

Effective and inclusive intervention research with Aboriginal populations: a rapid review

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An **Evidence Check** review brokered by the Sax Institute for the NSW Department of Health

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Glossary and Abbreviations

Glossary:

Systems research: research which aims to understand how things influence one another within a whole

Endnote: software for managing references

Yarning: talking

Abbreviations:

WHO: World Health Organization

GP: General practitioner/ family physician

HBA1C: A medical test that measures the amount of glycated hemoglobin (sugar attached to hemoglobin) in the blood – used in diabetes care as a measure of long term blood glucose control

NT: Northern Territory

NSW: New South Wales

AIHW: Australian Institute of Health and Welfare

NAGATSIHID: National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data

NPHP: National Public Health Partnership

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Executive Summary

This report describes categories of intervention research impacting on Aboriginal populations as well as the potential levels of influence for interventions. Preventive intervention research can take several forms of delivery such as legislative, education or systemic such as intervention research about technology or information systems. Interventions found for this review fell into several categories including policy interventions (at state or regional levels), community-based interventions, individual interventions directed toward a particular condition or risk factor (eg tobacco) and interventions directed toward a service (eg primary care or justice).

Main Findings

The 'best bets' for effective and inclusive intervention research with Indigenous populations is discussed in Chapter 6. The 'best bets' include general elements of successful intervention research that have been found to be appropriate and sustainable by communities and effective in achieving their intended outcomes. Some of these included: locally owned programs that are sustained, involve inter-sectoral collaboration and have sufficient resources to meet goals. Following best quality evidence, building local capacity and keeping a strong focus on good communication (for instance: elders, women to discuss 'women's business') were all recurring themes for effective and inclusive intervention research with Indigenous communities.

The evidence used to form this review is limited by its rigor. Much of the research describing evaluation was qualitative which described process, engagement and impact, but was unable to assess impact or outcome in a quantitative sense. More importantly there was a lack of correlation between characteristics of the intervention, or of the engagement with Indigenous communities and outcomes of the intervention under study. There is a substantial gap in the literature regarding work that was able to demonstrably link "good community engagement" to whether this actually led to good outcomes, or what aspects of good community engagement led to the outcomes. Systems research thinking and multi-disciplinary research teams are needed to improve this area in order to increase our understanding on how to effectively and inclusively work with Indigenous communities.

The lack of research around context of interventions highlights the gap in understanding as to how best to scale up or generalise interventions from one setting to others. Filling gaps in knowledge around specific Indigenous community approaches as well as knowledge about generalisability may help to balance the paradox of specific versus transferrable programming. This may include increasing our understanding of the interaction between the realities of specific Indigenous communities and intervention outcomes in order to fulfil the need to generalise and expand and adapt interventions that work in other settings.

Recommendations

We recommend aligning with several of the strong, existing, frameworks for working well with Indigenous communities. As well, we highlight several specific recommendations which follow from our review of the literature on effective and inclusive preventive intervention research. Existing documents that provide guidance as to the effective ways of working with Aboriginal communities include: the National Strategic Framework for Aboriginal and Torres Strait Islander Health (2003), the NSW "Two Ways Together" plan for working well together with Indigenous communities (2003-2012) and the NHMRC Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research (2003). These documents all highlight the importance of Indigenous ownership, the need to build Indigenous capacity, and the importance of multi-sectoral partnerships and recognition of holistic approaches to Indigenous health. If implemented as intended, these policies are likely to increase effective and inclusive intervention research with Indigenous communities.

However, there is a tangible need for sustained investment in programs supporting these strategies and guidelines. Several specific recommendations on this follow from our review.

- First, we recommend that reliable, valid and objective measures be used (or developed where they do not exist) to measure processes and outcomes (Mikhailovich 2007; Humphrey 2001). For example, measures to determine what aspects of community ownership or leadership best correlate to program success. Development of appropriate mixed methods based research approaches and better information systems is also important.
- Second, we recommend that further efforts are put into scaling up programs and policies that are known to work – and place efforts on better understanding how best to implement such known effective programs (eg seatbelt use, alcohol restriction, or tobacco taxation) into community settings. This will require understanding of the ways in which such programs can be adapted into local settings and research aimed at better understanding contextual influences on outcomes of interventions will be important to further inform future programs and policies.
- Third, there are multiple examples of community initiated and driven programs that address high priority community concerns. It is important that such programs are supported and evaluated appropriately, both for process and for effectiveness, in order to understand their effectiveness at the local level, and for their capacity to be scaled up or translated to other settings.

Finally, we recommend efforts to reduce systemic, institutional barriers to putting words into action. For instance, organisational barriers that may place tight time restrictions on relationship development and program delivery with Indigenous communities. Funding for policies and programs, with appropriate resourcing is vital in order to support and institutionalise appropriate engagement with communities. Further there is an important need for sustained investment in capacity in policy development and support, in practice (workers on the ground running programs) and in research.

Introduction

Background

The NSW Department of Health is establishing a four year program to provide grants to fund and evaluate demonstration projects that aim to prevent injury among Aboriginal people, as part of the NSW implementation plan for the National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes.

NSW Health has engaged the Sax Institute to assist in designing and implementing this project including the necessary preparation for designing and implementing an effective program that funds interventional research and evaluation in injury prevention for Aboriginal people. The program aims to build on existing knowledge about what is known in terms of effective interventions to prevent and reduce injury.

The aim of the demonstration grant scheme is to fund, run and evaluate promising intervention research projects that will reduce injury in Aboriginal populations in NSW.

The Sax Institute will consult with a Reference Group and Aboriginal communities to set priorities for funding intervention research into Aboriginal injury prevention.

The following decisions need to be made by the Reference Group and communities in consultation:

1. Are there particular causes of injury or types of injury that the funded intervention projects should (or should not) address?
2. Are there particular types of intervention approaches that the projects should (or should not) consider?
3. How should the funded intervention research project be conducted?

This is one of three reviews subsequently commissioned to meet these objectives.

Purpose and structure of this report

The stated purpose of this review was to:

- Inform the reference group and communities in consultation about past experiences in conducting preventative intervention research.
- Provide recommendations on criteria for the management of successful intervention research projects to be funded by the scheme.

The review will address the following questions:

Question 1: How has preventive intervention research undertaken amongst Aboriginal communities in Australia been organised in the past?

- The review includes a descriptive overview of the major categories of intervention research, with a broad definition that includes individual and community level interventions, and interventions of different types and forms of delivery.

Question 2: What are the characteristics of preventive interventional research that have been most successfully implemented within Aboriginal populations in terms of: acceptability, participation, sustainability and outcome

- Effective implementation of a program/approach includes the following dimensions:
 - feasibility of the program/approach;
 - sustainability of the program/approach;
 - acceptability of the program/approach within the relevant Aboriginal communities.
- The review includes information on the levels and types of resources and commitment that are required for successful injury prevention programs.

- The review includes evidence that particular types of interventions are more successfully implemented in major Aboriginal population subgroups such as:
 - parents and very young children, children, adolescents and young adults, adults, and older adults;
 - remote, regional and urban communities; and
 - men and women.
- Based on the evidence, the review includes a 1 page summary of best bets for each Aboriginal population subgroup or the NSW Aboriginal population as a whole

The review also:

- identifies areas where there is strong evidence in relation to the review questions; where there is equivocal or conflicting evidence; and where there are gaps in the evidence,
- provides a comprehensive coverage of research in the peer review literature including academic databases (e.g. Cochrane, Medline, Psycinfo),
- provides a comprehensive review of the grey literature including government reports, agency reports, reports from educational bodies such as universities and TAFE/vocational education providers,
- focuses on literature published between 1995 and 2010
- focuses on evidence from Australia,
- provides commentary on applicability in remote, regional and urban settings in terms of each of the research questions.

Additional details on methods are provided in the following chapter, Chapter 2, with tabulated relevant references presented in Chapter 3. The first question set regarding how preventive intervention research with Aboriginal communities has been undertaken in the past is reviewed in Chapter 4 and the second set, regarding the characteristics of preventive intervention research that have been most successfully implemented within Aboriginal populations, is reviewed in Chapter 5. Chapter 6 discusses the applicability of the findings to NSW and Chapter 7 discusses recommendations. Conclusions are given in Chapter 8.

Methods

Search terms

Key search terms were sourced from those commonly utilised in key databases (e.g., Medline) and applied as follows:

- ["Aboriginal" OR "Indigenous" OR "Torres Strait"] AND
- ["intervention" OR "evaluation" OR "program"] AND

When categories were applied to databases, the following potentially relevant categories were searched:

- Aboriginal Studies
- Architecture, Design and Planning
- Behavioural and Social Sciences in Health
- Education and Curriculum Studies
- Education
- Exercise and Sports Science
- Gender and Cultural Studies
- Indigenous Health Studies
- Media and Communications
- Medical Humanities
- Medicine
- Peace and Conflict Studies
- Project Management
- Psychology
- Public Health
- Social Work
- Socio-Legal Studies
- Sociology and Social Policy
- Transport/Logistics
- Work and Organisational Studies

On-line Databases

A search of the popular nominated peer-review databases (Cochrane, Medline, PsychInfo) failed to locate sufficient references. Therefore the following databases were systematically searched for both peer-review and grey literature, applying the search terms described above:

The following databases were systematically searched for both peer-review and grey literature, applying the search terms described above. The number of hits describes the total number of potential relevant sources of information for interventions with Indigenous communities in Australia. Further sorting of these references occurred and is outlined in a flow chart below.

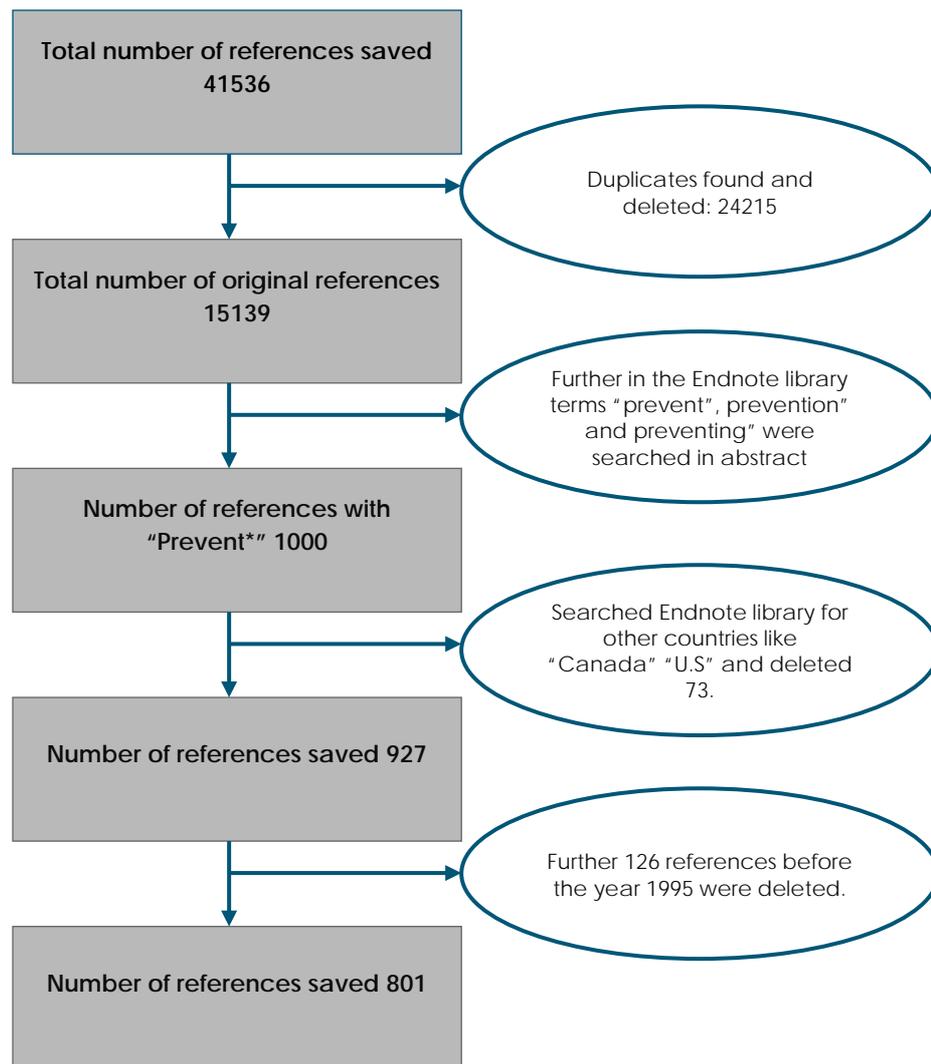
Table 1: Databases searched by date and number of “hits” (potentially relevant) sources

Date	Database	Number of Hits
30th March 2010	AIATSIS: Indigenous Studies Bibliography	2342
30th March 2010	AEI-ATSIS : Australian Education Index, ATSIS subset	1386
1st April 2010	MAIS-ATSIS : Multicultural Australia and Immigration	428
1st April 2010	ATSIhealth	1218
6th April 2010	AGIS-ATSIS	161
1st April 2010	Anthropology Plus	40
1st April 2010	Web of Science	2305
1st April 2010	ATRI : Australian Transport Index	47
1st April 2010	Scirus	1358911
1st April 2010	Medline	1839
1st April 2010	CINAHL	329
6th April 2010	AGELINE	41
6th April 2010	APAIS-Health	346
6th April 2010	Australian Indigenous HealthInfoNet	41
6th April 2010	Dissertation & Theses Full Text	1805
14th April 2010	Expanded Academic Index ASAP	1191
14th April 2010	Health & Society Database (H&S)	912
6th April 2010	PsycInfo	818
14th April 2010	University of Sydney Theses	712
14th April 2010	A+ Education	1008
6th April 2010	ERIC : Educational Resources Information Center	1364
14th April 2010	Libraries Australia	863862
14th April 2010	Factiva	201,125
14th April 2010	TVNews	487
14th April 2010	Child Welfare Information Gateway	0
14th April 2010	Education Research Theses	1805
6th April 2010	VOCED : Vocational Education and Training Rese	2688
14th April 2010	Communication & Mass Media Complete	99
6th April 2010	RURAL : Rural and remote health database	92
6th April 2010	Legaltrac	112
6th April 2010	AGIS Plus Text: Attorney General's Information Service	197
14th April 2010	CINCH: Australian Criminology Database	850
1st April 2010	Clinical Evidence	0
1st April 2010	Cochrane Library	4
6th April 2010	EBM Reviews : ACP Journal Club	1
6th April 2010	EBM Reviews : Database of Abstracts of Reviews of Effectiveness (DARE)	68
6th April 2010	EBM Reviews : NHS Economic Evaluation Database	17
14th April 2010	eTG Complete (Therapeutic Guidelines)	0
6th April 2010	Health issues in Criminal Justice (CINCH-Health)	342
6th April 2010	Maternity and Infant Care	58
16th April 2010	PAIS : Public Affairs Information Service	0
16th April 2010	APA-FT : Australian Public Affairs Full Text	908
16th April 2010	Capital Monitor's University Intranet	9

16th April 2010	ParlinfoWeb	98
6th April 2010	All EBM Reviews: e.g. Cochrane DSR, ACP Journal Club	143
16th April 2010	Social Work Abstracts	44
16th April 2010	Social Services Abstracts	0
16th April 2010	AFPD : Australian Federal Police Digest	0
16th April 2010	Finding Australian Government reports	0
16th April 2010	New South Wales Parliamentary & Information Resources	0
16th April 2010	Peace Research Abstracts	0
16th April 2010	bpress legal repository	0
16th April 2010	AustLII : Australasian Legal Information Institute	17527
16th April 2010	Business Source Premier	0
16th April 2010	WORKLIT	2
16th April 2010	AIM Management and training	1

As is summarised below in Figure 1, a total number of 801 reference citations were saved following a first and then second pass through the literature search (as outlined in the Table and Flow Chart above). The 801 citations were then further reviewed by reading every abstract for relevancy to this review about effective and inclusive intervention research with Aboriginal populations. The full text was then obtained for a total of 316 final references. Those articles retained were those which were preventive intervention research with Australian Indigenous populations and which addressed some of the following topics: acceptability, increased participation, sustainability, resources required for the intervention, population subgroups (gender, age, remoteness), improved outcomes, reduced barriers, cultural sensitivity, improved coverage of programs (eg vaccination), challenges, future directions, and/ or recommendations.

Figure 1: Reference extraction from databases to final (Endnote) library



Quality of evidence

A first level of assessment was to grade the quality of the evaluation method applied to assess the effectiveness of the intervention. The following guidelines were applied:

- GRADE A: Randomised controlled trials (key features: randomised, control group).
- GRADE B: Cohort or case-control designs (which take into account important confounders, are not seriously flawed with respect to selection bias, or lack comparability of cases with controls).
- GRADE C: Before / after with statistical testing but no control or unexposed group or descriptive qualitative comparisons to control group but no statistical testing; time series or cross-sectional but with no statistical testing or no control or unexposed group; cohort or case-control designs with important limitations with respect to confounding, bias, sample size or inappropriate statistical analysis.
- GRADE D: Descriptive (including before / after studies with no significance testing), experiential, case studies

The Promise Matrix

As high quality “Grade A” studies were known to be rare for evaluations of Indigenous injury prevention programs, a second level of assessment of intervention effectiveness was applied, namely an adaptation of the Gill et al (2005) “Promise Matrix”. The original matrix is presented in Figure 1.

Figure 2: The Promise Matrix

Certainty of effectiveness* (Risk)	Potential population impact^ (return)		
	Low	Moderate	High
Quite high	Promising	Very promising	Most promising
Medium	Less promising	Promising	Very promising
Quite low	Least promising	Less promising	Promising

* The confidence from the evidence that the intervention will produce a benefit under ideal conditions

^ Efficacy X (population reach x uptake)

As the quality of evidence, as described in the section above, was likely to show little variation and tend toward low grade quality, alternative guidelines were applied to assign high and low certainty of effectiveness grading. Also, as indicated in the footnotes to the table, a formula including an approximation of the population size is typically used when applying the promise matrix to assign the level of promise to potential population impact. As this is not possible for the vast majority of Indigenous program evaluations, alternative guidelines were also applied to assign high and low levels. The guidelines were as follows:

- **LOW POPULATION IMPACT:** not many people affected by problem; intervention is for example 1:1 (eg one parole officer to one individual); intervention is very expensive; community doesn't like or doesn't use the intervention.
- **HIGH POPULATION IMPACT:** many people affected by problem; intervention reaches many (e.g., legislation to affect entire region or school program for all grades); intervention is cheap, easy to distribute or self-propagating; communities/individuals like the intervention.
- **LOW CERTAINTY OF EFFECTIVENESS:** few studies have evaluated effectiveness of the intervention; or studies have evaluated the intervention and shown poor effectiveness; or studies have shown variable effectiveness but the studies themselves were poorly conducted (e.g., a poor GRADE on levels of evidence); or intervention might have been shown to be effective but in a very different population.
- **HIGH CERTAINTY OF EFFECTIVENESS:** studies have evaluated the effectiveness and shown strong objective outcomes (e.g., routinely collected data showing decrease in poor outcomes for example); research has been replicated and continues to show good outcomes after the intervention; studies showing good outcomes were rigorous (i.e., good GRADE on levels of evidence – large populations, accurate data analyses, strong measurement, few biases, take into account potential confounding variables).

Relevant papers

While the aim of this review was to provide an analysis of effective and inclusive intervention research with Aboriginal populations, due to the range of potential intervention research in

the literature – and the breadth of the areas for intervention (for example, health, education, justice) – not all potentially relevant references may be included. Furthermore, information about Aboriginal programs are often not published or not published in accessible documents and in general unsuccessful programs are rarely published at all. Therefore, this rapid review provides a comprehensive search of the broad literature. It also provides rationale for inclusion and exclusion of references and draws conclusions based on a breadth of resources from the fields of health, education, justice and does so by summarizing key themes from across the published literature as well as the grey literature. This written review provides a summary of the relevant findings from 316 articles and approximately 50 documents sourced from the grey literature. Table 1 summarises evaluations of preventive interventions with Indigenous communities published in the peer-reviewed literature.

Organisation of preventive intervention research amongst Aboriginal communities in the past

This chapter address the first question of interest: How has preventive intervention research amongst Aboriginal communities in Australia been organized in the past?

Categories of Intervention Research

An intervention describes any instance of interfering with typical practice. Preventive interventions are those which aim to prevent, improve or stabilise a condition or situation and preventive intervention research is thus the process of gathering information to better understand an intervention and ultimately to improve it. Preventive intervention research is therefore a broad area that can include studies such as: assessment of legislative policies, investigation into organisations, surveillance for new cases, assessment of service delivery, treatments or programs aiming to reduce poor outcomes. Intervention research can be either efficacy and/or effectiveness research. Efficacy refers to whether the intervention works under ideal conditions and effectiveness refers to whether the intervention works under real-life conditions. Systems research seeks to determine the effectiveness of the program under study in real-life conditions but also the pathways and mechanisms of change due to the program under study as well as any potential effects on other aspects of the system (side effects or externalities).

Broad categories

There are four broad categories within intervention research: process research (how did the intervention work?), context research (could the intervention work elsewhere?), research about effects (does the intervention work?) and economic research (is the intervention good value for money?) (WHO Alliance for Health Systems Research 2009). There are various research methods which can be applied to investigate each of these categories of intervention research. Research methods, in order of increasing rigor or quality include: qualitative research methods (focus groups, interviews), case studies, pre/post descriptive studies, time series, case-control, cohort and randomised studies.

The term "participatory" or "participatory action" research is often used with interventions in Indigenous communities. This term describes research that actively involves the local community in all aspects of the research process. However, it has been previously noted that past research has been termed participatory research yet true participation of the community does not occur (Indigenous Peoples Health Research Centre 2005).

Levels of influence

Interventions and intervention research can be aimed at the individual, family, community, state or country level for all study design types. For instance, a study of the effectiveness of midwives on pre-natal care at the individual level (Stamp 2008), of the Tangentyere Night Patrols at the community level (Elek 2007) or of the "Close the Gap" campaign at the country and state levels.

Interventions of different types and forms of delivery

Interventions may be delivered in several forms including one to one delivery at the individual level, community-delivered to an entire group, or legislative reform where effects are widespread. Interventions may take place at the client level (eg student or patient, patient's family), at the health care worker level (eg GP, Aboriginal health worker, nurse, midwife, pathologist), or an intervention may be aimed at changes in service delivery (eg monthly check-ups for chronic disease). Interventions may also be aimed at a product or technology (eg digital X-rays or new pharmaceutical), information systems (eg improved recording of Indigenous status in health care records), management and governance (eg changed reporting lines, or new legislation to regulate use of a scarce product or changes to ethical guidelines) or economic (eg changes to cost of a service).

Examples of individual level interventions include: a parole officer with one individual or a GP with a patient. At the community and legislative levels examples include: the delivery of health messages on TV (eg anti-smoking messages), or changes to legislation around seatbelt use or mobile phones while driving a vehicle. Interventions may test a product or technology such as the on-site diabetes testing product for HBA1c to assess diabetes control (Shephard 2006) or assessment of a computerized guideline program (Baillie 2003). Interventions may also test a service or an organisational decision such as increased training in eye health (King and Baxter 2003) or pre-natal care (Stamp 2008). Delivery of interventions may be based on choice – such as signing up for a weight-loss program. Interventions may also be community based, and involve systemic change – such as fluoridated water to prevent dental cavities.

This document of effective and inclusive preventive intervention research with Indigenous people reviews interventions directed at various **levels** (state/region/community/individual) as well as for various **conditions** and **services**. To illustrate: several interventions are reviewed which evaluate policies or programs delivered to a state or region. These include an evaluation of alcohol restrictions in Alice Springs (Senior 2009), violence prevention (Poelina and Pendrisat 2004), Night Patrols (Elek 2007) and NSW housing (NSW 2010). This document also summarises interventions delivered to one or more community sub-groups. For instance, Sanders (1996) and Homel (2006) both describe interventions to improve negative behaviors. Other articles describe interventions to reduce crime (Siegel 2002) (Wawrington and Wright 2003) (Polson and Chiazzi 2003) (Yimi 2006); or address suicide (Reynold 1999) (Capp 2001) or general health promotion (Rowley 2000). Interventions reviewed also fell into categories based on the condition being researched. For instance there are interventions about hearing (Ryan 2006), alcohol use (Brady 2002), tobacco use (Harvey 2002), cardiac health (Shephard 2003) (Hoy 2003), mental health (Nagel 2009), cervical screening (Binns 2006) and diabetes (Tyrell 2003) (Shephard 2006). Last, interventions also can be categorised by the type of service; for instance, primary care interventions (Ellis 1997) (Baillie 2003) or justice interventions (Gerber 2008). It is of note that almost all identified intervention research studies were conducted in rural or remote settings.

Characteristics of successful preventive interventional research

This chapter address the second question of interest: Characteristics of preventive interventional research that have been successful in terms of acceptability, participation, sustainability and outcome; describes the levels and types of resources and commitment required for successful injury prevention programs and discusses effective and inclusive intervention research with sub-populations by age, geography (urban, regional, remote) and by gender.

Characteristics of preventive intervention research in terms of acceptability, feasibility, participation, sustainability and outcome

A common, overarching, theme emerged from the published and the grey literature on characteristics of effective and inclusive preventive intervention research with Indigenous communities. This common theme is best summarised by a quotation taken from a workshop about research with Indigenous people in the NT where a participant talked about the views of what is important for intervention research from Indigenous and non-Indigenous perspectives. This participant said "The list is very similar, but what we mean by and do with the words is different" (Franks 2001). Again, it is of note that most identified programs were reporting on programs implemented in remote settings.

Characteristics of preventive intervention research with good **acceptability**:

- **Communication:** Asking the right question from the start is key (Franks 2001) as it ensures the relevance of the research and thus the acceptability of the process of research as well as the final findings. This may include the typical first questions: 'What are the needs and how can they be addressed?' but potentially more important, questions before embarking on acceptable research with Indigenous communities should also ask 'What do people know?' and second 'What do people value?' (Weeramanthri 1996) and be open to cues from community members which may be non-verbal and potentially symbolic (Shahid 2009); silence does not mean acceptance (Hurley 2003)
- **Permission:** should be sought from the appropriate individuals, groups or organisations in a community; this may mean community elders or leaders (Bagg and Valuri 2003). It is important to note that the term 'Elders' may not always mean men or women over fifty or sixty years of age. They are a person who is recognised within the community who has the trust, knowledge and understanding of their culture and permission to speak about it (Hurley 2003)
- **Commitment to action** after research ends
- **Holistic approach** (ie not super-specialised researchers, not silo projects). For instance, the Victorian Aboriginal Health Service provides holistic primary care services as well as a social enterprise restaurant – Charcoal Lane – to increase the skills and self-esteem of Aboriginal youth (Oxfam Shadow Report 2010)

Characteristics of preventive intervention research with good **participation**:

- **Work with locals** and within local community relationship systems (such as kinship systems), Indigenous community leaders, elders and staff
 - **Integrate** the multiple demands on staff time – from service delivery to research projects
 - **Build local capacity** – a suggestion of an effective way to do this is through "pairing" of an Indigenous and a non-Indigenous staff person (Stamp 2008), called "The Malparara Way" in one study (Woods 2000)
- **Time:** (a) Allow time to build relationships "The cost-effectiveness of listening and thinking is enormous. It's very cost effective to do nothing for a few weeks at a time before you start doing things, and we don't value that" (Franks 2001) and (b) Understand that time-oriented thinking may differ by community. Reminders may be

helpful. For instance in one study participation in a cervical screening program was increased by producing reminders for women to attend screening and follow-up (Binns and Condon 2006).

- **Communication:** Where Indigenous knowledge and communication styles were recognized, valued and used-- interventions were more likely to have good participation. Taking the following into consideration may be useful (Franks 2001):
 - Gurrum' – a Yolgnu word meaning 'a gentle way of communicating'
 - Marr-yuwalkthirr' – 'able to believe in each other's truth, able to see the truth in each other'.
 - Kulinytjaku' – a Pitjantjatjara term meaning 'to listen'
 - Ngapartji-ngapartji' – a Pitjantjatjara term for 'reciprocity'
 - Kanyini' - 'to have, to hold, to care' which 'reflects a commitment, a full engagement, including all that went before and all that will go after'

Characteristics of preventive intervention research with good **sustainability**:

- **Long-term, personal connection** (ie no fly in/out on same day for remote communities) (Franks 2001). In an urban context a long-term connection might mean sustaining contact over a long period of time.
- **Fits with existing structures such** as Indigenous kinship systems. Kinship and moiety systems define social structuring in some Indigenous communities, particularly in remote settings, and define an individual's roles and responsibilities in their community. These relationship systems influence everyday behavior including: who one can marry, who is responsible for another person's misdeeds, who can communicate with who -or who will care for the sick. Up to 70 different types of relationships (including blood and class) may exist in some Australian Indigenous communities (eg sister, mother etc) (Parkin and Stone 2004). Kinship and family are also important in urban and rural contexts but communities are less likely to be structured in terms of moiety systems, or have marriage rules as in more rural settings
- **Share research findings** (both interim and final) – when a community sees positive effects – it's a positive feedback loop to doing more good research together (Scott 2001) (Franks 2001)
- **Adequate resources:** infrastructure, materials and human resources. Effectiveness of programmes can be compromised by inadequate resourcing (Gray 1999)
 - Staffing – staffing needs to be thought of more deeply as many staff leave their posts due to remoteness, lack of comfort with role or different expectations. To ensure adequate staffing – staff should be:
 - Local --for instance in an asthma prevalence study in children local staff were said to be essential to the success of the study (Shibasaki 2000)
 - Given appropriate, standardised training:
 - Standardised training – expectations due to differing skill sets and lack of standardized training can lead to lowered self-esteem, departures from job and detrimental results on programming (Woods 2000)
 - Management training - Invest in training Aboriginal staff in business, financial management so they can own and sustain programs –this worked successfully in the Sunrise Health Service in the remote Kimberley (Oxfam Shadow Report case study 2010)
 - Given flexible timelines for work, including allowing time off for significant cultural events (Dept of Education, Employment and Workplace Relations 2010) (WA Health Employment Guide 2010)

Characteristics of preventive intervention research with positive **outcomes**:

- **Multi-disease-based, integrated, inter-sectoral approaches** – it may be valuable to include those outside the health sector (eg housing, resource needs) (Awofeso 2010). Many examples exist of the positive features of bringing several groups together on a shared goal to increase the effectiveness and inclusiveness of interventions with positive outcomes. Several of these examples include: a research study of continuous quality improvement at Alice Springs Hospital which brought the Tangentyere Council and 9 other groups together from planning to evaluation phases (Scott 2001); another study in Victoria found that providing a liaison between hospital and community programs in their Access to Services for Koories program, improved outcomes (Oxfam Shadow Report 2010); and the Many Rivers Alliance in Northern NSW brings together 5 Aboriginal Community Controlled Health Services and 2 Aboriginal Medical Services to reduce duplication, share best practices, and evenly distribute resources (including staff) to improve outcomes in primary care (Oxfam Shadow Report case study 2010)
- **Good health information systems** were cited as important to successful outcomes in several studies. One example of this is the rigorous study of cervical screening outcomes in 13 Aboriginal communities in rural Queensland (Coory 2002) which found that those communities with good health information systems had much better screening outcomes.
- **Broad approaches** to reach community: several programs with successful outcomes used broad approaches to connect with the community. For instance, art, audio, visuals or story. For instance, the Port Youth Theatre Project was used to address violence in Indigenous populations in Adelaide (Clapham 2004) and the Northern Territory Aboriginal Road Safety Program held a Road Safety Song Competition where Aboriginal bands were encouraged to write a Road Safety song and compete in a local music festival (Senserrick 2007). However the effectiveness of such approaches is unknown.

Major Gaps

- There is a need to **develop measures** that are reliable and valid – consistent and allow long-term monitoring of outcomes across and within communities for various outcomes including both objective (eg hospitalisations) and subjective (eg self-esteem)
- There is emerging evidence on various health conditions (eg violence, mental health, injury) that is condition specific and usually small scale – however gaps exist on **evidence about scale up** of programs that are known to be effective (eg Alice Springs violence patrol works but needs huge people power and it is not clear how scale-up to more communities would work (Elek 2007)
- **Lack of rigorous evaluations** (Mikhailovich 2007) and **good data** on Indigenous people (Ivers 2008) – the majority of research involves stakeholder interviews and analysis. Very few, if any studies actually evaluate how the various stakeholders (community, program staff, researchers) worked together or what it was about the engagement that led to positive outcomes. Rigorous methods may require mixed methods with epidemiologists, health economists and qualitative researchers working together and ideally employing systems based thinking which incorporates the holistic approach of Indigenous communities. A part of the lack of research rigor is the gap in correlation between “working relationships” and outcomes – authors will write about how they did, or did not, work well with Indigenous communities – but it is not clear what behaviours (or lack of behaviours) or circumstances were particularly useful or what may have occurred with the project/outcomes if these behaviours or circumstances were different (Binns and Condon 2006).
- There is a need for more **input on preventive intervention research from Indigenous people** themselves. Little formative research has been published on development of programs or from the perspective of the Aboriginal patient, service provider, community member, policy maker or researcher. There may be a need to acknowledge that capacity in this area needs to be built but better understanding

Indigenous perspectives and methods of Indigenous research would better inform development of appropriate and effective programs.

- While there is knowledge of good theories of working together (ie “talk the talk”) in reality there are **systemic institutional barriers to putting words into action** (ie cannot “walk the talk”). Examples of this include: tight timelines by granting agencies or other organisations, silo projects that don’t address the holistic desires of Indigenous communities, highly specialised researchers and research projects, little capacity with respect to time and money to include training of locals, the lack of institutional support of non-academic ways of distributing information to stakeholders limits its actual use, limited institutional support of the time required to build relationships with Indigenous communities
- In some cases, evidence or new policies exist but are either **slow to implement**, put into action or fully expand (Australian Human Rights Commission Social Justice Report 2006). The lack of implementation of National and State based policies on injury prevention or safety promotion in Aboriginal people are key examples (NSW Health 2003) (NPHP 2004)
- Strategic decision-making typically invites Indigenous involvement after the basic decision to intervene and how to intervene has been made (Australian Human Rights Commission Social Justice report 2006).
- **Computerised data systems** or electronic records need to improve in accuracy, coverage and availability and should include data on Indigenous status, perhaps also kinship/ clan, retain data on previous place of residence, date of birth and improve capacity to provide information in a regular and timely manner.
- At the policy level there is typically inadequate **coordination** and national leadership in bringing the sectors together and to monitor and evaluate progress (Oxfam Close the Gap Shadow Report 2010).
- **Inventories** of existing services/programs and inventory of needs are required to prevent duplication and overlap and smooth silo approaches to ensure holistic coverage. Once existing, effective programs are known it may be useful to strengthen these programs versus continuing to fund new pilot programs or pilot staff – ie scale-up what works and reduce loss of capacity that occurs when silo programs end and staff knowledge moves on (AIHW NAGATSIHID Group 2006)
- There is a need **to build capacity** in finance, management and policy development for Indigenous people in order to reinforce the possibilities of true ownership and local governance (Lavarack 2009) (Victoria Health 2010) (ATO 2009)
- A recent paper by authors with the Cochrane Collaboration and the Menzie’s Centre in Australia discussed challenges for systematic reviews in Indigenous health. This paper also highlighted gaps similar to the ones we have collated from our review of the literature on effective and inclusive intervention research with Indigenous communities. These gaps are the limited number of high quality studies in Indigenous settings and also limited information available on the **contextual influences** of study outcomes (McDonald 2008)

Levels and types of resources and commitment required for successful injury prevention programs

There are significant gaps in the literature regarding information about resource needs. Very few documents highlight resources used, or resources needed – except for highlighting the need for consistent funding, consistent staffing and need for more resources. One article which evaluated an Aboriginal health worker and midwife pairing program (Stamp 2008) did talk about needing mobile phones, more private space for births (infrastructure), more cars (to deliver the full intervention which included prenatal and post-natal care) and more clerical support.

Policy resource

With respect to policy, there are several overarching policies that have been developed addressing Aboriginal injury issues. Key policies of relevance include the NSW Aboriginal Safety Promotion Strategy (NSW Health 2003), and the National Aboriginal and Torres Strait Islander Safety Promotion Strategy (NPHP 2004).

Both of these policies identify injury as a key issue requiring attention, and recognise the need for strong multi-sectoral partnerships and sustainable funding. The lack of implementation of these policies reflects current state and national focus, whereby agencies have focused injury funding around other major public health priorities such as falls prevention in the elderly at the expense of other injury issues. However, the impact has been that there is no coordinating centre that provides policy support across key injury issues, nor policy advocates for the multi-sectoral engagement and co-operation so important for injury issues. Unlike many other health issues, prevention of injury is addressed by a number of programs funded by many different sources. Although injury is a health issue, prevention programs are often conducted by non-health agencies such as police, justice, housing or other sectors. As a result, overall governance, coordination and support (for example, provision of resources) for injury activities are currently weak.

People resources

Resources required for injury prevention programs include policy capacity in various agencies, as well as capacity on the ground. Injury content is poorly represented in training for Aboriginal health workers, or curricula for medical staff or other allied health professionals working with Aboriginal people. Ensuring community capacity is equally important – having a good understanding that injury is predictable and preventable. This may require promotion of different strategies in safety promotion at the community level where understanding of injury and safety may have different connotations for Aboriginal people. The NSW Aboriginal Safety Promotion Strategy further outlines needs and strategies for people resources (NSW Health 2003).

Effective and inclusive intervention research with Aboriginal populations by subgroups (age, geography and gender)

All Subgroups

This section discusses effective and inclusive intervention research with Aboriginal populations by subgroup (age, geography and gender). For Aboriginal people as a whole several recurring themes were evident from effective and inclusive intervention research. This included real community engagement and ideally a locally owned program that fits within existing community practices which allows for inter-sectoral collaboration. For instance, one study in the Port Augusta and Whyalla areas discussed a pairing of Indigenous and non-Indigenous health care worker in a program that brought together the hospital as well as the Pika Wiya (Aboriginal health service) to provide not only pre-natal care but also helped to address the other essential needs of pregnant patients such as adequate housing (Stamp 2008). Similarly, a review of strategies to address violence in Indigenous communities suggested potential value in reintegrating traditional Indigenous shaming methods (Memmott 2002). Effective and inclusive interventions were those that were long-term, sustainable programs – some of which described programs that had been running for over 10 years. These sustained programs were able to demonstrate early intervention for children, follow-up and cyclical feedback to the community about positive changes. The literature demonstrated that where outcomes of a program are positive, more community support is garnered. For example, community support grew after renal and cardiovascular disease prevention programs prevented deaths and improved interim measures like hypertension and renal markers on Bathurst and Melville Islands (Hoy 2003). Similarly improvements to the computerised use of clinical care guidelines led to improvements in immunisation rates and thus developed further community support in remote communities in the NT (Baillie 2003). Positive outcomes of interventions were more likely where there was existing quality evidence and/or strong policy recommendations (Baillie 2003). Respectful communication was another quality of effective and inclusive intervention research with Aboriginal populations. The research findings demonstrated that interventions with Indigenous populations work best when there is a communication or ‘yarning’ that is cyclical and reciprocal (Begley 2005).

Challenges/gaps regarding sub-group evidence:

- Very little research evidence exists in the literature about sub-groups, and very little comparing groups eg techniques for young vs old, urban vs rural, men vs women.
- Indigenous communities are heterogeneous and vary dramatically from setting to setting. As a result interventions which work in Fitzroy’s Crossing in the Kimberley may not be effective with Indigenous communities in urban Sydney – even the use of the same intervention with two Indigenous cultural groups in Hall’s Creek is said to pose challenges (Bolton, personal communication). Very few papers or program evaluations however highlight the cultural context in which an intervention is delivered, limiting the ability to understand how well the program may work in other settings.

Age Sub-group

Several intervention research studies were conducted in defined age groups – these were adolescents and young adults and older women. For adolescents and young adults, inter-sectoral programs were deemed important to ensure effective and inclusive interventions. For instance, one study of a suicide prevention program for young people aged 15-24 years evaluated the WAYS program and found inter-sectoral collaboration (professional services and community) to be an important component of its success (Reynold 1999). Similarly Sanders (1996) found early intervention, and inter-sectoral and inter-organisation collaboration to be important to achieving gains in a program aiming to address behavior disorders in children and adolescents aged 0-18 years. A third example of a program for young adults 17-30 years old discussed the importance of locally owned programs which

authors believed to be essential to the effectiveness of the Jaru Pirrjirdi Project which sends young adults into the bush for outdoor programs aiming to reduce substance abuse (Yimi 2006). Literature was also found which described effective and inclusive intervention research for older people. For instance, the Nyirripi Grandmothers' Program was found to increase cervical cancer screening rates (Wilson 1999). Similarly, elder women were considered essential components of a study investigating "women's business" in 14 remote communities in the NT (Volkman and Kurnoth 2001) and also in workshops addressing sexually transmitted diseases, cervical and breast cancer in Ntaria (Taylor 1999). Having elder women involved is likely important due to the reluctance of Indigenous women to talk about "women's business" with men, or non-Indigenous individuals (eg a male GP).

Geographic sub-group

Effective interventions were also described by geographic sub-group including urban, rural and remote Aboriginal communities. Many of the intervention studies discussing rural and remote programs discussed the importance of sustained, long-term and ideally locally owned programs in these regions. Such studies included the long-term Alice Springs Alcohol Management Program (Senior 2009), the locally owned injury prevention program in Woorabinda in remote Queensland (Canuto 2000) and the "Healthy Lifestyle" intervention to address obesity, hypertension, nutrition, exercise in Looma in the remote Kimberley region (Rowley 2000) (Clapham 2007). With a long-term approach in communities, empowerment of local community members may be more likely to occur which is believed to help interventions achieve success (Tsey 2007). One example was given of a program that did not work because it was too short in its programming. It was a short term (one day workshop) on smoking cessation in remote Queensland (Harvey 2002). Strong community connections and inter-sectoral collaboration were also features of effective and inclusive intervention programs. For instance the Tangentyere Night Patrols in Alice Springs is a program where strong community connections are a feature (Elek 2007). A study in remote South Australia with the Naganampa Health Council discussed the need for more resources which was deemed important to ensure effective interventions (Ellis 1997). A common theme in studies occurring in rural and remote regions was the need to train local Indigenous health care workers. This training increased the self-esteem of local health care workers and led to greater ownership of programs. For instance, in the Riverland and Ceduna/ Koonibba Health Service Areas of rural South Australia Aboriginal workers were trained to do eye checks (King and Baxter 2003). Also, pairing of an Indigenous health care worker with a non-Indigenous health care worker was discussed as a method to ensure strong skills and cultural relevancy as well as increasing the skills and self-esteem of local Indigenous health care workers (Stamp 2008).

Gender sub-group

Gender was discussed in some of the intervention research conducted in the past. Very little research was found which discussed Indigenous men's health (Tsey 2000) (Tsey 2002). One of the studies which included young adult men was the Jaru Pirrjirdi Project and used bush trips as a programmatic way to address substance abuse in 17-20 year olds (Yimi 2006). The majority of the literature discussed intervention programs for women or delivered by women. For instance, the use of Story Telling for reproductive health education for women – a program delivered by the Ganangara Land Council and Women's Health Centre in Liverpool (Newman 1999). Also the use of Indigenous women and elder women to conduct programs on "women's business" including cervical cancer, breast cancer – the Nyirripi Grandmother's Program (Wilson 1999), workshops in Ntaria (Taylor 1999) and programs in 14 remote communities in the NT (Volkmar and Kurnoth 2001).

Best Bets by Sub-group

Best bets for all groups:

- Where outcomes are positive, community support is garnered (Hoy 2003)
- Community engagement, locally owned program, inter-sectoral collaboration
- Sustainable, long-term programs that address problems early (eg early intervention for children with risky behaviors (Yimi 2006), early intervention for mental health conditions (Nagel 2009), diabetes (Shephard 2006))
- Respectful communication / 'yarning' –that is cyclical and reciprocal

Age

- Early intervention for children demonstrating risk behaviors, learning disabilities etc (Reynold 1999) (Sanders 1996) and also early intervention for chronic conditions for older people such as diabetes and cardiovascular disease (Shephard 2006)
- Have elders lead (Wilson 1999)

Geographic (urban, rural)

- Sustainable, long-term programs worked best for all sub-groups but particularly for rural and remote communities (Senior 2009) (Tsey 2007)
- Locally owned programs also worked best for all sub-groups but again particularly well for rural and remote communities (Rowley 2000) (Yimi 2006)
- Inter-sectoral collaboration – while likely effective in all regions, this was more often assessed in rural and remote regions and said to support effective and inclusive interventions (Reynold 1999) (Elek, 2007)
- Highlight resource needs and sustainability – this was highlighted as particularly important for inclusive and effective programming in remote regions where resources are the most constrained eg staff (Ellis 1997)
- Train local Aboriginal health care workers particularly in rural and remote settings (King and Baxter 2003)

Gender

- Women-to-women programs for "women's business" (Volkmar and Kurnoth 2001) (Taylor 1999); use of Grandmothers (Wilson 1999)
- Pairing of health care staff (Aboriginal and non-Aboriginal). This was mentioned in several studies but in particular ones involving women's health (eg maternal/child care) (Stamp 2008)
- Communication/ 'yarning' – that is cyclical and reciprocal (Begley 2005) and using "story-telling" as a way to receive and give information particularly for women (Newman 1999)
- Collaboration between researchers and community-led initiatives for men's health has been useful (Tsey 2002).

Applicability of findings to NSW

More Aboriginal people live in NSW than in any other state or territory. Data from the 2006 experimental estimates for Aboriginal and Torres Strait Islander people shows that 29% (148,200 people) of Australia's Indigenous population live in NSW although Aboriginal people comprise only 2.2% of the total population in NSW (ABS 2006). The Aboriginal population is younger than the non-Aboriginal population, with 38% of the Aboriginal population in NSW aged 0-14 years in 2006 compared to 19% of the non-Aboriginal population. Only 3% of the Aboriginal population were aged 65 years or older, compared to 14% of the non-Aboriginal population.

In NSW, most of the Aboriginal population lives in major cities (42%), 33% and 19% living in inner and outer regional areas respectively, and 4% and 1% living in remote and very remote parts of Australia (ABS 2006). Other states with a high proportion of Aboriginal people living in major cities are SA and Victoria, whereas a high proportion of the Aboriginal population of NT and WA live in remote or very remote settings. Three major centres in NSW (Sydney, Coffs Harbour and Wagga Wagga) were among nine out of the 37 Indigenous Regions in Australia which accounted for half of the Indigenous population of Australia. Alongside Brisbane, Sydney and Coffs Harbour had the highest counts of Aboriginal people of any region in Australia (around 40,000 each).

Within the Indigenous region of greater Sydney, some of the most populous Indigenous Areas included Wollongong (3,124), Liverpool (2,193) and Kiama /Shellharbour (1,622). The Blacktown (7,058), and Penrith (4,085) (ABS 2006) local government areas also have large Indigenous populations and combined, Western Sydney has the highest population of Aboriginal and Torres Strait Islander inhabitants in NSW – including Aboriginal people born in the area (Darug, Gandangara, Tharawal) (Hurley A, 2003) as well as those who have moved from other regions.

In NSW, as in the whole of Australia, Indigenous communities are as diverse as any other community. The state contains Indigenous groups with different histories and languages, different ways of communicating, different local issues and priorities and different means of governance and community leadership. Since the majority of existing preventive intervention research is not rigorously evaluated or generalised to wider populations, it is difficult to make broad recommendations about applicability of previous preventive intervention approaches to NSW. However, it is reasonable to assume that the basic tenets of successful programs such as cyclical and reciprocal communication, community ownership, capacity development, holistic programming and so on, is very likely generalisable to most Indigenous settings.

However, because a higher proportion of the Aboriginal population of NSW reside in major cities or regional areas, investing significantly in programs that impact on these populations rather than only on programs impacting on people living in remote settings would be wise. Intervention programs which run in remote settings with high proportions of Indigenous people may not translate well into Aboriginal communities in urban settings. In urban settings there may be value in addressing both traditional/historic as well as contemporary realities of Indigenous culture (Weaver 1999). It is also of note that there are fewer documented evaluations and programs in urban settings despite that being where the majority of the Aboriginal population in NSW are living.

In general, researchers and Indigenous communities have documented effective ways of working together around Australia, and these will apply to Aboriginal communities in NSW. As well, the "Two Ways Together" plan (2003-2012) for working with Indigenous people in NSW is a helpful guide for effective and inclusive engagement with Indigenous communities. This document does not introduce new concepts but instead underlines the importance of long-term commitments (in this case, a 10 year plan for working together has been put forward in NSW 2003-2012). The planned monitoring and evaluation set out in the Two Ways Together document is valuable in that it aims to reduce duplication of reporting and aims to assess the

holistic approach to service delivery with Aboriginal communities. It will be useful if the monitoring and evaluation aspects include both objective outcome measures (eg hospitalisations or school attendance) but also outcome measures assessed using qualitative research methods (such as: evaluations of how well partnerships are working or the self-esteem of Aboriginal health care workers for example).

Conclusion (Recommendations)

This report discusses the categories of intervention research including process, context, effects and economic research at various levels of influence which can include individual, family, community, state or country. Preventive intervention research can take several forums of delivery such as legislative, education or systemic such as intervention research about technology or information systems.

The 'best bets' for effective and inclusive intervention research with Indigenous populations was discussed in Chapter 6. Given the general nature of these 'best bets' -they are expected to apply to Aboriginal populations in NSW as well as Indigenous communities across Australia. Some of these included: locally owned programs that are sustained, involve inter-sectoral collaboration and have sufficient resources to meet goals. Following best quality evidence, building local capacity and keeping a strong focus on good communication (for instance: elders, women to discuss 'women's business') were all recurring themes for effective and inclusive intervention research with Indigenous communities.

The evidence used to form this review is limited by its rigor. Much of the research describing evaluation was qualitative which described process, engagement and impact, but was unable to assess impact or outcome in a quantitative sense. More importantly there was a lack of correlation between characteristics of the intervention, or of the engagement with Indigenous communities and outcomes of the intervention under study. There is a substantial gap in the literature regarding work that was able to demonstrably link "good community engagement" to whether this actually led to good outcomes, or what aspects of good community engagement led to the outcomes. Systems research thinking and multi-disciplinary research teams are needed to improve this area in order to increase our understanding on how to effectively and inclusively work with Indigenous communities.

This review of the research evidence around prevention intervention research in Indigenous communities leaves us with several paradoxical findings. We summarize these paradoxical findings in three sub-groups: (1) specific vs general; (2) quick effects vs sustained change; and (3) the desire to summarise findings vs disadvantages of grouping heterogeneous findings. A first paradoxical finding is that of specific versus general approaches. The literature argues the benefits of culture and community specific programming (Clelland 2007) – highlighting the challenges of generalising research findings from a community in the Kimberley to a community in urban Sydney or even generalising research findings from two communities in the Kimberley region with different language and cultural underpinnings. On the other hand, however, the literature argues the benefits of large-scale, combined approaches – and highlights the need for a standardised direction for intervention research that involves leadership at state or national levels using standardised measures to collect data and enable comparisons over time and across communities. Filling some gaps in knowledge may help to balance these paradoxes. This may include increasing our understanding of the interaction between specific Indigenous cultures and intervention outcomes in order to better understand the contextual influences on outcomes. This is needed to better understand how policies and programs might be generalised to other settings. A second paradoxical finding is that of our need to 'stop talking and do something' which leads to short-term projects versus the long-term need to build capacity, local ownership and allow enough time for true collaboration. It is likely that doing both at the same time is a reasonable approach. A third paradoxical finding is that of researchers' desire to summarise the literature to determine lessons learned for best ways forward versus our inability to do so due to the heterogeneity of the research methods, target population, location and topics. To deal with these paradoxes is likely to gather lessons as we have in this document – gathering common themes across studies with varying topics and methodological rigor, in various communities – and also recognising the value and need for specific studies which shed light in distinct directions (eg road safety interventions in remote NT versus evaluations of state-wide legislation on alcohol).

Final recommendations from this review are as follows. To begin, the development of good research practice is an on-going process and that there is no formula that will guarantee ideal outcomes. It is likely that we need to work both on immediate changes (short-term projects that aim to have outcomes quickly) as well as long-term building for future (capacity development). Several clear ways forward do emerge however from this review. A combination of large scale programs (including legislative or policy driven), that are well supported by governments, organisations and local communities, as well as community led smaller to medium scale programs are needed. There is a need to have stronger evaluations that will employ mixed methods to investigate process and to measure outcomes, providing information on effectiveness, economic feasibility and also generalisability. Underpinning these needs is the need for good data. This includes using existing, or developing reliable and valid measures for various outcomes and gathering surveillance data on various topics to serve as a baseline benchmark for future measurement of change. Importantly, this data needs to be made available to communities in ways that can be used to improve health and service delivery.

References

- ABS, (2006). Population Distribution, Aboriginal and Torres Strait Islander Australians, 2006. Australian Bureau of Statistics. Canberra.
- AIHW, (2006). National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data: strategic plan 2006-2008. Canberra, Australian Institute of Health and Welfare.
- ATO, (2009). Factors Necessary to Start a Business: Indigenous small business owners in Australia. Retrieved November 18, 2010, from <http://ato.gov.au/onlineservices/content.asp?doc=/content/00220454.htm&page=11>.
- Australian Department of Education Employment and Workplace Relations, (2010). Indigenous. Retrieved 1 May, from <http://www.deewr.gov.au/Indigenous/Pages/default.aspx>.
- Australian Human Rights Commission, (2006). Social Justice Report 2006: Information Sheet 3: Indigenous participation in decision making. Retrieved 21 April, 2010, from http://www.humanrights.gov.au/social_justice/sj_report/sjreport06/media/3.html.
- Awofeso, N, (2010). The 2008-2030 National Indigenous Health Equality Targets: suggestions for transforming potential into sustainable health improvements for Indigenous Australians. Retrieved 1 May, 2010, from <http://healthbulletin.org.au/articles/the-2008-2030-national-indigenous-health-equality-targets-suggestions-for-transforming-potential-into-sustainable-health-improvements-for-Indigenous-australians/>.
- Baillie, RS, Togni, SJ, Si, DM, Robinson, G and d'Abbs, PHN, (2003). Preventive medical care in remote Aboriginal communities in the Northern Territory: a follow-up study of the impact of clinical guidelines, computerised recall and reminder systems, and audit and feedback. *BMC Health Services Research*; 3.
- Begley, L and Harald, P, (2005). 'Yarning for better health': improving the health of an Aboriginal and Torres Strait Islander population [corrected] [published erratum appears in *AUST FAM PHYSICIAN* 2005 Mar;34(3):117]. *Australian Family Physician*; 34(1/2): 27-29.
- Binns, PL and Condon, JR, (2006). Participation in cervical screening by Indigenous women in the Northern Territory: a longitudinal study. *Medical Journal of Australia*; 185(9): 490-494.
- Blagg, H, (2003). An Overview of Night Patrol Services in Australia. A-Gs Department. Canberra, Commonwealth Government of Australia.
- Brady, M, Sibthorpe, B, Baillie, R, Ball, S and Sumnerdodd, P, (2002). The feasibility and acceptability of introducing brief intervention for alcohol misuse in an urban Aboriginal medical service. *Drug and Alcohol Review*; 21: 375-380.
- Canuto, C, Craig, D, McClure, R, Young, L and Shannon, C, (2000). Woorabinda community-owned injury prevention project. *Aboriginal and Islander Health Worker Journal*; 24(4): 10-12.
- Capp, K, Deane, FP and Lambert, G, (2001). Suicide prevention in Aboriginal communities: application of community gatekeeper training. *Australian & New Zealand Journal of Public Health*; 25(4): 315-321.
- Clapham, K, O'Dea, K and Chenhall, RD (2007). Interventions and Sustainable Programs. *Social Determinants of Indigenous Health*. B Carson, T Dunbar, RD Chenhall and R Baillie. Sydney, Allen and Unwin.
- Clelland, N, Gould, T and Parker, E, (2007). Searching for evidence: what works in Indigenous mental health promotion? *Health Promotion Journal of Australia*; 18(3): 208-216.
- Coory, MD, Fagan, PS, Muller, JM and Dunn, NAM, (2002). Participation in cervical cancer screening by women in rural and remote Aboriginal and Torres Strait Islander communities in Queensland. *Medical Journal of Australia*; 177(10): 544-547.

- Davis, B, McGrath, N, Knight, S, Davis, S, Norval, M, Freeland, G and Hudson, L, (2004). Aminina Nud Mulumuluna ("You gotta look after yourself"): Evaluation of the use of traditional art in health promotion for aboriginal people in the Kimberley region of western Australia. *Australian Psychologist*; 39(2): 107-113.
- DHA, (2007). National Strategic Framework for Aboriginal and Torres Strait Islander Health 2003-2013: Australian Government Implementation Plan 2007-2013. Department of Health and Ageing. Canberra, Commonwealth Government of Australia.
- Elek, C, (2007). Relhe marre tnyeneme: community patrols in Alice Springs : keeping people safe. *Indigenous Law Bulletin*; 6(28): 24-26.
- Ellis, R, (1996). Models of excellence in indigenous community health: part four: Tennant Creek. *Aboriginal and Islander Health Worker Journal*; 20(5): 6-15.
- Franks, C, Brown, A, Brands, J, White, E, Ragg, L, Duffy, M, Walton, S and Dunbar, T, (2001). Research partnerships: yarning about research with Indigenous peoples. Casuarina, NT, Cooperative Research Centre for Aboriginal and Tropical Health.
- Gill, T, King, L, Hector, D, Hattersley, L, Farrell, L and Chau, J, (2007). Community level strategies to reduce weight gain and obesity: a rapid review. Sydney, Brokered by the Sax Institute for The Centre for Epidemiology and Research, NSW Department of Health.
- Gray, D, Saggars, S, Sputore, B and Bourbon, D, (2000). What works? A review of evaluated alcohol misuse interventions among aboriginal Australians. *Addiction*; 95(1): 11-22.
- Harvey, D, (2002). An evaluation of tobacco brief intervention training in three Indigenous health care settings in north Queensland / Desley Harvey ... [et al.]. KC-JYMDIRMJLYDM Tsey.
- Hamel, R, Lamb, C and Freiberg, K, (2006). Working with the Indigenous community in the Pathways to Prevention project. *Family Matters*(75): 18-23.
- Hoy, WE, Wang, ZQ, Baker, PRA and Kelly, AM, (2003). Secondary prevention of renal and cardiovascular disease: Results of a renal and cardiovascular treatment program in an Australian aboriginal community. *Journal of the American Society of Nephrology*; 14(7): S178-S185.
- Humphrey, K, (2001). Dirty Questions: Indigenous health and 'Western research'. *Australian and New Zealand Journal of Public Health*; 25(3): 197-202.
- Hurley, A, (2003). Respect, acknowledge, listen: practical protocols for working with the Indigenous community of Western Sydney. Liverpool, NSW, Community Cultural Development New South Wales.
- Ivers, R, Clapham, K, Senserrick, T, Lyford, M and Stevenson, M, (2008). Injury prevention in Australian Indigenous communities. *Injury*; 39 Suppl 5: S61-67.
- King, M and Baxter, S, (2003). Co-operative inquiry: the development of a visual impairment prevention program initiative for two Aboriginal communities in South Australia. *Contemporary Nurse: A Journal for the Australian Nursing Profession*; 15(3): 241-248.
- Lavarack, G, Hill, K, Akenson, L and Corrie, R, (2009). Building capacity toward health leadership in remote Indigenous communities in Cape York. *Health Bulletin*; 9(1).
- McDonald, EL, Baillie, RS, Rumbold, AR, Morris, PS and Paterson, BA, (2008). Preventing growth faltering among Australian Indigenous children: implications for policy and practice. *Medical Journal of Australia*; 188(8): S84-S86.
- Memmott, P, (2002). Community-based strategies for combating Indigenous violence. *University of New South Wales Law Journal*; 25(1): 220-227.
- Mikhailovich, K, Morrison, P and Arabena, K, (2007). Evaluating Australian Indigenous Community health promotion initiatives: a selective review. *Rural and Remote Health*; 7: 746 (online).

Nagel, TM, Thompson, C, Robinson, G, Condon, J and Trauer, T, (2009). Two-way approaches to Indigenous mental health literacy. *Australian Journal of Primary Health*; 15(1): 50-55.

National Public Health Partnership, (2005). *The National Aboriginal and Torres Strait Islander Safety Promotion Strategy 2004-2014*. Department of Health and Ageing. Canberra, Commonwealth of Australia.

Newman, J, Acklin, F, Trindall, A, Arbon, V, Brock, K, Bermingham, M and Thompson, C, (1999). Story-telling: Australian indigenous women's means of health promotion. *Aboriginal and Islander Health Worker Journal*; 23(4): 18-22.

NHMRC, (2003). *Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research*. National Health and Medical Research Council. Canberra, Commonwealth Government of Australia.

NSW DAA, (2004). *Two Ways Together: the NSW Aboriginal Affairs Plan 2003 - 2012*. NSW Department of Aboriginal Affairs. Sydney.

NSW Health, (2010). *Closing the gap: 10 Years of Housing for Health in NSW: An evaluation of a healthy housing intervention*. Sydney, NSW Department of Health.

Office of Aboriginal Health, (2009). *Aboriginal Employment: A guide to better attraction, selection and retention strategies across WA Health*. Perth, Office of Aboriginal Health, Department of Health Western Australia.

Oxfam, (2010). *Shadow Report: policy evaluation (qualitative) of legislation on closing the gap for chronic disease*. Retrieved 11 February, 2010, from <http://www.oxfam.org.au/resources/filestore/originals/OAusCloseTheGapShadowReport-0210.pdf>.

Parkin, R and Stone, L, (2004). *Kinship and Family: an Anthropological Reader*. Melbourne, VIC: Blackwell Publishing.

Polsen, M and Chiauuzi, A, (2003). *Volatile substance use in Mount Isa : community solutions to a community identified issue. Inhalant use and disorder*. Townsville, 7-8 July 2003, Australian Institute of Criminology.

Reynolds, J and Conroy, M, (1999). *Working Against Youth Suicide (W.A.Y.S.): an example of intersectoral and community collaboration in youth suicide prevention*. National Rural Health Conference (5th: 1999: Adelaide, SA).

Rowley, KG, Daniel, M, Skinner, K, Skinner, M, White, GA and O'Dea, K, (2000). Effectiveness of a community-directed 'healthy lifestyle' program in a remote Australian Aboriginal community. *Australian and New Zealand Journal of Public Health*; 24(2): 136-144.

Ryan, B-J, Johnson, A, Strange, A and Yonovitz, A, (2006). The 'Hearing Aid Effect' in Northern Territory Indigenous Australian children as perceived by their peers. *Australian and New Zealand Journal of Audiology*; 28(2): 55-74.

Sanders, MR and Markie-Dadds, C (1996). *Triple P: a multilevel family intervention program for children with disruptive behaviour disorders*.

Scott, T, (2001). *Implementing consumer feedback into a continuous quality improvement framework at Alice Springs Hospital*. Melbourne, VIC, National Resource Centre for Consumer Participation in Health, La Trobe University.

Senior, K, Chenhall, RD, Ivory, B, Stevenson, C, Research, MSoH, Health, MUSoP and Medicine, P, (2009). *Moving beyond the restrictions : the evaluation of the Alice Springs Alcohol Management Plan / Kate Senior ... [et al.]*, Casuarina, NT: Menzies School of Health Research, 2009.: 197 p.

Senserrick, TM, (2007). Recent developments in young driver education, training and licensing in Australia. *Journal of Safety Research*; 38(2): 237-244.

- Shahid, S, Finn, LD and Thompson, SC, (2009). Barriers To Participation Of Aboriginal People In Cancer Care: Communication In The Hospital Setting. *Medical Journal of Australia*; 190(10): 574-579.
- Shannon, C, Canuto, C, Young, E, Craig, D, Schluter, P, Kenny, G and McClure, R, (2001). Injury prevention in indigenous communities: results of a two-year community development project. *Health Promotion Journal of Australia*; 12(3): 233-237.
- Shephard, M, (2006). Cultural and Clinical Effectiveness of the 'QAAMS' Point-of-Care Testing Model for Diabetes Management in Australian Aboriginal Medical Services. *Clinical Biochemist Reviews*; 27(3): 161-170.
- Shepherd, F, Battye, K and Chalmers, E, (2003). Improving access to cardiac rehabilitation for remote Indigenous clients. *Australian & New Zealand Journal of Public Health*; 27(6): 632-636.
- Shibasaki, S, Valery, P, Audera, C and Gibson, O, (2000). A guide to informing a community within the Torres Straits. *Aboriginal and Islander Health Worker Journal*; 24(4): 15-16.
- Siegel, N, (2002). Bush court : administering criminal court process and corrective services in remote Aboriginal communities.
- Stacey, K, Keller, N, Gibson, B, Johnson, R, Jury, L, Kelly, D, Newchurch, A, Newchurch, L, Ryan, B and Short, T, (2007). Promoting mental health and well-being in Aboriginal contexts: successful elements of suicide prevention work. *Health Promotion Journal of Australia*; 18(3): 247-254.
- Stamp, G, Champion, S, Anderson, G, Warren, B, Stuart-Butler, D, Doolan, J, Boles, C, Callaghan, L, Foale, A and Muyambi, C, (2008). Aboriginal maternal and infant care workers: partners in caring for Aboriginal mothers and babies. *Rural and Remote Health*; 8: 888 (online).
- Taylor, K and James, V, (1999). Women's health project - Ntaria. *Aboriginal and Islander Health Worker Journal*; 23(3): 5-6.
- Tsey, K, Patterson, D, Whiteside, M, Baird, L and Baird, B, (2002). Indigenous men taking their rightful place in society? A preliminary analysis of a participatory action research process with Yarrabah Menos Health Group. *Australian Journal of Rural Health*; 10: 278-284.
- Tsey, K, Wilson, A, Haswell-Elkins, M, Whiteside, M, McCalman, J, Cadet-James, Y and Wenitong, M, (2007). Empowerment-based research methods: a 10-year approach to enhancing Indigenous social and emotional wellbeing. *Australasian Psychiatry*; 15 Suppl 1: S34-38.
- Tyrrell, M, Grundy, J, Lynch, P and Wakerman, J, (2003). Laramba Diabetes Project: an evaluation of a participatory project in a remote Northern Territory community. *Health Promotion Journal of Australia*; 14(1): 48-53.
- Volkmar, J and Kurnoth, P, (2001). Well Women's Evaluation: consulting the 'right way'. Australian Evaluation Society. Canberra.
- Warrington, G and Wright, P, (2003). Impact : youth crime prevention. *Youth Studies Australia*; 22(1): 46-50.
- Weeramanthri, T, (1996). Knowledge, language and mortality: communicating health information in Aboriginal communities in the Northern Territory. *Australian Journal of Primary Health - Interchange*; 2(2): 3-11.
- WHO, (2009). Systems Thinking for Health Systems Strengthening. Retrieved 21 April, 2009, from <http://www.who.int/alliance-hpsr/resources/9789241563895/en/index.html>.
- Williams, K and Abad, V, (2005). Reflections on Music Therapy with Indigenous Families: Cultural Learning put into Practice. *Australian Journal of Music Therapy*; 16: 60-69.
- Wilson, N, (1999). The Nyirripi Grandmothers' Women's Health Program. *Aboriginal and Islander Health Worker Journal*; 23(3): 3-5.

Woods, W, Wanatjura, E, Colin, T, Mick, J, Lynch, A and Ward, N (2000). Atunypa wiru malparara malparara: the strength of working together. Issues facing Australian families: human services respond (3rd edition). W Weeks and M Quinn. Frenchs Forest, NSW, Pearson Education Australia: 91-100.

Yimi, Y-K, (2006). Mt Theo - Yuendumu Substance Misuse Aboriginal Corporation December 06 Newsletter. Alice Springs, Mt Theo - Yuendumu Substance Misuse Aboriginal Corporation.

Appendix 1: Tabulation of relevant papers

Table 2: Age: (parents and young children, children, adolescents, young adults, adults, older adults)

Authors	Title	Design	N	Setting	Findings	Level of Evidence (Grades)	Quality of Evidence (Promise Matrix)	Summary
Gerber (2008)	The NSW Aboriginal Justice Advisory Council's Family Violence Awareness and Prevention Initiatives	Outline of 4 family violence initiatives undertaken by the AJAC. No formal evaluation undertaken.	Not Stated	Outline of 4 family violence initiatives undertaken by the AJAC. No formal evaluation undertaken.	Uptake of colouring competition, activity book, and worksheet competition stated to be high. No comparative data supplied.	D	Promising	Key features of project include use of art to engage children; provision of prizes in competitions; and the need for protocols to respond appropriately to any disclosures of abuse.
Hamel (2006)	The Pathways to Prevention Project: The first five years 1999-2004	Non-randomised controlled trial of preschool program. Qualitative evaluation of family program (case studies, interviews). Separate quantitative analyses of children involved in both programs.	600 preschool children, 120 participants in family programs	Children and families of varied ethnicities, including indigenous, in a disadvantaged urban area in Queensland between 2001 and 2003.	Preschool program had a significant effect on communication skills ($p < 0.05$) and in reducing level of difficult behaviours ($p < 0.05$). Significant increase in school readiness and prosocial behaviour in boys only ($p < 0.05$). Overall behavioural difficulties were reduced most (effect size 0.66, or two-thirds of a standard deviation), when family was involved in both preschool and family programs.	B	Preschool program: very promising. Family program: promising.	Participation in preschool intervention project improved children's communication skill and reduced difficult behaviour. Family program promoted attachment between parent and child and connected families to other relevant organisations and resources. Participation in both programs had strongest effect on child's behaviour.

Kowanko and Power (2008)	Central Northern Adelaide Health Service Family and Community Healing (FCH) Program.	Qualitative evaluation including interviews, focus groups and field notes from program activities and meetings.	Not stated	Participants in indigenous Family and Community Healing Program in Central Eastern/Western metropolitan region of Adelaide, 2007 to 2008.	Key factors required for FCH Program success identified: peer support and mentoring, cultural focus, long-term commitment, intersectoral linkages, sharing information, holistic approach, organisational support and adequate resources. Also identified as important: care pathways and referrals, collaboration with other agencies, ongoing workforce development and systematic data collection and evaluation.	D	Less promise	Strengths of the Program identified as: evidence based design, holistic approach, clinical focus, committed staff, inter-sectoral linkages, peer support, mentoring, and Aboriginal cultural focus. Limitations: ongoing organisational restructure, insufficient staff and short term, restrictive funding.
Mitchell (1999)	Early intervention: its place in the prevention of youth suicide.	Review	N=900 studies of which 85 met the inclusion criteria. 15 were from high risk group including Aboriginal communities	A review article concluding on role of early intervention among youth. Age for youth is not defined.	Emphasis on intervening as early as possible. Recognises that target groups are highly diverse in relation to whole population. The representativeness in the studies for activities and early intervention sub-ample has been questioned.	C	Promising	Early intervention is a promising step for suicide prevention among youth. More research and approaches like direct outreach programs need to be assessed for cost-effectiveness.
Morgan (2010)	Get Up. Stand Up.' Riding to resilience on a surfboard	Unevaluated Intervention	Not given	Primary schools in Inner Sydney	Target group: 8-13 year olds	D	Population not given	Qualitative evidence only - participants experienced positive effect associated with the challenging activity of learning to surf, allowing for reframing of children's negative beliefs about challenge.

Poelina and Perdrisat (2004)	A Report of the Derby/West Kimberly Project: Working with Adolescents to Prevent Domestic Violence	Mix of qualitative evaluation methods including case studies and interviews	Not stated	Participants in a pilot project, comprising men's, women's and youth programs to address family violence in the Derby/West Kimberly area of Western Australia between March 2001 and June 2003.	Positive outcomes listed include: new partnerships between agencies and stakeholders; formation of a locally generated model to target specific community groups; use of capacity building and health promotion principles to reduce predisposing factors for family violence; use of a holistic approach to address family violence; and use of media and community activities to highlight issues of family violence.	D	Less promising	Qualitative process evaluation suggests a culturally appropriate project with success in targeting its intended groups, however no data is provided on outcomes relating to family violence.
Polsen and Chiauzzi (2003)	Volatile substance use in Mount Isa: community solutions to a community identified issue	Descriptive process evaluation	N=9	High-risk youth in Mount Isa, rural QLD.	The main component was a 12-week program involving 9 high-risk young people aged 10-16 years. Six of the nine participants have enrolled in school, however the engagement only lasted six weeks. In relation to inhalant use, all males engaged by the program have ceased the practice at this time and are participating in representative football. The female participants are still inhaling on occasion and are proving more difficult to progress.	D	Less promising	While the program produced some promising results, the limited study design impedes valid assessment of its effectiveness and generalisability to other communities.

Reynold (1999)	W.A.Y.S - (Working Against Youth Suicide) An Example Of Intersectoral and Community Collaboration In Youth Suicide Prevention	Population-based health promotion program	N=3354	Northern Country region of South Australia among youth aged 15-24 in a community setting.	Group skills, problem solving skills, and self-esteem were enhanced	D	Very Promising	Issues like youth suicide are a complex issue, influenced by a multitude of factors. To address these factors requires a range of prevention and intervention strategies that target both high needs groups as well as the total population. Working collaboratively with various professional and community groups is a way forward.
Ryan (2006)	The 'Hearing Aid Effect' in Northern Territory Indigenous Australian children as perceived by their peers	Cross-sectional and before-after intervention	N=60	School children aged 5 to 12 years	Indigenous Australian children had a more negative attitude towards peers who wore hearing aids in comparison to peers who did not wear hearing aids. Additionally, females tended to rate males more negatively than females on most questions. Males rated females more negatively on questions regarding friendship, sport and whether they can attend the same school. The intervention had a significant effect on the children's attitude toward hearing aids.	C	Less promising	The intervention had a significant effect on the children's attitude toward hearing aids.

Sanders (1996)	Triple P: a multilevel family intervention program for children with disruptive behaviour disorders.	Randomised controlled trial	State-wide in Victoria	Multi-level, multi-disciplinary and community wide focus. Engagement through media, pre-school enrolment, supportive services, parent workplace, through telephone and primary health services. Delivery mainly through ambulatory care settings. Conducted in Victoria among 0-18 year olds.	Lowered level of observed and parent reported disruptive child behaviour, parent reported dysfunctional parenting, parental conflict and distress. Greater self-efficacy and satisfaction. Engagement of Aboriginal parents and training of Triple P has been reported as an evaluation tool.	A	Very Promising	The program is effective. Cost – effectiveness needs to be considered. Acceptability is not well documented.
Siegel (2002)	Bush Court: Administering Criminal Court Process and Corrective Services in Remote Aboriginal Communities	Qualitative: observations and interviews	Not stated	Indigenous people being sentenced at Wadeye Bush Court, Northern Territory. Time period not stated.	Bush court observation leads author to state need for culturally appropriate methods of sentencing, including interpreters for indigenous people, addressing concerns regarding impartiality and fairness, and consideration of local factors such as ability to pay fines.	D	Less promising	Indigenous sentencing requires consideration of cultural and local factors. Further work required investigating effectiveness of this approach.

Wawrington and Wright (2003)	Impact: Youth Crime Prevention	Descriptive	The Surf Education Project in Palm Island (60-100 children aged 6-12, per session). No information provided concerning how many sessions. All skills project in Nerang (10 Year 9 students).	Both components implemented in the general vicinity of Toowong, Remote QLD	The Surf Education Project reduced antisocial behaviour by developing the confidence, social interaction skills, connection with the community and pride in cultural background of young people through their participation in Surf Life Saving Australia (SLSA) training. However, a major impediment to ensuring the continued participation of children is maintaining interest in the program after they leave Palm Island to attend high school on the mainland. The 'All Skills' program objectives were clearly met and the young people demonstrated positive outcomes that would help them in all aspects of their development. All Skills was a successful prevention strategy - all the young people stayed at school longer than expected, and all completed Year 10. Participants reported that All Skills had a significant effect on their motivation to succeed, which resulted in them completing their education and, in some cases, finding employment.	D	Promising	The two projects demonstrate that activity-based youth crime prevention projects, which aim to enhance protective factors while countering risk factors, may have lasting positive outcomes. When young people feel they have a meaningful role in their communities and feel empowered to take control of their lives they are also unlikely to commit crime.
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Yimi (2006)	The Jaru Pirjirdi Project (3 day bush trips to empower local young residents and reduce substance abuse).	Descriptive	N=50	Young people aged 17 to 30 in the remote community of Yuendumu, Northern Territory.	Reports young people aged 17-30 improving their lives after enrolling in the program	D	(cannot determine due to insufficient data provided on population)	As well as the success that this project is reported to be bringing to these individuals and the community at large, its model represents a demonstration of a successful, locally owned remote community initiative.
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Table 3: Geography: (remote, regional and urban communities)

Authors	Title	Design	N	Setting	Findings	Level of Evidence (Grades)	Quality of Evidence (Promise Matrix)	Summary
Baillie(2003)	Preventive medical care in remote Aboriginal communities in the Northern Territory: a follow-up study of the impact of clinical guidelines, computerised recall and reminder systems, and audit and feedback	Descriptive	N=265	Two remote communities in the Northern Territory.	The implementation of care coordination through the care planning process, best practice guidelines and computerised recall and reminder systems was associated with a general improvement in delivery of specified preventive services in the study population. However, the sustainability of the improvements was variable. While the overall improvement in service delivery at year 3 had dropped below levels achieved at years 1 and 2, service delivery was still significantly higher than at baseline for 3 out of the 4 population age groups. In general the services for which the highest levels of service delivery were achieved were those supported by the best quality evidence and the strongest recommendations, such as immunisation. The clearest exceptions to this trend were mammography in the 50+ women and counselling of adults on alcohol use, smoking, exercise, and home accidents, where there were low levels of service delivery in the face of strong recommendations. Counselling services may be less likely to be recorded when they are delivered, and this may partly explain lower recorded levels of service.	D	Less promising	

Begley (2005)	'Yarning for better health': improving the health of an Aboriginal and Torres Strait Islander population.	Qualitative surveys of group participants.	Not stated.	Indigenous community.	Groups provided positive responses to increases in knowledge about health topics and the role of the GP, responded positively to the format of the sessions, being able to access and ask questions of a doctor, indicated they would like the community education sessions to continue. Feedback from the GPs presenting was also positive. GPs felt they had learnt a lot about the indigenous community communication, holistic health, and the importance of family and its influence on individual's health.	C	Less promising	Program has been accepted by the indigenous community as a positive method of reinforcing health messages. Further evaluation required.
Brady (2002)	The Feasibility and Acceptability of Introducing Brief Intervention for Alcohol Misuse in an Urban Aboriginal Medical Service.	Descriptive (process evaluation)	N=25	Urban Aboriginal community.	In spite of the sensitivity of the subject of alcohol misuse, the Aboriginal health workers involved in this project became more comfortable with screening over time. In this respect, the clinic supervisor felt that the process had been empowering for health workers. There was a discernible increase in screening in the latter part of the study. Although relatively few interventions were administered, GPs felt comfortable with the technique. However, the project demonstrated that constraints of time and the severity and complexity of patients' presenting problems were significant barriers to its routine use. There was agreement that participation in the project had helped doctors to give alcohol issues a much more prominent position in their daily work.	D	Promising	By the end of the study there was increased acceptance that a health service does have a role in earlier intervention; health workers were familiar with standard drinks; and all six GPs felt that a programme such as this should be disseminated to other Aboriginal health services. Given the paucity of information available on brief intervention as secondary prevention for alcohol misuse in urban Aboriginal populations, the paper offers some useful insights on a number of issues needing further attention.

Canuto (2000)	Woorabinda Community-Owned Injury Prevention Project	Descriptive	Town population of approximately N=1000	Woorabinda remote town in Queensland, from April 2007 to April 2009	Moderate decline in assaults following the introduction of restrictions on pub opening hours.	D	Promising	Restricting opening hours of pubs reduced assaults in remote community.
Capp (2001)	Suicide prevention in Aboriginal communities: Application of community gatekeeper training	Descriptive	N=53	Rural town of Shoalhaven, NSW. Time period not stated.	Increase in workshop participants' knowledge about suicide, greater confidence in identification of people who are suicidal, and high levels of intentions to provide help. Attitudes, subjective norms and barriers predicted intentions to help.	D	Less Promising	Community training may assist in suicide prevention. Further evaluation needed.
Davis (2004)	Aminina Nud Mulumuluna ("You Gotta Look After Yourself"): Evaluation of the use of traditional art in health promotion for Aboriginal people in the Kimberley region of Western Australia	Descriptive (process evaluation)	Not stated.	The remote Mowanjum Aboriginal community in the Kimberley region of Western Australia	Two health booklets containing traditional artworks were produced. Elders guided the production of the artworks to ensure that no secret or sensitive information would be shared outside the community, and they translated the health messages in the local vernacular. A 20-min companion video was also produced. There were therapeutic benefits produced by the program. Locals were proud of their community's involvement and accepted the health information as valid, both in terms of its cultural relevance and the guidance provided by community appointed elders. Cultural identity was modestly restored through the use of traditional art and language, as were kinship roles where Aboriginal community leaders took an active role "as the keepers of knowledge".	D	Promising	The paper finds that the when lead by community elders, the use of traditional art and language presents a viable method for addressing the holistic needs of Aboriginal health promotion. However, further assessment of the impact on health outcomes is required.

Elek (2007)	Community Patrols in Alice Springs: Keeping People Safe	Before and after and cross-sectional	N=9396 encounters and N=5474 'clients' in 2006	Indigenous community patrollers in Alice Springs and town camps, 5 nights per week	20% reduction in assaults and 10% reduction in criminal damage between 1990 and 1993. 68% of client actions involved taking client home or to a safe place as early intervention strategy to avoid violence. Burden on police force stated to be reduced.	D	Promising	20% reduction in assaults in indigenous communities. High cost and workload of program noted.
Ellis (1997)	Models of excellence in indigenous community health: Part Five: South Australia: Part A	Case studies	Not specified	Naganampa Health Council-Anangu Pitjantjatjara Lands	Reports of experiences of several health workers in the region dealing with diverse range of community health issues like Syphilis, Renal diseases, Substance misuse, insuring primary health care and challenges related to each of such issues.	D	Promising	Community engagement, understanding and valuing aboriginal traditions and beliefs, need for resources and ensuring sustainability issues are raised.
Harvey (2002)	An evaluation of tobacco brief intervention training in three Indigenous health care settings in North Queensland.	Descriptive	N=34	Three rural and remote communities in Queensland One day workshop in each community over a period of twelve months. Time period not stated.	The study found no evidence that project participants had given up smoking six months following the intervention. This indicates that the integration of brief interventions into routine clinical practice is constrained by organisational, interpersonal and other factors in the broader social and environmental context.	D	Least promising	No evidence that tobacco brief intervention training reduced smoking rates, however reliability of findings limited by study design and sample size.
Morgan (2010)	'Get Up. Stand Up.' Riding to resilience on a surfboard	Unevaluated Intervention	Not given.	Schools, Inner Sydney	Target group 8-13 year olds	D	Difficult to evaluate	Qualitative evidence only - participants experienced positive effect associated with the challenging activity of learning to surf, allowing for reframing of children's negative beliefs about challenge.

Nagel (2009)	Approach to treatment of mental illness and substance dependence in remote Indigenous communities: Results of a mixed methods study	Nested randomised controlled trial.	A total of 49 patients with mental illness and 37 carers were recruited to a randomised controlled trial that compared MCP (n = 24) with a clinical control condition (treatment as usual, n = 25).	Three remote island communities in the Top End of the Northern Territory (NT).	Psycho-education resources and a brief intervention, motivational care planning (MCP), were developed and tested in collaboration with aboriginal mental health workers. Random effects regression analyses showed significant advantage for the treatment condition in terms of well-being with changes in health of the nation outcome scales ($P < 0.001$) and Kessler 10 ($P = 0.001$), which were sustained over time. There was also significant advantage for treatment for alcohol dependence ($P = 0.05$), with response also evident in cannabis dependence ($P = 0.064$) and with changes in substance dependence sustained over time.	A	Most promising	These results suggest that MCP is an effective treatment for Indigenous people with mental illness and provide insight into the experience of mental illness in remote communities.
NSW Health (2010)	Closing the gap: 10 years of housing for health in NSW – an evaluation of a healthy housing intervention	Evaluated Intervention	13 Local Government Areas in NSW	Community	Consistent decreases in hospital admissions for all-causes acute respiratory infections and skin infections were observed for Aboriginal children living in exposed areas; a reduction in acute respiratory infection admissions was also seen among Aboriginal adults in exposed areas. Reductions occurred both in rates of admission for exposed Local Government Areas and in disparities between exposed and unexposed areas over the review period.	B	Promising	The health gains reported here for Aboriginal people living in areas exposed to the NSW Housing for Health program are consistent with research derived outcomes and longer-term trends in the Aboriginal populations of rural NSW; however, design limitations prevent any attribution of their causes.
Rowley (2000)	Effectiveness of a community-directed 'Healthy Lifestyle'	Evaluation of health outcomes in a cohort of high-risk individuals,	N=249	Looma, an Aboriginal community in the remote Kimberley region of Western Australia.	For the high-risk cohort, involvement in diet and/or exercise strategies was associated with protection from the increases in plasma glucose and triglycerides seen in a	C	Promising	Health promotion initiatives where facilitation, planning, and implementation phases involve community members and organisations can achieve sustainable improvements in health

	program in a remote Australian Aboriginal community	and cross-sectional community samples, including process and impact evaluation.		December 1993 to December 1995	comparison group. However, sustained weight loss was not achieved. At the community level, significant reductions were observed in fasting insulin concentration but no change in prevalence of diabetes, overweight or obesity. Sustainable improvements were observed for dietary intake and level of physical activity. No subgroup analysis provided (high-risk cohort included men and women of different ages).			behaviours and health outcomes among Aboriginal people.
Senior (2009)	Moving beyond the restrictions: the evaluation of the Alice Springs Alcohol Management Plan	Program process evaluation	Not given.	Community-wide program in Alice Springs.	Residents for >10 yrs described greater inconvenience to self, less impact.	D	Least promising.	Successful and sustained implementation requires efforts to change the prevailing attitudes of the community
Shannon (2001)	Injury Prevention in Indigenous Communities: Results of a Two-Year Community Development Project.	Pre-post	Whole town, population N=1000	Remote town of Woorabinda, Queensland, between April 1997 and April 1999.	Bayesian change-point analysis identified a 62.4% probability that a shift in the observed series of monthly injury frequencies occurred immediately after the introduction of the program. Decrease of approximately 30% in the number of injuries occurring per month after the implementation of the program.	C	Very promising	Community development program reduced injuries by 30% per month. Cost-effectiveness evaluation required.

Shephard (2003)	Improving access to cardiac rehabilitation for remote Indigenous clients.	Cross-sectional study	N=47 Indigenous cardiac patients and N=41 Indigenous Health Workers (IHW).	Remote area of Queensland.	Only three patients were fully engaged in the program. Reasons for non-participation included: lack of knowledge about rehabilitation, low income, and having a large extended family. Although the program incorporated a training component for IHWs covering prevention and follow-up, most did not monitor patients specifically for their heart problems and thought they did not have adequate skills. Shared care was occurring in some settings but without the participation of IHWs.	D	Least promising	The paper indicated that there was general agreement that IHWs do have a role in cardiac rehabilitation. There is a need for ongoing in-service education or inclusion in training programs. Lack of understanding of the role of IHWs is a barrier to shared care. Cardiovascular disease needs to be addressed as part of chronic illness.
Shephard (2006)	Cultural and Clinical Effectiveness of the 'QAAMS' Point-of-Care Testing Model for Diabetes Management in Australian Aboriginal Medical Services.	Descriptive process evaluation plus pre-post impact evaluation component.	N=65 Australian Aboriginal medical services.	Aboriginal medical services throughout the Australia, July to October 2004	The national Quality Assurance for Aboriginal Medical Services (QAAMS) Program, in which point-of-care testing (POCT) for haemoglobin A _{1c} (HbA _{1c}) and urine albumin: creatinine ratio (ACR) is performed for diabetes management. Both doctors and patients with diabetes agreed that the immediacy of POCT results contributed positively to patient care, improved the doctor-patient relationship, and made the patient more likely to be both compliant and self-motivated to improve their diabetes control. Both POCT operators and patients with diabetes reported improved	D	Promising	Point-of-Care Testing Model for Diabetes Management found to improve diabetes control and to be acceptable in Aboriginal Medical Services.

					<p>satisfaction with their diabetes services after the introduction of POCT.</p> <p>The paper also provides evidence from two participating medical services that POCT has been an effective tool in improving the delivery of pathology services and clinical outcomes for both individuals and groups of patients with diabetes. A statistically significant reduction in HbA_{1c} from 9.3% (\pm 2.0) to 8.6% (\pm 2.0) was observed in 74 diabetes patients 12 months after commencing POCT (p = 0.003, paired t-test). An improvement in the percentage of patients achieving glycaemic targets and a reduction in the percentage of patients with poor control was also observed in this group.</p>			
Stacey (2007)	Promoting mental health and well-being in Aboriginal contexts: successful elements of suicide prevention work	Intervention	Not stated	Communities	Demonstrates importance of mental health promotion	D	Less promising	demonstrates the importance of health promotion in supporting positive mental health and well-being. Through maintaining a commitment to community participation and control, it reinforced the primacy of place, history and identity to positive mental health and well-being
Tsey (2007)	Empowerment-based research methods: a 10-year approach to enhancing Indigenous social and emotional wellbeing	Intervention	Not stated	Communities	Participants described an enhancement of their sense of self worth, resilience, belief in their capacity to improve their social environment and ability to reflect on root causes of problems, find solutions and address immediate family difficulties. Participants in the Family Wellbeing Program have become active in	D	Promising	Use of a long-term (10-year) community research strategy focusing directly on empowerment has demonstrated the power of this approach to facilitate Indigenous people's capacity to regain social and emotional wellbeing and begin to rebuild the social norms of their families and community.

					addressing issues such as poor school attendance rates, the critical housing shortage, endemic family violence, alcohol and drug misuse, higher levels of chronic disease and over-representation of Indigenous men in the criminal justice system.			
Tyrell (2003)	Laramba Diabetes Project: an evaluation of participatory project in a remote Northern Territory community.	Descriptive study with quantitative and qualitative components	Town population N=300	Remote Laramba, Northern Territory	The audit of clinic records and the review of the project documentation demonstrated that although there was increased access to health services during the project, there was no evidence of improved biomedical control of existing diabetic conditions. The market basket surveys demonstrated that the community store increased its range of healthy food choices. Store turnover calculations demonstrated that the community's purchasing behaviour changed in favour of healthier foods. There was an increased level of community-directed program activity in the area of diabetes prevention.	D	Less promising	Although no significant changes in individual health outcomes for patients with diagnosed diabetes were observed in the two-year period of the project, important structural developments took place at the community level. A large community garden is thriving and considered to be sustainable. Community-based workers are enthusiastic and funded on an ongoing basis. Purchasing trends in the store suggest the consumption of healthier food. The community has been successful in securing ongoing funding to sustain project activities.
Williams (2008)	Reflections on Music Therapy with Indigenous Families: Cultural Learning put into Practice	Cross sectional interviews and self-reports	Not given	Community-based, no further information given	Evaluations demonstrated improved parent-child interactions, increased use of music, and improved child development outcomes.	D	Less promising	Music therapy has potential to improve family and child development. Further evaluation required.

Table 4: Gender (men and women)

Authors	Title	Design	N	Setting	Findings	Level of Evidence (Grades)	Quality of Evidence (Promise Matrix)	Summary
Binns (2006)	Participation in cervical screening by Indigenous women in the Northern Territory: a longitudinal study	Descriptive longitudinal prevalence study	Not given	All NT resident women aged 20–69 years who had at least one Pap smear recorded on the NT Pap Smear Register between 1997 and 2004	In 1997–1998, estimated participation for Indigenous women was about half the national rate. Participation increased to 44.0% in 1999–2000, and changed little thereafter; participation was higher in the Top End compared with Central Australia, and varied from 16.6% to 75.0% between remote areas. Participation rates for all women living in rural/remote regions were lower than those in urban regions.	B	Promising	Recruitment of Indigenous women for cervical screening has improved since 1999. This may have partly contributed to the fall in their cervical cancer incidence and mortality in recent years. Although in most areas Indigenous participation is lower than national levels, in one area it was considerably higher.
Hoy (2003)	Secondary Prevention of Renal and Cardiovascular Disease: Results of a Renal and Cardiovascular Treatment Program in an Australian Aboriginal Community	Case-control	267	The program operated out of one large community clinic on Bathurst Island and two smaller clinics on Melville Island, QLD Remote	There was a dramatic reduction in BP in the treatment group, which was sustained through 3 yr of treatment. Albuminuria and GFR stabilized or improved. Rates of natural deaths were reduced by an estimated 50% (P=0.012); renal deaths were reduced by 57% (P=0.038); and non-renal deaths by 46% (P=0.085). Survival benefit was suggested at all levels of overt albuminuria, and regardless of diabetes status, baseline BP, or prior administration of angiotensin converting enzyme inhibitors (ACEI). No significant benefit was apparent among people without overt albuminuria, nor among those with GFR less than 60 ml/min. An estimated 13 renal deaths and 10 non-renal deaths were prevented, with the number needed-to-treat to avoid one terminal event of only 11.6. Falling deaths and renal failure in the whole community support these estimates.	B	Most promising	Due to both the effectiveness of the program and its cost-effectiveness, the authors conclude that similar programs should be introduced to all high-risk Aboriginal communities as a matter of urgency.

King and Baxter (2003)	Co-operative inquiry: the development of a visual impairment prevention program initiative for two Aboriginal communities in South Australia	Descriptive	No details provided.	Riverland Regional Health Service and Ceduna/Koonibba Health Service Areas, South Australia, rural and remote areas included, between April and September 2000.	The two health workers from the Barmera Campus now conduct fortnightly eye clinics for Aboriginal people in the main river towns of the region. These Aboriginal health workers also reported that they now examined people's eyes and if they identified eye problem, they referred them to the relevant eye specialists for treatment.	D	Less promising	The VIPP eye health initiative was found both acceptable and relevant to the health care needs of the two Aboriginal communities. Aboriginal health workers are using their newly created expertise to improve the eye health status of the Aboriginal community. Therefore, the intervention has some potential, but an impact evaluation is required to assess its effectiveness.
Newmann (1999)	Story-telling: Australian indigenous women's means of health promotion	Case study	Not specified	Aboriginal and Torres islander women attending Ganangara Land Council and Women Health Centre, Liverpool	The story telling tool was effective in raising awareness and opened communication channels amongst health workers and the women.	D	Promising	Tools such as "Story telling" and sharing experiences based on caring and sharing relationships have potential to reduce conflict between the medical model of health care and cultural model of health care
Newmann (1999)	Story-telling: Australian indigenous women's means of health promotion	Case study	Not specified	Aboriginal and Torres islander women attending Ganangara Land Council and Women Health Centre, Liverpool	The story telling tool was effective in raising awareness and opened communication channels amongst health workers and the women.	D	Promising	Tools such as "Story telling" and sharing experiences based on caring and sharing relationships have potential to reduce conflict between the medical model of health care and cultural model of health care
Taylor (1999)	Women's health project - Ntaria	Case study	Not specified	Ntaria community	Intensive workshops held in engaging women from the community for women health needs, such as STDs and cervical and breast cancer.	D	Less promising	Potentially affordable, accessible and culturally appropriate program for health care in the group. Further evaluation required.
Volkmar, and Kurnoth (2001)	The Well Women's Program	Cross-sectional, descriptive, non-probability design with process evaluation.	256 women	14 remote communities throughout the NT (1995-2000)	The evaluation found that Aboriginal women living in remote communities value women's health issues and desire greater control over programs aiming to address this issue.	D	Promising	Language/cultural barriers, including secrecy surrounding 'women's business' act as potential barriers for the implementation and evaluation of women's health programs. However, extensive consultation with local communities (often facilitated through gatekeepers) helped overcome some of these challenges. An Aboriginal project officer, and advisory committee of female Aboriginal elders were positive features.

Wilson (1999)	The Nyirripi Grandmother's Women's Health Program	Case study	In 1994 there were 6 women's checks done at Nyirripi. In 1995 there were 19 women's checks. In 1996 there were 30 women's checks done at Nyirripi. In 1997 there were 41 women's checks.	Nyirripi in remote Alice Springs, between 1994 and 1998.	Initiated as a cancer prevention program among aboriginal women, elderly women in the community were engaged for health education. This program was a success leading to 100% screening of all women in the community for cervical cancer after 4 years follow-up.	D	Very promising	Feasible and creates better understanding of community to their own health issues. Trust and a caring relationship are developed. The paper demonstrates the potential effectiveness of community-driven health projects in remote Aboriginal communities. Due the secrecy concerning Aboriginal 'women's business' in many Indigenous cultures, the incorporation of female Elders into women's health programs may be an especially effective strategy.
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