	4.6	4.3	2.8	3.1	0.721
Gt Southern	2.9	1.9	1.7	1.6	1.8	1.059
South West	4.7	2.3	2.1	2.0	2.3	1.095
Total country	**60.4**	**73.6**	**76.0**	**71.2**	**70.2**	**0.924**
North metro	18.2	12.2	11.1	11.8	12.0	1.081
South metro	21.4	14.2	12.9	17.0	17.7	1.372
Total metro	**39.6**	**26.4**	**24.0**	**28.8**	**29.8**	**1.242**
All regions	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**1.000**

At this level, the results suggest that the Pilbara and Wheatbelt have been relatively underfunded, whereas funding applied in the Goldfields and South Metropolitan regions has been relatively generous. A feature of Table 8 is the differences between the regional distribution of Aboriginal population and the regional distributions of $PYLL_G$ before and after relative cost weighting. Whilst 39.6% of WA Aboriginal people were resident in metropolitan Perth, they accounted for only 26.4% of $PYLL_G$, and this was reduced further to 24.0% after cost weighting. This difference reflects a generally better health status of Aboriginal people in the metropolitan area. Conversely, the Kimberley, with 19.3% of the population, accounted for 32.7% of $PYLL_G$ after cost weighting,

[79] Excludes resource allocation to statewide programs. Metro-wide resources were distributed to the North and South Metropolitan regions on a 50:50 basis.

[80] Composite version of the WADoH Regional Cost Index.

reflecting mostly a greater need for interventions to close the gap in the Kimberley. The poorer health status observed in the more remote regions of the State is consistent with a general pattern seen across Australia. The AIHW reported that Aboriginal people living in 2003-2011 in remote service delivery communities across New South Wales, Queensland, the Northern Territory, South Australia and WA experienced higher death rates, higher hospitalisation rates and higher rates of adverse pregnancy outcomes than jurisdictional and national averages.[81]

Advisory Note 2: Externalities in regional resource allocation decisions

A policy question pertinent to regional resource allocation is whether differences in levels of other health resources flowing into regions, from the Commonwealth for example, should to be taken into account in allocating WADoH funds. Apart from the impracticability of implementing such an approach due to barriers in obtaining all the relevant financial data in a timely manner, it should be reasonable for the WADoH to assume that other major funders will behave rationally in their resource allocation decisions and thus distortions will not become extreme. Moreover, the WADoH is in a position to influence the decisions of other funding agencies by sharing the results of its regional needs assessments. To the extent this assumption is violated, the ethical burden lies with the agency behaving irrationally and not with the WADoH. It is the external agency and not the WADoH that should be the target for advocacy.

A related question, but with different implications, is whether account should be taken of where regional WADoH health administrators have made an explicit decision to re-allocate local funds to Aboriginal health. The argument can be made that such regional administrators should not be 'punished' by a commensurate reduction in centrally allocated funding; for example, the next time new resources become available. The review advises that whether or not this assertion holds up will depend on the status of the program as a 'merit program', in other words, a program area where local regional investment decisions are to be encouraged. Most of the areas of health focus covered by the report are capable of being merit programs. A general exception is renal dialysis, which represents a failure in a series of more meritorious earlier intervention points.[82] However, even a single health focus can be a merit program in one region, but not in another. A region that invests in ear health of its own accord, when there is a low prevalence of ear disease and greater Aboriginal health needs elsewhere, is not supporting a merit program. A different conclusion will arise in a region with a very high prevalence of ear disease. For these reasons, the review's opinion is that variations on the basis of existing merit programs to regional resource allocation decisions, affecting the Aboriginal health sector, need to be negotiated on a case by case basis between regional and central decision-makers using a pre-articulated set of principles.

A third type of externality is the possibility of cross-boundary flows of patients. This applies in particular to some region-based services (as distinct from 'metro-wide' services) within the metropolitan area, where cross-metropolitan region flows may occur; as well as patient liaison services provided to Aboriginal people from the country making use of metropolitan hospitals. Distributional justice in relation to these matters should also be negotiated on a case by case basis with proponents for variations adducing objective evidence to support their assertions.

[81] Australian Institute of Health and Welfare. Health indicators for remote service delivery communities: a summary report. Canberra: AHIW, cat. No. IHW 142, 2014.

[82] It follows, therefore, that regions that have mainstreamed their renal dialysis services, removing them from consideration for support by designated Aboriginal health funding programs, should not be disadvantaged. Thus the Kimberley should not be entitled to exclude renal dialysis expenditure from the calculation of its fair distribution index until such time as the Kimberley renal dialysis service is mainstreamed as proposed in section 2.3.

Priority ranking and funding by program

The use of $PYLL_G$ to rank areas of health focus by priority is made complex by the multi-dimensional nature of service programs within the Aboriginal health sector. Programs have been developed with objectives that encompass combinations of service constituency characteristics (eg, gender, age group), service setting (eg, prison health), target risk factors (eg, smoking, poor nutrition, alcohol misuse), target conditions (eg, ear infections, diabetes and other chronic diseases) or service enhancement (eg, patient liaison and transport). A particular combination is known as a 'health focus'. The idea of health programs being defined as areas of intersection within a multi-dimensional matrix is a long-standing concept and the norm for health program structures the world over. For this review, it has been possible to undertake three forms of $PYLL_G$ analysis, which in combination are capable of informing decisions on the relative priority of different programs, according to their health focus.

Table 9 shows the $PYLL_G$ in WA Aboriginal people according to the age groups in which the premature deaths occurred. Deaths of Aboriginal children aged 0-4 years accounted for about one sixth (16.7%) of $PYLL_G$, whereas deaths of adults and older adolescents aged 15+ years accounted for around 80%, with the largest contribution arising from deaths in the age range of 30-49 years. Whilst these results provide some relevant information for ranking purposes, caution should be exercised due to the latency between the ideal timing of delivery of an intervention and the later time at which deaths will be avoided if the intervention succeeds. In some instances, this induction period will be measured in years, on average, and even decades.

Table 9: **$PYLL_G$ in WA Aboriginal people by age group in 2004-2008**

Age group	Males		Females		Persons	
	$PYLL_G$	% of total	$PYLL_G$	% of total	$PYLL_G$	% of total
0-4yr	6,603	16.4	4,846	17.0	11,449	16.7
5-14yr	1,255	3.1	592	2.1	1,847	2.7
15-29yr	7,305	18.2	4,553	16.0	11,858	17.3
30-49yr	16,373	40.7	9,618	33.8	25,991	37.8
50-64yr	6,966	17.3	6,201	21.8	13,168	19.2
65-83yr (M: 65-79yr)	1,715	4.3	2,666	9.4	4,382	6.4
All ages	**40,217**	**100.0**	**28,476**	**100.0**	**68,694**	**100.0**

The analysis of $PYLL_G$ by disease or injury condition was performed at two levels based on the chapters and individual categories of the *Australian Burden of Disease and Injury Report*.[83] The analysis of chapters provided a bird's eye view of the distribution of the closing the gap object by broad groups of disease (see Table 10), whereas the more finely stratified disease categories provided information at a more clinically coherent level.

Table 10: **$PYLL_G$ in WA Aboriginal people by disease chapter in 2004-2008**

Disease chapter	Males		Females		Persons	
	$PYLL_G$	% of total	$PYLL_G$	% of total	$PYLL_G$	% of total
Infectious & parasitic diseases	835	3.1	691	3.5	1,525	3.3
Acute respiratory infections	814	3.0	601	3.0	1,414	3.0
Maternal conditions	0	0.0	0	0.0	0	0.0
Neonatal causes	1,269	4.7	1,218	6.2	2,488	5.3
Nutritional deficiencies	6	<0.1	1	<0.1	6	0.0
Malignant neoplasms	2,161	8.1	2,469	12.5	4,630	9.9
Other neoplasms	41	0.2	38	0.2	79	0.2
Diabetes mellitus	1,437	5.4	1,545	7.8	2,982	6.4
Endocrine & metabolic dis.	180	0.7	241	1.2	421	0.9
Mental disorders	443	1.7	261	1.3	704	1.5
Nervous system & sense organ	992	3.7	773	3.9	1,765	3.8
Cardiovascular disease	5,799	21.6	3,826	19.4	9,626	20.7
Chronic respiratory dis.	824	3.1	856	4.3	1,680	3.6
Diseases of the digestive system	1,608	6.0	1,384	7.0	2,991	6.4
Genitourinary diseases	542	2.0	667	3.4	1,210	2.6
Skin diseases	68	0.3	20	0.1	88	0.2
Musculoskeletal diseases	36	0.1	160	0.8	195	0.4
Birth defects	786	2.9	570	2.9	1,356	2.9
Oral conditions	0	0.0	0	0.0	0	0.0
Unintentional injuries	4,892	18.2	2,446	12.4	7,338	15.8
Intentional injuries	4,026	15.0	1,893	9.6	5,919	12.7
Ill-defined conditions	65	0.2	70	0.4	135	0.3
All diseases	**26,824**	**100.0**	**19,728**	**100.0**	**46,553**	**100.0**

[83] Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD. The Burden of Disease and Injury in Australia 2003. PHE 82. Canberra: Australian Institute of Health and Welfare, 2007.

Table 11: **$PYLL_G$ in WA Aboriginal people by leading disease categories in 2004-2008**

Disease categories	Males		Females		Persons	
	$PYLL_G$	% of total	$PYLL_G$	% of total	$PYLL_G$	% of total
Ischaemic heart disease	3,919	14.6	1,998	10.1	5,917	12.7
Road trauma	3,081	11.5	1,515	7.7	4,596	9.9
Suicide	3,205	11.9	1,227	6.2	4,432	9.5
Type 2 diabetes	1,247	4.6	1,263	6.4	2,510	5.4
Liver cirrhosis	1,155	4.3	952	4.8	2,107	4.5
Homicide	821	3.1	665	3.4	1,487	3.2
Pneumonia	751	2.8	600	3.0	1,351	2.9
Stroke	674	2.5	650	3.3	1,324	2.8
Low birth weight	684	2.6	354	1.8	1,038	2.2
Renal failure	420	1.6	535	2.7	955	2.1
Chronic obstr. pulmonary dis.	460	1.7	516	2.6	976	2.1
Lung cancer	495	1.8	431	2.2	926	2.0
Inflammatory heart disease	530	2.0	286	1.4	816	1.8
Alcohol dependence	377	1.4	210	1.1	587	1.3
Epilepsy	532	2.0	85	0.4	618	1.3
Rheumatic heart disease	214	0.8	402	2.0	616	1.3
Congenital heart disease	346	1.3	260	1.3	606	1.3
Falls	354	1.3	253	1.3	607	1.3
Type 1 diabetes	190	0.7	281	1.4	472	1.0

The more specific conditions (ie, disease categories) included in Table 11 were those that comprised at least 1% of total $PYLL_G$. These 19 conditions collectively accounted for 69% of total $PYLL_G$. The results underline the importance of a number of chronic diseases, notably ischaemic heart disease (12.7% of $PYLL_G$), type 2 diabetes (5.4%) and liver cirrhosis (4.5%) as well as several forms of violent death, particularly road trauma (9.9%), suicide (9.5%) and homicide (3.2%), as objects for prevention if premature deaths are to be reduced and the gap in life expectancy closed.

The results of analysis shown in Table 12 pertain to major behavioural and anthropometric risk factors for which the WADoH Epidemiology Branch had available the technical methods needed to

assign to them the relevant fractions of $PYLL_G$ initially ascribed to particular disease categories. The results help to emphasise the considerable importance of prevention with respect to nutrition (overweight 11.1% of PYLL; low fruit and vegetable intake 3.6%), alcohol misuse (9.7%), smoking (5.9%) and high blood pressure (4.8%).

Table 12: **$PYLL_G$ in WA Aboriginal people by risk factors in 2004-2008**

Risk factor	Males		Females		Persons	
	$PYLL_G$	% of total	$PYLL_G$	% of total	$PYLL_G$	% of total
Overweight	2,913	10.1	2,271	11.5	5,184	11.1
Harmful alcohol	3,291	12.3	1,209	6.1	4,500	9.7
Smoking	1,801	6.7	964	4.9	2,765	5.9
Hypertension	1,471	5.4	745	3.8	2,216	4.8
Low fruit & vegetables	1,153	4.3	546	2.8	1,699	3.6
Illicit drugs	494	1.8	280	1.4	774	1.7
Unsafe sex	162	0.6	317	1.6	479	1.0

Using the results in Tables 9-12, certain conclusions can be drawn about the appropriateness of the existing resource allocations to programmatic areas of health focus shown in Table 5. There are some significant discrepancies, which are highlighted in Table 13 below, although it should be noted that the classifications in the final column of the table as 'under-allocated' or 'over-allocated' are *prima facie* inferences based only on levels of need. They do not take into account whether the need in a particular area then falls within the remit of the WADoH and whether a cost-effective intervention is available. Those matters are dealt with in subsequent sections of this report.

On *prima facie* assessment, four areas were grossly underfunded relative to need: poor nutrition (14.7% of $PYLL_G$ vs 0.9% of funds in 2014-15), alcohol misuse (9.7% of $PYLL_G$ vs 1.9% of funds), road trauma (9.9% of $PYLL_G$ vs 0% of funds) and other injury excluding suicide (9.4% of $PYLL_G$ vs 0% of funds), bearing in mind that around 30% of road trauma deaths and 15% of other fatal injuries in Aboriginal people are caused by alcohol misuse.[84] The smoking program was funded at roughly one half of its level of need (5.9% of $PYLL_G$ vs 2.3% of funds) and a similar mismatch applied to environmental health (13.0% of $PYLL_G$ vs 7.9% of funds).

Some programs, on face value, appeared to be overfunded relative to need as defined by person-years of life-lost. They included renal dialysis (2.1% of $PYLL_G$ from renal failure vs 14.2% of funds) and dental health (0% of $PYLL_G$ vs 0.3% of funds). The $PYLL_G$ attributable to poor patient liaison and transport was difficult to assess, but was unlikely to match the allocated 9.1% of funds. These three areas raise ethical dilemmas, discussed further below.

[84] Epidemiology Branch. Impact of Alcohol on the Population of Western Australia. Perth: WADoH, 2008.

Table 13: **Comparison of the distribution of resources allocated by the WADoH to the Aboriginal health sector with gap measures across areas of health focus**

Health focus	Relevant $PYLL_G$ results and other considerations	Resource allocation	
		2014-15 % of $84.1m	*Prima facie* Inference
Environ. Health	Poor environmental health in country regions is estimated to cause 13.0% of $PYLL_G$. See Advisory Note 3.	7.9	Under-allocated
Smoking	Smoking causes 5.9% of $PYLL_G$	2.3	Under-allocated
Nutrition, phys. activ. & healthy lifestyles	Overweight causes 11.1% of $PYLL_G$. Low fruit & veg intake causes 3.6% of $PYLL_G$.	0.9	Grossly under-allocated
Alcohol & drugs	Alcohol misuse causes 9.7% of $PYLL_G$. Illicit drug use causes 1.7% $PYLL_G$.	1.9	Grossly under-allocated
Sexual health, STIs & BBVs	Unsafe sex causes 1.0% of $PYLL_G$. Other BBVs contribute further to $PYLL_G$. Teenage pregnancy causes poor childhood outcomes.	1.6	Appropriately allocated
Road trauma	Road trauma causes 9.9% of $PYLL_G$. Alcohol misuse causes some 30% of road trauma.	0.0	Grossly Under-allocated
Other injury	Homicide causes 3.2% of $PYLL_G$. Injury excluding road trauma, suicide & homicide causes 6.2% of $PYLL_G$. Alcohol misuse causes some 15% of other injuries.	0.0	Grossly Under-allocated
Antenatal care (+/- sexual health)	Low birth weight causes 2.2% of $PYLL_G$. Birth defects cause 2.9% of $PYLL_G$. Neonatal conditions cause poor childhood outcomes.	4.7	Appropriately allocated
Alcohol in pregnancy	Target forms part of pre-pregnancy & antenatal care (see above).	0.6	Appropriately allocated
Birth to school entry (+/- antenatal)	Child deaths 0-4yr (excl. neonatal causes and birth defects) account for 8.5% of $PYLL_G$. Poor child outcomes cause low socio-economic achievement	7.8	Appropriately allocated Move upstream
Ear health	No $PYLL_G$ are ascribed to ear conditions Hearing loss causes youth alienation & poor education.	2.5	Appropriately allocated
Dental health	No $PYLL_G$ are ascribed to oral conditions. Significant improvement in access to treatment care.	0.3	Over-allocated Ethical dilemma
Mental health [+/- (wo)men's health]	Mental disorders, excluding alcohol and drug dependence cause <0.1% of $PYLL_G$. Some mental problems cause suicide, Stolen generation programs have a strong moral basis.	1.1	Appropriately allocated
Youth health (+/- school health)	Suicide causes 9.5% of $PYLL_G$. Youth alienation causes substance abuse and violence.	6.7	Appropriately allocated
Prison health & community re-entry	Effect on $PYLL_G$ difficult to quantify, but likely <2%. Some 80% of Aboriginal prisoners have alcohol dependence.	1.9	Appropriately allocated Move upstream
Enhanced PMC, diabetes (+/- eyes), chron. dis. man.	Type 2 diabetes, and diseases of the cardiovascular, respiratory and genito-urinary systems cause 33.3% of $PYLL_G$.	36.3	Appropriately allocated Move upstream
Renal dialysis	Renal failure causes 2.1% of $PYLL_G$. Renal failure in the Kimberley causes 0.5% of $PYLL_G$.	14.2	Over-allocated Ethical dilemma
Patient liaison & transport	Effect on $PYLL_G$ difficult to quantify, but likely <5% Significant improvement in access and quality of treatment care.	9.1	Somewhat over-allocated Ethical dilemma

Advisory Note 3: Premature mortality attributable to poor environmental health

An estimate of the $PYLL_G$ attributable to poor environmental living conditions should be informed by the WHO's conservative estimate that poor environmental health causes 24% of the global disease burden as lost healthy life-years and 36% of childhood deaths at ages 0-14 years.[85] In developed countries, the WHO estimated that the proportion of deaths attributable to poor environmental health was 17%.

A recent study by the WACHS Kimberley Population Health Unit found that 22.9% of primary care attendances by Aboriginal people, and 25.2% of attendances by Aboriginal children aged 0-4 years, was attributed to poor environmental health.[86] The review also noted that environmental health in country regions was a program consistently viewed by a diverse range of stakeholders as under resourced relative to need.

The review has inspected a wide range of environmental living conditions across the state, including those in areas of metropolitan Perth with a high density of resident Aboriginal families, as well as in regional towns and remote Aboriginal communities. Whilst there are some environmental health problems in metropolitan Perth, they do not approach the same scale as those in the northern and eastern country regions.

The review has therefore conservatively estimated that 20% of $PYLL_G$ in the Kimberley, Pilbara, Midwest and Goldfields regions are attributable to poor environmental living conditions. Given that those country regions accounted for 64.8% of total $PYLL_G$, the review's estimate of $PYLL_G$ attributable to poor environmental health was 0.2 x 64.8% = 13.0%.

There were also three program areas where, on face value, the resource allocations appeared reasonable; however, in each instance there was potential for at least some of the resources to be moved upstream to an earlier point of intervention. These were birth to school entry (with a potential to move some resources upstream to the environmental health program); prison health (move some resources upstream to the alcohol program); and enhanced primary medical care (move some resources upstream to the nutrition and smoking programs).

2.3 Areas of special challenge in prioritisation

Nutrition education and food security

Some of the explanation for under-funded priorities can be identified in the history of dealings by the COAG. In the case of nutrition, the NIRA had at least envisioned that attention should be directed to the question of food security.[87] Subsequently, in December 2009, WA along with the Northern Territory, Queensland, South Australia and the Commonwealth became signatories to the *National Strategy for Food Security in Remote Indigenous Communities*.[88] The intended strategies were (1) national standards for stores and takeaways servicing remote Indigenous communities; (2) a national quality improvement scheme for remote community stores and takeaways to support implementation of national standards; and (3) incorporation of stores; (4) a national healthy eating

[85] Pruss-Ustin A, Corvalan C. Preventing Disease through Health Environments. Towards an Estimate of the Environmental Burden of Disease. Geneva: WHO Press, 2006.

[86] Kimberley Environmental Attributable Fractions, presentation by Dr Cheryl McMullen at the WACHS Kimberley Population Health Unit, 1 September 2014.

[87] Council of Australian Governments. National Integrated Strategy for Closing the Gap in Indigenous Disadvantage. Canberra: Council of Australian Governments, 2009.

[88] Council of Australian Governments. National Strategy for Food Security in Remote Indigenous Communities. Canberra: Council of Australian Governments, 2009. Food security is defined in the strategy as 'the ability of individuals, households and communities to acquire appropriate and nutritious food on a regular basis using socially acceptable means.

action plan; and (5) a national workforce action plan to improve food security in remote Indigenous communities. However, against expectations, the initiatives did not flourish as a national strategy and were mostly focussed in the Northern Territory; thus the contribution to food security in WA was negligible. Apart from that history, the lack of attention to nutrition education and food security for the 86% of WA Aboriginal people who do not reside in remote communities appears to represent an unreasoned failure in prioritisation.

In the field, the review noted a conspicuous lack of nutrition programs. Some that had existed with support from the WADoH Chronic Disease Prevention Directorate had been decommissioned for want of funds. In remote areas, the review inspected community stores, finding only two examples where the store was subject to a healthy provisioning policy by the community council. From direct observation, whilst a supply of reasonable fresh vegetables and fruit at a sustainable price was an important component of a healthy store policy, by far the most important feature was restriction on the sale of sugared drinks and sweets. Where no healthy store policy existed, the review observed many children purchasing one or two large bottles of sugared soft drinks each.

Alcohol education and rehabilitation

The relative absence of resources devoted to dedicated alcohol education and rehabilitation programs was difficult to explain given the many references to the importance of alcohol interventions throughout the COAG-related documentation. The review was informed that during the bilateral discussions concerning the COAG-related initiatives, there had been references to the possibility of a NPA on the prevention of alcohol misuse, but no such agreement ever transpired.

In the field, the review received repeated references, confirming the ongoing large contribution of alcohol-induced harms to Aboriginal health and community wellbeing across the State. Many Aboriginal communities and some northern towns, notably Fitzroy Crossing and Halls Creek, have introduced local bans or restrictions on the purchase or possession of alcoholic beverages. Whilst these measures continue to have a large beneficial effect, there is growing anecdotal evidence that regulatory restrictions alone are not a complete solution, due to the increasing occurrence of 'sly-grogging' and internet sales. The problem appears to represent an over-reliance on a single strategy and thus a failure to adopt a comprehensive approach with attention to all of the five complementary modes of intervention; ie, regulatory, clinical, educational, structural and participative strategies. Enforcing a dry community policy (a regulatory strategy) should be seen as a strategy with both important immediate benefits, but also one that buys time to implement a more comprehensive approach to alcohol intervention with mass educational and community participative strategies, such as engagement of local community members to identify 'sly groggers' to police through an anonymous call line, given that most (but not all) of the culprits are local community people rather than outsiders.

Road trauma and other injury

No reference to road trauma as an object of intervention could be found in any of the program documents sighted by the review. This is understandable given that the main opportunities to reduce WA's high level of road fatalities and serious injuries lie mostly within the jurisdictions of the Departments of Transport and Police. They include safety treatments to reduce run-off-road events; safety treatments to reduce entry speeds to high risk intersections; reduced speed limits to match road conditions; enhanced speed and drink-driving enforcement; alcohol interlocks for repeat drink-drivers; enhanced novice driver staging approaches; and the use of five-star safety

rated vehicles. Most of the interventions known to be effective have already been introduced in other Australian states, but for some years now WA has lagged behind.

The WADoH cannot be held principally responsible for achieving major reductions in premature Aboriginal mortality from road crashes. Nevertheless, there are potential avenues for the Department to enhance its contribution to Aboriginal road safety, as outlined in Advisory Note 4.

Advisory Note 4: Aboriginal health sector's contribution to road safety

The WADoH and the Aboriginal health sector have important roles to play in reducing the 9.9% of $PYLL_G$ attributable to road trauma. The following measures should be considered:

- Given that 30% of Aboriginal road trauma is caused by alcohol misuse, an important contribution should be made by a more appropriate allocation of the sector's resources to alcohol education and rehabilitation. An injection of resources will assist also to reduce $PYLL_G$ from other injuries, suicide, liver disease, foetal alcohol spectrum disorder (FASD) and many other health and social ills in the Aboriginal population.
- The WADoH and the sector should advocate strongly, including through the WADoH's membership of the WA Road Safety Council, for completing the passage of legislation to support the introduction of a comprehensive alcohol interlock program in WA, which is known to achieve large reductions in repeat drink-driving.[89] The alcohol interlock technology is highly relevant to the Aboriginal population and has already been the focus of a successful demonstration project in Roebourne. An important secondary benefit of an alcohol interlock program is that it is known to reduce the occurrence of other harms caused by alcohol; ie, its benefits are not restricted to a reduction in road trauma and include, for example, reductions in domestic violence and other injuries.
- The WADoH should initiate a move to improve the safety ratings of vehicles used in Aboriginal communities by enforcing a contractual requirement that new vehicles purchased by NGOs as part of Aboriginal health program funding must be five-star safety rated. Even more importantly, WADoH should raise the issue with the Road Safety Council with a view to obtaining a Council recommendation that all WA Government contracts for Aboriginal services should require any new vehicle purchases to be five-star. The State and Commonwealth government as well as major mining corporations have already moved to five-star fleets. On the review's observations, the majority of vehicles used in remote Aboriginal communities are three-star.
- The WADoH should take an even more proactive role in providing linked injury data and analysis to road injury researchers and in support of the Road Safety Council.
- The WADoH should continue to strongly support the general measures recommended by the Road Safety Council to reduce the high rate of serious road injury in WA, as these general measures regarding safer roads, speeds, drivers and vehicles will most certainly help close the life expectancy gap for Aboriginal people. Road trauma is an affliction with a predilection for sections of the community that are socially disadvantaged.

Post-crash interventions by the health system are not a priority for development relative to those above. The focus for intervention in Aboriginal health needs to be moved upstream, not downstream, to reduce $PYLL_G$. Post-crash interventions, such as enhanced victim retrieval, are poorly cost-effective and do not assist in preventing the majority of deaths and serious injuries.

The most important avenue available to the WA Aboriginal health sector to reduce premature deaths from other injuries is through effective attention to alcohol education and rehabilitation.

[89] Willis C, Lybrand S, Bellamy N. Alcohol ignition interlock programmes for reducing drink driving recidivism. *Cochrane Database Syst Rev* 2004 Jul 19; doi: 10.1002/14651858.CD004168.pub2; Elder RW, Voas R, Beirness D, Shults RA, Sleet DA, Nichols JL, Compton R. Effectiveness of ignition interlocks for preventing alcohol-impaired driving and alcohol-related crashes: as community guide systematic review. *Am J Prev Med* 2011; 4: 362-376.

Renal dialysis

As at 31 December 2012, there were 341 Aboriginal people in WA receiving renal dialysis, comprising 16.7% of all dialysis patients. Aboriginal patients were more likely to receive satellite haemodialysis (60.4% vs 27.3%) or home dialysis (4.4% vs 2.3%), but were less likely to receive a transplant (12.9% vs 43.4%). Nearly all Aboriginal patients (95.7%) had dialysis three times per week for a median of four hours per session.[90]

The *WACHS Renal Dialysis Plan 2010 to 2021* projected that the number of renal dialysis clients in WACHS regions would grow from 330 in 2010 to 670 in 2021, assuming renal transplant rates would remain steady and that there would be modest success of early interventions so as to reduce the prevalence of ESKD by up to 5% over the forecast period.[91] The plan envisioned that by 2021, 95% of country dialysis patients would be serviced in rural locations (cf 84% in 2010) with services provided in Broome, Derby, Kununurra, Fitzroy Crossing, Halls Creek, Port Hedland, Roebourne, Newman, Geraldton, Carnarvon, Wiluna, Meekatharra, Kalgoorlie, Laverton or Leonora, Esperance, Warburton, Bunbury, Busselton, Albany, Northam, Narrogin, Moora and Merredin.

In 2007-08, the AIHW estimated total health expenditure per renal dialysis patient per year in a rural service location to be $80,260 for in-centre dialysis, $77,120 for satellite dialysis, $48,393 for home haemodialysis and $50,988 for home peritoneal dialysis.[92] The cost per satellite dialysis patient in a rural service location was 22% higher than in a metropolitan service location. In fact, in the Kimberley in 2014-15, the annual cost of dialysis treatment alone for 86 ESKD patients was around $138,980 per patient.

Renal dialysis does not sit comfortably with the objectives adopted by WADoH for the Aboriginal health sector for the following reasons:

- As a strategy to preserve disability adjusted life-years, renal dialysis was classified as not cost-effective by the ACE-Prevention Study for both the Indigenous and general Australian populations.[93] It is, in fact, one of the most cost-ineffective health interventions accepted as normal practice in the health system, justified on the basis of an ethical 'rule of rescue' from imminent death if treatment was to be withheld. Renal transplantation is only moderately more cost-effective than dialysis and donated kidneys are in limited supply. The high cost of dialysis stands in contrast to the capacity of preventive measures to avoid the risk factors of low birth weight, skin and urinary tract infections and obesity; and the capacity of primary medical care interventions to screen and treat diabetes, hypertension and early renal impairment in Aboriginal adults so as to avoid or delay the onset of ESKD. Even in remote Aboriginal communities, where service delivery costs are higher, the ACE-Prevention Study estimated that early intervention services for diabetes and renal impairment render net savings to the health system, in addition to preserving life-years and achieving a far higher quality of life compared with the challenges of social dislocation associated with dialysis for Aboriginal people from remote areas.

[90] Information provided by the ANZDATA Registry.
[91] WA Country Health Service. WACHS Renal Dialysis Plan 2010 to 2021. Perth WADoH, 2010.
[92] Australian Institute of Health and Welfare. Dialysis and Kidney Transplantation in Australia: 1991-2010. Canberra: AIHW, Cat. No. PHE 162, 2012.
[93] Vos T, Carter R, Barendregt J, Mihalopoulos C, Veerman L, Magnus A, Cobiac L, Bertram M, Wallace A. Assessing Cost-Effectiveness in Prevention (ACE–Prevention): Final Report. Melbourne: University of Queensland, Brisbane and Deakin University, 2010.

- The spending on Kimberley renal dialysis within the Aboriginal health sector exceeds by almost 30-fold the proportional contribution of renal failure to the gap in life expectancy. The inclusion of renal dialysis as a candidate for resource allocation in a sector that should be focussed on primary prevention and primary care is highly distracting and diverts attention away from efforts at early intervention. The Aboriginal health sector should be squarely focused on avoiding dialysis end points; not so much on servicing them. The Kimberley is the only health region where the Aboriginal health sector is the sole provider of renal dialysis services, a situation that is somewhat arbitrary. It has been of concern to the review how this has flavoured the focus of some Kimberley ACCHOs in what issues occupy the attention of the leaders of the sector. Such energies would achieve more for the health advancement of Aboriginal people if they were channelled into even greater efforts to prevent ESKD.
- From a strictly economic perspective the State needs its Aboriginal health sector to achieve much greater success in its efforts to prevent ESKD and its precursors. With the cost burden already predicted to double within a decade, the need for this is obvious.

For these reasons, this review is recommending that renal dialysis services are mainstreamed and do not continue to be viewed as a part of services normally provided by the Aboriginal health sector, even in areas of the State where >90% of the ESKD patients are Aboriginal people (noting that in the same areas, the majority of patients in mainstream hospital services are also Aboriginal people). The review appreciates the deeply felt cultural issue of returning elders with ESKD to their home country, but this objective can still be given fair consideration within a mainstreamed approach. To promote the concept that renal dialysis is a routine part of the provision of primary care for Aboriginal people is a mistake that will merely result in many more people needing renal dialysis and being dislocated to the anguish of themselves, their families and communities. With the development of the Aboriginal health sector of recent years, it now sits in a strong position to lead the extraordinary effort that is urgently required to reduce the high prevalence ESKD risk factors and precursors.

This is not to say that renal dialysis should never be delivered by an ACCHO and certainly does not imply that the needs of patients in remote areas with ESKD can be ignored. However, a better arrangement than exists at present would be for the service to be badged as a mainstream countrywide renal dialysis program, delivered in partnership with a range of government and non-government organisations across the State, rather than as a designated Aboriginal health service in some areas. This will inevitably lead to a more coherent and better planned service where consistent high quality and value for money are of the utmost importance.

Dental health

The one dental program in the Goldfields covered by this review is similarly sitting out of place with what are otherwise a reasonably coherent set of programs that focus on closing the gap in life expectancy. In this case, there is no argument that dental care is a normal part of primary care. However, for consistency of planning and approach, the review recommends that the provision of dental care across the State is viewed as a mainstream service to be planned by the dental health service in association with the WACHS and other service providers as appropriate. The review notes that the WA Dental Health Services provides clinics in Broome, Derby, Kununurra, Halls Creek, Fitzroy Crossing, Port Hedland, Exmouth, Onslow, Geraldton, Meekatharra, Boulder, Leonora/Laverton, Albany, Bunbury and Busselton, and sees no reason why the mobile service to the outer Eastern Goldfields should not be included with these arrangements.

Patient liaison and transport

This program area is affected by a different set of issues than renal dialysis and dental health. There is no argument that Aboriginal patient liaison and transport is a legitimate program within the Aboriginal health sector. As will be seen in a later section of the report, there is an adequate evidence base to support the effectiveness of these case management activities. The difficulty lies in assessing the extent to which they contribute to closing the gap in life expectancy. There is not a firm scientific answer to this question. In the review's judgment, they do make an important contribution, especially where they help to ensure that patients with chronic diseases are well managed so as to reduce the occurrence of complications. It is unlikely, however, that the contribution of patient liaison and transport $PYLL_G$ is commensurate with the use of 9.1% of the sector's resources from the WADoH.

This review has accepted that closing the gap in life expectancy is the primary justification for the existence of a specialised Aboriginal health sector. It was certainly the primary health objective covered by the NIRA and presented as targets in both the CtGIHO and IECD partnership agreements. However, many would argue the life expectancy is not the only gap that should be closed and that service access gaps should be closed regardless of whether or not such measures make strides forward in reducing the mortality differential. The review accepts that these ethical arguments have a legitimate place in the planning and resourcing of the Aboriginal health sector and, accordingly, makes no direct recommendation to scale down the patient liaison and transport program, albeit there will be flow on implications of recommendations to adjust the proportional distribution of funding in favour of areas of very high priority to reduce the life expectancy gap.

2.4 Systems for statewide governance

Statewide program concepts and accountability

At the present time, there is no singular set of Departmental concepts that embraces the designated WA Aboriginal health programs covered by this review. Significantly, the CtGIHO, IECD and FBH programs do have an integrated design, but activities supported by recurrent funding largely lie outside this system, have patchy program documentation in some cases and have no official place in coming together with each other and with what is now the FBH program suite to create a comprehensive Aboriginal health strategy to guide the use of the Department's total designated resources.

The COAG-sponsored objectives pertaining to premature mortality have been criticised both for being too broad and too narrow: too broad in the sense of far exceeding what the WADoH is capable of achieving; and too narrow for their restrictive focus on premature mortality to the potential exclusion of concerns encompassed by the WHO's definition of health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[94] The latter includes the issue of closing gaps in service access, even when the benefit in closing the gap in life expectancy is likely to be small.

As illustrated earlier in this report, the gap in life expectancy can be separated into two components, one driven by a disparity in socio-economic status and the other an additional burden

[94] World Health Organization. Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946, and entered into force on 7 April 1948.

arising from factors associated specifically with Aboriginality within a constant level of social advantage or disadvantage. The WADoH cannot be held primarily responsible for addressing the unfavourable distribution of socio-economic status of Aboriginal people, which is more rightly seen as an object for the attention of the whole community, whole-of-government (at all levels) and the Aboriginal people themselves.

The alternative criticism of the COAG-sponsored objectives being too narrow, in fact raises similar issues. It is inconsistent with sound program planning, execution and evaluation for the WADoH to be held primarily responsible for the very broad agenda that concerns the entire emotional and social wellbeing of Aboriginal people.

A softer criticism of the 'too narrow' class is to question if the COAG-sponsored objectives paid insufficient attention to conditions that cause disability more so than premature mortality. With some specific exceptions, such as the impairment of vision, this is unlikely to be a material problem. In regard to mental health, for example, suicide is the third ranked contributor to the lost life-years making up the gap, and it is established that people with mental health problems suffer considerable reductions in life expectancy due to physical illnesses.[95] Thus effective mental health interventions are readily legitimated on the grounds of reducing premature mortality. Successful WA Aboriginal health programs that help to reduce premature mortality in the longer term will themselves make important contributions to improving the socio-economic status and reduce the cultural alienation of Aboriginal people by resourcing them with a better health status.

What seems to be required is a revamped, comprehensive model that embodies a proactive approach to strategic planning of designated WA Aboriginal health programs in their entirety and goes well beyond the mere distribution of funds. Among other things, the strategy needs to combine the best elements of the existing *WA Footprints to Better Health Strategy* prepared by the AHIU and the *WA Aboriginal Health and Wellbeing Framework* under development by the OAH. It should also embrace the important environmental health services in remote Aboriginal communities procured by the PHCS, which also have a competent existing procurement strategy that stands separate from the other programs.

Several senior respondents to the review have expressed disappointment that little or no official recognition has been available for the achievement of growing the size of the Aboriginal workforce within the WA health system. The instigation of the CtGIHO projects alone (ie, not including the IECD projects) caused the employment of an additional 317 personnel, of which 219 (69%) were Aboriginal people.[96] This represented a 1.3% increase in total Aboriginal employment in WA,[97] and a much larger proportional increase within the health system, where the WADoH, for example, presently employs some 490 Aboriginal people.[98] Far from being impressed by these numbers, the review is aware that Treasury officials were critical of what was then construed as an employment program rather than a health program. This misunderstanding between the WADoH and the Treasury was unfortunate, as the consultations conducted by the review have made clear

[95] Lawrence D, Holman CDJ, Jablensky AV, Threllfall TJ, Fuller SA. Excess cancer mortality in Western Australian psychiatric patients due to higher case fatality rates. *Acta Psych Scan* 2000; 101: 382-388; Lawrence D, Jablensky AV, Holman CDJ, Pinder TJ. Mortality in Western Australian psychiatric patients. *Soc Psych Psych Epidemiol* 2000; 35: 341-347; Lawrence DM, Holman CDJ, Jablensky AV, Hobbs MST. Death rate from ischaemic heart disease in Western Australian psychiatric patients 1980-1998. *Brit J Psych* 2003; 182: 31-36.

[96] Information from 2012 provided by the Aboriginal Health Improvement Unit, WADoH.

[97] Australian Bureau of Statistics. Aboriginal and Torres Strait Islander People Indigenous Profile. Western Australia. Canberra: ABS, Cat.no. 2002.0, 2012.

[98] Information current at May 2014 provided by the Office of Aboriginal Health, WADoH.

that the WADoH never regarded the laudable growth in Aboriginal health workforce as an end in itself, but rather as a much-needed increase in capacity to achieve the desired health outcomes over the longer term. Consistently, the Treasury never disputed that enhanced workforce capacity was an important building block, but merely wished to see evidence of health service achievements as the result of the investment of public funds.

Advisory Note 5: WADoH statewide program concepts and accountability

The WADoH should devise an updated and more comprehensive version of the FBH strategy to cover all of the areas of health focus listed in Table 13, with the exceptions of renal dialysis, dental health and prison health. The societal and economic goal of closing the gap in life expectancy should be distinguished from crafting of program objectives for which WADoH can be held accountable. The former provides an important 'acid test' for the determination of priorities and distribution of resources, but the causal connection with effective health interventions will in most instances be too distant over time and indivisible from wider community efforts to make sense as a program management tool.

The highest level (global) program objective for which WADoH could reasonably be held accountable over 5-10 years should take a form in keeping with the following:

- To provide evidence-based health interventions that reduce exposure or mitigate the adverse effects of exposure of Aboriginal people to environmental hazards, childhood harms, behavioural and other preventable factors that cause premature mortality.

This global program objective (or something similar to this) should be associated with a small number of assessable strategic drivers, which might include (but are not limited to):

- Increase the employment of Aboriginal people in the health system, including those with the capacity to lead and deliver evidence-based early health interventions.
- Improve the access of Aboriginal people to health interventions, especially those that act early in the causal pathways leading to premature mortality.

Even the objectives and strategies above are insufficiently tractable for the purpose of holding individual service providers to account for the use of their assigned resources. At that level, a more specific, measurable, attainable, relevant and time-bound (SMART)[99] 'service objective' is required linked to a 'service result'. The distinction between a service objective and a program objective is the Aboriginal health sector's legitimate protection against over-promising and under-delivering within budget cycle dynamics.

Thus, in summary, the review advises that a hierarchical system of objectives is required:

- The societal and economic goal of closing the gap in life expectancy.
- A global program objective for WADoH's designated Aboriginal health programs associated with a number of assessable strategic drivers.
- A system of SMART service objectives at the service provider level.

Statewide governance structure

Commencing in 2009, a tiered governance structure was established to oversee the development, implementation and monitoring of the NPAs, consisting of a new SAHPF and a feeder system of nine metropolitan and regional Aboriginal health planning forums, which represented a continuation of local forums that had been in existence prior to the COAG-related initiatives. The SAHPF is chaired by the Director General of Health and provides advice to an Aboriginal Affairs Coordinating Sub-Committee, which is effectively a director general's group.

[99] Program Evaluation Unit. Evaluation Guide, Perth: Department of Treasury, Government of Western Australia, 2014, p.7

The SAHPF includes two representatives from each of the metropolitan and regional forums (one Aboriginal and one non-Aboriginal) as well as senior staff from the Commonwealth Department of Health, the AHCWA, Mental Health Commission, Department of Corrective Services, Medicare Locals, and Drug and Alcohol Office. Its terms of reference require it to engage in collective decision-making, priority setting, high level problem solving and sharing of information about issues affecting Aboriginal health in WA. The nine metropolitan and regional planning forums have been successful in translating a national agenda into locally planned responses targeting locally identified areas of need. Both the SAHPF and metropolitan and regional forums have been supported by the AHIU within the WACHS.

The overall structure is recognised as successfully guiding the development and implementation of the COAG-related CtGIHO and IECD initiatives in WA. The regional forums, in particular, are recognised as having brought together disparate groups of service providers to conduct a whole-of-region planning, implementation and evaluation process for the first time.

Statewide coordination of Aboriginal health within the WADoH

The re-structure of Aboriginal health leadership within the Department resulting in the OAH reporting to the Chief Medical Officer and the AHIU reporting to the Executive Director of WACHS has delivered both benefits and challenges. The original impetus for splitting the AHIU from the OAH appears to have been to take advantage of important existing partnerships in coping with the extreme pressures of rapid implementation of the original CtGIHO and IECD funding commitments. No mechanism was put in place to ensure communications across the Department and the AHIU has remained relatively isolated from some relevant head office policy development processes, such as those undertaken by the OAH and the PHCS.

Some respondents have claimed that whilst the AHIU has served its original purpose admirably, the arrangement is dysfunctional for the longer term, due to poor communication that fails to create an adequate nexus between policy, funding and implementation. A widely held contrary view is that the AHIU has been a very effective implementer and contract manager, coping with the imposition of hopelessly compressed timeframes and dealing with a morass of complex issues. To get the job done within a notoriously challenging sector with a plethora of external players and agendas, the AHIU had needed to adopt somewhat of a ‘take no prisoners’ style of leadership, which has at times caused discomfort in more conservative government circles. The AHIU needed to be agile and flexible, and not unduly bogged down in red tape, and these characteristics, far from being a legitimate object of criticism, have underwritten a commendable level of success.

The review also wishes to deal with an item of misinformation that has unfairly tarnished the reputation of the AHIU. The existing AHIU Director of Aboriginal Health is the chair of the governing board of one of the larger regional ACCHOs. This rightly creates the perception of a conflict of interest. However, upon closer scrutiny, the review has found no evidence of an actual conflict of interest. The substantive resource allocation decisions that affected the particular ACCHO in question occurred between December 2009 and February 2010. The present AHIU Director of Aboriginal Health was initially contracted by the WADoH as a consultant to the Director General commencing from April 2010. There was no evidence of actual conflict of interest or inappropriate dealings. However, there is the need for more explicit documentation of the management of conflict of interest. The approach adopted needs to take into account that conflict of interest may arise with respect to an individual’s interests or the interests of an organisation to which they are affiliated.

The OAH has strong policy development credentials, most recently evidenced by its development of the *WA Aboriginal Health and Wellbeing Framework* and the release of the *WA Health Aboriginal Workforce Strategy*,[100] a successful track record of dealing with Aboriginal health workforce policy and excellent working relationships with the AHCWA externally and the Epidemiology Branch and PHCS division internally. It is not as action-orientated as the AHIU and generally presents as a more traditional branch of a public service organisation. Historically, prior to the creation of the AHIU, there was criticism that the OAH was overly dominated by senior staff with a background and orientation towards the Noongar Aboriginal peoples of the southerly areas of the State to the relative disadvantage of those further to the North and East. This criticism is no longer valid as the Office today is staffed by Aboriginal people from a diverse range of ethnic and cultural backgrounds from across many homelands.

There are other important players in Aboriginal health in the WADoH head office, not least the PHCS division, due to its excellent leadership of environmental health, and communicable and non-communicable disease control, which need to be engaged in Aboriginal health policy development to a greater extent in the future.

The review is aware of mixed appetite to reorganise the structure of areas responsible for statewide coordination of Aboriginal health within the head office and the WACHS. The review recommends a moratorium on this course of action for at least three years for several reasons:

- Due to the solid foundations and increased capacity created during the last five years, the Aboriginal health sector is poised to launch into an era of consolidation and achievement. To realise the benefits of this opportunity it will require strong and supportive statewide co-leadership, policy settings, planning, standards, guidelines, contracting, coordination, monitoring performance and evaluation. Attention to these needs is urgently required.
- A structural reorganisation at this time would have prolonged negative and paralysing effects as staff enter survival mode, thus weakening the head office capacity to perform its much-needed role at a time when the sector needs it most; ie, to consolidate and extend the gains that have been achieved.
- Both the OAH and AHIU have important complementary strengths and proven track records. Synergy is optimised when two strong entities are capable of working inter-dependently to achieve common goals. The two entities should be given an opportunity to demonstrate that this is possible through a dynamic re-organisation (see Advisory Note 6).
- It is generally more consistent with a decentralised approach to the Aboriginal health sector and an end game for the future that does not envision a separate 'WA Department of Aboriginal Health' for efforts in this area to be led by collaborative teams spanning multiple internal and external players.
- The costs of WADoH central administration of the Aboriginal health sector by the OAH and AHIU at 2.2% and 1.3% of total spend, respectively, are relatively low given the levels of complexity. Neither AHIU or OAH are over-staffed according to the review's observations, especially given the efforts now required to consolidate and extend the sector's performance.
- If after three years, a dynamic reorganisation has failed, the option still exists to undertake a structural re-organisation. The review doubts that this will prove necessary.

[100] WA Health Aboriginal Workforce Strategy 2014-2024. Perth: WADoH 2014.

Advisory Note 6: Dynamic (not structural) re-organisation of WADoH statewide coordination of Aboriginal health

The WADoH should focus on a dynamic (not structural) reorganisation of the areas of the Department responsible for statewide coordination of Aboriginal health, in particular, involving the OAH, AHIU and PHCS. A dynamic reorganisation requires a plan with explicit reform objectives, strategies and timelines to achieve the desired changes.

Objectives: The primary objective should be to strengthen shared organisational values, excellence in communication, collaborative approaches and enjoining of expertise with the desired result of creating an exemplary nexus between policy and implementation and between science and culture.

Strategies: The Department should have explicit strategies to achieve the desired reform objectives, which may include the following:

- Formation of a coordinating group of senior officers of the OAH, AHIU, PHCS and other areas of the WADoH as required, which meets regularly to advance the reform objectives of the dynamic reorganisation.
- Documented role delineations and communication protocols.
  - The PHCS should collaborate with the OAH and AHIU and take responsibility for surveillance and longer term outcome evaluation; research translation and guideline development; and management of the environmental health program, which should not be separated from other dealings with local government and *Health Act* matters.
  - The OAH should collaborate with the AHIU, PHCS and other internal and external groups so as to coordinate statewide policy development with respect to all Aboriginal health programs, workforce and organisations; integration of culture with science; and supporting the SAHPF as predominantly a high level policy group.
  - The AHIU should collaborate with the OAH, PHCS and other internal and external groups so as to manage all Aboriginal health sector contracts except for environmental health; and to support the regional Aboriginal health planning forums to perform regional planning, coordination and evaluation activities.
- Presentations and briefings that cover all three groups and others as appropriate.
- Formation of cross-group project teams to create particular resources and results.
- Staff exchanges between groups.
- When the opportunity arises, physical co-location of the AHIU and the OAH should be considered.

Timeline: The objective of the dynamic reorganisation should be fully achieved within nine months.

2.5 Systems for regional governance and service providers

Metropolitan and regional Aboriginal planning forums

The considerable success of the planning forums is widely acknowledged. They have provided machinery for Aboriginal health advancement that was previously lacking in WA and credit is due to those who envisioned and implemented this important planning infrastructure. This is not to say that the forums have been consistently of the same high quality across WA; in fact, their performance has been quite variable. But the overall effect of the creation and performance of this relatively new machinery has been overwhelmingly beneficial.

The forums should now assume an even greater importance to the future of the Aboriginal health sector. In the opinion of this review, they are the only viable mechanism available to coordinate what has become an increasingly complex landscape of funders and service providers. With respect to funders, traditional boundaries between health services funded by the Commonwealth and those funded by the State have become blurred, and this is especially so in the Aboriginal

health sector. The Commonwealth has ingressed into traditional WA Government domains, such as smoking, nutrition and alcohol education, as well as maternal and child health. Conversely, from well before the NIRA, the State had commenced contracting ACCHOs to provide primary medical care services in remote locations. The latter was not primarily an invasion of service territory previously held by the Commonwealth, but rather an outsourcing by the State of part of what it had started in the 1930s and consolidated after World War II as the North West Medical Service. Essentially, the State had always funded primary medical care from the public purse in its more remote locations, long before the establishment of Medicare and Commonwealth blended payment systems.

The WA Government has a commitment, enunciated in its *Delivering Community Services in Partnership Policy*,[101] to outsource service delivery to NGOs within a strengthened framework of transparency and accountability. Consistent with this direction, $276.5 million (65.7%) of the $420.6 million invested by the WADoH from 2009-10 to 2014-15 in the Aboriginal health sector was awarded to NGOs. This occurred against a background where relations between the WADoH and Aboriginal NGOs had improved considerably over time. One of the effects of this out-sourcing to NGOs has been to create a plethora of service providers at the regional level, which are independent business units with no ultimate imperative to subscribe to any particular set of strategic plans or operational protocols for the region. Like most NGOs, they are usually supported by a mix of State and Commonwealth funding streams; but unlike NGOs in other areas of the health system, significant donations received from the public and corporate sponsors are rare.

The planning forums are therefore essential to the future and should be strengthened so as to render them even more effective as vehicles for regional planning, coordination of service delivery and evaluation. A number of issues need to be addressed so as to build on their existing strengths. The review noted from records of meetings held mostly between 2009 and late 2014 that the regional forums had each met within the range of 2.5 to 9.7 occasions per annum (average 3.7 occasions) with the duration of meetings lasting from two to four hours. Regional forum membership at the time of the most recently recorded meeting varied from nine to 32 members (average 20.7 members) with attendance fractions ranging from 62% to 90%. Of the nine regional forums, all had representation from the WADoH; seven had representation from at least one ACCHO or Aboriginal Corporation (and an eighth had non-Aboriginal NGO representation); three had representation from the Commonwealth; and two included consumer representatives.

As with several other aspects of this review, there are occasional distinctions to be made between metropolitan Perth together with the South West, Great Southern and Wheatbelt (ie, the 'southern' health regions) and the Kimberley, Pilbara, Midwest and Goldfields (the 'northern' health regions). For example, the health status of Aboriginal people (mostly of Noongar background) in the South is better, on average, than that of the North; ear health problems and ESKD are more prevalent in the North; and environmental health in remote communities is an issue mostly applicable to the North. A further distinction is in the number of ACCHOs and other Aboriginal corporations that exist as health service providers, which are more numerous in the northern regions. The review noted that these differences had led to variations in the membership mix and dynamics of the southern and northern forums and the extent to which consumer groups had been engaged. There were also local differences; for example, the South Metropolitan region had separately established a series of District Aboriginal Health Action Groups.

[101] Delivering Community Services in Partnership Policy. A Policy to Achieve Better Outcomes for Western Australian through the Funding and Contracting of Community Services. Perth: Government of Western Australia, 2011.

It is not the function of this review to dictate minutia about how the forums should be structured or operated into the future. Indeed, 'one size fits' is not encouraged in regard to detail; but rather regions should continue to develop their methods to their own prescriptions. However, there should be certain basic principles to be observed by all forums and these are what the following Advisory Note 7 aims to articulate:

Advisory Note 7: Minimum standards for metropolitan and regional Aboriginal health planning forums

The metropolitan and regional Aboriginal health planning forums should be strengthened to build on their good success to date. The following advice concerns a set of minimum standards to be applied to every forum, whilst respecting the prerogative of each region to adopt its unique approach to the detail of exactly how its forum operates.

Terms of reference: There should be statewide standard terms of reference for the forums. They should include a responsibility of the forum for Aboriginal health sector planning, coordination, evaluation and reporting across the entire region. They should also include a responsibility to make recommendations on State and Commonwealth resource allocations within the region, but should not have a summative decision-making role on funding. They should also advise the WADoH and the Commonwealth on the suitability of visiting health services and ad hoc health initiatives to the region's needs, before such visiting groups or ad hoc initiatives proceed.

Governance: There should be a consistent statewide set of governance principles that every forum must observe and be able to demonstrate their observance through documentation. The principles should be developed by the AHIU, OAH and PHCS in consultation with the AHCWA. The principles should cover minimum standards of membership criteria (particularly to avoid a shop that is closed to new entrant service providers); how members are appointed by the Director General and for what durations; how the chair is appointed by the forum; minimum standards of Aboriginal representation in membership; how decisions are made and recorded; management of conflict of interest; a code of personal member behaviour, including attendance standards and termination of membership for negative behaviours; and a code of represented organisational behaviour, including transparency in relevant funding arrangements and data sharing responsibilities as well as termination of representation for negative organisational behaviours.

Executive support: Every forum should have, as a minimum, a 1-3 FTE executive support unit consisting of, as a minimum, an administrative assistant and a professional executive officer with relevant skills and experience. To encourage a genuine tripartite approach to participation in the forums by the State, the Commonwealth and the NGOs, the function of executive support for the forums should be contracted out to an independent fourth party (or parties), who is acceptable to the three major interests. This could consist of a single executive support provider for the whole State or, alternatively, a maximum of two providers, covering the northern and southern regions of the State.

Evaluation and accountability: Every meeting of every forum should be attended by an observer from the AHIU, who makes an independent report to the Director General, as chair of the Statewide Aboriginal Health Planning Forum (which includes the WA Manager of the Commonwealth Department of Health), on the quality of each forum meeting, its performance relative to the terms of reference and governance principles and a high level overview of Aboriginal health sector progress in the region.

Facilitation: Where a forum experiences difficulties in discharging its responsibilities, it should be open to the Department to appoint a facilitator to assist the forum to resolve its issues, strengthen its capacity and improve its performance. The Department should not hesitate to respond to problems in this way; there should be early intervention rather than to allow any forum to labour with chronic dysfunction. The forums should be viewed as crucial infrastructure for the sector and this principle of rapid remediation of any difficulties will acknowledge their increased importance. The Department should consider appointing temporary facilitators to assist the metropolitan and Kimberley forums.

The metropolitan forums, especially the North Metropolitan forum, have experienced challenges in arriving at a governance model that best suits their needs. A distinct feature of the metropolitan forums has been their commitment to consumer participation. Governance structures that share power with consumer advocates can lead to highly responsive, values-based and enduring improvements in health services. However, such benefits are predicated on a keen appreciation of the nature of effective consumer representation. Not every lay member of the public is cut out for the role, because to be effective requires that advocacy be undertaken from an objective standpoint on behalf of (in this case) the 'reasonable' Aboriginal consumer.[102] The most influential consumer advocates, far from being immersed in their own personal experiences and opinions, are those who commit to putting emotional forces aside, consult extensively with their networks and carefully develop a perspective that is not narrowly their own, but rather encapsulates the experiences of the reasonable Aboriginal consumer engaging with the health system. To do this well requires selection of consumer representatives with innate aptitudes for the role and some resources to be devoted to training and mentorship by those who are experienced as a consumer advocate and are themselves effective.

Possibly, it was a lack of attention to the principles above that motivated service providers to call for the creation of a separate metro-wide Aboriginal health planning forum. In the words of one respondent, "the community-based meetings being held at North and South were too long, not productive and got bogged down with community members wanting to complain about past government policy with not enough focus on what was happening in the service delivery environment, sharing of information and coordination of delivery. Meanwhile, too much patch protecting by the providers continued unchecked." Thus a metro-wide Aboriginal health planning forum came into existence in 2013 and by the time of the review had met on five occasions. Unfortunately, this proposed structural solution is yet to deliver the benefits that were anticipated. The situation is unsatisfactory, especially given that Aboriginal ill health in the metropolitan area accounts for 26.4% of $PYLL_G$.

The issue in the Kimberley is different. A number of respondents to the review expressed concerns over various aspects of how the Kimberley Regional Aboriginal Health Forum operates. The review has been urged to recommend the creation of separate forums for the West and East Kimberley. Investigations indicated that the Kimberley forum does not function as well as it might, given that, like metropolitan Perth, the Kimberley region is also of such crucial importance to closing the gap, accounting for 30.5% of $PYLL_G$. In general, forum members would benefit from greater knowledge of what others are doing or where others desire to make progress into the future. There is a need for greater transparency and a greater commitment to share data for regional planning and evaluation purposes.

The review emphasises that despite these generalisations, there are examples of good cooperation in the Kimberley, one being in the regional coordination of ear health, a challenging area that is not as well coordinated in other regions. There are also examples of successful programs in metropolitan Perth, especially in the South Metropolitan region, where the well-coordinated Aboriginal antenatal care service has probably contributed to a reduction in the prevalence of low birth weight.

These two case studies of the need to lift the performance of the regional forums, with agitation to solve the problems by entirely contradictory solutions (one to amalgamate two metropolitan forums and the other to divide the Kimberley into two forums) point to the futility of reliance on organisational re-structures for what are predominantly problems in effective inter-agency and

[102] The word 'reasonable' in connection with an Aboriginal person refers in a conceptual sense to the ordinary, honourable and rational Aboriginal person and begs the question: how would such an Aboriginal person experience the situation under discussion at a planning forum?

inter-personal behaviours and relationships. The review is of the opinion that the correct organisational therapy in each instance is the appointment of a facilitator to work with members of the forums over a series of forthcoming meetings to help strengthen the sharing of values, transparent communications and genuine collaborative efforts.

Review comment: The Kimberley offers potentially unique possibilities for the future of the Aboriginal health sector, especially given that the proportion of Aboriginal people in the Kimberley population is 45% and growing. In terms of the 50 year vision for the sector suggested in section 1.3, it is feasible that re-integration could be achieved earlier in the Kimberley than in other parts of WA. One possibility is that the Kimberley Aboriginal Medical Services Council (KAMSC) could evolve into the mainstream umbrella organisation for all health services for all people in the Kimberley, regardless of their ethnicity. However, considerable further organisational development of the KAMSC would need to occur before this arrangement of Kimberley health services could be realised.

Corporate governance in service providers

The review is aware from its fieldwork that at least five ACCHOs in receipt of WADoH funds have experienced a financial review, forensic audit, receipt of a compliance notice from the Office of the Register of Indigenous Corporations (ORIC) or gone into special administration since 2009. Twenty three of the corporations have collectively been through the appointments of 53 different chief executives since 2009, including seven who have seen the leadership of the organisation change hands three to five times in just over five years.

These perturbations in the governance of ACCHOs sometimes have adverse consequences for the performance of their service agreement obligations, but this is not always the case. The review observed many instances where staff members delivering health programs on the ground were seemingly oblivious to governance woes at the top and continued to go about their role in an entirely competent manner in accordance with expectations. Where governance failure has resulted in actual program failure in a small number of instances, the AHIU has been quick to respond and, where appropriate, withdraw funds that might otherwise go to waste.

The report of the ORIC on *Analysing Key Characteristics of Indigenous Corporate Failure* found that serious fraud was the underlying cause in only 5% of cases, whereas the most common causes were disputes within and between corporations.[103] Underlying pecuniary interests or conflicts of interest were identified in 50% of corporate failures, although no comparison was made between this figure and corporations in general.

In general, most Aboriginal NGOs had representative boards made up from community members, who were seldom joined, at least historically, by an independent board director or one or more with specialised skills in finance, law or corporate development. Sometimes board directors failed to distinguish professional from personal matters or failed to distinguish governance from management with the result that positions in the organisation may not have always been filled with merit as the principal guide. These concerns are by no means unique to Aboriginal corporations;

[103] Office of the Registrar of Indigenous Corporations. Analysing Key Characteristics in Indigenous Corporate Failure. Research Paper. Canberra: Office of the Registrar of Indigenous Corporations, 2010.

but the difference is that unlike business corporations in general, Aboriginal corporations receive considerable support from public funds.

Whilst it appears highly desirable to seek to strengthen the quality of governance in Aboriginal corporations that deliver health services, the principal responsibility in that regard must be carried by the relevant corporate regulator and is usually the Commonwealth Government under the *Corporations (Aboriginal and Torres Strait Islander) Act 2006* (Cth). Nevertheless, there is some role for the WADoH to play as set out in the following advice.

Advisory Note 8: Strengthening corporate governance in service providers

The WADoH should consider adopting a set of minimum governance standards as a pre-condition for service agreements to be awarded to NGOs. These standards should appear in service agreements in a similar manner to the way that minimum insurance cover arrangements have been included to date. The level of standards required should be proportionate to the value of the contract.

Areas where minimum standards would be particularly beneficial include the following:

- Director training by the AHCWA or the Australian Institute of Company Directors.
- Minimum skills and independence with respect to board and subcommittee composition.
- Policy and procedures covering conflicts of interest.
- Policy and procedures covering whistle blowers.
- Timely notification to the WADoH of sentinel governance events, such as a financial review, forensic audit, compliance notice, administration, insolvency or criminal investigation; or resignation or dismissal of a chief executive, chief operating officer or chief finance officer.

It would be highly desirable for the WADoH's minimum governance standards to be harmonised with those required by the Commonwealth Department of Health.

The AHCWA, which receives funds from the WADoH, has had a crucial role to play in developing the governance capacity of the NGOs in the Aboriginal health sector, including more intense support at times of critical risk such as during the recruitment of a new chief executive. This role is essential and should continue to be supported by the Department.

3. Evidence Base and Translation

This section deals with term of reference (b) of the review:

b) Consider research evidence for program design and delivery;

3.1 Evidence levels for areas of intervention

This chapter of the report deals with the second big question for this performance review: *What are the most cost-effective interventions with promise to reduce the priority burdens?*

Evidence reviews of interventions in 15 areas of health focus were completed, where the size of the WADoH's total investment from 2009-10 to 2014-15 was at least $1 million. The 15 selected health focus areas received 99.7% of total spending on interventions; ie, after exclusion of the funds provided for training, capacity building and administration.

In each instance, the review assessed the levels of published quantitative and qualitative evidence that the area of intervention had prospects for effectiveness. With few exceptions, the review relied only on published evidence, albeit publications were not restricted to those in scientific journals or the peer-reviewed literature, provided they arose from a credible source. Considerable reliance was placed on the *Cochrane Database of Systematic Reviews*;[104] the AIHW *Closing the Gap Clearing House*;[105] guidelines published by the NHMRC;[106] and the *Australian Indigenous HealthInfoNet*.[107]

There were three facets to this assessment. First, a number of interventions of at least some relevance to this review had been previously assessed and classified for their cost-effectiveness by the ACE-Prevention Study; and a subset of these had been specifically assessed for Australian Indigenous communities.[108] Caution must be exercised in the interpretation of these classifications, as some of them apply only to restricted aspects of interventions used in the Aboriginal health sector.

Second, the review classified the quantitative evidence base, using a grading system recommended by the NHMRC.[109] Third, where the evidence base was supplemented by important qualitative research, this enhancement was graded using a system based on the work of Daly et al,[110] and used to adjust the overall classification of the evidence base. The role of qualitative research was either to provide additional reassurance that mainstream research conclusions could be generalised to Indigenous Australians, including specifically WA Aboriginal people, or to enable a strict NHMRC grade to be revised upwards if warranted by the additional qualitative evidence.

[104] Available at http://www.thecochranelibrary.com/view/0/index.html.
[105] Available at http://www.aihw.gov.au/closingthegap/.
[106] Available at https://www.nhmrc.gov.au/guidelines-publications.
[107] Available at http://www.healthinfonet.ecu.edu.au/.
[108] Vos T, Carter R, Barendregt J, Mihalopoulos C, Veerman L, Magnus A, Cobiac L, Bertram M, Wallace A. Assessing Cost-Effectiveness in Prevention (ACE–Prevention): Final Report. Melbourne: University of Queensland, Brisbane and Deakin University, 2010.
[109] NHMRC Additional Levels of Evidence and Grades for Recommendations for Developers of Guidelines. Canberra: NHMRC, 2009.
[110] Daly J, Willis K, Small R, Green J, Welch N, Kealy M, Hughes E. A hierarchy of evidence for assessing qualitative health research. *J Clin Epidemiol* 2007; 60: 43-49.

Tables 14-16 set out the results of the three facets of evidence assessment in summary form. What follows thereon is a narrative on the evidence base for each area of health focus.

Table 14: **Cost-effectiveness classifications by the ACE-Prevention Study for selected aspects of interventions relevant to areas of health focus**

Health Focus	Available ACE classifications	General Cost-effectiveness	Indigenous Cost-effectiveness
Environmental health	None	NA	NA
Smoking	General for smoking cessation aids and comprehensive program	Very cost-effective	NA
Nutrition & physical activity	General for comprehensive program; Indigenous for limited community-based approach with no media support (caution required in interpretation)	Dominant (equivalent to highly cost-effective)	Not cost-effective
Alcohol & drugs	General for school-based drug education with no media support	Not cost-effective	NA
Sexual health, STIs & BBVs	None	NA	NA
Antenatal care	None	NA	NA
Alcohol in pregnancy	General for brief alcohol interventions	Very cost-effective	NA
Birth to school entry	None	NA	NA
Ear health	None	NA	NA
Mental health	General for screen and counselling for youth depression	Very cost-effective	NA
Youth health	None	NA	NA
Prison health & community re-entry	None	NA	NA
Diabetes, chronic disease management & enhanced primary medical care	General & Indigenous for diabetes & blood pressure screening, diet/exercise advice & pharmacotherapy	Cost-effective	Cost-effective
Renal dialysis	General & Indigenous for renal dialysis and renal transplant	Not cost-effective	Not cost-effective
Patient liaison & transport	None	NA	NA

Table 15: **NHMRC evidence levels and grades for interventions according to areas of health focus**

Health Focus	NHMRC evidence level	NHMRC body of evidence					NHMRC evidence grade
		Evidence base	Consist-ency	Clinical implic-ations	General-isability	Applicab-ility	
Environmental health	III	C	C	C	A	B	C
Smoking	I	A	B	A	C	A	B
Nutrition & physical activity	I	B	B	C	B	A	C
Alcohol & drugs	I	A	B	B	C	B	B
Sexual health, STIs & BBVs	I	A	C	C	B	B	C
Antenatal care	III	C	A	B	B	B	B
Alcohol in pregnancy	II	B	A	B	C	A	B
Birth to school entry	IV	D	A	C	A	A	C
Ear health	IV/I	B	B	A	C	B	B
Mental health	I	B	D	D	B	B	D
Youth health	I	A	B	D	C	B	C
Prison health & community re-entry	IV	D	B	C	C	C	C
Diabetes, chronic disease management & enhanced primary medical care	I-II	A	A	A	B	A	A/B
Renal dialysis	IV	D	A	A	A	A	C
Patient liaison & transport	I	B	C	C	C	B	C

Table 16: **Qualitative evidence assessments for interventions according to areas of health focus**

Health Focus	Qualitative evidence assessment				Qualitative grade
	Theoretical basis	Scope of inquiry	General-isability	Applicab-ility	
Environmental health	NA	NA	NA	NA	NA
Smoking	NA	NA	NA	NA	NA
Nutrition & physical activity	NA	NA	NA	NA	NA
Alcohol & drugs	NA	NA	NA	NA	NA
Sexual health, STIs & BBVs	Strong	Mod	Strong	Strong	B
Antenatal care	NA	NA	NA	NA	NA
Alcohol in pregnancy	NA	NA	NA	NA	NA
Birth to school entry	NA	NA	NA	NA	NA
Ear health	NA	NA	NA	NA	NA
Mental health	Mod	Weak	Strong	Strong	C
Youth health	Strong	Strong	Strong	Strong	B
Prison health & community re-entry	NA	NA	NA	NA	NA
Diabetes, chronic disease management & enhanced primary medical care	NA	NA	NA	NA	NA
Renal dialysis	Strong	Strong	Strong	Strong	A
Patient liaison & transport	Strong	Weak	Strong	Strong	B

Environmental health

It is widely acknowledged that poor environmental health conditions are linked to a number of adverse health outcomes, including respiratory infections, gastroenteritis, asthma, hearing loss, trachoma and skin diseases. The WHO estimates that almost one quarter of the global disease burden is attributable to environmental factors.[111]

Infectious disease prevalence has been disproportionately high among Aboriginal children, particularly in remote regions. In WA, respiratory and gastrointestinal infections accounted for the majority of all hospital admissions and were significantly higher than in non-Aboriginal children, with the rate of hospitalisation for pneumonia 14 times the rate in non-Aboriginal children.[112] Trachoma, pyoderma and scabies are still common in remote and rural areas.

In 2012, the *National Environmental Health Strategy 2012-2015* made improving Aboriginal and Torres Strait Islander environmental health conditions a key priority, recognising the lack of effective environmental health infrastructure in these communities as a key environmental health risk.[113] An ecological study, which combined quantitative and qualitative community-based studies and literature reviews, identified overcrowding, non-functioning health hardware and poor standards of personal and domestic hygiene as key contributors to the high burden of infection.[114]

The WHO has promoted the SAFE strategy (Surgery for trichiasis, Antibiotics, Facial cleanliness and Environmental health improvements) for trachoma control with common interventions including face-washing promotion, regular screening and azithromycin treatment. A Cochrane Library systematic review of two randomised controlled trials (RCTs) in Tanzanian and Australian communities, where trachoma was endemic, found that face-washing promotion had minimal benefit.[115] One trial found that face washing can be effective in reducing severe trachoma, but not active trachoma, while the other trial found no significant differences between study groups. The most recent national trachoma surveillance annual report found a decreasing trend in communities that have been consistently screened and treated from 2007 to 2011, which may have reflected, in part, the efficacy of regular screening and control.[116] Studies looking at the use of azithromycin treatment have demonstrated mixed results. An uncontrolled prospective study of a Central Australian desert community achieved significant reductions in trachoma prevalence after six months by screening 35% of community members and treating 20% with azithromycin over an eight-week period.[117] However, a cross-sectional study that involved screening and treatment with azithromycin at multiple points across a two-year period, as well as housing and sewage

[111] Pruss-Ustun A, Corvalan C. Towards an estimate of the environmental burden of disease. Geneva: World Health Organisation, 2006.
[112] Carville KS, Lehmann D, Hall G, Moore H, Richmond P, de Klerk N, Nurgner D. Infection is the major cause of the disease burden in Aboriginal and non-Aboriginal children. *Ped Infect Dis J* 2007; 26: 210-216.
[113] Australian Government Department of Health. National Environmental Health Strategy 2012-2015. Canberra: Department of Health, 2012.
[114] McDonald E, Bailie R, Grace J, Brewster D. An ecological approach to health promotion in remote Australian Aboriginal communities. *Health Prom Int* 2010; 25: 42-53.
[115] Ejere HOD, Alhassan MB, Rabiu M. Face washing promotion for preventing active trachoma (Review). *Cochrane Database Syst Rev* 2004 Apr 3; doi: 10.1002/14651858.CD003659.pub2.
[116] Cowling CS, Liu BC, Ward JS, Snelling TL, Kaldor JM, Wilson DP. Australian Trachoma Surveillance Annual Report, 2011.
[117] Laming AC, Currie BJ, Di Francesco M, Taylor HR, Mathews JD. A targeted, single-dose azithromycin strategy for trachoma. *Med J Aust* 2000; 172: 163-166.

infrastructure upgrades, was unable to demonstrate any discernible improvement in trachoma prevalence.[118]

A systematic literature review found clear evidence that education and hand-washing with soap prevents diarrhoeal disease in children, although none of the included studies looked at Indigenous people living in developed countries.[119] A social marketing campaign to promote hand-washing, which targeted remote Indigenous communities across Australia, suggested that this can be an effective tool to change personal hygiene behaviours. Recall of key messages was high and self-reported hand-washing increased after the intervention.[120]

Community-based mass-treatment approaches have been found to be effective to control scabies in Aboriginal communities, although sustainability can be difficult to achieve, due in part to the high mobility between households and communities.[121] A skin health program established in the East Arnhem region in 2004, which included the mass distribution of permethrin cream and routine scabies screening and treatment, had no impact on the prevalence of scabies, although it did reduce the prevalence of pyoderma.[122] Poor uptake of permethrin treatment among household contacts was identified as a key reason for the unchanged prevalence.[123]

Only two studies have examined an intervention that changed the structural environment. A prospective cohort study of children was carried out in ten Australian Indigenous communities that received new houses, but found no consistent improvement in common childhood illnesses after the intervention.[124] In contrast, an evaluation of the *Housing for Health* program (repairs and maintenance with a focus on health hardware) in NSW demonstrated a 40% reduction in hospital separations for infectious diseases in those who received the intervention compared with those who did not.[125]

[118] Ewald D, Hall G, Franks C. An evaluation of a SAFE-style trachoma control program in Central Australia. *Med J Aust* 2003; 178: 65-68.

[119] McDonald E, Bailie R, Brewster D, Morris P. Are hygiene and public health interventions likely to improve outcomes for Australian Aboriginal children living in remote communities? A systematic review of the literature. *BMC Public Health* 2008; 8:153-167.

[120] McDonald E, Slavin N, Bailie R, Schobben X. No germs on me: a social marketing campaign to promote hand-washing with soap in remote Australian Aboriginal communities. *Global Health Promotion* 2011; 18: 62-65.

[121] Wong LC, Amega B, Barker R, Connors C, Dulla ME, Ninnal A, Cumaiy MM, Kolumboort L, Currie BJ. Factors supporting sustainability of a community-based scabies control program. *Australas J Dermatol* 2002; 43: 274-277; Carapetis JR, Connors C, Yarmirr D, Krause V, Currie BJ. Success of a scabies control program in an Australian Aboriginal community. *Pediatr Infect Dis* J 1997; 16: 494-499.

[122] Andrews RM, Kearns T, Connors C, Parker C, Carville K, Currie B, Carapetis JR. A regional initiative to reduce skin infections amongst Aboriginal children living in remote communities of the Northern Territory, Australia. *PLoS Negl Trop Dis* 2009; 3: 554-563.

[123] La Vincente S, Kearns T, Connors C, Cameron S, Carapetis J, Andrews R. Community management of endemic scabies in remote Aboriginal communities of Northern Australia: low treatment uptake and high ongoing acquisition. *PLoS Negl Trop Dis* 2009; 3: 444-452.

[124] Bailie R, Stevens M, McDonald E. The impact of housing improvement and socio-environmental factors on common childhood illnesses: a cohort study in Indigenous Australian communities. *J Epidemiol Community Health* 2012; 66: 821-831.

[125] Aboriginal Environmental Health Unit. Closing the Gap: 10 Years of Housing for Health in NSW. An Evaluation of a healthy housing intervention. Sydney: NSW Health, 2010

Smoking

In 2008, 41.3% of the WA Aboriginal adult population were current smokers compared with 16.1% of non-Aboriginal adults.[126] Tobacco exposure caused approximately 5.9% of the lost life-years contributing to the gap in 2004-2008. In 2008, *Tackling Smoking* became a key area of initiative of the CtGIHO NPA, and aimed to reduce the prevalence of Indigenous smoking through marketing campaigns, Indigenous-specific smoking cessation and support services, continued regulatory efforts and strategies to improve the delivery of nicotine replacement and other cessation therapies.[127] There is a large body of evidence published in support of the effectiveness of all of these components when used in comprehensive mainstream tobacco control programs, and in both adult and youth populations in the case of public education using mass communication strategies.

The combination of pharmacotherapy and behavioural interventions has been the subject of a Cochrane Library systematic review of 41 randomised and quasi-randomised controlled trials, most of which provided nicotine replacement therapy combined with 4-8 counselling sessions.[128] Compared with usual care or only brief advice, these interventions were some 70-100% more effective. Four trials have specifically evaluated the effectiveness of cessation therapies in Indigenous populations, albeit not in Australia. Although the studies were limited by methodological weaknesses, the results of a meta-analysis were consistent with a clinically significant benefit.[129] A separate meta-analysis of two recent RCTs of smoking cessation interventions in Kimberley Aboriginal people, one in pregnant women, showed that the intervention groups were twice as likely to quit as participants assigned to usual care.[130]

Mass media interventions for smoking cessation in adults have been evaluated extensively with positive conclusions in several systematic reviews, including a Cochrane Library review of 11 community intervention trials;[131] a major monograph published by the US National Cancer Institute, which assessed several sources of evidence;[132] and the 2012 Report of the Surgeon General, *Preventing Tobacco Use Among Youth and Young Adults*, which concluded unequivocally that mass media campaigns "prevent the initiation of tobacco use and reduce its prevalence".[133]

Where researchers have evaluated the impact of mainstream anti-smoking campaigns on Indigenous Australians, the results have suggested that Aboriginal people are at least as strongly influenced by mass media interventions as other Australians. One study with Indigenous Victorians found high levels of awareness of television (TV) campaign messages on a par with the

[126] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[127] Council of Australian Governments. *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*. Canberra: Council of Australian Governments, 2009.

[128] Stead LF, Lancaster T. Combined pharmacotherapy and behavioural interventions for smoking cessation. *Cochrane Database Syst Rev* 2012 Oct 17; doi: 110.1002/14651858.CD008286.pub2.

[129] Carson KV, Brinn MP, Peters M, Veale A, Esterman AJ, Smith BJ. Intervention for smoking cessation in Indigenous populations. *Cochrane Database Syst Rev* 2012 Jan 18; doi: 10.1002/14651858.CD009046.pub2.

[130] Maeley JV, Atkinson D, Kitaura T, Nelson C, Gray D, Metcalf S, Maguire GP. The Be Our Ally Beat Smoking (BOABS) Study, a randomised controlled trial of an intensive smoking cessation intervention in a remote Aboriginal Australian health care setting. *BMC Public Health* 2014; 14: 32, http://www.biomedcentral.com/1471-2458/14/32.

[131] Bala MM, Strzeszynski L, Topor-Madry R, Chaill K. Mass media interventions for smoking cessation in adults. *Cochrane Database Syst Rev* 2013 Jun 6; doi: 10.1002/14651858.CD004704.pub3.

[132] National Cancer Institute. Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use. Bethesda, Maryland: US Department of Health and Human Services, National Institutes of Health, National Cancer Institute, 2008.

[133] Preventing Tobacco use Among Youth and Young Adults. A Report of the Surgeon General. Rockville, Maryland: US Department of Health and Human Services, 2012.

broader population.[134] In the NT, good recall of mainstream anti-tobacco mass media messages was found in three remote communities,[135] and the positive impact of mainstream media campaigns on Aboriginal people in WA has also been demonstrated.[136] Other researchers have found that Australian Indigenous smokers appear to be more highly motivated than non-Aboriginal people by strong graphic imagery depicting the health effects of smoking, leading Aboriginal smokers to rate this style of mainstream campaign at a higher level.[137]

What little research exists on the value of culturally targeted anti-tobacco messages has been undertaken with American Indians and New Zealand Maori, rather than with Indigenous Australians. The results have been mixed. New Zealand Maori, for example, appear to be less responsive to holistic targeted campaigns compared with generic fear campaigns.[138] Two multi-component community level interventions tailored to the specific cultural aspects of American Indian youth failed to demonstrate an effect beyond six months of follow-up.[139] The evidence suggests reasons to be circumspect about the prospects for achieving good results from tackling smoking programs in WA Aboriginal people that rely solely on culturally targeted community events and school and family-based initiatives in the absence of any significant mass media support and the public policy reforms indicative of a comprehensive approach.

Nutrition and physical activity

In 2004-05, 52% of WA Aboriginal people aged 15+ years reported being sedentary during the previous two weeks compared with 20% of non-Aboriginal people. With respect to body mass index (BMI), 35% vs 17% of Aboriginal and non-Aboriginal people respectively were obese (BMI ≥30) whereas 30% vs 35% were overweight (BMI 25-29).[140] Of the lost life-years contributing to the life expectancy gap in WA in 2004-2008, overweight and obesity accounted for 11.1%.

For mainstream programs targeting school children, a Cochrane Library systematic review of 37 controlled studies of multi-modal interventions for preventing obesity found strong evidence of benefit, especially at ages 6-12 years.[141] Of the many intervention components used in different combinations, the most effective appeared to be education on healthy eating, physical activity and body image in the school curriculum; teacher in-servicing; parental support; increased physical activity sessions; improved nutritional quality of the school food supply; and policies and practices

[134] Murphy M, Mee V. The impact of the National Tobacco Campaign in Indigenous communities: a study in Victoria. In Hassard K, ed, Australia's National Tobacco Campaign: Evaluation Report, Vol 1. Canberra: Commonwealth Department of Health and Aged Care, 1999. pp. 237–253.

[135] Johnston V, Thomas DP. What works in Indigenous tobacco control? The perceptions of remote Indigenous community members and health staff. *Health Prom J Aust* 2010; 21: 45–50.

[136] Boyle T, Shepherd CCJ, Pearson G, Monteiro H, McAullay D, Economo K, Stewart S. Awareness and impact of the 'Bubblewrap' advertising campaign among Aboriginal smokers in Western Australia. *Tobacco Control* 2010; 19: 83–86.

[137] Stewart HS, Bowden JA, Bayly MC, Sharplin GR, Durkin SJ, Miller CL, Givans SE, Warne CD, Wakefield MA. Potential effectiveness of specific anti-smoking mass media advertisements among Australian Indigenous smokers. *Health Ed Res* 2011; doi: 10.1093/her/cyr065.

[138] Gould GS, McEwan A, Watters T, Clough AR, van der Zwan R. Should anti-tobacco media messages be culturally targeted for indigenous populations? A systematic review and narrative synthesis. *Tobacco Control* 2012; doi:10.1136/tobaccocontrol-2012-050436.

[139] Carson KV, Brinn MP, Labiszewski NA, Peters M, Chang AB, Veale A, Esterman AJ, Smith BJ. Intervention for tobacco use prevention in Indigenous youth. *Cochrane Database Syst Rev* 2012 Aug 15; doi: 10.1002/14651858.CD009325.pub2.

[140] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[141] Waters E, de Silva-Sanigorski A, Burford BJ, Brown T, Campbell KJ, Gao Y, Armstrong R, Prosser L, Summerbell CD. Interventions for preventing obesity in children. *Cochrane Database Syst Rev* 2011 Dec 7; doi: 10.1002/14651858.CD001871.pub3.

that re-enforced eating health foods and being active throughout the day. A separate review of 25 school-based interventions to prevent overweight in children and adolescents arrived at similarly supported conclusions.[142]

Community interventions to prevent over-nutrition with or without promotion of physical activity (sometimes referred to as 'healthy lifestyle programs') have been challenging to implement and evaluate in large general populations. Intensive lifestyle programs targeting pre-diabetics have been evaluated and found to be effective in reducing the incidence of fully developed diabetes and its complications.[143]

There are few evaluations of community-based healthy lifestyle programs in Indigenous Australian communities, albeit those that have occurred indicate that such programs can render some improvements in diet, obesity or other cardiovascular risk factors based on comparisons with temporal or parallel community control data. Examples include the Minjilang Health and Nutrition Project in the Northern Territory;[144] the Looma Healthy Lifestyle Project;[145] other interventions in the Kimberley;[146] and Gutbusters in four tropical communities.[147] A RCT of a 12-week exercise and nutrition program for Indigenous women living in metropolitan Adelaide resulted in modest reductions in weight, BMI and blood pressure.[148]

Alcohol and drugs

The harmful consumption of alcohol and the use of illicit drugs caused around 9.7% and 1.7% respectively of the lost life-years contributing to the WA gap in 2004-2008. Within the same period (2004-05), it was found that 18% of Aboriginal people and 8% of non-Aboriginal people in WA were drinking alcohol at harmful levels at least once per week; whereas in 2008 some 45% of WA Aboriginal adults had ever used an illicit substance.[149]

The effectiveness of alcohol and other drug supply reduction strategies in lowering levels of consumption and related harm through outlet and price controls and dry community declarations is well established.[150] The experimental evaluation of mainstream cognitive strategies has tended to focus on the prevention of alcohol and illicit drug harm in populations of school children and young adults, for which a series of Cochrane Library systematic reviews indicate that knowledge and skill-based interventions can be effective in reducing alcohol consumption and the use of illicit

[142] Doak CM, Visscher TL, Renders CM, Seidell JC. The prevention of overweight and obesity in children and adolescents: a review of interventions and programmes. *Obes Rev* 2006; 7: 111-136.

[143] Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *NEJM* 2002; 346: 393-403; Norris SL, Zhang X, Avenell A, Gregg E, Bowman B, Schmid CH, Lau J. Long-term effectiveness of weight-loss interventions in adults with pre-diabetes: a review. *Am J Prev Med* 2005; 28:126–39 also found at *Cochrane Database Syst Rev* 2005 Apr 20; doi: 10.1002/14651858.CD005270);

[144] Lee AJ, Bailey APV, Yarmirr D, O'Dea K, Mathews JD. Survival tucker: improved diet and health indicators in an Aboriginal community. *Aust J Public Health* 1994; 18: 277–285.

[145] Rowley KG, Daniel M, Skinner K, Skinner M, White GA, O'Dea K. Effectiveness of a community-directed 'healthy lifestyle' program in a remote Australian Aboriginal community. *ANZ J Public Health* 2000; 24: 136–144.

[146] Gracey M, Bridge E, Martin D, Jones T, Spargo RM, Shephard M, Davis EA. An Aboriginal-driven program to prevent, control and manage nutrition-related 'lifestyle' diseases including diabetes. *Asia Pacific J Clin Nutr* 2006; 15:178–188.

[147] Egger G, Fisher G, Piers S, Bedford K, Morseau G, Sabasio S, Taipim B, Bani G, Assan M, Mills P. Abdominal obesity reduction in Indigenous men. *Int J Obes Rel Met Dis* 1999; 23: 564–569.

[148] Canuto K, Cargo M, Li M, D'Onise K, Esterman A, McDermott R. Pragmatic randomised trial of a 12-week exercise and nutrition program for Aboriginal and Torres Strait Islander Women: Clinical results immediate post and 3 month follow-up. *BMC Public Health* 2012; 12: 933, doi:10.1186/1471-2458-12-933.

[149] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[150] Gray D, Wilkes E. Reducing alcohol and other drug related harm. Closing the Gap Clearing House, Resource Sheet no. 3, December 2010.

substances.[151] A meta-analysis of three mainstream RCTs of mentoring to prevent adolescent alcohol and other drug use found statistically significant benefits, although the clinical impact was limited in the case of illicit drugs due to a low rate of commencing drug use during the studies. However, the pooled reduction in the rate of commencing alcohol use at a young age was 29%.[152] Media campaigns for the prevention of illicit drug use in young people, however, have collectively shown no effect in a systematic review of 23 studies.[153] Brief alcohol interventions, consisting of up to four sessions, for patients presenting to primary health care services have been shown to be effective in reducing alcohol consumption in a meta-analysis of 22 RCTs.[154]

Whilst not an Indigenous-specific intervention, a cluster RCT comprising 20 communities in Australia with populations of 5,000-20,000 and at least 100km from an urban centre found that a community action intervention was followed by a reduction of 1.9 standard drinks per week in average consumption and less alcohol-related verbal abuse.[155] Gray and others reviewed a wide range of alcohol interventions in Aboriginal Australians, but were cautious about drawing firm conclusions due to weaknesses in the interventions and study designs.[156] It appears, therefore, that for the prevention of alcohol and other drug-related harm, the evidence of effectiveness must be generalised from mainstream results.

Concerning detoxification and the various behaviour therapies and pharmacotherapies (including naltrexone implants) used in the treatment of alcohol dependence and other drug-related addictions, there is strong evidence from RCTs that mainstream services are effective.[157] Treatment services for Aboriginal people have been less well evaluated, but there appears to be reasonable grounds to support their likely effectiveness.[158]

[151] Fabrizio F, Vigna-Taglianti F, Versino E, Zambon A, Borraccino A, Lemma P. School-based prevention for illicit drugs' use. *Cochrane Database Syst Rev* 2005 Apr 20; doi: 10.1002/14651858.CD003020.pub2; Moreira MT, Smith LA, Foxcroft D. Social norms intervention to reduce alcohol misuse in University or College students. *Cochrane Database Syst Rev* 2009 Jul 8; doi: 10.1002/14651858.CD006748.pub2; Foxcroft DR, Tsertsvadze A. Universal multi-component prevention programs for alcohol misuse in young people. *Cochrane Database Syst Rev* 2011 Sep 7; doi: 10.1002/14651858.CD009307.

[152] Thomas RE, Lorenzetti D, Spragins W. Mentoring adolescents to prevent drug and alcohol use. *Cochrane Database Syst Rev* 2011 Nov 9; doi: 10.1002/14651858.CD007381.pub2.

[153] Ferri M, Allara E, Bo A, Gasparrini A, Faggiano F. Media campaigns for the prevention of illicit drug use in young people. *Cochrane Database Syst Rev* 2013 Jun 5; doi: 10.1002/14651858.CD009287.pub2.

[154] Kamer EFS, Dickenson HO, Beyer FR, Campbell F, Schlesinger C, Heather N, Saunders JB, Burnand B, Pienaar ED. Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database Syst Rev* 2007 Apr 18; doi: 10.1002/14651858.CD004148.pub3.

[155] Shakeshaft A, Doran C, Petrie D, Breen C, Harvard A, Abudeen A, Harwood E, Clifford A, D'Este C, Gilmour S, Sanson-Fisher R. The effectiveness of community action in reducing risky alcohol consumption and harm: a cluster randomised controlled trial. *PLoS Medicine* 2014; 11(3): e1001617.

[156] Gray D, Saggers S, Sputore B, Bourbon D. What works? A review of evaluated alcohol misuse interventions among Aboriginal Australians. *Addiction* 2000; 95: 11-22.

[157] Gowing L, Proudfoot H, Henry-Edwards S, Teeson M. Evidence Supporting Treatment: the Effectiveness of Interventions for Illicit Drug Use. Australian National Council on Drugs Research Paper 3. Canberra: Australian National Council on Drugs, 2001; Shand F, Gates J, Fawcett J, Mattick R. The Treatment of Alcohol Problems: A Review of the Evidence. Canberra: Australian Government Department of Health and Ageing, 2003; Lobmaier PP, Kunoe N, Gossop M, Waal H. Naltrexone depot formulations for opioid and alcohol dependence: a systematic review. *CNS Neurosci Ther* 2011; 17: 629-636.

[158] Brady M. Indigenous residential treatment programs for drug and alcohol problems: current status and options for improvement. Discussion paper no. 236/2002. Canberra: Centre for Aboriginal Economic Policy Research, Australian National University, 2002.

Sexual health, STIs and BBVs

The prevention of adolescent or unwanted pregnancy, STIs and BBVs are three distinct but related areas. In WA in 2013, Aboriginal people accounted for 14% of notifications of chlamydia; 17% of syphilis; 56% of gonorrhoea; 18% of hepatitis C and 4% of hepatitis B notifications.[159] These figures corresponded to notification rates that were 4-31 times higher than in non-Aboriginal Western Australians. The notification rate of gonorrhoea in Aboriginal children aged 0-14 years was over 500 times higher than in other children. There were up to five new cases of human immunodeficiency virus (HIV) infection per annum reported in WA Aboriginal people between 2009 and 2013.[160] According to the Australian Bureau of Statistics (ABS), the fertility rate in WA Aboriginal teenagers of 15-19 years in 2012 was 106 per 1,000 women compared with 19 per 1,000 for non-Aboriginal teenage mothers.[161] The three most relevant risk factors underlying these health outcomes were unprotected sexual intercourse (unwanted pregnancy, STIs and BBVs), general contraceptive failure (unwanted pregnancy) and the intravenous administration of illicit substances using unsafe injecting equipment (BBVs). Mother to child perinatal transmission of infections may also occur.

A systemic review of 41 RCTs found that school-based and community-based education and contraceptive interventions in ethnically diverse populations lowered the rate of unintended pregnancies in adolescents during up to 4.5 years of follow-up.[162] A meta-analysis of nine RCTs across nine different countries assessed the effectiveness of structural and community-level interventions for increasing condom use to prevent STIs.[163] It found that reported condom use increased by 20%, but reductions in the incidence rates of HIV and herpes simplex type 2 virus infections failed to reach statistical significance.

Evaluations of sexual health education programs in Australian Indigenous populations have been largely limited to qualitative assessments and impact evaluations.[164] Nevertheless, the results have been encouraging, including those from evaluations of the Mooditj sexual health program in WA;[165] the Chopped Liver educational play concerning hepatitis C in Victoria;[166] the Snake condom campaign;[167] and the use of SMS text messaging as a sexual health education and clinical management medium.[168] More convincing still have been the results of a comprehensive educational and clinical STI and BBV control program in the Anagu Pitjantjatjara Yankunytjatjara

[159] Figures for 2013 were provided by the WADoH Communicable Disease Control Directorate. Earlier published figures were available in Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[160] The Kirby Institute. Bloodborne Viral and Sexually Transmitted Infections in Aboriginal and Torres Strait Islander People: Surveillance and Evaluation Report 2013. Sydney: The University of New South Wales, 2013.

[161] Australian Bureau of Statistics. Births, Australia, 2012. Canberra: Australian Bureau of Statistics, 2013.

[162] Oringanje C, Meremikwu MM, Eko H, Esu E, Meremikwu A, Ehin JE. Interventions for preventing unintended pregnancies among adolescents. *Cochrane Database Syst Rev* 2009 Oct 7; doi: 10.1002/14651858.CD005215.pub2.

[163] Morena R, Nababan HY, Ota E, Wariki WMV, Ezoe S, Gilmour S, Shibuya K. Structural and community-level interventions for increasing condom use to prevent the transmission of HIV and other sexually transmitted infections. *Cochrane Database Syst Rev* 2014 Jul 29; doi: 10.1002/14651858.CD003363.pub3.

[164] Strobel NA, Ward J. Education programs for Indigenous Australians about sexually transmitted infections and bloodborne viruses. Closing the Gap Clearing House Resource Sheet no. 14. Canberra: Australian Institute of Health and Welfare, 2012.

[165] Powell F. Mooditj Impact Evaluation: February 2008–August 2008. Perth: FPWA Sexual Health Services, 2008.

[166] Keating C. Chopped Liver evaluation report. Melbourne: Ilbijerri Aboriginal and Torres Strait Islander Theatre and Co-operative, 2009.

[167] Gregory P, Phillipson L, Barrie L, Jones SC, Validas A. Evaluating the impact of the narrow cast marketing of 'Snake Condoms' to Indigenous youth. Australia and New Zealand Marketing Academy Conference: Shifting the Focus from Mainstream to Offbeat, Sydney, 1–3 December 2008.

[168] Lim MSC, Hocking JS, Aitken CK, Fairley CK, Jordan L, Lewis JA, Hellard ME. Impact of text and email messaging on the sexual health of young people: a randomised controlled trial. *J Epidemiol Com Health* 2012; 66: 69–74.

Lands, where the model appeared to lead to a reduction in gonorrhoea, chlamydia and syphilis between 1996 and 2003.[169]

Although not specific to Indigenous Australians, there is evidence from systematic reviews of clinical trials that needle exchange programs are effective for the prevention of HIV infection.[170]

Gender differences and other cultural sensitivities causing 'shame' are important considerations in the delivery of sexual health programs to Aboriginal people. As in other populations, there is also an important interaction between the harmful consumption of alcohol and risky sexual behaviours. Following the imposition of alcohol supply restrictions in Fitzroy Crossing in WA, there was a 78% reduction in the volume of alcohol sales and, comparing two-year periods before and after the restrictions, the rates of STIs fell by 30-50%.[171]

Antenatal care

In 2011, Aboriginal women in WA were one half as likely as other women to commence antenatal care in the first trimester of pregnancy and 15 times more likely not to attend for any antenatal care at all.[172] Access to good quality antenatal care can have significant benefits, reducing adverse health outcomes and improving developmental outcomes. A non-experimental study of Aboriginal and Torres Strait Islander mothers found that those who attended five or more antenatal care sessions had a lower prevalence of low birth weight babies compared with those who did not access antenatal care (8% compared with 37%).[173]

A Cochrane Library systematic review to assess the effectiveness of community-based intervention packages, mostly using trained outreach workers, in improving neonatal outcomes looked at 18 cluster-randomised/quasi-randomised trials mainly in developing countries. It demonstrated a 24% reduced risk in neonatal mortality, 16% reduction in still-births, 40% increase in referrals to a health facility for a pregnancy-related complication and a 94% improvement in early rates of breastfeeding for communities receiving the intervention. While none of the studies looked at Aboriginal Australian communities, the findings pointed to the effectiveness of integrating maternal and newborn care into community settings, supplemented by the local health system.[174]

Evaluations of antenatal care in Australian Indigenous women have been limited to pre and post intervention measures or the use of historical control groups or comparisons with non-Indigenous women in the area. Antenatal care delivered by ACCHOs can be an effective way to increase attendance with the average number of antenatal visits ranging from 5.5 in mainstream health care

[169] Huang RL, Torzillo PJ, Hammond VA, Coulter ST, Kirby AC. Epidemiology of sexually transmitted infections on the Anangu Pitjantjatjara Yankunytjatjara Lands: results of a comprehensive control program. *Med J Aust* 2008; 189: 442–445.

[170] Aspinall EJ, Nambiar D, Goldberg DJ, Hickman M, Weir A, Van Velzen E, Palmateer N, Doyle JS, Hellard ME, Hutchinson SJ. Are needle and syringe programmes associated with a reduction in HIV transmission among people who inject drugs: a systematic review and meta-analysis. *Int J Epidemiol* 2014: 43: 235-248.

[171] Bangor-Jones R, Akesson G, Armstrong P, Bastian L, Reeve C, Xiao J, Weeramanthri T. Alcohol restrictions and STIs: is there a link? *ANZ J Public Health* 2011; 35: 94.

[172] Hutchinson M, Joyce A. Western Australia's Mothers and Babies, 2011: Twenty-ninth Annual Report of the Western Australian Midwives' Notification System. Perth: Department of Health, 2014.

[173] Australian Medical Association. Aboriginal and Torres Strait Islander Health Report Card 2012-2013: The healthy early years -getting the right start in life. 2013.

[174] Lassi ZS, Haider BA, Bhutta ZA. Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. *Cochrane Database Syst Review* 2010 Nov 10; doi: 10.1002/14651858.CD007754.pub2.

settings to 10.5 in community controlled settings.[175] As well as improving access, community-based antenatal services with strong links to the mainstream sector have been shown to reduce preterm birth rates and perinatal deaths.[176] In NSW a continuity-of-care model, where midwives and Aboriginal health workers collaborated to provide antenatal care in the community whilst still linked to mainstream maternity services, demonstrated a 20% increase in women attending their first antenatal visit before 20 weeks gestation and a 50% decrease in preterm births.[177]

Birth to school entry

Aboriginal children aged 0-5 years are over-represented across a range of child health indicators. They are 40% more likely to be hospitalised, less likely be immunised, more likely to have poor dental, ear and eye health, and twice as likely to be developmentally vulnerable on one or more domains of the Australian Early Development Index.[178]

In 2007, the Commonwealth's program *New Directions: An Equal Start to Life for Indigenous Children* recognised the importance of investing in the early years to human development with a specific directive for Aboriginal children to have their weight gain, immunisation status, infections and early developmental milestones monitored by a primary health care service.

Although now rescinded, the NHMRC review of this area recommended surveillance over time instead of childhood screening.[179] Studies indicate that health screenings, whilst seemingly aligned with prevention principles, often lack a strong evidence base and can be economically ineffective.[180] There have been relatively few screening implementation studies that assess child health outcomes.[181] In Australia, a recent medical audit of the Healthy Kids Check in Queensland, a one-off health check of four-year olds, found that only 3-11% of children with problems detected in their health check had a change in clinical management.[182] Evaluation of the Child Health Check Initiative, a voluntary medical check-up as part of the Northern Territory Emergency Response, indicated that it was poorly designed for remote communities, did not encourage an ongoing relationship between the child and a health clinic, was not cost-effective and did not result in timely follow-up. The proportion of children who had been given a referral following the health check, but were not seen by the follow-up service, ranged from 20-60%.[183]

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[175] Jan S, Conaty S, Hecker R, Bartlett M, Delaney S. An holistic economic evaluation of an Aboriginal community-controlled midwifery program in Western Sydney. *J Health Services & Res Pol* 2004; 9: 14-21; Rumbold AR, Cunningham. A review of the impact of antenatal care for Australian Indigenous women and attempts to strengthen these services. *Mat Child Health J* 2008; 12: 83-100.

[176] Panaretto KS, Mitchell MR, Anderson L, Larkins SL, Manessis V, Buettner PG, Watson D. Sustainable antenatal care services in an urban Indigenous community: the Townsville experience. *Med J Aust* 2007; 187: 18-22; Mackerras D. Evaluation of the Strong Women, Strong Babies, Strong Culture program: results for the period 1990-1996 in the three pilot communities. Issue No. 2/98. Darwin: Menzies Occasional Papers, 2008.

[177] NSW Health. Aboriginal Maternal and Infant Health Strategy Evaluation: Final Report. Sydney: NSW Health, 2005.

[178] Australian Institute of Health and Welfare. A picture of Australia's Children. Canberra: AIHW, Cat no. PHE 167, 2012; Australian Government Medicare Australia, Australian Childhood Immunisation Register, quarterly reports, June 2010; Kong K, Coates HLC. Natural history, definitions, risk factors and burden of otitis media. *Med J Aust* 2009; 191: S39-S43.

[179] Oberklaid F, Wake M, Harris C, Hesketh K, Wright M. Child health screening and surveillance: a critical review of the evidence. Canberra: National Health and Medical Research Council, 2002; rescinded 2013.

[180] Alexander KE, Mazza D. The Healthy Kids Check – is it evidence-based? *Med J Aust* 2010; 192: 207-210.

[181] Van Cleave J, Kuhlthau KA, Bloom S, Newacheck PW, Nozzolillo AA, Homer CJ, Perrin JM. Interventions to improve screening and follow-up in primary care: a systematic review of the evidence. *Acad Pediatr* 2012; 12: 269-282.

[182] Thomas R, Doust JA, Vasan K, Rajapakse B, McGregor L, Ackermann E, Del Mar CB. Identified health concerns and changes in management resulting from the Healthy Kids Check in two Queensland practices. *Med J Aust* 2014; 201: 404-408.

[183] Allen and Clarke. Evaluation of the Child Health Check Initiative and the Expanding Health Service Delivery Initiative – Final Report. Canberra: Commonwealth of Australia, 2011. ISBN: 978-1-74241-444-7.

In WA the approach has been to involve Aboriginal health professionals and to establish long-term surveillance and support as opposed to one-off screening. The Universal Child Health Contact Schedule (a series of seven contacts delivered by a child health nurse) and the Enhanced Aboriginal Child Health Schedule (a series of 15 contacts, the majority of which can be undertaken by an Aboriginal health worker) are used to monitor, identify and address health issues as early as possible. This parallel approach reflects findings in the literature that suggest an initial universal entry point to child health services reduces the likelihood of stigmatising individuals or groups, whilst also fulfilling the need to support this with culturally appropriate services.[184] An evaluation of the Schedule by the Telethon Kids Institute found that it was consistent with current evidence of early year screening and surveillance and supported its continued development.[185]

Alcohol in pregnancy

The birth prevalence of foetal alcohol spectrum disorder (FASD) in WA during the 1990s was estimated to be 2.76/1,000 in Aboriginal children and 0.02/1,000 in non-Aboriginal children.[186] Brief educational interventions for reducing alcohol consumption in pregnant women and women planning pregnancy are a relatively new initiative and thus there does not yet exist an extensive scientific literature on their effectiveness. A Cochrane Library systematic review in 2009 included four trials, noting that the individual results were consistent with the interventions encouraging women to abstain from alcohol in pregnancy.[187] However, they were not sufficiently similar to perform a meta-analysis.

A good quality RCT of a brief intervention in problem-drinking women of child-bearing age with four years of follow-up found a significant treatment effect, with those in the intervention group being almost twice as likely to reduce their alcohol intake by at least 20%.[188] The effect was most marked in women in the intervention group who became pregnant during follow-up.

[184] Council on Community Pediatrics. The role of preschool home-visiting programs in improving health outcomes for families and children. *Pediatrics* 2009; 123: 598-603.

[185] Telethon Institute for Child Health Research. Interim targeted contact schedule review of evidence. Perth: TICHR, 2009.

[186] O'Leary CM. Fetal alcohol syndrome: diagnosis, epidemiology, and development outcomes. *J Paed Child Health* 2004; 40: 2-7.

[187] Stade BC, Bailey C, Dzendoleatas D, Sgro M, Dowswell T, Bennett D. Psychological and/or educational interventions for reducing alcohol consumption in pregnant women and women planning pregnancy. *Cochrane Database Syst Rev* 2009 Apr 15; doi: 10.1002/14651858.CD004226.pub2; Handmaker NS, Miller WR, Manicke M. Finding of a pilot study of motivational interviewing with pregnant drinkers. *J Stud Alcohol Drugs* 1999; 60: 285-287; Chang G, Wilkins-Haug L, Berman S, Goetz MA. Brief intervention for alcohol use in Pregnancy: a randomized trial. *Addiction* 1999; 94: 1499-1508.

[188] Manwell LB, Fleming MF, Mundt MP, Stauffacher EA, Barry KL. Treatment of problem alcohol use in women of childbearing age: results of a brief intervention trial. *Alcoholism: Clin Exp Res* 2000; 24: 1517-1524.

Ear health

Researchers at WA's Telethon Kids Institute found that in 2001-2002, 20% of Aboriginal children aged 0-11 years and 14% of those aged 12-17 years were reported by carers as having recurrent ear infections.[189] Of younger children with recurring ear infection, around one quarter had abnormal hearing. In 2008, the National ATSI Social Survey found that 9% of WA Aboriginal children aged 0-14 had ear or hearing problems; the prevalence was as high as 16% in remote areas.[190]

The evidence base for ear health interventions has been reviewed in detail and presented as clinical guidelines by the Darwin Otitis Guidelines Group.[191] The Guidelines assign a Level IV classification of evidence to the effectiveness of surveillance for hearing loss in all pre-school children and in older children at risk of health impairment, using parental questionnaires, pneumatic otoscopy and tympanometry. They assign a level I classification to the use of antibiotics in acute otitis media, persistent otitis media with effusion and chronic suppurative otitis media. They assign a level IV classification to an ear, nose and throat surgical referral for persistent otitis media with effusion with failed medical treatment and a hearing loss >35dB; or for chronic suppurative otitis media that has failed prolonged medical treatment.

Mental health

Some 33% of WA Aboriginal adults reported in 2008 that they had high or very high levels of psychological distress, a figure three-fold higher than in non-Aboriginal adults.[192] The elevated mortality rate from suicide accounted for 9.5% of the lost life-years contributing to the gap, whereas diagnosed mental disorders contributed 1.5%. Indigenous Australians are less likely than other Australians to obtain help for mental health problems from mainstream services; and qualitative research in WA suggests that Aboriginal people with mental illness often turn to traditional treatments before accessing mainstream care, usually as an inpatient.[193]

A systematic review of nine RCTs confirmed that counselling for mental health problems in mainstream primary care had greater clinical effectiveness than usual care for short-term mental health outcomes, but not in the long-term nor on measures of social function despite high levels of satisfaction with counselling.[194] There is emerging but as yet inconclusive trial evidence that people in the prodrome of psychosis can be assisted by early detection and intervention.[195] With

[189] Zubrick SR, Lawrence DM, Silburn SR, Blair E, Milroy H, Wilkes T, Eades S, D'Antoine H, Read AW, Ishiguchi P, Doyle S. The Health of Aboriginal Children and Young People [Volumes 1-4]. Perth: Telethon Institute for Child Health Research, 2004.

[190] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[191] Darwin Otitis Guidelines Group. Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations. Canberra: Australian Department of Health and Ageing, 2010.

[192] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[193] De Leo D, Milner A, Sveticic J. Mental disorders and communication of intent to die in Indigenous suicide cases, Queensland, Australia. *Suicide Life-Threat Behav* 2012; 42: 136–46; Sveticic J, Milner A, De Leo D. Contacts with mental health services before suicide: a comparison of Indigenous with non-Indigenous Australians. *Gen Hosp Psychiat* 2012; 34: 185–91; Vicary D, Westerman T. 'That's just the way he is': some implications of Aboriginal mental health beliefs. *Australian e-Journal for the Advancement of Mental Health* 2004; 3: 103–12

[194] Bower P, Knowles S, Coventry PA, Rowland N. Counselling for mental health and psychological problems in primary care. *Cochrane Database Syst Rev* 2011 Sep 7; doi: 10.1002/14651858.CD001025.pub3.

[195] Marshall M, Rathbone J. Early intervention for psychosis. *Cochrane Database Syst Rev* 2011 Sep 7; doi: 10.1002/14651858.CD004718.pub3.

respect to suicide prevention, there is strong evidence, including a meta-analysis of six RCTs, that cognitive-behavioural problem solving approaches after attempted suicide are effective in reducing impulsivity, hopelessness, depression and recurrence of self-harm.[196]

In Australia, the CtG *Social and Emotional Wellbeing Program* evolved from the *Bringing Them Home Program*, designed specifically to provide counselling and support services to individuals, families and communities affected by the phenomena of the stolen generation.[197] Whilst trial evidence is lacking, qualitative evaluations of a number of 'healing' programs have found that the participants have reported positive experiences and effects,[198] although there are as yet no robust evaluations of the outcomes of Australian Indigenous mental health promotion programs.[199] Similarly, Indigenous-specific suicide prevention programs in Australia have not been subjected to rigorous evaluation, albeit some qualitative evaluations have provided encouraging indications.[200]

Youth health

A wide range of factors conspire to place young Aboriginal people at risk of engaging in negative behaviours that impact adversely on their health, education, employment and their transition to a social, emotional and economically secure adulthood. Many factors have been identified that drive these difficulties, including the exposure of Aboriginal youth to high rates of intergenerational trauma, family breakdown, child abuse, domestic and community violence and substance abuse, inadequate housing and lack of opportunities for recreation and personal development.[201] Mentoring programs may be conducted as standalone interventions or as a component of a broader programs of participation for at risk youth, with some research suggesting that the latter is the more effective.

A search of the Cochrane Library found only one systematic review based on four RCTs that assessed the effectiveness of mentoring deprived, minority group adolescents to prevent drug and alcohol use, and noted that the rate of initiation of alcohol use was reduced in two studies and that of drug use in one.[202] In what appears to have been the most extensive systematic review of experimental and quasi-experimental evaluations, DuBois et al conducted a meta-analysis of 73 studies of community-based and school-based mentoring programs in 1999-2010 for children and

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[196] Townsend E, Hawton K, Altman DG, Arensman E, Gunnell D, Hazell P, House *A*, Van Heeringen K. The efficacy of problem-solving treatments after deliberate self-harm: meta-analysis of randomized controlled trials with respect to depression, hopelessness and improvement in problems. *Psych Med* 2001; 31: 979-988; Hvid M, Vangborg K, Sorensen HJ, Nielsen IK, Stenborg JM, Wang AG. Preventing repetition of attempted suicide – II. The Amager Project, a randomised controlled trial. *Nordic J Psychi*at 2011; 65: 292-298; Ghahramanlou-Holloway M, Bhar SS, Brown GK, Olsen C, Beck AT. Changes in problem-solving appraisal after cognitive therapy for the prevention of suicide. *Psych Med* 2012; 42: 1185-1193;

[197] Closing the Gap Clearing House. Strategies and Practices for Promoting the Social and Emotional Wellbeing of Aboriginal and Torres Strait Islander People. Resource Sheet no.19. Canberra: Australian Institute of Health and Welfare, 2013.

[198] Wilczynski A, Reed-Gilbert K, Milward K, Tayler B, Fear J, Schwartzkoff J. Evaluation of the Bringing Them Home and Indigenous Mental Health Programs: Final Report. Canberra: Department of Health and Ageing, 2007; Galloway G, Moylan R. Mungalli Falls indigenous women's healing camp. *Int J Nar Ther Com Work* 2005; 2: 77–88; Tsey K, Whiteside M, Haswell-Elkins M, Bainbridge R, Cadet-James Y, Wilson A. Empowerment and Indigenous Australian health: a synthesis of findings from Family Wellbeing formative research. *Health Soc Care Comy* 2010; 18:169–179.

[199] Clelland N, Gould T, Parker E. Searching for evidence: what works in Indigenous mental health promotion? Health *Prom J Aust* 2007; 18: 208-216.

[200] Closing the Gap Clearing House. Strategies to Minimise the Incidence of Suicide and Suicidal Behaviour. Resource Sheet no.18. Canberra: Australian Institute of Health and Welfare, 2013.

[201] Ware V-A. Mentoring Programs for Indigenous Youth at Risk. Closing the Gap Clearing House Resource Sheet no. 22. Canberra: Australian Institute of Health and Welfare, 2013.

[202] Thomas RE, Lorenzetti D, Spragins W. Mentoring adolescents to prevent drug and alcohol use. *Cochrane Database Syst Rev* 2011 Nov 9; doi: 10.1002/14651858.CD007381.pub2.

adolescents.[203] The programs included those using paid professionals, volunteers and older peers as mentors and those using group and individual formats as well as longer and shorter time frames. Overall, the findings supported the effectiveness of mentoring for improving youth development outcomes across the behavioural, social, emotional and academic domains (but not the physical health domain), albeit the average effect size was a modest 9% improvement in measured scores compared with controls. The benefit was comprised of positive gains in mentored youth, whilst non-mentored youth exhibited declines.

A growing body of mostly qualitative research supports the view that mentoring interventions fit well with international and Australian Indigenous culture and learning styles and is likely to reduce disengagement from school, employment and society. Intervention attributes believed to be important for cultural effectiveness include use of role model mentors (especially those who have overcome adversity); contact over more than 12 months; facilitation of access to a range of resources and supports; and local community and parental engagement.[204]

Prison health and community re-entry

As at 30 June 2013, there were 4,294 prisoners in WA who self-identified as ATSI people. The rate of imprisonment in this population group was 21 times higher than in non-Aboriginal people.[205]

Compared with non-Indigenous entrants, ATSI prison entrants were more likely to be current smokers, report risky alcohol consumption, and were twice as likely to have ever been diagnosed with diabetes. However, prison often provided an opportunity to engage with health services, sometimes for the first time. Compared with non-Indigenous prisoners, Indigenous prisoners were more likely to report an increase in physical activity (46% compared with 33%), rate the health care they received in prison as excellent (33% compared with 20%) and report that their health had improved to the extent of being a little or a lot better (75% compared with 49%).[206]

International and Australian research has demonstrated that the transition period from prison back into the community can be extremely hazardous. A meta-analysis of six studies across four countries found a three to eight-fold increased risk of drug-related death in the first two weeks after release, while a study in WA demonstrated that Aboriginal prisoners had a significantly lower survival rate after release than non-Aboriginal prisoners, with the main causes of excess death being related to drug and alcohol abuse.[207]

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[203] DuBois DL, Portillo N, Rhodes JE, Silverthorn N, Valentine JC. How effective are mentoring programs for youth? A systematic assessment of the evidence. *Psych Sci Public Interest* 2011; 12: 57-91.

[204] Costello L, Thomson M. Youth Mentoring. Research Synthesis. Melbourne: Australian Housing and Urban Research Institute, 2011; Farruggia SP, Bullen P, Solomon F, Collins E, Dunphy A. Examining the cultural context of youth mentoring: a systematic review. *J Prim Prev* 2011; 32: 237–251; Moodie ML, Fisher J. Are youth mentoring programs good value-for-money? An evaluation of the Big Brothers Big Sisters Melbourne Program. *BMC Public Health* 2009; 9: 41, doi:10.1186/1471-2458-9-41; Barwick H. Young males: strengths-based and male-focused approaches: a review of the research and best evidence. Wellington: Ministry of Youth Development, 2004; Richards K, Rosevear L, Gilbert R. Promising interventions for reducing Indigenous juvenile offending. Sydney: Indigenous Justice Clearinghouse, 2011; CaFCA. Aboriginal Dads Program. Promising Practice Profile. Melbourne: Australian Institute of Family Studies, 2010.

[205] Australian Bureau of Statistics. Prisoners in Australia, 2013. Canberra: ABS, Cat. No. 4517.0, 2014.

[206] Australian Institute of Health and Welfare. The Health of Australia's Prisoners 2012. Canberra: AIHW, Cat. No. PHE 170, 2013.

[207] Merrall ELC, Kariminia A, Binswanger IA, Hobbs MS, Farrell M, Marsden J, Hutchinson SJ, Bird SM. Meta-analysis of drug-related deaths soon after release from prison. *Addiction* 2010; 105: 1545-1554; Stewart LM, Henderson CJ, Hobbs MST, Ridout SC, Knuiman MW. Risk of death in prisoners after release from jail. *Aust NZ J Public Health* 2004; 28: 32-36.

The concept of 'throughcare' which refers to care delivered from initial reception in the prison, through to community care after release, enjoys broad support, but there is limited published research evaluating its effectiveness around health outcomes in the Australian context or for Indigenous populations.[208] Nevertheless, the international findings should be considered when assessing local community re-entry programs.

A case management model of throughcare service delivery, often performed in partnership with case managers 'dually based' between the prison and community-based services, was shown to be effective for prisoners in the United States with mental illness, multiple co-morbidities and HIV infection, with reduced rates of recidivism, high compliance rates for health care appointments in the community and at a lower cost than many other prison health care programs.[209] Post-incarceration transition clinics have also been used in the United States to improve access to medical care and have had modest success in retention in care past six months and achieving chronic disease specific outcomes.[210]

In Australian prisons, discharge planning is intended to support continuity of health care for an individual between prison and the community, with referrals to appropriate community based services depending on the individual needs of the prisoner. An American study demonstrated that prisoners who received discharge planning were more likely to have a regular source of care than prisoners who did not receive discharge planning.[211] However, the logistics of discharge planning can be complex, with the timing of release for many prisoners uncertain.

Diabetes, chronic disease management and enhanced primary medical care

A number of chronic diseases and conditions amenable to primary care interventions are prevalent in WA Aboriginal adults, including obesity, hypertension, diabetes, cardiovascular, respiratory and renal diseases.[212] Whilst the overall self-reported prevalence of diabetes in the WA Aboriginal population is around 9%, the medically confirmed occurrence of diabetes, hypertension and kidney disease in remote communities can be very much higher. In one desert community in central Australia, the prevalence of diabetes or chronic kidney disease was reported to be 39%.[213]

The evidence base for the detection and management of type 2 diabetes, and other aspects of diabetic care, has been reviewed by the NHMRC and published as a series of evidence-based guidelines. The NHMRC has assigned a Level II evidence classification and a Grade C recommendation to use of screening to identify and treat type 2 diabetes at a stage before clinical

[208] World Health Organization. Health in Prisons. Geneva: WHO, 2007; Australian Government Attorney-General's Department. Interventions for prisoners returning to the community. Canberra: Commonwealth of Australia, 2005.

[209] Murphy Healey K. Case management in the criminal justice system. Washington: National Institute of Justice, 1999; Rich JD, Holmes L, Salas C, Macalino G, Davis D, Ryczek J, Flanigan T. Successful linkage of medical care and community services for HIV-positive offenders being released from prison. *J Urban Hlth* 2001; 78: 279-294; Skolnick A. Correctional and Community Health Care Collaborations. *JAMA* 1998; 279: 98-99.

[210] Fox AD, Anderson MR, Bartlett G, Valverde J, Starrels JL, Cunningham CO. Health outcomes and retention in care following release from prison for patients of an urban post-incarceration transitions clinic. *J Health Care Poor Undeserved* 2014; 25: 1139-1152.

[211] Wang EA, White MC, Jamison R, Goldenson J, Estes M, Tulsky JP. Discharge planning and continuity of health care: findings from the San Francisco County Jail. *Am J Public Health* 2008; 98: 2182-2184 doi:10.2105/AJPH.2007.119669.

[212] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013; Australian Indigenous Health*Info*net. Overview of the Health of Indigenous People in Western Australia 2013. Perth: Edith Cowan University, 2013.

[213] Gador-Whyte AP, Wakerman J, Campbell D, Lenthall S, Struber J, Hope A, Watson C. Cost of best-practice primary care management of chronic disease in a remote Aboriginal community. *Med J Aust* 2014; 200: 663-666.

presentation in order to reduce morbidity from long term complications.[214] It recommends that risk assessment using the type 2 diabetes risk assessment tool, AUSDRISK, should commence from age 18 years in Indigenous Australians. The NHMRC has generally assigned Levels I-II evidence classifications and Grade A-B recommendations to the use of angiotensin converting enzyme inhibitor (ACEi) and angiotensin II receptor blocker (ARB) antihypertensive agents in patients with type 2 diabetes affected by microalbuminuria, macroalbuminuria or elevated blood pressure.[215] The NHMRC has generally assigned Levels I-II evidence classifications (but not a recommendation grading) to the screening for and ophthalmological treatment of diabetic retinopathy;[216] and has made what are generally grade B-C recommendations (but with no explicit evidence level) for interventions to manage the foot complications of diabetics.[217]

A systematic review of 33 RCTs of culturally appropriate health education for people in ethnic minority groups with type 2 diabetes found that knowledge scores improved, as did glycaemic control as indicated by an average fall of 0.4 percentage points in glycated haemoglobin (HbA1c).[218]

A randomised cluster trial in 21 primary care centres in Northern Queensland provided evidence that an organised diabetes recall and outreach service, including key elements of evidence-based practice developed in the mainstream, can yield significant health benefits.[219] The intervention group showed a 32% reduction in hospital admissions for diabetes-related complications within the first year. By three years of follow-up, good glycaemic control (HbA1c < 7%) had increased from 18% to 25% and those with well controlled hypertension increased from 40% to 64%.[220] However, mean body weight did not improve. In a much earlier 'natural' intervention study in the Kimberley, involving middle-aged diabetic Aboriginal people returning to a traditional hunter gatherer lifestyle for seven weeks, fasting glucose levels fell from 11.6 to 6.3 mM/l, the average body weight dropped by 7Kg; blood pressure fell; and one half were no longer diabetic.[221]

In a quasi-experiment with historical controls in the Northern Territory Tiwi Islands, an organised intervention in community members with renal impairment, hypertension or diabetes, managed using an ACE inhibitor, calcium-channel blockers and diuretics to achieve blood pressure goals, together with health education and efforts to improve control of glucose and blood lipids, resulted in lower blood pressure, stabilised renal function and a 50% drop in the combined endpoints of either renal failure or death.[222] The number needed to treat to avoid one terminal event was only 11.6.

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[214] Colagiuri S, Davies D, Girgis S, Colagiuri R. National Evidence Based Guidelines for Case Detection and Diagnosis of Type 2 Diabetes. Canberra: NHMRC, 2009.

[215] Chadban S, Howell M, Twigg S, Thomas M, Jerums G, Alan C, Campbell D, Nicholls K, Tong A, Mangos G, Stack A, McIsaac R, Girgis S, Colagiuri R, Colagiuri S, Craig J. National Evidence Based Guideline for Diagnosis, Prevention and Management of Chronic Kidney Disease in Type 2 Diabetes. Canberra: NHMRC, 2009.

[216] Mitchell P, Foran S. Guidelines for the Management of Diabetic Retinopathy. Canberra: NHMRC, 2008.

[217] National Evidence-Based Guideline: Prevention, Identification and Management of Foot Complications in Diabetes. Canberra: NHMRC, 2011.

[218] Attridge M, Creamer J, Ramsden M, Cannings-john R, Hawthorne K. Culturally appropriate health education for people in ethnic minority groups with type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2014 Sep 4; doi: 10.1002/14651858.CD006424.pub3.

[219] McDermott RA, Schmidt BA, Sinha A, Mills P. Improving diabetes care in the primary healthcare setting: a randomised cluster trial in remote Indigenous communities. *Med J Aust* 2001; 174: 10: 497-502.

[220] McDermott R, Tulip F, Schmidt B, Sinha A. Sustaining better diabetes care in remote Indigenous Australian communities. *Brit Med J* 2003; 327: 428-430.

[221] O'Dea K. Marked improvement in carbohydrate and lipid metabolism in diabetic Australian Aborigines after temporary reversion to traditional lifestyle. *Diabetes* 1984; 33: 596-603.

[222] Hoy WE, Baker PR, Kelly AM, Wang Z. Reducing premature death and renal failure in Australian Aboriginals. *Med J Aust* 2000; 172: 473-478; Hoy WE, Wang Z, Baker PR, Kelley AM. Reduction in natural death and renal failure from a systematic screening and treatment program in an Australian Aboriginal community. *Kidney Int* 2003; 83: S66-73..

Whilst Indigenous-specific evidence appears to be absent in regard to organised approaches to the management of chronic diseases affecting the cardiovascular and respiratory systems, separate from diabetic care, there is strong mainstream evidence from systematic reviews that disease management programs are effective with respect to secondary prevention of ischaemic heart disease,[223] as well as the management of heart failure,[224] chronic obstructive pulmonary disease,[225] and asthma in children.[226]

Based on a non-experimental cohort study of 14,184 Indigenous residents of remote communities in the Northern Territory, it was estimated that higher levels of primary medical care for chronic diseases reduced hospital costs by $4-12 for every $1 invested in primary care.[227]

Renal dialysis

The incidence rate of ESKD in WA Aboriginal people of 1.194/1,000 person-years in 2007-2009 was more than 12-fold higher than in non-Aboriginal people at 0.097/1,000 person-years.[228] Renal replacement therapy with dialysis or transplantation is the only known means of sustaining life for patients with end-stage kidney disease. Given that Dr Willem Koplff performed the first successful treatment of a patient using renal dialysis in 1945, the basic technology did not develop in an era when clinical trials were viewed as the ideal pathway to advance the practice of evidence-based medicine. Rather, the technology rapidly developed to become a self-evident, life-preserving intervention.

As of October 2014, the Cochrane Library listed 62 systematic reviews in response to a search on 'renal dialysis'. The subject matter of these reviews dealt with a wide range of questions concerning enhancements or variations to procedure (eg, types of catheters and dialysis membranes; use of different adjunct therapies). Surprisingly few trials appear to have studied larger questions, such as optimal modality and frequency of dialysis. For example, an attempt to systematically review the question of continuous ambulatory peritoneal dialysis versus hospital or home haemodialysis found only one RCT on this subject, reported in abstract form only.[229] This trial found no difference in mortality or quality-adjusted life years at two years.

Due to factors affecting referral, suitability based on co-morbidities, patient preference, adherence to investigations and aftercare, and a greater likelihood of tissue incompatibility, the extent of kidney transplantation in Indigenous Australians with ESKD is reduced some five-fold from 11% to

[223] Buckley BS, Byrne MC, Smith SM. Service organisation for the secondary prevention of ischaemic heart disease in primary care. *Cochrane Database Syst Rev* 2010 Mar 17; doi: 10.1002/14651858.CD006772.pub2.

[224] Takeda A, Taylor SJC, Taylor RS, Khan F, Krum H, Underwood M. Clinical service organisation for heart failure. *Cochrane Database Syst Rev* 2012 Sep 12; doi: 10.1002/14651858.CD002752.pub3.

[225] Kruis A, Smidt N, Assendelft WJJ, Rutten-van Molken M, Chavannes NH. Integrated disease management interventions for patients with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev* 2013 Oct 10; doi: 10.1002/14651858.CD009437.pub2.

[226] Bhogal SK, Zemek RL. Written action plans for asthma in children. *Cochrane Database Syst Rev* 2006 Jul 19; doi: 10.1002/14651858.CD005306.pub2

[227] Zhao Y, Thomas SL, Guthridge SL, Wakerman J. Better health outcomes at lower costs: the benefits of primary care utilisation for chronic disease management in remote Indigenous communities in Australia's Northern Territory. *BMC Health Serv Res* 2014; 14: 463-472; Thomas SL, Zhao Y, Guthridge SL, Wakerman J. The cost-effectiveness of primary care for Indigenous Australian with diabetes living in remote Northern Territory communities. *Med J Aust* 2014; 200: 658-662.

[228] Stumpers S, Thomson N. Review of kidney disease among Indigenous people. Australian Indigenous Health Reviews no.11. Perth: Edith Cowan University, 2013.

[229] Vale L, Cody JD, Wallace SA, Daly C, Campbell MK, Grant AM, Khan I, MacLeod AM. Continuous ambulatory peritoneal dialysis (CAPD) versus hospital or home haemodialysis for end-stage renal disease in adults. *Cochrane Database Syst Rev* 2004 Oct 18; doi: 10.1002/14651858.CD003963.pub2.

2.1% compared with other Australians.[230] Thus most WA Aboriginal people with kidney failure rely on dialysis and particularly haemodialysis for the remainder of their lives. The relocation of remote area patients to regional centres and metropolitan Perth has been a cause of extreme psychological, social and economic hardships,[231] resulting in a significant reconfiguration of renal dialysis services to place satellite dialysis units closer to patients' homelands. A recent study of clinical outcomes and mortality rates in Aboriginal dialysis patients in the Kimberley found they were comparable to those achieved elsewhere.[232]

Patient liaison and transport

In 2008, 11% of WA Aboriginal people aged 15 and over reported problems accessing a doctor and 8% reported problems accessing hospitals.[233] Hospital discharge against medical advice provides indirect evidence of the extent to which hospital services are responsive to Aboriginal patients' needs. In 2008-10, 2.1% of WA Aboriginal inpatients discharged themselves against medical advice, a proportion six times higher than in non-Aboriginal inpatients.

Indigenous patient liaison services are one of the strategies intended to improve the accessibility of health services to Aboriginal people, as well as improving the overall quality of the package of services that are received.[234] Many Aboriginal patients have complex needs and a liaison service should aim not only to assist with patient advocacy and cross-cultural communications, but should also construct a support package that is tailored to the needs of the individual client to ensure that they receive the services that they require. One of the components of a support package may be the provision of patient transport with or without accommodation.

A specific evidence base concerning the effectiveness of patient liaison is under developed. Arguably, the strongest evidence of likely effectiveness derives from the cognate area of case management in mental health services. Patients with mental disorders often have complex needs and experience difficulties with communications with service providers. Case management in that area includes psychosocial needs assessment, individual care planning, referral and linking to appropriate services or supports, advocacy, compliance with therapy, supportive counselling and assistance in the establishment and maintenance of therapeutic relationships. These functions bear strong similarity to those of Aboriginal patient liaison, albeit transport components are a stronger feature of the latter, especially in remote areas. A meta-analysis of 35 experimental and quasi-experimental trials that evaluated the effectiveness of mental health case management found evidence of benefits with respect to reduced symptoms, improved social functioning, increased client and family satisfaction with services and reduced client drop-out from services.[235]

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[230] Stumpers S, Thomson N. Review of kidney disease among Indigenous people. Australian Indigenous Health Reviews no.11. Perth: Edith Cowan University, 2013.

[231] Le B, Kickett M. Dislocation and dialysis in Aboriginal patients with renal failure. *Aboriginal and Islander Health Worker* 2009; 33: 10-13.

[232] Marley JV, Dent HK, Wearne M, Fitzclarence C, Nelson C, Siu K, Warr K, Atkinson D. Haemodialysis outcomes of Aboriginal and Torres Strait Islander patients of remote Kimberley origin. *Med J Aust* 2010; 193: 516-520.

[233] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[234] Ware V-A. Improving the Accessibility of Health Services in Urban and Regional Setting for Indigenous People. Closing the Gap Clearing House Resource Sheet no. 27. Canberra: Australian Institute of Health and Welfare, 2013.

[235] Ziguras S, Stuart GW. A meta-analysis of the effectiveness of mental health care management over 20 years. *Psychiat Serv* 2000; 51: 1410-1421; Ziguras SJ, Stuart GW, Jackson AC. Assessing the evidence on case management. *Br J Psychiat* 2002; 181: 17-21.

In a systematic review of 24 controlled studies of the effectiveness of strategies for promoting cultural competence in health service delivery to culturally and linguistically diverse communities, it was found that the use of trained bi-lingual health workers, who were culturally competent, was the most effective of five different strategies.[236] The other four strategies were cultural competency training for mainstream health workers; interpreter services; multimedia and culturally sensitive videos; and community point-of-care services for patients with chronic disease.

A qualitative evaluation of an Indigenous patient liaison program in Canada, with features similar to equivalent liaison services in Australia, found that 93% of key stakeholders thought it extremely or very important that the service was available and 73% believe it helped to improve Indigenous people's access to care very significantly or a lot.[237] In WA, a pre- and post-cohort evaluation of care coordination for children with complex needs found evidence that the intervention had reduced emergency department presentations by 15% and hospital bed days by 43% with significant cost savings.[238] An Aboriginal-specific version of this liaison program has since been implemented and has been evaluated with similar results.

3.2 Individual evaluations of 184 selected projects

Methods of individual evaluation of the 184 projects

A large component of this review has been directed towards individual evaluations of 184 'projects' (meaning lines of funding for designated Aboriginal health activities) out of a total of 401 that had been funded at any time during 2009-10 to 2014-15. The criteria for selection were three-fold:

1. A total value of the investment in the project since 2009-10 of at least $100,000;
2. the project was on foot in 2013-14 and continuing in 2014-15; and
3. the project did not consist of administrative costs associated with the OAH or the AHIU.

Interviews were conducted with all of the groups in WA responsible for delivery of the 184 projects. In the vast majority of instances, these were undertaken face-to-face on location where the service was being delivered. Thus the review team travelled extensively across the State to well over 30 different towns and communities. Where a face-to-face interview proved infeasible due to cost or circumstances beyond control, an alternative means of communication was achieved by telephone or email. For each project, a proforma was completed, consisting of seven parts:

1. ***Contract identification***: This section contained basic details of the project.
2. ***Evidence base***: This consisted of an assessment of the level of published quantitative and qualitative evidence that the intervention has prospects for effectiveness. The assessments were based on the evidence reviews set out in the preceding section.
3. ***Contract analysis***: This part considered only the material contained in project documentation, the major elements of which usually consisted of an initial proposal incorporated into a regional plan; a service agreement, grant instrument or MoU; contract variations; and service activity

[236] Henderson A, Kendall E, See L. The effectiveness of culturally appropriate interventions to manage or prevent chronic disease in culturally and linguistically diverse communities: a systematic literature review. *Health Soc Care Com* 2011; 19: 225-249.

[237] Foreman J, Stewart V. An Evaluation of the Northern Health Aboriginal Patients Liaison Program. Prince George, British Columbia: Northern Health, 2011.

[238] Peter S, Chaney G, Zappia T, Van Veldhuisen C, Pereira S, Santamaria N. Care coordination for children with complex care needs significantly reduced hospital utilization. *Ped Nursing* 2011; 16: 305-312.

reports. The contract analysis determined firstly if the project, as purchased, had one or more defined target conditions or service enhancers (examples of service enhancers included a mobile clinic or care coordinator) and a defined target population. Secondly, the review assessed if the documentation contained adequate justification of the allocation of funds in terms of the background situation (need for and effectiveness of the intervention) and the necessary inputs (the cost and the capacity to deploy and sustain these resources). Finally, the desired outputs and results of the project, as they appeared in the contract, were classified into a number of types and an overall assessment was made of how the proposed system of measurement performed against the SMART criteria published by the WA Treasury.[239]

4. ***Project images***: Digital photographs were taken or provided of the project in action.
5. ***Project audit***: This section served several purposes, including an assessment of timely provision of service reports; the service activity level within a recent single financial year; performance scores assigned by the WADoH; and the review's independent performance score using the same criteria.
6. ***RE-AIM/GPE health effects***: Here the review made an assessment of the health effects of the project based not only on service activity reports, but also on the interview with the service provider and provision to the review of documented evidence of project results not included in the reporting templates. For example, providers of a number of larger projects had commissioned once-off evaluations from university researchers. The backbone of the review's approach made use of the Reach-Effectiveness-Adoption-Implementation-Maintenance (RE-AIM) framework to answer the questions:[240]
    - To what extent was the project reaching its target population?
    - What indications existed that the project was effective in practice? Obtaining an answer to this question was assisted for some projects by the use of a system known as Graduated Project Evaluation (GPE).[241]
    - Had the project been adopted appropriately for local conditions (in terms of engagement of Aboriginal people as staff and provision of training)?
    - Did the project follow appropriate evidence-based guidelines and to what extent was adherence assured through quality control?
    - Was the project vulnerable to critical staff losses and partnership failures and to what extent were these risks being adequately managed?
7. ***Overall assessment***: The review assigned to each project to an overall category representing the degree of known value for money relative to opportunity cost elsewhere in the health system. This final assessment was based on all components of the project analysis. One should note that a project might have been assessed as delivering poor or marginal known value for money because either: (1) it addressed a low priority for closing the gap; (2) the intervention was inherently cost-ineffective; (3) the intervention was poorly delivered; or (4) there was insufficient information provided to confirm that the project was worthwhile.

[239] Program Evaluation Unit. Evaluation Guide, Perth: Department of Treasury, Government of Western Australia, 2014, p.25.
[240] Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health* 1999; 89: 1322-1327.
[241] Holman CDJ, Donovan RJ. Evaluating projects funded by the Western Australian Health Promotion Foundation: a systematic approach. *Health Prom Int* 1993; 8: 199-208.

General characteristics of the 184 projects

Collectively, the 184 selected projects had a value of $371.8 million or 88% of $420.6 million, being the total value of all activities under review. In the case of the 204 projects on foot in 2014-15, those selected represented 90% in number (184/204) and 93% of the funds for that year ($84.7 million / $90.7 million). The selected projects covered 25 health focus areas and were delivered by 78 separate service providers, over one half of which (n=43; 55%) has only a sole project. The KAMSC delivered the most funded projects (n=15; total investment over 2009-15 of $69.2 million) followed by the Derbarl Yerrigan Health Service (n=7; total investment $31.7 million) and Mawarnkarra Health Service (n=7; total investment $6.5 million). In total, just over two thirds of projects (69.6%) were delivered by NGOs, this ranged from 0% in the North Metropolitan region to 86% in both the Kimberley and Pilbara. Projects that focussed on primary medical care (96%), prison health (86%) and environmental health (78%) were also more likely to be delivered by a NGO.

The largest funding source was the WACHS, which funded 25 projects to a total of $114.6 million. This comprised almost one third (30.8%) of the total investment during 2009-15. The second largest funding source was the CtG Area 2, healthy transition to adulthood ($56.7 million; 15.3%).

3.3 Evidence-based practice in 173 intervention projects

Strength of evidence for the 173 intervention projects

Excluding 11 projects where the health focus was concerned with training, capacity building or administration, a total of 173 projects were able to be assessed for the adequacy of scientific evidence in support of the claim that community benefits were being delivered. In each instance, the evidence base was classified using the information in Tables 14-15 for the particular health focus area covered by the project. Where relevant, the classification of available qualitative evidence was used to enhance the grading of quantitative evidence.

Overall, the quantitative evidence base was assessed as either Levels I or II for 61.5% of projects (63.3% of funding), meaning that it arose from at least one RCT (Level II) or a systematic review of RCTs (Level I). All other projects used interventions that were supported by Levels III or IV scientific evidence. After taking into account these levels, the evidence was then assessed using the NHMRC's body of evidence matrix to arrive at a final NHMRC evidence grade of A, B, C or D, the interpretation of which is as follows:

Grade A: Body of evidence can be trusted to guide practice.

Grade B: Body of evidence can be trusted to guide practice in most situations.

Grade C: Body of evidence provides some support, but care should be taken in its application.

Grade D: Body of evidence is weak and must be applied with caution.

In the practice of health services, it is desirable to rely on evidence that is at least of grade C; and it is relevant to the review that this grade of evidence underwrites a large corpus of health services regarded as routine practice. An acknowledged weakness of this system is that a beneficial intervention can fare badly on the grading scale merely because no RCT has been performed, albeit there can be a substantial array of non-experimental and qualitative evidence that is

supportive of a beneficial effect. The supplementary qualitative information was used to adjust the initial NHMRC grade based on strict criteria.

Table 17 shows how the 173 intervention projects and their associated $354.4m in funding were distributed according to the NHMRC grades of evidence supplemented where applicable by qualitative evidence. The review assessed 99.1% of the funds (98.3% of projects) to be invested in interventions attracting at least a Grade C rating on strict NHMRC criteria alone. Three mental health projects valued at $3.2 million were the only ones to be assigned a strict NHMRC grade D; however, in these instances, the strength of qualitative evidence was sufficient to increase the rating to Grade C. Thus in final outcome, all of the 173 intervention projects were considered by the review to be supported by an adequate evidence base consistent, if not exceeding, the standards of evidence-based practice found in the mainstream health system.

In terms of use of the most trusted grades of evidence, 51.2% of the funds were invested in interventions attracting a strict NHMRC rating of Grades A or B, indicating that particularly high levels of evidence-based practice had been achieved. Comparisons across the regions demonstrated that the South Metropolitan region and metro-wide jurisdiction had the highest proportions of projects (69.2% and 58.3% respectively) based on evidence classified in the strict NHMRC A or B Grades, whereas the Goldfields projects (20.8%) and statewide projects (23.1%) had the lowest proportions.

Table 17: **Distributions of the 173 intervention projects and their funding during 2009-15 according to NHMRC grade of evidence supplemented by qualitative evidence**

NHMRC grade of evidence with qualitative supplementation	% of 173 projects	% of $354.4m
Grade A or B (for different facets)	18.4	39.6
Grade B	17.8	11.6
Grade C (qualitative A)	2.9	11.3
Grade C (qualitative B)	31.0	18.9
Grade C	27.6	17.7
Grade D (qualitative C)	1.7	0.9
Total	100.0	100.0

Strength of proposals for the 173 intervention projects

Almost six in ten intervention projects (58.4%) were developed using a formal, structured proposal, with some three quarters of these being submitted for scrutiny and local prioritisation by a regional Aboriginal health planning forum or the SAHPF.

The review examined the original proposals and made an independent assessment of their adequacy in providing justification for the requested investment of funds across four separate domains:

1. **Need**: Prior objective evidence that an unmet need existed for the proposed health intervention.
2. **Effectiveness**: Prior objective evidence of the effectiveness of the proposed intervention in meeting the unmet need and yielding a benefit in the service constituency.
3. **Cost**: Rational arguments as to why the cost of the proposed intervention was warranted by the potential benefit and that the proposed method of delivery was the most cost-efficient of the available options.
4. **Capacity**: Rational arguments as to why the service provider was the one best placed to deliver the proposed intervention in terms of location, expertise, infrastructure and acceptability to the service constituency and necessary partners.

The results of these assessments are shown in Table 18. Most proposals, when they existed, performed well on justifications of need (82% of proposals provided strong or moderate justification) and capacity (89% strong or moderate). The same could not be said for justifications of effectiveness (20% of proposals provided strong or moderate justification) and cost (27% strong or moderate). There was little difference in the quality of proposals that were submitted via the planning forums compared with those funded via separate WADoH processes.

Table 18: **Distributions of the 173 intervention projects according to justification using prior evidence of need, effectiveness, cost and capacity in a structured proposal**

Level of justification	% of 173 projects			
	Need	Effectiveness	Cost	Capacity
Strong justification	23.7	5.2	0.6	22.5
Moderate justification	24.3	6.4	15.0	29.5
Weak or no justification	10.4	46.8	42.8	6.4
No structured proposal identified	41.6	41.6	41.6	41.6
Total	100.0	100.0	100.0	100.0

At least some insight as to why proposals paid relatively scant attention to effectiveness and cost, but rather focussed on need and capacity, was obtained from an examination of the following selection criteria used by the forums to determine eligibility for funding and the priority order of proposals:

Criteria used by the regional Aboriginal health planning forums to assess funding proposals

Essential criteria:

1. *Address COAG priorities*: Must target appropriate Closing the Gap and IECD objectives and established outputs.
2. *Evidence based*: Must provide quantitative and/or qualitative information that provides evidence for the proposed initiative. Supporting information may include health outcome data, health program information, and evidence of community and health provider consultations. Identified regional priorities.
3. *Milestones*: Must be clearly demonstrated, appropriate and reasonable. Milestones for the initiative should be clearly outlined, realistic and should fit in with the expected outputs for Closing the Gap. Goals should be feasible given the target area, population group, timeframe, workforce and other relevant factors.
4. *Return on investment*: Program expenditure seems appropriate for expected outputs; i.e. good value for money. Does not duplicate existing service. Improve and enhance existing programs where possible. Operates in association with appropriate support and referral agencies.

Desirable criteria:

5. *Community consultation and support*: Use community based feedback to help prioritise health needs and identify gaps in service provision.
6. *Service gaps identified*: Gaps in current service provision/the continuum of service delivery area identified and addressed.
7. *Sustainability of program*: Evidence that the provider has the ability to sustainably provide the program for the period of the NPA and possibly beyond the period of the NPA.
8. *Infrastructure to deliver program*: Infrastructure such as offices, clinical facilities are available to facilitate delivery of the program.
9. *Equity of access*: Physical and cultural accessibility of service provision. Aboriginal people from rural and remote settings should have access to similar services to those that are available for people in non-remote setting. All services should be culturally appropriate.
10. *Partnership with relevant agencies and health providers*: Initiatives demonstrate a genuine partnership approach.

Many of these selection criteria demanded attention to the questions of unmet need (criteria 1, 2, 4, 5, 6) and a capacity to deliver (criteria 3, 7, 8, 9, 10), whereas no criterion explicitly addressed the question of effectiveness of the proposed intervention, and the consideration of cost in criterion 4 is limited to a general notion of 'good value for money'. Moreover, criterion 4 associates value for money with the avoidance of service duplication, which is more appropriately viewed as a facet of justifying unmet need, rather than using a cost-efficiency paradigm where cost differentials are considered for different service delivery options.

Despite the relative lack of justification on the grounds of cost-effectiveness contained in project proposals, the areas of health focus attracting WADoH investment have nevertheless performed well against evidence-based criteria applied separately by this review. One of the reasons may be the decisions by many service providers to follow external published guidelines (53.2% of projects; 72.9% of funds). As will be shown in section 5.3, external guidelines were more likely to be evidence-based than internal guidelines used by service providers.

Advisory Note 9: Evidence translation

The WADoH has an opportunity to strengthen considerably the role of evidence translation in the WA Aboriginal health sector. The relevant bodies of evidence, including Indigenous-specific evidence, have grown considerably since the 1990s and there is now little justification to ignore their existence.

'Research translation' has been defined as the process whereby knowledge is passed anywhere along the translational pathway; ie, research findings are translated into practice, policy or further research.[242] Here the term 'evidence translation' is used to denote a part of the translational pathway that is especially relevant to policy and practice development by a government health organisation and its service providers. It requires a commitment to examine systematic reviews and the other sources of knowledge demonstrated in section 3.1 of this report. The skills required to identify and process an evidence base to the point where inferences can be drawn to inform policy and practice are increasingly prevalent in the health workforce. Putting these skills to use should become the norm in this sector.

The OAH, in particular, should work with the PHCS, AHIU and NGOs to integrate cultural security and evidence translation into a strong, program-focussed policy and practice framework for the development, delivery and improved cost-effectiveness of WA Aboriginal programs into the future.

It should also become a normal expectation that proposals for funding should address all four domains where justification is required:

1. **Need**: Prior objective evidence that an unmet need exists for the proposed health intervention.
2. **Effectiveness**: Prior objective evidence of the effectiveness of the proposed intervention in meeting the unmet need and yielding a benefit in the service constituency.
3. **Cost**: Rational arguments as to why the cost of the proposed intervention is warranted by the potential benefit and that the proposed method of delivery is the most cost-efficient of the options available.
4. **Capacity**: Rational arguments as to why the service provider is the one best placed to deliver the proposed intervention in terms of location, expertise, infrastructure and acceptability to the service constituency and necessary partners.

[242] Davidson A. Translational research: what does it mean? *Anesthesiology* 2011; 115: 909-911.

4. Program Inputs Including Workforce

This section deals with term of reference (c) of the review:

c) Examine the resources currently provided within each of the programs to ensure the outcomes can be reached.

As foreshadowed under term of reference (a), and developed further under term of reference (d), there are a number of important and cost-effective program areas, notably those dealing with environmental health, smoking, nutrition and alcohol interventions, that are significantly under resourced relative to their priority for closing the gap. Other program areas, such as renal dialysis, are not cost-effective in closing the gap, but the potential to withdraw and re-allocate funds is limited by ethical constraints. In a small number of other instances, some services with a good potential to be cost-effective have not lived up to expectations due to operational failures.

On the basis of the individual evaluations of the selected 184 projects, the review has concluded that, as a general rule, a fair price was paid for what was purchased. It does not necessarily follow that a fair price was paid for what was actually delivered, such that depending on the performance of service providers, what was initially purchased at a fair price has subsequently proven to represent outstanding value for money or poor value for money. Each of the 184 selected projects (accounting for 88% of the funds under review) has been classified by the review as delivering poor, marginal, good, excellent or outstanding value for money. These evaluations are reported and explained in the next chapter of this report.

The review has interpreted term of reference (c) somewhat differently, with a focus directed towards the adequate deployment of resources documented in service agreements as the inputs needed to deliver the contracted outputs and, ultimately, the achievement of intended outcomes. Staffing costs and closely associated supports, such as costs of travel to service locations, made up the vast majority of the resource inputs within each project. The capacity to deliver was profoundly dependent on the availability, quality, locations and ethnic mix of this workforce.

4.1 Workforce capacity and development

The *Challenging Racism Project* reported in 2011 that 28% of Australians demonstrated racist attitudes towards Indigenous Australia; but also that 86% agreed that something should be done to combat racism in Australia.[243] For some years, the Australian Medical Association (AMA) has documented examples of institutionalised inequality within the health system in its *AMA Indigenous Health Report Cards,*[244] whereas other commentators have gone further to claim that the health system is institutionally racist, although whether or not this stronger language is appropriate is controversial.[245] As noted earlier in this report, in 2008, 11% of WA Aboriginal people aged 15 and

[243] Challenging Racism: the Anti-Racism Research Project. National Level Findings. Sydney: University of Western Sydney, 2011.

[244] Australian Medical Association. Institutionalised Inequity, Not Just a Matter of Money. Australian Medical Association Report Card Series. Canberra: Australian Medical Association, 2007.

[245] Henry BR, Houston S, Mooney GH. Institutional racism in Australian healthcare: a plea for decency. *Med J Aust* 2004; 180: 517-520; Awofeso N. Racism: a major impediment to optimal Indigenous health and health care in Australia. *Aust Indig Health Bull* 2011; 11: 1-13.

over reported problems accessing a doctor and 8% problems accessing hospitals.[246] Hospital discharge against medical advice provides indirect evidence of the extent to which hospital services are responsive to Aboriginal patients' needs. In 2008-10, 2.1% of WA Aboriginal inpatients discharged themselves against medical advice, a proportion six times higher than in non-Aboriginal inpatients. Numerous research reports have identified substantial disparities in accessibility and quality of mainstream health services experienced by Indigenous Australians compared with non-Indigenous Australians.[247]

Health workforce reform is seen as one of the main antidotes to institutionalised inequality in the health system. Thus both the NIRA and the CtGIHO National Partnership Agreement acknowledged that four high-level workforce policies were critical to closing the gap:[248]

1. Increasing the number of Indigenous people in targeted areas of the health workforce;
2. increasing the proportion of Indigenous people in mainstream areas of the health workforce;
3. ensuring the ongoing development and upskilling of the Indigenous health workforce; and
4. increasing the cultural competence of the mainstream health care workforce in general.

Only the first and third of these strategic policies fell within the scope of this review. As discussed earlier in this report, the employment of Aboriginal people is a means to help achieve Aboriginal health objectives. It must be a major strategic focus if health outcomes are to be improved. In this respect, as noted earlier, it was a welcome development that the instigation in WA of the CtGIHO projects alone caused the employment of an additional 317 personnel, of which 219 (69%) were Aboriginal people.[249] This represented a 1.3% increase in total Aboriginal employment in WA,[250] and a much larger proportional increase within the health system, where the WADoH, for example, presently employs some 490 Aboriginal people.[251]

The review is aware that the considerable increase in demand for Aboriginal staff during 2009 to 2012 caused an effective shortage in appropriately qualified and skilled Aboriginal people to fill what amounted to as many as 33 new positions in one health region alone. Many of the new positions were advertised with Aboriginality as an essential selection criteria, using the exemption to racial discrimination in employment available under s 50(d) of the *Equal Opportunity Act 1984* (WA).[252] Many programs were delayed in starting up due to these labour force dynamics, which resulted in tensions between different service providers as they competed for a limited number of suitable employees. This scramble to fill new positions, followed by a much greater need than

[246] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.

[247] Thomas DP, Anderson IP, Kelaher MA. Accessibility and quality of care received in emergency departments by Aboriginal and Torres Strait Islander people. *Aust Health Rev* 2008; 32:648-654; Cunningham J. Diagnostic and therapeutic procedures among Australian hospital patients identified as Indigenous. *Med J Aust* 2002; 176: 58-62; Coory MD, Walsh WF. Rates of percutaneous coronary interventions and bypass surgery after acute myocardial infarction in Indigenous patients. *Med J Aust* 2005; 82: 507-512; Hall SE, Bulsara CE, Bulsara MK, Leahy TG, Culbong MR, Hendrie D, Holman CDJ. Treatment patterns for cancer in Western Australia: does being Indigenous make a difference? *Med J Aust* 2004; 181: 191-194.

[248] Council of Australian Governments. *National Indigenous Reform Agreement (Closing the Gap*). Schedule G. Canberra: Council of Australian Governments, 2009; Council of Australian Governments. *National Partnership Agreement:* Closing the Gap in Indigenous Health Outcomes. Canberra: Council of Australian Governments, 2009.

[249] Information from 2012 provided by the Aboriginal Health Improvement Unit, WADoH.

[250] Australian Bureau of Statistics. Aboriginal and Torres Strait Islander People Indigenous Profile. Western Australia. Canberra: ABS, Cat.no. 2002.0, 2012.

[251] Information current at May 2014 provided by the Office of Aboriginal Health. WADoH.

[252] The Equal Opportunity Act 1984 (WA) s 50(d) provides an exemption to discrimination in employment on the basis of 'providing persons of a particular race with services for the purpose of promoting their welfare where those services can most effectively be provided by a person of the same race'.

usual for orientation and development of new staff, caused considerable delays in many of the projects getting off the ground during 2009-10 and 2010-11. This was especially the case among prevention and early intervention services. The review noted that by mid-2014, much of this imbalance between workforce supply and demand had worked its way through the system with a subsequent shift in the focus of service providers to the challenge of retaining staff in a problematic funding environment, more so than recruiting staff to new positions.

At the time of review, the average proportion of staff funded through the projects who were Aboriginal people was 61.1% (the average weighted by funding amounts was 58.2%). The average was highest in the North Metropolitan region (81.4%), South Metropolitan region (76.9%) and lowest in the South West (47.7%; see Table 19). However, the largest differences were observed by health focus (see Table 20). Prison health (92.9%) and patient liaison and transport (90.0%) had high levels of staff who were Aboriginal people, while primary medical care projects, which often required clinically qualified staff, had lower levels (36.2%).

Training and professional development was offered to staff in 86.6% of projects. Where training was offered and Aboriginal staff was employed, it was available to those staff in 100% of cases.

Table 19: **Average proportion of staff members who were Aboriginal people employed on 184 evaluated projects according to health region**

Health region	Number of evaluated projects	Average % of staff who were Aboriginal people
Kimberley	43	57.6
Pilbara	21	54.2
Midwest	21	56.0
Goldfields	25	68.2
Wheatbelt	7	51.4
Gt Southern	8	65.6
South West	9	47.7
Total country	**134**	**58.3**
N Metro	5	81.4
S Metro	14	76.9
Metro-wide	13	72.7
Total metro	**32**	**75.9**
Statewide	18	50.2
All regions	**184**	**61.1**

Table 20: **Average proportion of staff members who were Aboriginal people employed on 184 evaluated projects according to health focus**

Health focus	Number of evaluated projects	Average % of staff who were Aboriginal people
Environ. health	23	71.6
Smoking	10	68.0
Nutrition, phys. activ. & healthy lifestyles	2	0.0
Alcohol & drugs	4	47.2
Sexual health, STIs & BBVs	11	73.1
Antenatal care (+/- sexual health)	12	67.5
Alcohol in pregnancy	2	57.5
Birth to school entry (+/- antenatal)	16	53.1
Ear health	3	70.0
Dental health	1	0.0
Mental health [+/- (wo)men's health]	4	97.5
Youth health (+/- school health)	24	55.0
Prison health & community re-entry	7	92.9
Enhanced PMC, diabetes (+/- eyes), chron. dis. man.	34	36.2
Renal dialysis	4	63.3
Patient liaison & transport	19	90.0
Training & workforce	2	20.0
Capacity	5	46.6
Administration	1	100.0
All focus areas	**184**	**61.1**

4.2 Effects of funding cycles on program performance

Whilst the most acute challenges with workforce supply and development of requisite skills in new staff have run their course, the WA Aboriginal health sector remains highly vulnerable in its ability to sustain a workforce sufficiently equipped to deliver complex interventions in a complex service environment where success depends deeply on earning community trust through an enduring commitment. As a general rule, it takes approximately three years for a technically competent new employee to be productive in delivering results that go beyond mere service activity. The first year is typically consumed by learning about the dense web of influences and resources that make up the communities, elders, businesses, logistics, agencies, programs and government departments operating within a local area. The new worker spends the second year establishing partnerships, strengthening their own networks, engaging community and building trust. It is typically only by the third year that some prospects start to emerge of the 'new' worker making progress on program objectives within their service constituency.

It is unfortunate that despite apologies by Australian governments for past mistreatments, and bipartisan priority assigned by Australia's major political parties, time and time again Aboriginal people have been let down by ephemeral funding arrangements that do not provide for the necessary stability of workforce to achieve longer term health advances. There was no point of distress more sorely felt and more universally expressed by service providers to the review than this one. In what one respondent described as "trashing workforce dynamics", the review agrees that the provision of a single year of funding in 2013-14, followed by a further 7-12 months of funding in 2014-15, has been detrimental to the Aboriginal health sector. The problems have been exacerbated by the late formal notification of decisions on continuation of funding received by the NGOs, typically well after existing contracts have expired, placing some in the invidious position of operating illegally whilst technically insolvent or dismissing staff, who have become fully functional only with the passage of some years of investment, training and building trust with the community.

The adverse effects of stop-start funding include the following:

- The most talented staff members, in particular, seek and obtain more secure employment elsewhere.
- As uncertainties about the future of their employment mount towards the end of a funding cycle, staff members turn their attention to securing alternative employment. Whilst in quantitative terms there may be no change in service activity levels, many of these programs, and especially those concerned with prevention and early intervention, can be delivered either exceptionally well or very poorly depending entirely on qualitative factors which depend on the degree of commitment of the employee. This commitment needs to be reciprocated by funders if quality is to be maintained.
- Failure to provide staff with job security 'on paper', often excludes them from bank finance and other supports that would enable them to make a long-term personal commitment to a local area.
- When existing staff leave for want of security, advertising the vacant position as a very short-term contract does not attract the best possible field of applicants, if any at all.

Not surprisingly, therefore, in applying the 'maintenance' dimension of the RE-AIM evaluation tool,[253] the review found that only in 19% of 184 evaluated projects was there evidence that staff could be replaced without a significant loss of functional capacity, whereas in 35.3% of projects, the sustainability of the workforce as it stood was found to be quite weak (see Tables 21-22). This maintenance factor did not apply to 17.9% of projects; for example, where services were delivered using a horizontal, multi-purpose structure with capacity for multi-tasking by staff. Surprisingly, the review found that vulnerability of the 184 evaluated projects to loss of workforce was generally greater in metropolitan Perth than in the country regions, albeit that among the country regions, the most vulnerable areas were the Pilbara and the Kimberley. A possible explanation for this pattern of results arises from the distribution of alternative employment opportunities across the State. The Kimberley and Pilbara, in particular, are affected also by a shortage of affordable housing.

Table 21: **Distribution of the 184 evaluated projects according to sustainability of workforce under current funding arrangements**

Maintenance factor	% of 184 projects			
	Not applicable	Strong	Moderate	Weak
Workforce sustainability	17.9	19.0	27.7	35.3

Table 22: **Proportion of 184 evaluated projects with weak workforce sustainability according to health region**

Health region	Number of evaluated projects	% of projects with weak workforce sustainability
Kimberley	43	37.2
Pilbara	21	42.9
Midwest	21	23.8
Goldfields	25	28.0
Wheatbelt	7	28.6
Gt Southern	8	12.5
South West	9	22.2
Total country	**134**	**31.3**
N Metro	5	80.0
S Metro	14	35.7
Metro-wide	13	46.2
Total metro	**32**	**46.9**
Statewide	18	44.4
All regions	**184**	**35.3**

[253] Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health* 1999; 89: 1322-1327.

The following advisory note responds to the findings in this chapter:

Advisory note 10: An Aboriginal health guarantee

The single most important recommendation of this review is that in return for a stronger commitment to a results-based performance framework, the WA Government guarantees that the minimum term of a service agreement within the WA Aboriginal health sector is three years with an automatic extension for a further three months if the WA Government does not offer in writing a renewal of funding prior to the end of the agreement.

This guarantee alone, in the review's opinion, will further lift the level of performance of the Aboriginal health sector to a substantially higher level through certainty of funding contingent on good performance. The following advice is additionally offered to supplement this recommendation:

- **Universality**: The guarantee should apply to all forms of agreement, including internal MoUs to fund designated Aboriginal health activities.
- **Five-year term possible**: The recommended three-year guarantee is a minimum. Projects that are performing well should be offered agreements for a term of up to five years.
- **Staggered terms**: It is desirable for terms of the next set of agreements be staggered from three to five years initially, to spread the workload associated with renewing agreements.
- **Closedown extension**: The automatic extension of three months failing a written offer to renew is needed to help ensure that staff members continue to be productive for the entire minimum term of three years, knowing that there are three months within which to find alternative employment should there be no renewal of the agreement.
- **Start-up period**: Realistically, for a new project, development milestones and activity levels, rather than results *per se*, should suffice for the first and second years or work. The performance of ongoing projects or new projects in their third or subsequent years should be assessed on the basis of hard results.
- **Standards enforced**: Agreements under this proposal should strengthen the capacity of the WADoH to withdraw funding prior to the expiration of three years should negotiated results or outputs fail to be delivered. A distinction should be drawn between the obligation to deliver a normal performance and a minimum level of performance below which an agreement becomes terminated. This cause of termination should be written into the agreement such that in addition to certainty of a continuation of funding for good performance, there is also certainty of de-funding if the agreed minimum performance is not achieved.
- **Re-negotiation**: It should be possible for the WADoH to renegotiate the terms for a failed agreement in an area of high need for the residual of the terms that would have otherwise applied, but under much stricter conditions of reporting and performance monitoring.
- **Use of 1-2 year grants**: Where a service innovation is to be trialled, a once-off service is required, or there is the need for a short-term (eg, 1-2 years) contracted arrangement to respond to an urgent contingency, the Department should negotiate a grant arrangement with much reduced reporting requirements compared with a service agreement. At any one time, short-term grants should comprise no more than 10% of total WADoH funds available to the Aboriginal health sector.

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5. Program Delivery and Value for Money

This section deals with term of reference (d) of the review:

d) Review the effectiveness and value-for-money of individual programs.

5.1 Independent evaluations of value for money of 184 projects

This chapter addresses the third big question for this review: *Does adequate performance exist on the ground to deliver effective interventions to the correct target populations at reasonable prices?*

Value for money delivered by each of the 184 individually evaluated projects was determined using a combination of up to five inter-related considerations:

1. The ***contribution to the gap in life expectancy*** made by the health focus addressed by the intervention.
2. The ***grade of prior evidence*** that the intervention undertaken by the project could be effective as assessed using strict NHMRC criteria supplemented by additional qualitative information (see chapter 3).[254]
3. The ***potential for cost-effectiveness*** of the intervention as assessed by the Australian ACE-Prevention Study or, alternatively, the review's assessment of the potential effectiveness relative to the cost of the project.[255]
4. The review team's ***project audit review score***, concerning the adequacy of project outputs compared with contracted obligations.
5. The ***actual performance of the intervention*** as assessed using components drawn from the RE-AIM (reach, effectiveness, adoption, implementation, maintenance) and GPE (graduated project evaluation) systems.[256]

For the 173 intervention projects, all five of these considerations were brought into play in arriving at an overall assessment of value for money. Of necessity, the extent of the evaluation was more limited for the remaining 11 training, capacity and administration projects. In those instances, the cost of the project was considered relative to the review's assessment of the need of the Aboriginal health sector for the contracted supports, together with the review team's project audit review score. In all instances, whilst the inputs to the classification of value for money were extensive and as objective as possible, it must be accepted that the final overall assessment involved an informed and independent judgment by the review.

[254] NHMRC Additional Levels of Evidence and Grades for Recommendations For Developers of Guidelines. Canberra: NHMRC, 2009; Daly J, Willis K, Small R, Green J, Welch N, Kealy M, Hughes E. A hierarchy of evidence for assessing qualitative health research. *J Clin Epidemiol* 2007; 60: 43-49.

[255] Vos T, Carter R, Barendregt J, Mihalopoulos C, Veerman L, Magnus A, Cobiac L, Bertram M, Wallace A. Assessing Cost-Effectiveness in Prevention (ACE–Prevention): Final Report. Melbourne: University of Queensland, Brisbane and Deakin University, 2010.

[256] Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health* 1999; 89: 1322-1327; Holman CDJ, Donovan RJ. Evaluating projects funded by the Western Australian Health Promotion Foundation: a systematic approach. *Health Prom Int* 1993; 8: 199-208.

The project audit scores used in this analysis had three possible values. Projects scored as 1 were assessed as delivering on contracted obligations to an optimal level. Projects scored as 2 were assessed as satisfactory, but would benefit from some remodelling to ensure optimal delivery. Projects scored as 3 were assessed as inadequately delivering on contracted obligations.

The overall assessment of a project's value for money made use of a scale of five ordinal categories: poor; marginal, good, excellent and outstanding. As a guide, the review interpreted a classification of 'poor value for money' as meaning that the project had delivered less than 65% of the value that could have been derived if the funds had been applied to other cost-effective priorities in the WA health system, including those in Aboriginal health. 'Good value for money' was taken to mean that the value was on par with the use of the funds for other cost-effective health priorities; and 'outstanding value for money' meant that the project delivered 150+% of what value could be derived elsewhere; in other words, the project exceeded its opportunity costs by at least 50%.

These were demanding criteria used in the overall assessment of value for money and the review surmises that many other areas of health services investment, and especially those protected by the dilemma of immediate rescue ethics or the influence of powerful interest groups, would struggle to perform well using this framework. The reason why this method of evaluation was a demanding one was because there were multiple chances for failure. A project was at risk of delivering poor value for money because the health focus made little or no contribution to the gap in life expectancy; because the evidence base was too weak; because the cost was inherently too high; or because the management of the service was flawed. Moreover, even for a project with a strong evidence base, low cost structure and perfect delivery according to the contract, failure was still possible using the RE-AIM/GPE system due to adverse local contextual issues beyond the control of the service provider.

The review would like to emphasise that only 184 out of 401 projects were selected for this rigorous level of assessment, albeit that the selected projects represented 88% ($371.8 million / $420.6 million) of the total funding under review and 93% ($84.7 million / 90.7 million) of the funds in 2014-15.

Table 23 shows the distribution of the 184 projects according to value for money. The vast majority of projects (91.3% representing 88.1% of funds) delivered good, excellent or outstanding value for money. Around one in seven projects was outstanding (13.6%), whereas only 1 in 37 delivered poor value for money (2.7%).

Table 23: **Distributions of the 184 evaluated projects and associated $371.8 million in funding according to overall value for money**

Basis for distribution	Value for money				
	Poor	Marginal	Good	Excellent	Outstanding
% of 184 projects	2.7	6.0	56.5	21.2	13.6
% of $371.8 million	8.8	3.1	58.4	17.7	12.0

Most projects in most areas of health focus were associated with at least a good level of performance against value for money criteria (see Table 24). Typically there was either no project registering marginal or poor performance or, at most, just 1-3 such projects out of the 11-24 that

were assessed. However, there were three notable exceptions where poor or marginal value for money was the modal result. It was impossible for the single dental project to achieve good value for money due to the lack of measurable contribution of dental health to closing the gap in life expectancy. In the case of renal dialysis, the poor cost-effectiveness of the intervention as a means of generating disability-free life years precluded any of the four projects achieving good value for money. Prison health was handicapped by a different issue. The predominant reason why only two of the seven prison health projects achieved good value for money involved difficulties in service delivery. This was evident from the difference in the project audit review scores. The four renal dialysis projects achieved a mean audit score of 1.75, whereas the seven prison health projects achieved only 2.29. Put succinctly, renal dialysis always failed to deliver good value for money for economic reasons, whereas prison health often failed for operational reasons.

Table 24: **Proportion of 184 evaluated projects delivering good, excellent or outstanding value for money according to health focus**

Health focus	Number of evaluated projects	% of projects delivering good, excellent or outstanding value for money
Environ. health	23	100.0
Smoking	10	100.0
Nutrition, phys. activ. & healthy lifestyles	2	100.0
Alcohol & drugs	4	100.0
Sexual health, STIs & BBVs	11	90.9
Antenatal care (+/- sexual health)	12	91.7
Alcohol in pregnancy	2	100.0
Birth to school entry (+/- antenatal)	16	100.0
Ear health	3	100.0
Dental health	1	0.0
Mental health [+/- (wo)men's health]	4	100.0
Youth health (+/- school health)	24	87.5
Prison health & community re-entry	7	28.6
Enhanced PMC, diabetes (+/- eyes), chron. dis. man.	34	100.0
Renal dialysis	4	0.0
Patient liaison & transport	19	94.7
Training & workforce	2	100.0
Capacity	5	100.0
Administration	1	100.0
All focus areas	**184**	**91.3**

Variations in level of value for money of projects across different regions were explained mostly by the regional distributions of renal dialysis and prison health projects (see Table 25). There were no projects with either of these health foci in metropolitan Perth, thus helping to explain the good showing of metropolitan projects against value for money criteria.

Table 25: **Proportion of 184 evaluated projects delivering good, excellent or outstanding value for money according to health region**

Health region	Number of evaluated projects	% of projects delivering good, excellent or outstanding value for money
Kimberley	43	93.0
Pilbara	21	95.2
Midwest	21	85.7
Goldfields	25	92.0
Wheatbelt	7	85.7
Gt Southern	8	75.0
South West	9	77.8
Total country	**134**	**89.6**
N Metro	5	100.0
S Metro	14	100.0
Metro-wide	13	100.0
Total metro	**32**	**100.0**
Statewide	18	88.9
All regions	**184**	**91.3**

5.2 Comparisons of independent and in-house evaluations

An issue for this review was whether past efforts conducted in-house by the WADoH to evaluate projects funded within the Aboriginal health sector had yielded a valid reflection of performance. As explained above in section 5.1, the review team assigned a project audit review score to each of the 184 individually evaluated projects. The score was based entirely on performance relative to contractual requirements and, essentially, a score of 1 indicated optimal performance; a score of 2 denoted satisfactory performance, albeit not optimal; and a score of 3 meant that the performance was inadequate.

As shown in Table 26, around one third of the 184 individual evaluated projects were found at the time of the site visit to be performing in an optimal manner against contractual requirements and another one half were performing at a satisfactory level. The net result was that just 9.1% of the funds were invested in projects where performance departed from a satisfactory standard.

Table 26: **Distributions of the 184 evaluated projects and associated $371.8 million in funding according to project audit review score**

Basis for distribution	Project audit review score		
	3 (inadequate)	2 (satisfactory)	1 (optimal)
% of 184 projects	15.8	52.2	32.1
% of $371.8 million	9.1	60.1	30.8

These assessments were made at a point of time and did not necessarily reflect the past levels of contractual performance of the projects. Thus for this purpose, the review ignored any information to suggest that the project had previously performed at a different level. Sometimes these temporal changes were correlated with a turnover of staff within the project or a change in the working relationship with an essential partner agency.

The WADoH had undertaken two earlier forms of project evaluation that were relevant to this review. The first was leading up to the development of the FBH strategy document and business case during 2013, when the AHIU had undertaken an internal retrospective evaluation of all projects contracted to NGOs, regardless of the sources of funding, to assess their levels of performance. A three-point scale was employed by the AHIU with meanings of the three levels very similar to those used by this review team. There were 120 of the 184 selected projects that had both a 'FBH score' and an 'independent score', the latter being the score assigned by the review team. Table 27 compares these in-house and independent scores based on the 120 projects where both were available.

Table 27: **Comparison of independent review team scores and in-house FBH scores assigned to 120 out-sourced projects**

Numbers of pairs of ratings (% of 120)		Independent review team score		
		3	2	1
In-house FBH score	**3**	1 (0.8%)	4 (3.3%)	2 (1.7%)
	2	8 (6.7%)	33 (27.5%)	25 (20.8%)
	1	6 (5.0%)	29 (24.2%)	12 (10.0%)

There was perfect agreement between the FBH score and the independent score in 46 (38.3%) projects and agreement was achieved within one point of difference in 112 (93.3%). Cohen's kappa is a statistic that measures the proportion of agreement between two raters over and above the level of agreement that would be expected by chance. It is a demanding statistic, especially in scenarios such as this one where the number of categories is small and there is a tendency for assessments to cluster in a modal category. Here, in fact, kappa = -0.095 (p=0.191), suggesting that there was a small systematic tendency for some disagreement between the two sets of ratings, although that difference was consistent with a chance variation. A paired sample t-test of the mean independent scores and mean FBH scores (1.80 vs 1.67) indicated that the review team, on average, attributed somewhat less favourable ratings to projects, although this difference was not statistically significant.

The second source of in-house evaluation data arose also from the AHIU, but had a different scope and somewhat different method of scoring. In this second instance the evaluation covered all projects, whether outsourced to NGOs or delivered by WADoH regional units, that were supported using CtGIHO or IECD funds. The AHIU had assessed each project following the submission of every six monthly service activity report and assigned a score of 1 to 3. Although the scoring system categories were similar to those described above (excellent; satisfactory; limited progress), the order of meaning was reversed with a score of 1 being least favourable. However, to avoid confusion, the review transposed these scores so that they progressed in the same direction as those used by the review team; ie, with 1 as the most favourable score. The most recent AHIU report score was used in the present analysis with the final score being a rounded average across three different AHIU raters. There were 121 projects that had a 'report score' from AHIU and also an independent score' assigned by the review team (see Table 28).

Table 28: **Comparison of independent review team scores and in-house report scores assigned to 121 CtGIHO and IECD projects**

Numbers of pairs of ratings (% of 121)		Independent review team score		
		3	2	1
In-house report score	3	10 (8.3%)	6 (5.0%)	1 (0.8%)
	2	13 (10.7%)	51 (42.1%)	31 (25.6%)
	1	1 (0.8%)	3 (2.5%)	5 (4.1%)

In this instance there was perfect agreement on 66 (54.5%) projects and agreement within one point on 119 (98.3%). The kappa statistic = 0.188 (p=0.001) was consistent with a mild tendency for the two sets of scores to agree beyond what would be expected merely by change. A paired sample t-test of the mean independent scores and mean report scores (1.87 vs 2.07; p=0.007) indicated that the review team, on average, attributed more favourable scores to projects.

Taken as a whole, these results indicate that whilst the independent review team scores were slightly less favourable than the in-house FBH scores, the difference was of no practical significance and was easily explained by chance variation. The independent review team scores were generally more favourable than the recent in-house report scores assigned by the AHIU. The main reason for this was a greater tendency of the review team to employ the full range of the scoring system and, in particular, to place more projects in the excellent/optimal category of performance.

The assessment category by the AHIU was included in a feedback letter to service providers following receipt of their service activity reports. Thus a possible factor in the reluctance to classify projects as 'excellent' was because of potential difficulties in administration if funding was to be subsequently withdrawn for reasons other than poor performance. Another possible factor was the possibility that service providers might become complacent if told that their existing performance was 'excellent'. The review became aware that at least one service provider achieving results of undeniable outstanding value for money was offended to receive a letter informing the agency that their performance had been merely 'satisfactory'. A third possible factor was that the review had information from the RE-AIM evaluation system, which had not been available to the AHIU.

5.3 RE-AIM evaluations of 173 intervention projects

One of the five considerations used to assess the overall value for money achieved by the 184 evaluated projects was the RE-AIM framework.[257] This section of the report provides additional details about the results from applying this evaluation tool. The relevant information was obtained from service activity reports, responses to questions during field interviews and from additional documentation volunteered by service providers often in the form of in-house or published reports about their activities and results. In the overview that follows, the commentaries on reach and effectiveness applied only to the 173 intervention projects; whereas the commentaries on adoption, implementation and maintenance applied to all 184 selected projects

Reach

Reach was a measure of participation. One third (35.1%) of intervention projects targeted all Aboriginal people in a geographic area. One in seven projects (15.1%) specifically targeted patients with established clinical conditions and a further one in seven projects (15.1%) was targeted specifically at Aboriginal youth. However, while most projects had an articulated target population, only one half (53.2%) had a measure that quantified the size of target population and even less (45.1%) quantified the reach as a proportion of the target population. Of projects that had a known measurement the average reach was 73.6%, a level of population coverage that the review regards as a solid performance. Average reach tended to be highest in environmental health projects (100%), primary medical care projects (76.9%) and patient liaison projects (76.2%).

Effectiveness

In the context of the RE-AIM framework, effectiveness was an empirical rather than theoretical concept, because it referred to evaluations of the actual project that had demonstrated some form of improvement in health or risk profile within the target population. Well over four in ten intervention projects (45.1%) were able to demonstrate results such as these, which went beyond service activity. This was twice the number of projects that were contractually obliged to report at least some results. Of those projects that had evaluation results, one quarter (25.6%) had been measured independently from the service provider, usually through the work of a university-based group or consultant. Chronic disease management projects (85.7%) and primary medical care projects (78.3%) were most likely to be able to demonstrate evaluation results with patient liaison (11.8%), environmental health (13.0%) and prison health (14.3%) being the least likely.

Adoption

Adoption was interpreted in this context as being appropriate for the local conditions, including engagement of Aboriginal staff and the provision of training. These results were covered previously in section 4.1 of the report, but are summarised again here for the sake of completeness. The average proportion of staff funded through the projects who were Aboriginal people was 61.1% (the average weighted by funding amounts was 58.2%). The average was highest in the North and South Metropolitan regions (81.4% and 76.9%) and lowest in the South West (47.7%). However, the largest differences were observed by health focus. Prison health (92.9%) and patient liaison and transport (90.0%) had high levels of staff who were Aboriginal

[257] Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health* 1999; 89(9): 1322-1327.

people, while primary medical care projects, which often required clinically qualified staff, had lower levels (36.2%). Training and professional development was offered to staff in 86.6% of projects. Where training was offered and Aboriginal staff members were employed, it was available to those staff in 100% of cases.

Implementation

Implementation referred to the extent to which a program was delivered as it was intended to be. Almost three quarters of projects (73.4%) followed some form of guidelines, with the majority of these (75.1%) being external published guidelines and the remainder internal guidelines. External published guidelines were more likely to be evidence-based than internal guidelines (80.8% compared with 36.6%; $p<0.05$). Efforts to comply with the guidelines ranged from relying on the individuals' professionalism (rated weak; 10.4%) to some form of internal oversight including reporting and meetings (rated moderate; 45.9%) to a comprehensive review, audit or accreditation process (rated strong; 39.3%).

Maintenance

Maintenance referred to the long-term sustainability of the project. Just over one third of projects (35.9%) were assessed as 'horizontal', reflecting integration of the project into the broader organisation (as opposed to being a stand-alone project or 'vertical'). Primary medical care projects were particularly likely to be integrated (95.7%), while patient liaison (5.9%) and smoking (10.0%) projects were least likely. With regard to workforce sustainability, 35.3% of projects were rated as 'weak' or particularly vulnerable to critical staff losses. Comparisons across regions indicated that the North Metropolitan (80%), Kimberley (46.2%) and Pilbara (42.9) regions were the most at risk. Projects with a health focus on patient liaison (58.9%), prison health (57.1%) and smoking (50.0%) were also particularly susceptible. Partnerships with other organisations that were essential for the delivery of effective outcomes were also considered to be an area of risk for long-term sustainability, if not properly managed. A significant proportion of projects (68.5%) had essential partnerships, however of these, only 11.9% were based on a weak foundation (eg, personal ties or a historical relationship), whilst 37.3% had MoU's or other contractual agreements in place to protect the partnership.

In summary, the majority of projects performed well when judged against RE-AIM criteria. Points of strength were that one half of the intervention projects had evaluated their results, even though only half of these were contractually obliged to do so. The majority of staff members were Aboriginal people and service providers had made a conspicuous effort to provide them and non-Aboriginal staff members with training and developmental opportunities. Most projects followed written guidelines and most had defensible quality assurance mechanisms to ensure that they were followed. Essential partnerships were well recognised and most had taken steps to reduce the risks of partnership failures.

Among the observed weaknesses, it was apparent that population-based thinking about local target populations for interventions, how to reach them, and how to measure that reach, needed to improve. For example, the review was surprised how many antenatal care service providers were unaware of how many births per annum occurred in their service area in the previous year and thus what percentage of these received their services, albeit they knew the number of pregnant women that they had attended. A second area of weakness was in the vulnerability of too many projects to the risks of staff turnover due to funding uncertainties.

5.4 Reallocation of resources and re-orientation of programs

The outcomes of this review have provided the rationale for some reallocation of resources between programs, as well as important enhancements by way for re-orientation of a number of programs that are already successful, but are capable of performing at higher levels into the future.

Among the reasons for the generally good to outstanding value for money achieved by the 184 selected projects were past decisions taken to withdraw funds from service agreements where performance had not been consistent with contractual obligations. Between 2010 and 2014, through the AHIU's contract management and performance reporting process, a number of projects were identified as achieving limited progress or insufficient value for money. This was addressed using one of the following options depending on the reason for the poor performance:

(a) Projects that were performing poorly due to resolvable issues such as project design or workforce were reconfigured and re-designed to improve service performance. This sometimes meant that the funding stayed with the same organisation and at other times it was redirected to another regional organisation.

(b) Some organisations voluntarily relinquished the funding to be put back into the regional pool of funds for redistribution.

(c) The WADoH declined to renew the service agreement.

A total of 22 historical projects were discontinued in this way: six projects in prison health; four in primary medical care; three in capacity; two each in smoking and patient liaison; and one each in alcohol, youth health, mental health, antenatal care and training. The projects remaining on foot by the time of the review were the healthy survivors of this vetting process and it was to be expected that their overall operational performance would be better than average. In a sense, some of the work of this review had already been done. Even so, the review found that with the exception of the two prison health projects in the Kimberley, the surviving projects concerned with prison health were of poor to marginal value for money based mostly on operational concerns.

It is also worth pointing out that the review's conclusion that the 184 selected projects were generally of good to outstanding value for money was apparently shared by other independent evaluators. No fewer than 36 of them (19.6%) had received public recognition in the form of a competitive WA State or national prize or award for excellence. In the case of the 25 projects rated by the review as achieving outstanding value for money, nine (36%) of these had won an award. Some projects had been recognised by multiple awards.

Reallocation of resources

The combination of several strands of evaluation in this review enabled conclusions to be reached about future levels of financial support of WA Aboriginal health programs by the WADoH. Decisions about future support for a health focus area should be guided by the four criteria of: (i) need, (ii) effectiveness, (iii) cost and (iv) capacity. These are the same four criteria used in the review's evaluations of the proposals that led to the funding of individual projects. However, here they are applied to entire areas of health focus, and costs together with capacity have been combined into a general empirical criterion of value for money. Thus the sources of information used to arrive at the conclusions set out in Table 29 have been: priority of need (based on section 2.2); evidence of effectiveness (based on section 3.1); and value for money (based on section 5.1).

Table 29: **Assessment of health focus areas in the Aboriginal health sector funded by the WADoH with implications for resource allocation reform**

Health focus	Criteria			Advisory Note 11: Resource allocation reform	
	Priority of need	Evidence of effectiveness	Value for money	Existing % for 2014-15	Better % distribution
Environ. health	Under-allocated	C	All good to outstanding	7.9	13.0 (including food security)
Smoking	Under-allocated	B	All good to outstanding	2.3	6.0
Nutrition, phys. activ. & healthy lifestyles	Grossly under-allocated	C	All good to outstanding	0.9	6.0 (food security with environ. health)
Alcohol & drugs	Grossly under-allocated	B	All good to outstanding	1.9	9.0
Sexual health, STIs & BBVs	Appropriately allocated	C (qual B)	Mostly (>90%) good to outstanding	1.6	2.0
Road trauma	Grossly Under-allocated	NA	NA	0.0	Include with alcohol & drugs (see s 2.3)
Other injury	Grossly Under-allocated	NA	NA	0.0	Include with alcohol & drugs (see s 2.3)
Antenatal care (+/- sexual health)	Appropriately allocated	B	Mostly (>90%) good to outstanding	4.7	4.0
Alcohol in pregnancy	Appropriately allocated	B	All good to outstanding	0.6	1.0
Birth to school entry (+/- antenatal)	Appropriately allocated Move upstream	C	All good to outstanding	7.8	6.0
Ear health	Appropriately allocated	B	All good to outstanding	2.5	3.0
Dental health	Over-allocated Ethical dilemma	NA	NA	0.3	Return to mainstream funding (see s 2.3)
Mental health [+/- (wo)men's health]	Appropriately allocated	D (qual C)	All good to outstanding	1.1	1.0
Youth health (+/- school health)	Appropriately allocated	C (qual B)	Mostly (>85%) good to outstanding	6.7	7.0
Prison health & community re-entry	Appropriately allocated Move upstream	C	Mostly (>70%) poor to marginal	1.9	Include with alcohol, drugs & PMC
Enhanced PMC, diabetes (+/- eyes), chron. dis. man.	Appropriately allocated Move upstream	A/B	All good to outstanding	36.3	33.0
Renal dialysis	Over-allocated Ethical dilemma	C (qual A)	All poor	14.2	Return to mainstream funding (see s 2.3)
Patient liaison & transport	Somewhat over-allocated Ethical dilemma	C (qual B)	Mostly (>90%) good to outstanding	9.1	9.0

The review is satisfied that the current proportional investment in the infrastructure programs of training and workforce (0.8%), capacity building (1.9%) and central administration (4.5%) are appropriate. Thus the summary in Table 29 pertains only to programs that are interventions and the column percentages exclude infrastructure and add to 100% save for rounding error. Nested within Table 29 is Advisory Note 11 on resource allocation reform.

Re-orientation of programs

Many respondents have underlined that they would prefer to see a significant quantum of resources moved further upstream in the intervention continuum, particularly to the areas of environmental health and risk factor reductions related to nutrition, alcohol and smoking, so as to achieve sustainable advances more so than reactive treatment responses. However, there is also a need for a degree of re-orientation of these important programs to strengthen further their prospects for success. This is covered in the following advisory notes:

Advisory Note 12: Re-orientation of Aboriginal environmental health interventions

Environmental health is a major priority that must be addressed with greater intensity if improvements in Aboriginal life expectancy are to be achieved. The necessary major strategic directions include the following:

- The share of funding should increase from an existing 7.9% to a more appropriate 13%; at least an additional $3 million pa of sustained funding is required.
- The program should continue to focus on the Kimberley, Pilbara, Midwest and Goldfields. It should continue to be led and coordinated by the PHCS division.
- The four highest local priority areas for use of increased funds are the East Pilbara (Western desert); Carnarvon and Gascoyne; Kununurra and Wyndham; and the Kutjungka areas.
- Additional funds should be used to:
  - (i) complete an adequate hub and spoke service network in each region, mostly by employment of additional Aboriginal environmental health practitioners in communities;
  - (ii) increase significantly the level of educational activities around household and personal hygiene, upper respiratory care and hand washing to prevent infectious diseases; and
  - (iii) provide, upgrade and replace essential equipment and vehicles required for the performance of the contracted services.
- A larger network of local Aboriginal environmental health practitioners must be supported by an increased frequency of oversight and support from a regional hub, combined with an increased frequency of team-based services, such as dog health, community clean-up and major infrastructure maintenance, that require specialised skills or large equipment.
- The program should be further strengthened in the following ways: (i) more adequate representation and attention to planning and evaluation at the relevant regional Aboriginal health planning forums; (ii) greater sharing of clinical health information to initiate environmental health responses both at the community and individual household levels, the latter by use of a client-consented referral system; and (iii) greater use of community and household assessment tools and action plans with reporting on completions as program results.
- Food security focussing on the monitoring of restrictive (eg, differential pricing and bans on heavily sugared drinks and sweets) as well as food access policies in remote community stores in collaboration with nutrition education provided through the separately funded nutrition program.

There is a strong base of support for the view that the environmental health program is effective in remote Aboriginal communities, but is under-funded. The review is in no doubt that further cost-effective returns can be gained by ensuring that all of the larger remote communities have a consistent environmental health service covering water supply, sewerage and waste management, hazard removal (car bodies, fire, cyclone and other injury hazards), dog control, mosquito control and greening projects to provide lawns with shade to suppress dust and provide recreational areas for children.

Advisory Note 13: Re-orientation of Aboriginal nutrition, smoking and alcohol interventions

Behavioural risk factor reduction programs are the second major priority that must be addressed with greater intensity if improvements in Aboriginal life expectancy are to be achieved. The necessary major strategic directions include the following:

- The shares of funding should increase from 0.9% to 6% (nutrition), 2.3% to 6% (smoking), 1.9% to 9% (alcohol) and 0.6 to 1% (alcohol in pregnancy); at least an additional $5 million pa of sustained funding is required.
- The programs should be planned and evaluated on a statewide, regional and local basis. There should be a statewide framework with minimum standards (analogous to the OAH draft *WA Aboriginal Health and Well-Being Framework*, but enhanced by a higher level of evidence translation to complement strong culture with strong science) and regional and local improvisations to adapt the statewide framework to local conditions.
- It is essential that behavioural risk factor interventions target adults as well as children. They must reach the entire population.
- It is essential that behavioural risk factor interventions adopt a 'comprehensive approach', which includes regulatory, technical, educational, structural and participative strategies. Approaches that rely on one strategy in isolation, such as community alcohol restrictions (regulatory), smoking cessation therapy (technical), school education (educational), a community store pricing policy (structural) or community action groups (participative) are prone to failure either immediately or in the longer term, as interests that are adverse to health (sly-grogging, for example) develop resistance to the single mode of service.
- Inclusion of well-funded statewide and regional media-based mass communication strategies (TV, radio, cinema, and social media) is essential.
- Smoking structural elements should include that all NGOs receiving WADoH Aboriginal health funding must have a smoke-free workplace policy or a phased plan to implement such a policy with smoking cessation therapies offered to staff.
- Nutritional structural elements should include use of sponsorship to purchase healthy community store policies. The WA Health Promotion Foundation should be asked to assist due to their expertise in sponsorship and success with healthy school canteens.
- Further development of the population-based behavioural intervention knowledge and skills of the relevant Aboriginal health workforce is essential.
- Mainstream statewide organisations with expertise in population-based behavioural interventions, such as the National Heart Foundation, Cancer Council and the Drug and Alcohol Office should be engaged to provide training programs (analogous to the successful sexual health worker training program run by Sexual and Reproductive Health WA) and to partner with the ACCHOs to transfer knowledge and skills, especially in areas such as mass communication strategies and campaigns.

There is a contention in some quarters that Aboriginal health promotion efforts, and especially health education, must be fundamentally different from approaches used elsewhere. The review rejects this assertion, both on the basis of published evidence to the contrary and the success of campaigns in WA that have applied behavioural change theories to Aboriginal health issues, examples being the *Strong Spirit, Strong Mind* and *Strong Spirit, Strong Future* campaigns run by the Drug and Alcohol Office. The myth that public media are not an effective method of health education for Aboriginal people should be put aside. As with any market segment, communication strategies for mass education can be optimised for that segment using appropriate symbols, language, visual images and characters. Some existing projects have made inroads into this important form of media work, but to date resources have been grossly inadequate relative to the priority.

Where existing behavioural risk interventions have struggled, the review has ascribed the problem to a shortfall in expertise or lack of a comprehensive approach or, in most cases, to both of these deficiencies. There has been an over reliance on a cottage industry style of community engagement in events and workshops with relatively little use of mass communication strategies and advocacy to achieve structural reforms. The typical project that could perform at a much higher level is one that involves a single educator, working in isolation from those in other districts of the same region and without an effective overarching mass communications strategy and region-wide approach to healthy public policy. There appears to be little appreciation of the influence of mass communication on local community leaders and decision-makers, which can change the environment and thus behaviours in the population.

A comprehensive approach is one that pays attention to all of the five complementary modes of intervention; ie, regulatory, technical, educational, structural and participative strategies. In some instances, too much reliance has been placed on just one major mode of intervention. For example, enforcing a dry community policy (a regulatory strategy) is known to be a highly effective short to medium term intervention, but in the longer term is now coming under pressure due to the growth in sly-grogging and internet sales. The time bought by the restrictions on access should have been used to implement a more comprehensive approach with mass educational and community participative strategies, such as engagement of local community members to identify ‘sly groggers’ to police through an anonymous call line. Into the future it will be essential that increased efforts to secure better food security through healthy community stores be combined with education in a comprehensive approach.

The likely need for a comprehensive approach seems to fly in the face of the trend towards service provision through multiple small NGOs. Different components of the comprehensive approach need to be organised at different levels in the system. Moreover, it is difficult for small NGOs to recruit a single staff member with all the skills needed to conduct a comprehensive approach to health advancement. This further underlines the need for behavioural risk factor intervention programs to have strong statewide as well as region-wide components.

Even with the additional investments in primary prevention outlined above, environmental health, nutrition, smoking and alcohol interventions will still be under-funded relative to their level of priority. However, it would be better to increase the resources to these areas gradually within a context of careful, evidence-based planning and implementation and at a pace that the sector can accommodate in an orderly manner.

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6. Multiplicities of Funders and Services Providers

This section deals with term of reference (e) of the review:

e) Examine the working relationships of each of the State government funded Aboriginal health programs to ensure there is no duplication or overlap with other programs being delivered in the same community.

Duplication within the WA Aboriginal health sector

The review is aware of concerns over the possibility of waste of public funds within the WA Aboriginal health sector. The term 'duplication' is often raised without necessarily defining what is meant. There are several possible meanings of the term, including the following:

- ***(Fraudulent) duplication of funding***: This could occur where an unscrupulous service provider solicits and receives multiple quanta of funds, each sufficient and intended to support a single set of service activities in their entirety, when only one such quantum of funds is required. One would expect the fraud to be hidden by inadequate disclosure of the role of each funder to the other and for criminal advantage to be taken from the excess of funds through fraudulent accounting practices.
- ***Duplication of reporting requirements***: This could occur when multiple funders or funding programs each require a separate reporting process despite substantive overlap in the information that is collected and reported. Because reporting consumes substantive resources, waste could occur.
- ***Duplication of fixed costs***: This could occur when multiple small service providers deliver mutually exclusive components of a region-wide program, but each of them incurs fixed overheads that could be reduced if the regional program was consolidated in the hands of a single regional provider. To be a valid form of duplication, an assumption is necessary that the decentralised and centralised models of service delivery have similar effectiveness.
- ***Duplication as over-servicing***: This could occur where a single service provider or multiple service providers use a glut of funds to deliver additional services to clients that are unnecessary.

There are other possible meanings of the term 'duplication'. For example, the Commonwealth and WA Governments represent a duplication of government and in so many areas where these two governments jointly fund an initiative or organisation, there is a duplication of funders. But these types of duplication do not necessarily mean that public funds are being wasted.

This chapter of the report focuses only on the types of duplication dot-pointed above, which are the ones that have a potential to cause wasteful inefficiencies in the use of resources. The chapter deals also with other implications of the presence of multiple funders and multiple service providers.

6.1 Co-existent State and Commonwealth funding programs

Is there duplication of funding?

Section 51 of the *Commonwealth of Australia Constitution Act*, which came into force in 1901,[258] defines the legislative powers of the Commonwealth Parliament, and in regard to health, these were originally limited to a responsibility under s 51(ix) for the quarantine of incoming vessels. In the fervour of national solidarity after World War II, the *Australian Social Services Referendum of 1946* was successful in amending the Constitution to add subsection s 51(xiiiA), which is the basis for the Commonwealth's domination of Medicare, pharmaceutical and aged care subsidies. Also germane to this report is s 51(xxvi), which in the *Australian Referendum of 1967 (Aboriginals)* was amended to provide the Commonwealth with power to make special laws with respect to peoples of any race, including Indigenous Australians (previously the power had excluded Aboriginal people in the states).

Australia differs from other federations, Canada for example, in that the Commonwealth has not directed, in the main, its financial support for components of health care through the states, but has established itself as a separate vertical player. Much has been written about the dysfunction this creates with cost-shifting and many other problems. According to the National Health and Hospital Reform Commission of 2009, our fragmented health system, with a complex division of funding responsibility and performance accountabilities between different levels of government is ill-equipped to respond to the challenges of large increases in demand, unacceptable inequalities in outcomes and growing concerns about safety and quality.[259] This dysfunctional separation in funding, policy and accountability is conspicuously manifest in the Aboriginal health sector.

As explained in section 1.3, the State is the predominant provider of health services to Aboriginal people, outweighing every $1 of Commonwealth financial support by approximately $2.56 during 2010-11.[260] However, 82% of the State's support is directed to mainstream hospital services utilised by Aboriginal people. For the WA Aboriginal health sector, which does not provide hospital services, the comparative levels of support amount to approximately $1.36 in Commonwealth funds for every $1 from the State.

With the increasing tendency for both levels of government to spread into the traditional domains of the other, there are now very few areas, if any, that do not receive a blend of State and Commonwealth resources, albeit that in some cases the Commonwealth contribution may be limited to capital works or indirect support. The relatively more direct designated Commonwealth Aboriginal health programs have included those shown in Table 30. It must be emphasised that depending on which side of the Commonwealth-State divide one's work is based, there is opaqueness to detailed financial information from the other side of the divide. Because this review was conducted for the State, the review did not have access to detailed Commonwealth financial data and thus there can be no guarantee that the figures in Table 30 are either complete or entirely reliable. They do, however, provide an indication of relative levels of commitment to selected areas of health focus. For ear health, the State committed $2.08 million in 2014-15 (see Table 5)

[258] Commonwealth of Australia Constitution Act 1900 (Imp).

[259] National Health and Hospital Reform Commission. A healthier future for all Australians – Final report of the National Health and Hospital Reform Commission – June 2009. Canberra: NHHRC, 2009.

[260] Australian Institute of Health and Welfare. Expenditure on health for Aboriginal and Torres Strait Islander People 2010-11. Health and Welfare Expenditure Series no. 48. Canberra: AIHW, Cat. no. HWE 57, 2013.

and the Commonwealth $1.02 million (Table 30), a ratio of 2.04. Maternal and child health programs received $11.06 million from the State and $8.32 million from the Commonwealth, a ratio of 1.33. Core primary medical care funding in 2014-15 received $30.54 million from the State and $48.30 million from the Commonwealth, a ratio of 0.63.

Table 30: **Funding from Commonwealth Aboriginal health programs received by the WA Aboriginal health sector in 2014-15**

Commonwealth program	2014-15 $
Substance Use	9,245,604
Primary Health Care: Sexual Health	175,419
Indigenous Early Childhood Development: Element 2	4,053,722
New Directions (IECD Element 3)	4,273,361
Better Hearings, Better Listening	1,457,671
Social & Emotional Wellbeing	4,782,658
Link-Up (family tracing, reunion and counselling services)	3,150,422
Healthy for Life	4,686,487
Chronic Disease: Expand Outreach	2,754,318
Primary Health Care Base	48,299,553
Medical Outreach Indigenous Chronic Disease	4,122,879
Total	**87,002,094**

When the blend of funding for individual service providers was considered, the situation was even more complex. The review found that a single NGO could be supported by one to 20 or more streams of funding from different programs situated within different departments of the State and Commonwealth bureaucracies. It was found that a single ACCHO, for example, could have 1-15 different service agreements with the WADoH, the possibility of additional service agreements with the WA Mental Health Commission or WA Department of Aboriginal Affairs plus a similarly numerous set of service agreements with the Commonwealth Departments of Health, Prime Minister and Cabinet, and Social Services, as well as being a recipient of Medicare bulk-billing rebates, practice incentive payments and Commonwealth grants for rural health outreach services awarded through Rural Health West (RHW).

Based on a sample of 21 ACCHOs across Australia, it was found that in 2006-07 they received an average of 80% of their funds from the Commonwealth, 19% from the states and 1% from other sources.[261] The number of funding streams per ACCHO varied from 1 to 21. These figures were nationwide and prior to the NIRA and COAG-related funding streams and are therefore mostly of historical interest, although the 80:20 split is often cited, even though it is now out of date. A more recent review published by the Deeble Institute examined the funding sources in 2012-13 in four

[261] Marlina U, Dwyer J, O'Donnell K, Lavoie J, Sullivan P. Aboriginal Community Controlled Health Services Funding. Report to the Sector. Adelaide: Flinders University, 2009.

ACCHOs in WA and found that the State's contributions to income varied from 22% to 60%.[262] In a similar way, this review has observed considerable variation in the State/Commonwealth mix of financial support provided to the ACCHOs. As an illustration, Table 31 shows the distributions of sources of income in four ACCHOs of varying size located in WA. The State contribution varied from 19.5% to 45.4% of total revenue. Excluding Medicare, the State was a larger source of revenue than the Commonwealth in two out of four instances; and still the largest in one instance after aggregating Medicare with the Commonwealth block grant support.

Table 31: **Distributions of sources of income in four selected ACCHOs in 2012-13**

Source of income 2012-13	**Examples of four ACCHOs in WA** (single largest source of income highlighted)			
	A	**B**	**C**	**D**
Total income amount	$14.7m	$13.2m	$6.0m	$3.2m
% WA State Government grants	41.9%	19.5%	34.4%	45.4%
% Commonwealth Government grants	38.1%	49.4%	46.4%	19.4%
% Medicare	16.5%	7.2%	6.0%	3.8%
% Other income	3.5%	23.9%	13.2%	31.4%
% Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

The pooling of State and Commonwealth funds by the ACCHOs to achieve common objectives has been historically promoted by the State Government and even given specific acknowledgment by way of the following words in a number of recurrent service agreements executed around 2008:

> *The Department of Health, Office of Aboriginal Health recognises that funding provided under this contract for the specified primary health/other outputs is a portion of the total funding required to deliver these services. It is recognised that … <name of ACCHO> … also receives additional funding from the Commonwealth Department of Health and Ageing, Office of Aboriginal and Torres Strait Islander Health to provide the comprehensive primary health services described. The primary health care outputs specified in this contract are intended to describe key elements of a comprehensive service and reflect the integration of funding streams that occurs to support integration of service delivery.*

Even so, the review saw no evidence that raised a suspicion that fraudulent duplication of funding was taking place. There were many instances, especially in the provision of primary medical services and chronic disease management projects, where service providers disclosed to the review how State and Commonwealth funds each played a role in enabling the service as a whole to operate. For example, a common arrangement in chronic disease management was for the State project funds to be used to provide Aboriginal health practitioners for outreach, follow-up and case management elements of the service, whereas the Commonwealth block funds and Medicare revenue paid for the medical practitioner, who consulted with the patient, led development of their therapeutic care plan and prescribed medications. Similarly, for psychosocial services, such as mental health and stolen generation projects, it was often freely admitted that the organisation relied on both Commonwealth and State streams of income, and upon further inquiry, it was readily possible for the service provider to identify which staff were supported by which funding streams

[262] Haynes E, Holloway M, Boxall A, Thompson SC. Reducing the Burden of Reporting in Aboriginal Health Services: An Assessment of Progress. Canberra: Deeble Institute, 2013.

and how their roles were consistent with respective funder requirements. In most cases, different professional groups were funded from the different sources; eg a psychologist by one and an Aboriginal health practitioner by the other. For CAOG-related funding this clarity was important, because the NPAs had required that each jurisdiction be able to report against its contributions.

The conclusion from these inquiries was that no evidence exists of a systematic rort by fraudulent duplication of funding. This conclusion is important, but must be qualified by acknowledging the limits imposed by the review's terms of reference and scope of inquiry. The review was not a financial audit and did not have access to financial records. The review had neither the authority nor the information to delve into the Commonwealth funding programs in detail.

Is there duplication of reporting?

Duplication of reporting certainly does exist. Both the State and Commonwealth have established themselves as major funders of approximately equal status in the WA Aboriginal health sector. For either one to withdraw would be equally catastrophic for the sector and detrimental to the national aspirations for Aboriginal health. Yet the result of the Commonwealth and the State both attempting to provide the highest levels of government policy settings and leadership to the sector is widely acknowledged as dysfunctional. This problem is by no means limited to the Aboriginal health sector. Clearly, if all Commonwealth Aboriginal health program funds were directed through the states, as they were in the 1970s, there would be a much reduced reporting burden on the sector. However, it is also acknowledged that no-one in Australia, including the Prime Minister and state premiers, is yet to arrive at a workable solution to reconcile the Australian Constitution and federal system of government with the modern world of health services. For the time being, duplication of government remains a fact of life in Australia and especially for the health system.

Putting aside the reporting requirements of two governments, even within the WA Government programs alone, the burden of separate reports on up to 15 service contracts per provider represents a significant potential target for rationalisation.

Duplication (in fact, 'multiplication') of reporting in the Aboriginal health sector has already been the object of several investigations, commencing with the *Overburden Report* of 2009.[263] The consensus of these reviews can be summarised as follows:

- Fragmentation of funding streams leads to far too many reports being required and these draw resources away from service activity that will generate the very results about which reports are sought and accountability is required.
- Disconnected policy priorities and program designs across different funding streams add to the complexity and reporting burden.
- The ratio of short-term to multi-year funding is too high and adds to the reporting burden.
- Heightened political sensitivity and concerns about the fragility of funding reinforce burdensome reporting requirements that appear to be of limited utility.

[263] Dwyer J, O'Donnell K, Lavoie J, Marlina U, Sullivan P. The Overburden Report: Contracting for Indigenous Health Services. Darwin: Cooperative Research Centre for Aboriginal Health, 2009; Marlina U, Dwyer J, O'Donnell K, Lavoie J, Sullivan P. Aboriginal Community Controlled Health Services Funding. Report to the Sector. Adelaide: Flinders University, 2009; Haynes E, Holloway M, Boxall A, Thompson SC. Reducing the Burden of Reporting in Aboriginal Health Services: An Assessment of Progress. Canberra: Deeble Institute, 2013; Haynes E, Holloway M, Thompson SC. Survey Findings of Reporting Requirements 2013. Report Back to Aboriginal Community Controlled Health Services. Perth: WA Centre for Rural Health, 2014; Haynes E, Holloway M, Partel K, Boxall A, Thompson SC. A Survey of the Reporting Requirements of Aboriginal Community Controlled Health Services. Canberra: Deeble Institute, 2014.

- One-size-fits all reporting systems have resulted in a mismatch between funding quanta and reporting requirements.
- In general, the Commonwealth has made more progress than the states in simplifying and streamlining its reporting requirements.

This review has reached essentially the same conclusions as those cited above and the issue of more appropriate systems of reporting will be taken further in chapter 7.

6.2 Multiple service providers

Is there duplication of fixed costs?

The WA Government has a commitment, enunciated in its *Delivering Community Services in Partnership Policy*,[264] to outsource service delivery to NGO providers within a strengthened framework of transparency and accountability. As mentioned previously, in anticipation of this policy direction, of the $420.6 million invested by the WADoH from 2009-10 to 2014-15 in the Aboriginal health sector, $276.5 million (65.7%) was awarded to NGOs. Outsourcing of government services is said to have a number of general advantages and disadvantages:[265]

- The ***advantages*** include the potential for: cost savings; increased accountability of service providers through contract specifications and performance measurement; better work and management practices; access to greater skills, knowledge or technology; better use of capital and equipment; better service quality; greater flexibility in services; local industry development; and fewer industrial relations issues.
- The ***disadvantages*** include the potential for: reduced accountability of government for contracted services; loss of privacy and confidentiality of personal information; collusive tendering and other tendering problems; loss of control by the government over the contracted services; reductions in quality of services; the costs of outsourcing; savings to government resulting from losses to other groups rather than from increases in efficiency; and the effects on levels of employment and on the wages and conditions of employees of contractors.

A distinct feature of outsourcing in the WA Aboriginal health sector has been the dispersal of funds to a plethora of small service providers at the subregional level, with the number of providers per region ranging from two to more than 20. It is inevitable that some duplication of fixed costs must have occurred under this network model of service provision. The health service literature on the optimal size of a primary medical care practice suggests that the issue boils down to one of economic productivity, which is increased as unit size is up-scaled versus qualitative aspects that are especially valued by patients, such as continuity of care and ease of physical access.[266] Therefore, in the case of clinical services, which rely on a therapeutic practitioner-client relationship, the review is of the opinion that a widely disbursed form of out-sourcing is readily justified and makes no criticism of the way that the WADoH funding of the Aboriginal health sector has been allowed to evolve. Programs with a stronger primary prevention orientation, such as

[264] Delivering Community Services in Partnership Policy. A Policy to Achieve Better Outcomes for Western Australian through the Funding and Contracting of Community Services. Perth: Government of Western Australia, 2011.
[265] Figgis H, Griffith G. Outsourcing in the Public Sector. Briefing Paper No 22/97. Sydney: NSW Parliamentary Library Research Service, 1997.
[266] Campbell JL, Ramsay J, Green J. Practice size: impact of consultation length, workload, and patient assessment of care. *Br J Gen Pract* 2001; 51(469): 644-650; Bryan A. General practice: does size really count? *MJA Careers*, https://www.mja.com.au/careers/197/7/general-practice-does-size-really-count, accessed October 2014.

environmental health, nutrition, smoking and alcohol education (but not rehabilitation) will generally work best using a hub and spokes model with statewide evidence-based policy and regional coordination of local workers on the ground. This is due to the higher level of regional coordination and multi-level interventions required for such programs to be optimised.

Is there duplication as over-servicing?

With the exception of one isolated incident, despite extensive inquiries the review found no evidence that Aboriginal populations or patients were being over-serviced. The widely cited incident involved two different ear health providers arriving at the same school in the Pilbara on the same day to deliver ear health checks. The reason why this story has attained the status of a legend is because such incidents are extremely rare. Ear health is arguably the program with the highest risk of over-servicing due to the presence of up to seven service providers per region, including visiting services that are not based permanently within the regions they serve. However, even in ear health, the problem is not one of duplication of services (ie, over-servicing) relative to the very high level of need, but rather a serious issue with fragmentation and lack of coordination, which leads to gaps whereby some children do not get serviced at all. There was one school, for example, where the review learnt there had been three different visiting ear health providers. However, unlike the famous Pilbara incident, they came in different years and the real difficulty had been creating adequate continuity of information and care plans from one provider to the next.

The conclusion made by the review was duplication of services (ie, over-servicing) did not exist, but rather there remains a degree of under-servicing by the WA Aboriginal health sector. This is supported by a range of statistical observations:

- The very high rates of hospitalisation (3.8 x non-Aboriginal rates) and mortality (2.5 x non-Aboriginal rates) in WA Aboriginal people point to an unmet need for primary prevention and enhanced primary medical care services.[267]
- Comparisons of preventive medical services in 2010-11 indicated that WA Aboriginal people were less well serviced than Indigenous Australians in other jurisdictions. This was the case for (i) children fully vaccinated at age 5 (80% WA vs 86% Australia); (ii) exposure to at least one health promotion program (61% versus 67%); (iii) breast cancer screening in women aged 50-69 years (28% vs 57%); (iv) blood pressure check in the last six months (64% vs 69%); (v) HbAIc test in type 2 diabetics in the last six months (45% vs 52%); and (vi) rates of allied health services (64 versus 130 per 1,000). Other services were delivered at a rate similar to the national average, but no level of service in WA exceeded the national average.[268]
- Health expenditure per Aboriginal person in 2010-11 on public health, community health and patient transport services was lower in WA than in South Australian, Queensland or the Northern Territory, whereas WA's per capita public hospital expenses for Aboriginal people were higher than in those comparison states (see Table 32).[269]

[267] Australian Indigenous Health*Info*Net. Overview of the health of Indigenous people in Western Australia 2013. Perth: Edith University, 2013.
[268] Australian Institute of Health and Welfare. Aboriginal and Torres Strait Islander Health Performance Framework 2012 Report: Western Australia. Canberra: AIHW, Cat. no. IHW 89, 2013.
[269] Australian Institute of Health and Welfare. Expenditure on health for Aboriginal and Torres Strait Islander People 2010-11. Health and Welfare Expenditure Series no. 48. Canberra: AIHW, Cat. no. HWE 57, 2013.

Table 32: **Comparison of health expenditure per person for Indigenous Australian in WA, South Australia, Queensland and the Northern Territory in 2010-11**

Area of expenditure	$ per Aboriginal person in 2010-11				
	WA	SA	NT	Qld	All 'states'
Public health services	75	201	1,016	77	221
Community health services	878	1,901	2,210	1,138	1,241
Patient transport services	258	381	237	346	238
Subtotal	1,211	2,483	3,463	1,561	1,700
Public hospital services	5,183	4,957	4,827	3,048	3,533

Table 32 offers the inference that the consequence of a less well-resourced Aboriginal health sector in WA compared with other jurisdictions with respect to prevention and enhanced primary medical care is a high burden of hospital service costs to the public purse.

6.3 Fragmentation of services

The relevant issue in the WA Aboriginal health sector is not duplication, but fragmentation of services. As noted earlier, the many service providers are independent business units with a reduced imperative to subscribe to any particular set of strategic plans or operational protocols for the region. Many respondents to the review raised concerns about the lack of coordination and even insufficient cooperation between these many players. In the review's observation, none has knowledge of all the services that other relevant providers have been resourced to deliver. A form of commercial confidentiality is sometimes claimed as a reason why even de-identified plans and results (ie, not even confidential patient information) cannot be shared between service providers, even in situations where the relevant activities are all funded by a single State Government program and would logically be viewed as integral components of a region-wide scheme. This aspect of the sector is unsatisfactory and needs to improve substantially.

The fragmentation is compounded by the duplication of government leadership from the Commonwealth and the State. Earlier in this report, a recommendation was made to elevate further the role of the regional Aboriginal health planning forums within the sector. This is arguably the only workable solution to provide a point of integration for the funding inputs of multiple governments and the service outputs and results of multiple providers. The need for the colour of the planning forums to evolve from being perceived as instruments of the State, or unduly captured by service provider interests, to become more independent, well supported and, above all, highly respected, technically competent, equitably transparent and powerful meeting grounds for the regional administration of all programs, but also no more than a single program in each health focus area, is glaringly obvious.

In the context of much stronger regional Aboriginal health planning forums, which impose obligations on participating service providers to disclose funding sources, service delivery plans and performance data (all of which should be mandated in service agreements), there are two areas of immediate and highest priority for 'de-fragmentation'. These are the two focus areas of ear health and chronic disease management.

Advisory Note 14: De-fragmentation in the regions

The following is the review's advice on the principles to be applied to achieve de-fragmentation in the WA Aboriginal health sector at the regional level:

Priorities for de-fragmentation: Rather than attempt a wholesale de-fragmentation of all major focus areas simultaneously, a smaller wins, incremental approach will increase prospects for success by enabling the necessarily significant efforts to be intensely focussed on 1-2 areas at a time. The two leading priorities for de-fragmentation are ear health and chronic disease management. As success emerges in these areas, preliminary attention should move to the next level of priority for de-fragmentation.

Regional governance: It is an essential precondition for de-fragmentation that the regional Aboriginal health planning forums are strengthened considerably and provided with more independent executive support in line with earlier advice in this report. Responsibility for the 'defrag process' and thus the integration of funding streams and planning, coordination and evaluation of priority areas for de-fragmentation should be vested in the forums. Access to State and Commonwealth funds should be conditional on transparent engagement in the relevant forum(s) with a commitment to share funding, service delivery and performance data in a timely manner.

Regional operational plan: The term 'operational' is emphasised. Each forum should create an effective regional operational plan with a singular model of service that adheres to evidence-based guidelines jointly agreed by the State and Commonwealth. The plan should define and map out the service constituency and assign areas of responsibility to providers so as to avoid gaps. Where appropriate (eg, ear health), the plan should include an annual schedule for service delivery visits. Communities should be requested not to make arrangements with visiting providers outside of the regional planning framework; and funders should be requested not to provide financial support for activities lying outside of the regional operational plan. The service schedule should be available to parties within and outside the forums on a 'need to know' basis approved by the forum. Schedules should be accessible online in a secure repository.

Integrated regional joint service venture: Every provider of a program within a region should be a signatory to an agreement to create an integrated regional service as a joint venture (eg, ''The Goldfields Ear Health Service" or "The South West Aboriginal Chronic Disease Management Service" or words to this effect). This is required to provide the legal basis for sharing patient information with implied consent between providers who attend the same patient at different times.

Regional information systems: De-fragmentation of priority areas should <u>not</u> await a global solution to regional health information needs; the need to 'defrag' is too urgent for this. The tendency to bemoan the lack of a global information solution as the reason why the leading priorities cannot be addressed in a small wins fashion should be avoided. Critical to the de-fragmentation of each priority area is the creation of a straightforward regional clinical register (eg, ear health register; chronic disease register) used to improve continuity of care and identify, plan and monitor the quality of service delivery.[270]

Quality improvement systems: Built on the regional information system there should be a dedicated statewide system of quality improvement that enables service standards (eg, in chronic disease management) to be documented and evaluated with statewide and preferably national benchmarking and a completed feedback loop to service providers. For this purpose, WA should adopt the *One21seventy* system of quality improvement.

Workforce development and knowledge transfer: Where appropriate, there should be a statewide plan to remediate any shortages of professionals with specific skills needed for areas of priority de-fragmentation (eg, audiology). At the regional level there should be an identifiable training program to transfer more advanced knowledge and skills to local health workers, including Aboriginal health workers.

[270] There is a well-established paradigm in the hospital-based cancer registry, which is used to coordinate services across multiple providers, schedule follow-ups and document outcomes. See Jedy-Agba EE, Curado MP, Oga E et al. The role of hospital-based cancer registries in low and middle income countries – the Nigerian Care Study. *Cancer Epidemiol* 2012; 36: 430-435; Jensen OM, Parkin DM, MacLennan R, Muir CS, Skeet RG. Cancer Registration Principles and Methods. Lyons: International Agency for Research on Cancer, Scientific Publication No. 95, 1991

The concept of an 'integrated regional joint service venture', supported by an executed legal instrument, is necessary to create implied consent from patients serviced by the joint venture for providers to exchange confidential patient information.[271] In accordance with the law, to imply consent it is prudent for service providers to badge themselves as a member of the regional joint venture and to list the other members of the venture on prominent display when providing services. This has the legal effect of creating a broader treating team and the expectation in the mind of a reasonable person that members of the treating team will share information for delivery of competent health care for the patient's benefit.[272] Indeed, where a failure to communicate between providers who comprise a team causes harm to a patient, there may be a case in negligence given that such communications may well be construed as part of the required standard of care.

In regard to ear health, the advice set out above is consistent with other recent reviews of the disarray of ear health services in the State conducted by key stakeholders, including the AHCWA and RHW. The latter organisation reported recently on the state of coordination of ear health services across the Kimberley, Pilbara, Goldfields and Midwest regions.[273] Their report noted that in 2014 there were five different providers of ear health services in the Kimberley; six in the Pilbara; four in the Midwest; and seven in the Goldfields. However, despite the multiplicity of service providers, some communities received no service at all. Among the key issues identified by RHW were a number that resonated with the observations of this review: (i) regional plans for ear health, including environmental and primary prevention plans were lacking; (ii) workforce data, operational schedules, ear and hearing survey data and patient information systems were rudimentary and required a significant upgrade; and (iii) different providers offered different models of care, which confounded cooperation as well as planning and evaluation efforts. RHW went on to make a number of key recommendations, which were generally consistent with the principles of de-fragmentation set out in the present report.

On 4 September 2014, the ACHWA conducted a workshop on *Rural and Remote Health Services Delivery in Western Australia*. Although independent from this review, it was noteworthy that a number of the themes arising from that workshop were also consistent with the recommendations and advice of this review, including the need to strengthen the role of the regional Aboriginal health planning forums in oversight and coordination of services.[274]

Concerning chronic disease, in addition to an increased share of resources for primary prevention of poor nutrition and smoking, a more structured approach to early clinical interventions (ie, chronic disease management), organised at a regional level, is badly needed. As a minimum, the early interventions requiring de-fragmentation must target the highest priorities of obesity, hypertension, hyperlipidaemia, pre-diabetes and diabetes, heart disease and renal impairment. Chronic respiratory diseases are the next level of priority, but should not be drawn into regional efforts at de-fragmentation until there is improving performance on the first list.

[271] *Duncan v NZ Medical Practitioners Disciplinary Committee* (1986) 1 NZLR 513, Jeffries J at 521; Patterson M, Mulligan E. Disclosing health information, breaches of confidence and the notion of the 'treating team'. *J Law Med* 2003; 460: 461.

[272] *Duncan v NZ Medical Practitioners Disciplinary Committee* (1986) 1 NZLR 513, Jeffries J at 521; *Slater v Bisset* (1986) 85 FLR 118,K e J llyat 121-124.

[273] Rural Health West. Ear Health Services Report. Kimberley, Pilbara, Goldfields and Midwest. Perth: Rural Health West, 2014.

[274] Aboriginal Health Council of Western Australia. Rural and Remote Health Service Delivery in Western Australia. Workshop Report. Perth: AHCWA, 2014.

A critical aspect of the effective delivery of chronic disease management services is a quality assurance system. This is an area where it is imperative to adopt a statewide approach, and preferably even an approach allowing for national benchmarking, rather than permitting each regional forum to implement different, incompatible systems. The review is aware that the not-for-profit *National Centre for Quality Improvement in Indigenous Primary Care* conducts the *One21seventy* program of quality assurance. *One21seventy* offers a range of practical continuous quality improvement (CQI) tools and resources, covering chronic disease management and a number of other clinical areas including maternal and child health and sexual health. These tools are evidence-based, having arisen out of the *Audit and Best Practice for Chronic Disease* research project.[275] However, the CQI tools themselves are no longer research, but represent an effective evidence-based and cost-effective intervention to measure and improve the quality of care, which has been subjected recently to a favourable evaluation independently commissioned by the Commonwealth Government Department of Health.[276] The WA Aboriginal health sector would do well to adopt *One21seventy* as its quality assurance system for chronic disease management across the State. Because this system has been implemented in well over 200 primary medical care centres across multiple jurisdictions, notably in the Northern Territory where it originated and Queensland, but also in South Australia, New South Wales and some centres in Western Australia,[277] it would offer the advantage of providing a basis for national as well as statewide benchmarking of quality performance.

The time has come not to shy away from the transparent measurements, accountable comparisons and resultant action plans of a statewide system of continuous quality improvement in chronic disease management if Aboriginal health in WA is to be advanced to the next level of achievement. The available evidence indicates that a long term commitment to quality improvement in the sector will improve services in relevant critical areas, such as in the clinical management of type 2 diabetes.[278] Following its use in the de-fragmentation of chronic disease management, statewide adoption of *One21Seventy* CQI tools in other clinical areas should then also be considered.

The review noted with approval a diabetes and kidney disease prevention and management plan for the Pilbara, which had a number of characteristics consistent with the recommendations and advice of this review, regarding regional operational plans and the movement of intervention

[275] Bailie R, Matthews V, Brands J, Schierhout G. A system-based partnership learning model for strengthening primary healthcare. *Implementation Science* 2013; 8: 143, http://www.implementationscience.com/content/8/1/143. The underlying evidence base included: Lewin S, Lavis JN, Oxman AD, Bastías G, Chopra M, Ciapponi A, Flottorp S, Martí SG, Pantoja T, Rada G, Souza N, Treweek S, Wisyonge CS, Haines A. Supporting the delivery of cost-effective interventions in primary health-care systems in low-income and middle-income countries: an overview of systematic reviews. *Lancet* 2008, 372: 928–939; Tricco AC, Ivers NM, Grimshaw JM, Moher D, Turner L, Galipeau J, Halperin I, Vachon B, Ramsay T, Manns B. Effectiveness of quality improvement strategies on the management of diabetes: a systematic review and meta-analysis. *Lancet* 2012, 379: 2252–226.

[276] Allen and Clarke. Evaluation of the Northern Territory Continuous Quality Improvement (CQI) Investment Strategy: Summary Report. Canberra: Department of Health, 2013.

[277] Schierhout G, Hains J, Si D, Kennedy C, Cox R, Kwedza R, O'Donohue L, Fittock M, Brands J, Lonergan K, Dowden M, Bailie R. Evaluating the effectiveness of a multifaceted, multilevel continuous quality improvement program in primary care: developing a realist theory of change. *Implementation Science* 2013; 89: 119, http://www.implementationscience.com/content/8/1/119.

[278] Mathews V, Schierhout G, McBroom J, Connors C, Kennedy C, Kwedza R, Larkins S, Moore E, Thompson S, Scrimgeour D, Bailie R. Duration of participation in continuous quality improvement a key factor explaining improved delivery of type 2 diabetes services. *BMC Health Serv Res*, in press as at 2014.

resources upstream to prevent diabetes, it complications and renal failure.[279] The point is that implementation of multi-agency service plans like this across the State is now overdue.

[279] Haertsch M, Hopkins M, Thomson SC. Background paper and diabetes and kidney disease prevention and management plan Pilbara Region Western Australia, 2011-2016. Geraldton: Combined Universities Centre for Rural Health, undated, provided to the review in 2014.

7. Program Evaluation

This section deals with term of reference (f) of the review:

f) Examine use of measures of effectiveness and efficiency to demonstrate program deliverables and progress in achieving stated outcomes.

7.1 Diversity in the lexicon of program evaluation

There is unhelpful confusion over the meaning of the words 'output' and 'outcome'. The WA Treasury's evaluation guide offers the following definitions:[281]

Impact: Looks beyond the immediate results of an initiative and identifies longer-term effects including unintended or unanticipated consequences.

Result: An observable measure of achievement, performance or change. It provides evidence of activities, success or otherwise.

Outcome: The results, impacts or accomplishments of the program. It is important to capture both intended and unintended results.

Output: The product or service delivered.

Unfortunately, these definitions are at odds with the uses of the same terms in a range of health planning and evaluation literature, where it is common to find that 'output' is interpretable most broadly, and is then subdivided into outputs relating to 'process' (service activities), 'impact' (immediate effects of service activities) and 'outcome' (longer term effects of service activities). It must be said, however, that there is inconsistency in the use of these terms even within health literature and managerial literature generally. The Treasury system appears to equate an 'output' with what most health planners would term a 'process measure'; 'results' to mean something closest to an 'impact measure'; 'impact' to mean an 'outcome measure'; and 'outcome' to mean either a health planning impact or outcome. This is confusing in the extreme for all concerned. Nevertheless, it is important for the Department to adopt the language of the central agencies, noting that this lexicon can change over time.

The review became aware that confusion over program evaluation terminology has been more than a benign source of nuisance; rather, it has at times adversely affected the working relations between the WADoH and the central agencies. It appears that what the WA Treasury regards as a result is probably not as far down the causal pathway of intervention as one might at first imagine. For example, in mainstream health, the completion of a clinically indicated hip replacement procedure can be a 'result' without the necessity to pursue, at considerable expense, the longitudinal follow-up of patients to determine if their pain and mobility scores have improved at a later time after the procedure. Analogously, but more relevantly to WA Aboriginal health programs, completion of a child's immunisation schedule appropriate to their age should also be regarded as a result without the necessity to pursue longitudinal information on their freedom from the vaccine-preventable diseases over the coming years.

The concept that a 'result' for program evaluation purposes is obtained by the successful completion of an evidence-based intervention is a significant principle espoused by this review.

[281] Program Evaluation Unit. Evaluation Guide, Perth: Department of Treasury, Government of Western Australia, 2014, p.47.

Advisory Note 15: Program evaluation concepts and terms

The Department should adopt the terminology contained in the Department of Treasury's *Evaluation Guide* with respect to performance framework for Aboriginal health programs. The two most important Treasury terms are 'output', meaning a measure of service activity, and 'results' meaning a measurable achievement of the program that goes beyond service activity such as a change in the service constituency or its environment.

Linking this to earlier advice, the pursuit of a service objective should lead to a 'result', whereas achievement of the global objective of WADoH funding support for the Aboriginal health sector should lead to an 'impact'.[282] Both of these are 'outcomes', whereas achievement of the societal and economic goal of closing the gap in life expectancy is a matter that goes well beyond program planning within the Department. Rather it should be construed as a broader societal goal for which the whole system of governments (at all levels), and the whole community including Aboriginal people are responsible.

7.2 Independent evaluations of reporting systems in 184 projects

This chapter addresses the fourth and final big question for this review: *Are the systems of accountability and program evaluation sufficient to ensure that value for money can be assessed and, if not, how can accountability and evaluation be improved?*

The review undertook an analysis of the contract documentation, consisting of service agreements, MoUs, variations to contract and reporting templates, associated with the 184 projects selected for individual evaluations. For each contract the review identified up to eight different modes of service that comprised the contracted product:

- **Regulatory**; eg enforcement of statutory rules such as environmental health requirements of the *Health Act 1911* (WA) or *Dog Act 1976* (WA).
- **Preventive medical**; eg, screening tests or nicotine replacement therapy.
- **Educational**; eg, mass communications, group work or individual preventive counselling.
- **Structural**; eg, modifying the physical or social environments to make healthy choices easier.
- **Participative**; eg, community consultations, engagement and partnerships.
- **Enhancement**; eg, improving access, cultural security or case management.
- **Treatment**; eg, demand-driven, reactive health care responses to disease or injury.
- **Other**; eg, manuals, protocols, pathways, information systems or other capacity or training.

This dissection of the modes of service addressed two purposes. First, it provided an indication of the extent to which contracted projects, and especially intervention projects, were designed taking a comprehensive approach to health advancement.[283] Second, it provided a framework for the assessment of reporting systems, given that approaches to reporting outputs and results tended to vary across different modes of service.

[282] The advice offered earlier was that the global objective of the WADoH in the Aboriginal health sector should be: to provide evidence-based health interventions that reduce exposure or mitigate the adverse effects of exposure of Aboriginal people to environmental hazards, childhood harms, behavioural and other preventable factors that cause premature mortality.

[283] Holman CDJ. Something old, something new: perspectives on five 'new' public health movements. *Health Prom J Aust* 1992; 2(3): 4-11.

Modes of service used in contracted project designs

A high proportion (91.3%) of the 184 evaluated projects were contracted to provide at least one of the five modes of service with strong health advancement attributes, namely the regulatory, preventive medical, educational, structural and participative modes. A 'comprehensive approach' was defined as one that incorporated at least four of these five modes. A 'multi-modal approach' was one that included two or three of these, whereas the unimodal approach relied solely on one of the five advancement modes. Just over one quarter (27.7%) of the 184 projects had been contracted to adopt a comprehensive approach to health advancement; a further 54.9% had been signed up to a multimodal approach; and 8.7% were required only to implement a unimodal approach.

Of the 184 projects, 70.1% were contracted to provide a treatment, enhancement or 'other' mode of service. Some 17.9% included treatment combined with enhancement or 'other; 15.5% involved only the purchase of a treatment service; and 45.1% had only an enhancement or 'other' mode of service.

Contractual output and results measures

Whilst all evaluated projects were contractually obliged to report output measures, often across multiple modes, only one in five projects (21.7%) was required to report results (see Table 33). In almost all of these instances, the results to be reported were of a short-term nature where the causal effect on the result was expected within one year of the intervention. Only one project (0.5%) was obliged to report medium-term results at 1-3 years and none had to report a long-term result three years or more after intervention. Among the different modes of service, the approaches most likely associated with an obligation to report results were the preventive medical, enhancement, regulatory and educational services modes.

Table 33: **Different modes of service used in 184 evaluated projects with proportions required to report output and result measures for each mode**

Mode of service	Number (%) of projects with this mode	Proportions of projects with each mode of service required to report at least one contract measure at this level			
		Output measure	Short-term result measure (within 1yr)	Medium-term result measure (at 1-3yr)	Long-term result measure (after 3yr)
Regulatory	25 (13.6%)	100.0%	12.0%	0.0%	0.0%
Preventive medical	76 (41.3%)	100.0%	26.3%	1.3%	0.0%
Educational	123 (70.1%)	100.0%	4.7%	0.0%	0.0%
Structural	34 (18.5%)	100.0%	0.0%	0.0%	0.0%
Participative	128 (69.6%)	100.0%	0.8%	0.0%	0.0%
Enhancement	79 (42.9%)	100.0%	19.0%	0.0%	0.0%
Treatment	46 (25.0%)	100.0%	0.0%	0.0%	0.0%
Other	63 (34.2%)	100.0%	0.0%	0.0%	0.0%
Any mode	**184 (100%)**	**100.0%**	**21.7%**	**0.5%**	**0.0%**

In the 40 projects where reporting of result measures was a legal obligation, the review assessed the robustness of the required result measures as defined in the contract documentation using the following SMART criteria published by the WA Treasury:[284]

- **Specific** – clear and well defined.
- **Measurable** – concrete criteria for measuring progress and to know when it has been achieved.
- **Attainable** – a realistic path to achievement; neither out of reach nor below standard.
- **Relevant** – results that drive the project forward within the constraints of resources and time.
- **Time-bound** – reasonable timeframe for achievement, albeit with a sense of urgency.

Table 34 shows how the mandatory result measures performed against the SMART criteria. Nearly all of the 40 project agreements (95-100%) were rated as having moderate or strong result measures with respect to the criteria of being 'specific', 'measurable' and 'attainable'. However, just under one half (47.5%) were rated as having moderate to strong 'relevance' and 62.5% were rated as having moderate or strong 'time-bound' characteristics.

Table 34: **Distributions of the 40 projects with mandatory result measures according to their assessment against the SMART criteria**

Assessment of result measure	% of 40 projects with mandatory result measures				
	Specific	Measurable	Attainable	Relevant	Time-bound
Strong	70.0	75.0	57.5	25.0	22.5
Moderate	25.0	25.0	37.5	22.5	40.0
Weak	5.0	0.0	5.0	52.5	37.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Many of the documented result measures failed on the criterion of 'relevance' because they were too narrow in scope to drive the project forward as a whole. A common scenario was a primary medical care project with detailed contracted output measures in the areas of disease screening and associated treatment; management of chronic diseases; STI control; maternal and child health; alcohol and drugs; health promotion and mental health. However, the only result measure mandated by the contract was often the proportion of patients with a chronic disease who had been exposed to health care plan activity in the last six months. This result measure related to a relatively small area of the total scope of the project and thus it was impossible to conclude that the result measure had moderate or strong value in driving the project forward. Where documented result measures fell short on the criterion of being 'time-bound', it was usually because no timeframe was specified at all.

An important qualification of the preceding analysis of contract measures is to take into account that in 51 (35.4%) of the 144 projects with no result measure mandated as a contractual obligation, the service provider had nevertheless measured their results of their own accord.

[284] Program Evaluation Unit. Evaluation Guide. Perth: Department of Treasury, Government of Western Australia, 2014.

It needs to be acknowledged that the reporting templates instigated during the initial three years of COAG-related funding under the NIRA and CtGIHO and IECD national partnership agreements were designed around Commonwealth requirements to build a national picture of activity. They focused on outputs and did not require measures of service quality nor results. WA was drawn into a national approach and thus, until recently, the reporting systems have been a legacy of that period of time. It should also be acknowledged that the last two rounds of funding commitments have led to service agreements of no more than one year in duration. In general, a result from a contract in this sector (as distinct from service activity) should not be expected in less than two years or three years in some program areas.

Frequency of reporting and administrative burden

Nearly all projects (95.1%) that were evaluated required some level of service activity reporting, with four out five providers (79.9%) obligated to submit service activity reports every six months. The remainder of projects were required to provide activity reports monthly (12.5%), quarterly (0.5%) or annually (2.2%). Activity reports for all environmental health projects recently changed from being required on a six monthly basis to monthly to reflect the need for increased surveillance of environmental conditions that are vulnerable to sudden change, although the reporting template was simplified considerably to compensate for the additional frequency.

The overall frequency of reporting of the 184 selected projects aggregated to a total of 578 service activity reports being submitted to the WADoH in any one year (this can be scaled up to approximately 618 reports, taking into account projects not selected for individual evaluation[285]). This represents a large administrative burden when one considers that each report needs to be assessed, evaluated and followed-up to resolve queries where necessary. Moreover, separate financial reports were also required six-monthly or quarterly for acquittal purposes.

These frequencies of reporting represent an onerous and costly exercise for service providers with resources dedicated to monitoring the use of funds and preparing and submitting reports. For the KAMSC, the service provider with the most WADoH contracts, this equated to 30 service activity reports per year, in addition to monthly data that they provided to Royal Perth Hospital regarding their dialysis contracts. Furthermore, KAMSC, like many other service providers, had reporting requirements to fulfil for their other sources of funding, notably from the Commonwealth.

Activity reporting requirements were variable, but generally included reporting of quantitative data about the services delivered (including location, age and sex of participants), clinical and employment indicators, instances of staff training and professional development, narrative around successes and challenges, and information on organisational partnership development and community consultations. Templates for reporting provided by the WADoH were often complex and lengthy. The review observed blank reporting templates of 15-18 pages in length and points out that 618 x 16.5 = 10,197 pages of activity reporting per annum.

In general, one would expect contracts of the highest values to have the most stringent reporting requirements and contracts of lower value to have a reduced administrative burden to ensure that transactional costs remained low relative to the contract value. In this respect the figures in Table 35 bear considerable relevance.

[285] The 184 selected projects represented 90% of those on foot in 2014-15. If one assumes that the other 20 projects reported six monthly, the total number of service activity reports required for the year would be 618.

Table 35: **Average value of contracts in 2013-14 with different frequencies of mandated service activity reports**

Frequency of service activity reports	Average value of contracts in 2013-14
No reporting	$636,388
Annual reporting	$653,651
Six-monthly reporting	$441,522
Quarterly reporting	$153,930
Monthly reporting	$247,216

Clearly, a principle of proportionality has not been observed. Rather, exactly the opposite has occurred with the providers of the least expensive projects being required to report the most frequently. In defence of this unusual situation, it should be acknowledged that smaller service agreements have tended to be awarded to smaller service providers with less well established systems of corporate governance. There is some justification, therefore, in regarding smaller service providers as presenting a higher risk and requiring closer monitoring in the course of contract management. Even so, the review considers the frequencies and extent of service reporting to be excessive and not entirely rational. The overburden is also inconsistent with the WA Government's community partnership policy,[286] which states that NGOs should only need to provide one annual report. The review offers the following advice:

Advisory Note 16: Frequency of reporting

The frequency of reporting required of the Aboriginal health sector by the WADoH should be considerably reduced and simplified as follows:

- Quarterly or monthly frequencies of reporting should be reserved for narrowly-focussed supplementary reporting of very specific, justifiable items in special and uncommon circumstances. Such reports, where justified, should be limited to a simple one-page extract of essential information and should not involve full-scale reports. Normal reporting procedures should not use these high frequency cycles.
- Annual or six-monthly frequencies should be the standard cycles of reporting service activity in the WA Aboriginal health sector with the norm being a progression to annual reporting following two satisfactory six-month reports. If an annual report is unsatisfactory or delayed, the WADoH should automatically re-impose a six-monthly cycle until satisfactory performance on the contract has been re-established. A grant or other contract of one year or less in duration should only require a single report.
- For a grant or other contract of less than $100,000pa in present value or less than three years in duration, only simplified service activity information should be required. Reporting of results should not be required (see advisory note on design criteria for an Aboriginal health sector results measurement framework).

[286] Delivering Community Services in Partnership Policy. A Policy to Achieve Better Outcomes for Western Australian through the Funding and Contracting of Community Services. Perth: Government of Western Australia, 2011.

7.3 Moving beyond output measurement to results

The review can attest that a strong groundswell of support has emerged within the WA Aboriginal health sector and the WADoH to move beyond outputs to the measurement of results. Towards the end of the review fieldwork, the AHIU commenced a trial of a results-based reporting system for the projects under its supervision. Clearly this is a step in a positive direction, albeit from an examination of the documentation, the review remains concerned by the extent of paperwork burden that the new system might perpetuate and also whether enough attention has been paid to the importance of the ability to aggregate result measures at the regional and statewide levels. The new reporting system is yet to be fully developed and appears to have received a mixed reaction from the sector. Many service providers have welcomed the philosophical shift towards results and the opportunity to participate in development of their own result measures based on working through an initial planning framework to identify suitable candidates. Other providers appear to have reacted cautiously, seeing the new system as imposing an increase rather than decrease in administrative burden.

The review confirms that the Department should implement a major reform in the system of performance measurement of WA Aboriginal health programs, with the centrepiece being a commitment to move from a focus on outputs to a focus on results. These reforms will only make sense if coupled with a commitment to more stable funding and contracting arrangements, where there can be certainty of refunding for good results and certainty of defunding for poor ones (or a failure to report results at all).

The design of the final form of the new results-based performance framework warrants a deep level of analysis as to the criteria to be applied in developing and deciding between different design options. It is critical that the new system is capable of aggregating results information at the regional and statewide levels; is harmonised across different contracts and programs; and distinguishes between fundamentally different types of contracted products and different levels of risk according to the quantum of funds and governance strength of the service provider.

The following note summarises the review's advice.

Advisory Note 17: Design criteria for a results-based performance framework

The following ten SSS-PPPP-TTT criteria should be applied in the development of design options for a new results-based performance framework in the WA Aboriginal health sector:

Stakeholder acceptability: As far as possible the system should be one capable of being endorsed internally by the AHIU, OAH, PHCS, Office of the Chief Procurement Officer and other relevant sections of the WADoH; and endorsed externally by the AHCWA, the Treasury and the Commonwealth (at least the Australian Department of Health). The system should perform well against the WA Treasury's SMART criteria and harmonise across different contracts and programs; eg, through the use of consistent templates and rationalisation of information collection that is common to multiple contracts.

Separate infrastructure from interventions: The system should make a distinction between intervention projects that deliver services to the Aboriginal public and infrastructure projects concerned with capacity, training and other supports. The remaining design criteria apply most directly to intervention projects, but the underlying principles apply to all projects.

Service constituency: The system should support agreement between parties on an accurate definition of the target population(s) for each contracted service and the best method to estimate its size during each of the years that the contract will be on foot. Target populations may be defined by combinations of geography, demography, service setting and health status. Any tendency to narrow the service constituency so as to leave out hard to reach groups needing outreach efforts should be avoided. A single agreement may relate to services in more than one constituency and a separate target population specification will be required for each one. Clarity and parameterisation of the service constituency is necessary for competent service planning and regional coordination, as well as for evaluation purposes.

Parsimony: The system should be designed to achieve its purpose with the smallest possible administrative burden. It should represent a significant (eg, at least a halving) of the burden of existing systems. Templates should be much shorter; much less output data should be required with efforts focussed mostly on the reporting of a modest number of powerful SMART results. Moreover:

- Outputs and results should not be stratified any finer than the service constituency. For example, if a contract relates to the provision of diabetes type 2 disease management services to Aboriginal people resident in a particular district, outputs and results should be reported in aggregate form for that target population. No additional stratification should be required by age, sex or different clinics as these are local operational matters.
- Only outputs and results pertaining to the intervention in the service constituency should be reported. For example, there should be no reporting of staffing levels as full-time equivalents, staff development or other inputs; and no reporting of consultations, creations of partnerships or other service enablers as these are local and regional operational matters.
- Not every area of output requires a corresponding results measure; rather adequate relevance should be achieved by the smallest possible number of result measures that cover at least 80% of the benefits of service activity.

Proportionality: For contracts of less than $100,000 pa in present value or less than three years in duration, output measurement alone should be deemed sufficient for accountability purposes. As contract values increase above this threshold, the attention to results measurement should progressively escalate in proportion. As the value exceeds a second threshold (the review suggests $250,000 pa in present value), the contract should include an identifiable quantum of funds to support the greater demands of results measurement expected at the higher levels of funding with the possibility for these funds to be used to subcontract a quasi-independent evaluation provider. Expensive projects or those with a relatively weaker prior evidence base also require more resources to be set aside for evaluation. Results measurement should be an affordable and justifiable use of resources viewed proportionally to the size of the Government's investment.

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Proximity: Result measures should be as proximal as possible to the point of service delivery for the purpose of timely accountability and to demonstrate that an adequate benefit has been delivered to a member or members of the service constituency. Fundamentally different forms of intervention should have different principles applied in designing the proximity of a results measure:

- For homogenous interventions delivered with a strong evidence base to individuals, the completion of the intervention in the individual to a specific external standard creates a result; eg, completion of the immunisation schedule to age 5yr in a preschool child.
- For heterogeneous interventions delivered to individuals, such as those involving case management or counselling, there should be a documented case plan over a specified period of time. The completion of a case plan represents a result; eg, completion of case plans for high risk clients of a youth health project; completion of case plans for clients with complex patient liaison needs.
- For heterogeneous interventions delivered at a community level, such as an environmental health program or Aboriginal public education using a mass communication strategy, a result will generally be demonstrated by cross-sectional survey data showing cognitive effects in individuals (with the hierarchy of awareness, knowledge, agreement, intention, action) or structural effects on the environment. Community-based interventions are rarely if ever homogenous; ie, exactly the same intervention from one community to the next.

Performance standards: The open ended measurement of results is not, of itself, capable of confirming satisfactory performance. A performance appraisal requires something more, which is reference to a performance standard specified as a negotiated target number for a result. The department should consider two levels: (i) an agreed value of the result, which could be a range of acceptable values representing what would normally be expected from such a contract; and (ii) a minimum result below which performance is so poor that the contract is automatically terminated. For many areas, it should be possible for performance standards to be derived from an underlying statewide population standard by a process of 'reverse engineering' (see Advisory Note 18 on this technical concept).

Time-frame: A time-frame for every results measure should always be clearly specified and the subsequent measurements made precisely in that way. In the majority of instances it should be possible and appropriate to rely on short or medium-term result measures for accountability purposes. In general, providers with new contracts (where reporting of results is mandated) should not be required to report any results until the end of the second year.

Three levels of aggregated reporting: It should be essential that result measures are sufficiently standardised so that they not only reflect on the performance of individual service providers, but are also capable of being aggregated up to the regional and statewide levels. Only in this way can regional Aboriginal health planning forums be held accountable for oversight and guidance of service providers in their region. The aggregation to the regional level should lend itself to providing the core information needed for regional benchmarking and implementation of a rotating series of regional performance reviews. Further aggregation of result measures to the statewide level should enable the WADoH to account more convincingly than in the past for the value for money derived from the State's investment in Aboriginal health.

Training and support: The move in focus from outputs to results is one that will require significant upskilling of relevant personnel in methods of results measurement, both within service providers and also within the Department. During the implementation of the results-based performance framework, there should be a specific professional development program established for this purpose in collaboration with the AHCWA.

Advisory Note 18: Reverse engineering of a performance standard

Advisory Note 17 makes reference to 'reverse engineering' of a performance standard for an individual contract based on an underlying statewide population standard. This implies a form of intelligent purchasing that requires both the purchaser and provider to have basic knowledge of population dynamics and some epidemiological inputs to a simple calculation.

For example, assume there is a statewide population standard to screen and identify at least 80% of new cases of diabetes arising each year in Aboriginal people aged 20yr or more, and for 75% of those to complete an initial managed health care plan by 12 months. For an individual service provider, what are the numbers of patients they must identify, manage and follow-up to achieve this statewide standard?

The key to the calculation is to have a credible estimate of the expected number of new cases per annum in the service constituency, a parameter on which advice from an epidemiologist can be obtained. The forecast would typically be based on a combination of sources such as biomedical survey data, and local hospital morbidity and mortality data, combined with the estimate of the size of the service constituency.

Assume that the expected incidence rate is 10 per 1,000 person-years and the service constituency consists of 2,500 Aboriginal people aged 20yr or more. This means that 25 new cases of diabetes are expected per annum in the service constituency and thus the agreed value of the result in the contract would be to identify at least 20 new cases per annum and for at least 15 of those to complete their initial health care plan. A minimum standard could be set at ten new cases of which five to complete the plan.

Standards and corresponding results of this nature can be aggregated to enable performance appraisal at the regional and statewide levels.

As a qualification of Advisory Notes 17-18, it should be possible for grants (as distinct from service agreements) to be made available to trial innovative but unproven intervention methods. In such instances, an independent *ad hoc* evaluation (ie, not necessarily based on standard approaches to results measurement), funded in part from the project budget should be possible and, if successful, could form the basis for moving to a service agreement. Although State Government funds invested through these programs should not be spent on full-scale research work, it could be strongly encouraged for service providers to form partnerships with academic groups and to apply jointly for separate research funding to undertake large-scale evaluations of innovative interventions, including the possibility of experimental service trials. Department grants to the service providers in such arrangements could be used as matching funds in applications to major NHMRC research grant schemes. Whilst the WA Aboriginal health sector has become resistant over time to collaborating with research groups, in part due to some past excesses in descriptive biomedical surveys and research telling more bad news without offering any real solutions, the review encourages the ACCHOs in particular to recognise the dawn of a new era, where intervention research (not descriptive research) should be welcomed and collaborations with top-performing intervention researchers embraced, especially where skills transfer forms part of the relationship.

The WA Data Linkage System has a role to play in assisting with several aspects of the results-based management framework, including the development of statewide population standards. However, simplification and considerable streamlining of the increasingly tardy access to that valuable information resource would need to occur, before it could once again be a feasible option for such purposes.

Beyond the horizon for results measurement

The review foresees that it will take around three years for a results-based performance framework to be implemented to the point of proven functionality. Its achievement will be confirmed not just when comprehensive results information is flowing from service providers and aggregated at regional and statewide levels, but when a cultural shift has been fully effected towards a universal, transparent system where good results are rewarded and poor results predictably lead to a loss of financial support. Similar to other areas of the health system, the vast majority of Aboriginal health service providers take their contractual obligations and reporting responsibilities very seriously. However, there has been a tendency in a small number of cases for organisations to cling to an activism model, believing that problems can be solved through informal networks and political interventions rather than through professional managerial solutions to lift performance. It is imperative to future progress in Aboriginal health that political workarounds in the face of poor performance or failures to report are no longer tolerated or supported.

Beyond that horizon, a vision for the further development of the system could include at least two constructive possibilities:

- **Independent validation of results**: Once fully established, it should be possible to validate the new system of results measurement by an external and independent audit team on a small random sample of projects. Assuming there would be adverse consequences from a failure to convince the audit team that the results were a valid representation of the facts, one might expect such a system to provide a strong disincentive for putting forward misleading information. Submission to such a random audit could be a contractual condition. The methods would be analogous to those used by medical colleges to prove the reliability of self-reported professional development activities. The results of such a periodic audit in the form of an audit group's report might also satisfy the Treasury that results have been subject to a sufficiently independent validation.
- **Results-based funding**: After establishing a credible and effective system of results measurement, it may be possible to strengthen the connection between results and investment by commencing to purchase results prospectively in some areas using a results pricing model, especially in programs where measurements are relatively well standardised. This possibility further underlines the importance of a standardised approach to results measurement rather than allowing each service provider to devise unique definitions of results that have little prospect for generalisation. Approaches analogous to incentive practice payments for discrete individual-level interventions,[287] or social benefit bonds for broader community level interventions,[288] are not out of the question. Under a results-based funding model there could be incentive payments that are based on individual service providers, joint ventures within regions or a combination of the two levels.

[287] See the Commonwealth's Practice Incentive Program at http://www.medicareaustralia.gov.au/provider/incentives/pip/.
[288] Ward JE. New money for chronic diseases: can clinicians and entrepreneurs deliver outcomes eluding government? *Med J Aust* 2012; 197: 268-270.

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