

A snapshot of physical activity programs targeting Aboriginal and Torres Strait Islander people in Australia

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Abstract

Issue addressed: Participation in physical activity programs can be an effective strategy to reduce chronic disease risk factors and improve broader social outcomes. Health and social outcomes are worse among Aboriginal and Torres Strait Islanders than non-Indigenous Australians, who represent an important group for culturally specific programs. The extent of current practice in physical activity programs is largely unknown. This study identifies such programs targeting this population group and describes their characteristics.

Methods: Bibliographic and Internet searches and snowball sampling identified eligible programs operating between 2012 and 2015 in Australia (phase 1). Program coordinators were contacted to verify sourced information (phase 2). Descriptive characteristics were documented for each program.

Results: A total of 110 programs were identified across urban, rural and remote locations within all states and territories. Only 11 programs were located through bibliographic sources; the remainder through Internet searches. The programs aimed to influence physical activity for health or broader social outcomes. Sixty five took place in community settings and most involved multiple sectors such as sport, health and education. Almost all were free for participants and involved Indigenous stakeholders. The majority received Government funding and had commenced within the last decade. More than 20 programs reached over 1000 people each; 14 reached 0–100 participants. Most included process or impact evaluation indicators, typically reflecting their aims.

Conclusion: This snapshot provides a comprehensive description of current physical activity program provision for Aboriginal and Torres Strait Islander people across Australia. The majority of programs were only identified through the grey literature. Many programs collect evaluation data, yet this is underrepresented in academic literature.

So what? Capturing current practice can inform future efforts to increase the impact of physical activity programs to improve health and social indicators. Targeted, culturally relevant programs are essential to reduce levels of disadvantage experienced by Aboriginal and Torres Strait Islanders.

Key words: chronic disease, participation, program evaluation.

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Introduction

Physical inactivity is a leading risk factor associated with the burden of disease for Australian Aboriginal and Torres Strait Islander adults.¹ Less than half of those aged 18 years and over living in non-remote areas achieved the minimum national guidelines of at least 150 min of physical activity per week, a rate lower than that of the general population.² Yet before European colonisation of Australia, an active hunter-gatherer lifestyle was evident, suggesting that more contemporary introduced factors that have contributed to current health disparities.³ Physical activity levels in Aboriginal and Torres

Strait Islander children are higher than among non-Indigenous children at 48% versus 35%⁴ which may reflect higher levels of non-formal active play.

The term ‘program’ has been defined as a series of activities or events that run over a period of time, or a collection of activities or events with a particular focus.⁵ Programs designed to increase physical activity are an effective strategy to reduce chronic disease risk factors.⁶ Targeting vulnerable population groups holds particular promise given the known associations between low levels of physical activity and socioeconomic disadvantage.⁷

Considering the unique historical context and health experiences of Aboriginal and Torres Strait Islander people, culturally specific approaches to program interventions are important.⁸ Such approaches have been signalled to represent best practice by key stakeholders.⁹ Sport, health and community sectors are commonly involved in the delivery of programs, many of which claim to achieve health and social benefits through participation.

Demonstrated evidence of the effectiveness of physical activity programs for Aboriginal and Torres Strait Islander people is limited. A review published in 2004¹⁰ identified only one intervention program that achieved improvements in physical activity levels in a remote community. A more recent systematic review examined the effectiveness of group-based sport and exercise programs for Indigenous adults.¹¹ Six studies identified in the review demonstrated the effectiveness in achieving health outcomes, such as increased physical activity and reduced weight. This documentation of current program provision and scope in at-risk populations signifies the initial step required to develop the evidence base of best practice.¹² The growing rise of information available through online sources provides an opportunity to locate details on the delivery of additional programs and services. The aim of this study was to identify physical activity and sport programs targeting Australian Aboriginal and Torres Strait Islander people and to describe their characteristics including location, participant numbers and evaluation measures.

Methods

Search strategy

A variety of strategies were used to identify existing program information. First, the Australian Indigenous HealthInfoNet Bibliography (<http://www.healthinfonet.ecu.edu.au/key-resources/bibliography>, verified 12 December 2016) was searched with the health topic 'physical activity'. Forward and backward citation tracking of articles was also conducted. Second, the HealthInfoNet's collection of programs and projects that address physical activity among Australian Aboriginal and Torres Strait Islander peoples was also searched¹³ and the primary website link for each relevant program was located. Additional programs known to the authors were also documented and considered for inclusion.

The following inclusion criteria were applied for identified programs:

- Targets Aboriginal and Torres Strait Islander people
 - Aboriginal and Torres Strait Islander specific program
 - Targeted Aboriginal and Torres Strait Islander component
- Program delivery includes promoting sport or physical activity participation
 - Aims to increase physical activity levels for health benefits
 - Uses sport as a tool to improve social and community outcomes, such as education participation, reduced crime rates
- Operated in Australia at any stage from 2012 to search period (March–September 2015), reflecting current or recent practice.

Data collection

Fig. 1 depicts the process of program identification and inclusion.

Phase 1: Internet and desktop research

Data were extracted during February and March 2015 by the lead author. For each selected program, information was collated using a structured template to document the following aspects: identification (ID) number; program name; timescale; aims; type and focus (Aboriginal and Torres Strait Islander specific or targeted element); setting (e.g. community, school); region (urban, rural or remote); target group (e.g. adults, children); number of participants; involvement of local Aboriginal and Torres Strait Islander stakeholders (yes, no or unknown); process and impact evaluation measures (e.g. physical activity and fitness level, health or social indicators); funding source (e.g. Government, private sector), cost to participants; sectors involved (e.g. health, sport); contact details.

Phase 2: Contact with program coordinators

During April–May 2015, the lead author attempted to contact coordinator(s) for each program identified in phase 1. Where an email address was available, program coordinators were sent a personalised email that contained a Microsoft Excel spread sheet of the information relevant to their program. They were asked to review, verify and return the information. If no email response was received, follow-up emails and telephone calls were made on two occasions during July–December 2015. Where telephone contact was made in the first instance, an explanation of the snapshot project was given, followed by a request for an email address to send the relevant program information. Where program coordinators offered information on additional programs that had not previously been identified by the authors, phase 1 and 2 processes were repeated for these programs.

Data synthesis

The contact details for each program coordinator were removed to preserve anonymity. Programs were alphabetically listed within their population targeted age group categories of adults; young people and adults and young people. Data on participant numbers were summarised into four categories: 0–100 participants; 100–500 participants; 500–1000 participants; and over 1000 participants, reflecting previous categorisation in similar work.¹² Evaluation indicators were categorised as a 'process', such as participation or retention rates, or 'impact',¹⁴ for example, physical activity and fitness level; health indicators, defined as any widely recognised indicator of physical or mental health status (e.g. blood pressure, weight, diet, smoking); and social indicators, defined as any broader societal indicator of benefit (e.g. school attendance, crime rates). Descriptive characteristics were documented for each program aspect. Multiple categories were described where applicable.

The study was approved by the University of Sydney Human Ethics Review Committee (2015/149).



A total of 110 programs (Fig. 1) were included in the final results; 78 of which had information confirmed by coordinators (71%). Table 1 presents descriptive information of the program settings, population focus, costs to participants and Aboriginal and Torres Strait Islander stakeholder involvement. Table 2 outlines detailed information of the physical activity programs, including program names. The initial Bibliography search resulted in 11 relevant programs. Thirty nine programs targeted adults, 34 targeted young people and 37 targeted adults and young people. Fourteen programs operated nationally, three in the Australian Capital Territory (ACT), 21 in New South Wales (NSW), 11 in the Northern

Territory (NT), 16 in Queensland (Qld) including one in the Torres Strait, 16 in South Australia (SA), one in Tasmania (Tas.), 12 in Victoria (Vic.), 24 in Western Australia (WA) and seven across two or more state or territory jurisdictions. Five programs commenced before 2000 and had operated continuously since starting, with one in operation since 1970. Thirty three programs commenced between 2000 and 2010, of which 21 were still operating; 35 programs commenced between 2010 and 2012, with 19 still operating. Just under a quarter of programs ($n=23$) commenced between 2013 and 2015; four of which were ending by the end of 2015. One program commenced in 2009 and included an Aboriginal element from 2012. For 13 programs, the time period was unknown.

Table 1. Setting, population focus, costs to participants and stakeholder involvement (*n* = 110 programs)

Program aspect	Category	Number of programs
Program setting	Community	62
	School	9
	Both community and school	9
	Sport	9
	Health	9
	Both university and sport	2
	Both health and sport	1
	Non-governmental organisation	1
	Residential service	1
	Residential camp	1
	University	1
	Both university and community	1
	Both health and community	1
	Media	1
	Both media and community	1
	Telephone-based	1
Population focus	Aboriginal and Torres Strait Islander people	101
	Targeted Aboriginal ^A component	9
Costs to participant	Yes	9
	No	100
	Unknown	1
Aboriginal and Torres Strait Islander Stakeholder involvement	Yes	93
	No	4
	Unknown	13

^ARefers to Aboriginal and Torres Strait Islander people.

Most program aims related to increasing physical activity for specific health and fitness gains, such as improving chronic disease risk factors like lowering weight and blood pressure. Nine programs focussed on social gains such as improving educational outcomes (e.g. school attendance), reducing crime rates or increasing employability. Some programs (*n* = 21) cited both health and social aims. Twenty five programs were conducted in all (urban, rural and remote) regions; 25 across urban and rural only; and six across rural and remote only. Fifty three programs were conducted in single regions; 27, 12 and 15 programs in urban, rural and remote regions.

Three programs claimed to reach the whole population directly. Fourteen programs involved 0–100 participants, 16 involved 100–500 participants, six involved 500–1000 participants and 22 involved over 1000 participants. Some programs documented participation numbers on an annual basis and others for the entire time period of the program. For 49 programs, the number of participants was unknown. Most programs (*n* = 65) included evaluation indicators: 23 had process indicators only; 22 had impact indicators only and 20 had both process and impact indicators. Of the programs with impact indicators, most measured multiple indicators: 15 examined physical activity or fitness level; 26 examined health measures such as weight or chronic disease biomarkers; 20 examined social indicators such as school attendance and two examined qualitative measures. Thirty eight programs did not have evaluation indicators and seven programs were unknown.

Forty one programs received funding from more than one source. The majority of programs (*n* = 86) received government support: 49 from the Australian Government, 23 of which received additional funding from other sources; 27 from state or territory governments; and nine from local government. Nine programs received funding from Aboriginal organisations such as community controlled health or medical services, four in conjunction with other sources. Around a quarter received charity or philanthropic funding (*n* = 25) and six received funding from non-governmental organisations (NGOs). Fourteen programs received private sector funding and one was solely funded through participant costs. For 10 programs the funding source was unknown. Almost all programs (*n* = 98) were delivered through partnerships across multiple sectors, comprising community, education, health, media, police, sport, local government, workplace, charities and NGOs. Nine programs charged costs to participants; two of these were initially free for 2–3 years with subsequent costs of A\$2 per session. Costs for the other seven programs were typically \$5 per session (*n* = 5) or a specific fee for a term or year.

Discussion

These findings represent the first time that programs promoting physical activity among Aboriginal and Torres Strait Islander people in Australia have been documented collectively, describing patterns of current program provision. Previous reviews have elicited only a small number of relevant studies. The scope of this snapshot was programs containing published or online information only. There may be many additional programs in existence, yet without such presence information is difficult to source. However, given the increased proliferation of information available online in the past two decades, it is expected that this snapshot provides an accurate portrayal of current program provision. This is important as sharing information about program practice is an important part of effective health promotion and can serve to guide future initiatives.

The Ottawa Charter outlines a settings based approach to effective health promotion.¹⁵ We found most programs were delivered in community, followed by school, settings. Both have proven efficacy in achieving health outcomes.⁶ They are likely be particularly effective settings for reaching Aboriginal and Torres Strait Islander people given the importance of holistic health promotion and whole-of-community approaches.¹⁶ The majority of programs we identified focussed specifically on Aboriginal and Torres Strait Islander people, demonstrating provision of targeted, culturally relevant interventions; a recognised model of good practice.⁹ Given the diversity of communities and cultural groups across Australia, varied approaches to, and opportunities for, physical activity specific to local populations are required. Cultural adaptation of mainstream programs through a targeted Aboriginal element occurred in nine programs; this is also commendable as such programs have demonstrated representative reach of Aboriginal participants.¹⁷ Program participation occurred across urban, rural

Table 2. Physical activity programs targeting Aboriginal and Torres Strait Islander people

AFL, Australian Football League; ARMTour, Athletes and Role Models tour; NASCA, National Aboriginal Sporting Chance Academy; NGO, non-governmental organisation; NRL, National Rugby League; ACT, Australian Capital Territory; Qld, Queensland; NSW, New South Wales; NT, Northern Territory; SA, South Australia; Tas, Tasmania; Vic, Victoria; WA, Western Australia

ID	Location	Program name	Time period	Aims	Region ^B	Participant numbers	Evaluation indicators ^C	Sectors involved	Funding source
Adults									
1	NSW	1 Deadly Step	2011-present	Promote screening, early detection and follow up of chronic disease in communities	Urban, rural	200	PROCESS	Community, health, sport	State or Territory Government
2	NT, Qld	A multiple health behaviour change group for Indigenous Australians attending residential substance abuse treatment	2014-15	Examine the feasibility of an 8-week group-based healthy lifestyle intervention in Indigenous substance abuse services to help reduce smoking, improve diet, increase physical activity	Urban, rural	42	IMPACT: physical activity and fitness level, health	Community, health, NGO	Charity funds
3	WA	Aboriginal ladies group	Unknown	Increase physical activity through weekly walking program	Urban, rural	Unknown	None	Community, health	Philanthropy, charity funds
4	NSW	Aboriginal Nambucca walkers	Unknown	Increase physical activity through weekly walking program	Urban, rural	Unknown	None	Community, health	Philanthropy, charity funds
5	WA	Aboriginal women's exercise group	2011-present	Offer a range of culturally appropriate exercise activities to women, such as circuit training, fit-boxing	Urban	30	PROCESS, IMPACT: health	Community	Australian Government, local government
6	WA	Bindjareb yorgas health program ^A	2012-present	Deliver group fitness sessions for women, develop knowledge of the importance of physical activity in maintaining health and well being, group walks on native land to encourage participation in community projects to identify and conserve native flora and fauna	Rural	Unknown	IMPACT: health, social	Community, health	Australian Government, local health service, NGO
7	NSW, Vic.	Bran Nue Me, Better Your Health and Fitness	2012	Provide a specific exercise program for people with or at risk of developing chronic disease who need help to lose weight and get fit	Urban, rural	Unknown	None	Community, health	Aboriginal organisations

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^B	Participant numbers	Evaluation indicators ^C	Sectors involved	Funding source
8	Qld	Eat healthy, drink healthy, live healthy campaign	2014-present	Inspire people to eat healthy, drink healthy and live healthy to reduce their risk of developing type 2 diabetes	Rural	Unknown	None	Health	Philanthropy
9	WA	Exercise as medicine in Indigenous health	2012	Assessing the effects of implementing an exercise program incorporating the ACSM/AHA guidelines for physical activity and health on physiological and quality of life adaptations	Urban	40	IMPACT: physical activity and fitness level, health	Community, education	Unknown
10	WA	Fit 4 Work	2015-present	Improve physical fitness, self-confidence, presentation skills and networking opportunities	Urban	8	PROCESS	Education, NGO, workplace	Charity funds
11	Vic.	Fitzroy Stars Football Netball Club ^A	1970-present	Create a diversionary strategy for youth, provide a safe place for people to get together and participate in sport	Urban	Unknown	IMPACT: health, social	Community, sport	Unknown
12	National	Footy Means Business program	2011-present	Use the power of sport to engage and provide talent, employment and leadership development opportunities for men aged 10–24 years through 2 AFL facilitated residential weeks	All	~250	IMPACT: social	Community, sport	Private sector
13	NSW, ACT, Tas, Qld, SA	Get Healthy Information and Coaching Service [*] (Get Healthy Service)	2009-present; Aboriginal component since 2012	Supporting adults, especially those at risk of developing chronic disease, to make lifestyle changes for physical activity and nutrition through 6 months of health coaching or information-only package. Aboriginal module: access to a culturally appropriate service, specific coaching and materials	All	23 650 enrolled 2009–2013; 793 Aboriginal (4.7% in 2013)	IMPACT: physical activity and fitness level, health	Health	State or Territory government
14	NSW	HEALInG program: healthy eating activities (and) lifestyles (for) Indigenous groups	2003-present	Provide realistic and practical information on healthy eating and lifestyle activities through 10 weekly sessions including an hour exercise class	Rural	Over 100	PROCESS	Community, health, NGO	Charity funds, local health service

15	WA	Healthy and active in the West Kimberley (HAWK) now!	2010–2014	Offer low impact exercise options, healthy lifestyle workshops to the community, including walking groups, aqua fitness, strength training and sports for adults with, or at risk of developing, chronic disease	Rural, remote	5000	PROCESS, IMPACT: health	Community, health, NGO	Australian Government, local government
16	NSW	Healthy exercise and training program	2012–present	Improve health and well being by targeting positive lifestyle behaviours including exercise	Urban, rural	Unknown	IMPACT: physical activity and fitness level, health	Community, health	Australian Government, Rural Doctors Network, universities Aboriginal organisations
17	NSW	Healthy lifestyle program ^A	2007–present	Deliver a 12-week program with weekly meetings including a weigh-in, talk on healthy eating or activity, meal preparation, an exercise session	Rural	35	None	Community, health	Aboriginal organisations
18	National	Healthy start, healthy life	2010–2014	Develop a knowledge base and evaluate tools and resources to assist reduction of risk factors, promote health and support clinical best practice in prevention, detection and management of chronic diseases.	All	Unknown	None	Community, health	Australian Government
19	WA	Heart health ‘for our people, by our people’ ^A	2009–present	Deliver a weekly program covering a variety of topics including physical activity	Urban	Unknown	PROCESS, IMPACT: physical activity and fitness level, health	Community, health	Unknown
20	National	Hero rewards	2010–2013	Improve health through promoting and encouraging the use of follow up care services, and those through local Aboriginal and Torres Strait Islander health services, including physical activity	All	Unknown	IMPACT: health	Community, health	Australian Government
21	SA	Keep it corka	2013–present	Support communities to prevent chronic disease through physical activity sessions, nutrition education, smoking cessation	Urban	Unknown	None	Community, health	Philanthropy

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^b	Participant numbers	Evaluation indicators ^c	Sectors involved	Funding source
22	WA	Life at the core	2010–2014	Improve the health and well being of residents	Urban	Unknown	PROCESS, IMPACT: health	Community, health, local government	Australian Government
23	National	Live longer!	2010–2014	Support communities to 'Get active, eat good tucker, live longer! Provide funding for local community campaigns	All	Unknown	PROCESS	Community, health	Australian Government
24	WA	Live well campaign Kimberly	2008–2013	Deliver a media campaign to promote regular physical activity and healthy diet in communities; improve lifestyle and reduce risk factors for chronic diseases	Rural, remote	Unknown	Unknown	Community, health, media	State or territory government
25	NSW	Lyrebird Exercise Classes	2010–present	Increase regular physical activity, deliver culturally appropriate programs for different fitness abilities; develop a home exercise program, train Aboriginal fitness leaders	Urban	294 participants; 5 Aboriginal fitness leaders trained	None	Community, health	Local health service
26	Qld	Mangabay dthingiga ganggundi bimbi	2010–present	Improve and promote better health for people living with chronic and complex care needs	Urban, rural	Unknown	None	Community, health	Unknown
27	Vic.	Mildura Aboriginal Health Service walking program	Unknown	Increase physical activity through weekly walking program	Urban, rural	Unknown	None	Community, health	Philanthropy, charity funds
28	NSW	Mootang tarimi (living longer) outreach screening program	2008–present	Improve chronic disease outcomes through mobile bus service, including education on smoking, exercise, diet, weight loss	Urban, rural	1350	None	Community, health	State or territory government
29	Qld	Move	2011–2014	Raise awareness of benefits of physical activity, promote healthy lifestyle choices and regular access to health services and programs to prevent and manage chronic diseases	Urban	Unknown	PROCESS	Community, health, media	Australian Government

30	NSW	The NSW State Knockout Challenge	2012-present	Engage communities to target nutrition, physical activity and a healthy weight, where teams of up to 30 members compete in a series of weight loss challenges and for grant funds for communities to promote healthy lifestyles	Urban, rural	Up to 35 teams and 1000 participants per individual challenge	IMPACT: physical activity and fitness level, health	Community, health, sport	State or territory government
31	NSW	Pius x exercise program	2015-present	Promote the health and well being of clients, to prevent and manage chronic diseases and mental health issues	Rural	20	PROCESS, IMPACT: physical activity and fitness level, health	Community, health	Aboriginal Organisations
32	NSW	Sistas and aunts program	Unknown	Empower women to lead healthy lifestyles and model healthy and positive habits for their community and extended families through activities which incorporate healthy eating and physical activity	Urban	Unknown	None	Community	Unknown
33	NSW	Spring into shape program	2003-present	Promote a healthy lifestyle and to help clients manage stress through exercise and nutrition program	Urban, rural	18 in 2015	PROCESS	Community, health	Local health service, Aboriginal organisations
34	Tas.	Tasmanian Aboriginal Centre rehabilitation program ^A	2011-present	Provide culturally accessible cardiac and pulmonary rehabilitation to adults with or at risk of developing chronic disease to increase participation and improve health outcomes for people with established disease and reduce risk factors such as physical inactivity	Urban, rural	92	PROCESS, IMPACT: physical activity and fitness level, health	Health	Australian Government
35	Vic.	Victorian Aboriginal Health Service Healthy Lifestyles	2010-present	Help people make the right lifestyle choices and reduce their chance of developing an avoidable chronic disease	Urban, rural	Unknown	Unknown	Health, community	Australian Government
36	NSW	Waminda's Wellbeing Program ^A	2009-present	Provide women with opportunity to participate in a comprehensive and holistic healthy lifestyle program that incorporates appropriate and accessible physical activities	Rural	51 in 2012	PROCESS, IMPACT: physical activity and fitness level, health	Health	Australian Government, Aboriginal organisations

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^b	Participant numbers	Evaluation indicators ^c	Sectors involved	Funding source
37	NT	Women's footy fitness program	2011–2014	Provide an innovative approach to addressing chronic disease in women, information on the benefits of physical activity, transport for participants to activities, a variety of physical activity sessions with trained instructors	Remote	480	PROCESS, IMPACT: physical activity and fitness level, health, qualitative	Community, local government, health	Australian Government
38	Qld	Work it out!	2011–2013	Close the life expectancy gap through addressing chronic disease, including weekly individually tailored 1 h group exercise sessions	Urban	250	PROCESS, IMPACT: health	Community, health	Australian Government
39	WA	Yoka Yaanginy	2015–present	Increase physical activity through weekly walking program	Urban, rural	10	PROCESS, IMPACT: health	Community, health	Philanthropy, charity funds, NGO
Young people									
40	SA	Aboriginal Power Cup	2008–present	Deliver competitive football program engaging young people in grades 10–12 in education, promoting healthy lifestyle choices and developing teamwork, leadership and life skills	Urban, rural	400 students, 32 schools	None	Sport	State or territory government, private sector
41	NT	Amplatwatja sport 'n' rec program	Unknown	Delivers a range of activities to promote physical, social, emotional, educational, mental and spiritual wellbeing through out of hours school and vacation care	Remote	Unknown	None	Community	NGO
42	National	Athletics for the outback program	2005–present	Give opportunities to participate in athletics and increase community ownership and management of athletics	Remote	3500 children, 25 Aboriginal coaches trained, 74 activities held	PROCESS	Community, health, sport	Australian Government
43	Qld	Beat da binge ^A	2010–2013	Preventing harm from binge drinking through events focusing on drinking education, alcohol-free community-wide social events and sporting and social activities to facilitate self-empowerment for young people aged 18–24 years.	Remote	1880	PROCESS, IMPACT: health, social	Community, health, sport	Australian Government

44	WA	Beatball (Mirrabooka) - Street Corner Champions	2008-present	Engage young people aged 6-17 years who may not be involved in mainstream sport in Beatball, focusing on healthy lifestyles including physical activity, positive role models, education	Urban	50-150 participants per session	PROCESS	Education, health, sport	Aboriginal organisation, local government, Migrant Resource Centre
45	Qld	Cathy Freeman Foundation Activities program	2009-2015	Promotes school achievement and attendance, healthy living and sociable behaviour by encouraging participation in sport and recreational activities	Remote	500	PROCESS	Education, NGO, sport	Charity funds
46	Qld, NT, NSW, Vic.,WA	Clontarf Foundation ^A	2000-present	Improve the education, discipline, life skills, self-esteem and employment prospects of boys in grades 7-12 through AFL and NRL academies	All	3726	IMPACT: social	Community, NGO, sport	Australian Government, state or territory government, private sector
47	Qld	Deadly choices	2010-2014	Encourages participants aged 15-18 years to be role models and mentors for their family, peer group and community in leading a healthy lifestyle, including physical activity	Urban	300-600 each community event, 250 school children completed program	PROCESS	Community, education	Australian Government
48	National	Evonne Goolagong Foundation (EGF) program	2005-2014	Give children aged 5-15 years the opportunity to achieve their best by promoting quality education and better health through diet and exercise	All	1100 in come and try days	Unknown	Community, sport	Charity funds
49	ACT	Gugan Gulwan school holiday program	2013-2015	Deliver school holiday program to keep the participants active, challenged and entertained	Urban	Unknown	None	Community	Participant cost
50	NT	Hoops 4 health	2006-present	Address adolescent health issues using basketball events, tailored to suit a particular group	All	4797	None	Community, health, sport	Australian Government
51	Qld	Indigenous Youth Sports Program ^A	2010-present	Provide opportunity for high school students to consider university as a potential pathway, while engaging in a week of sporting and team-building activities	Urban	140 annually	None	Community, education	Australian Government, state or territory government, local government, university

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^b	Participant numbers	Evaluation indicators ^c	Sectors involved	Funding source
52	NT	John Moriarty Football	2012-present	Provide children aged 6–16 years with support, training, development and pathways for football success, use the sport as a powerful tool to change educational and life outcomes for footballers and their families	Remote	200 currently	PROCESS, IMPACT: social	Education, health, sport	Australian Government, philanthropy, charity funds
53	NSW	National Aboriginal Sporting Chance Academy (NASCA)	1995-present	Encourage high school attendance and promote self-confidence and health and well being through role models and health, education, sport and cultural programs	Urban	11 000 since 1995	PROCESS, IMPACT: qualitative	Education, NGO, sport	Australian Government, charity funds
54	ACT	Ngadyung	2007-present	Promote essential swimming and survival skills	Urban, rural	500	None	Health, NGO	Australian Government, State/ Territory Government
55	NT	NASCA athletes and role models (ARMTour)	1997-present	Provide inspiration, encouragement and support for school aged children to enhance students' self-esteem and self-confidence; assist in developing life skills in communication, leadership and goal-setting; encourage participation in sport and recreation activities for healthy and positive lifestyles	Remote	8000 since 1997	PROCESS, IMPACT: qualitative	NGO	Federal Government, fundraising
56	National	Raise the bar	2015-present	Provide a chance to discover the pathways to studying and participation through high performance sport for young people in grades 10–12	All	35	IMPACT: social	Education, sport	Australian Government, University
57	NT	Red dust role models Healthy Living Program	2006-present	3 × 1-week community visits Role models interact with and teach nutrition, hygiene, substance misuse, physical activity and encourage creativity and new skills in sport, arts and healthy cooking	Remote	Approx. 343 in 2007. First half of 2015 engaged 500+ students in schools, 800+ outside of school	PROCESS	NGO, sport	Australian Government, local government, private sector

58	WA, NT and NSW	Role Models and Leaders Australia Girls Academy	2009-present	Empowering school aged girls by equipping them with tools needed to achieve education and career goals, highlighting the importance of physical activity, a healthy lifestyle and cultural connection	All	1000	PROCESS, IMPACT: social	Education, sport	Australian Government, schools, private sector
59	WA	Row AHEAD: Clontarf to Curtin	2014-present	Teach rowing and encourage high school students with career and educational goals.	Urban	20 in 2014, 75 in 2015, 20-30 through endorsed program	PROCESS	Education, sport	State or territory government
60	NSW	Shake a leg	2005-present	Reduce preventable health conditions among primary school children through education, including traditional Indigenous games	Urban, rural	Unknown	IMPACT: health, social	Education, health	Local health service
61	NSW	Souths Cares Healthy and Active Lifestyle program	Unknown	Educate students with the fundamental knowledge to live healthy and active lifestyles	Urban	Unknown	None	Education, NGO	Charity funds
62	National	Stronga sistas, Brothers in Union programs	2014-present	Promote good sportsmanship, nutrition, mental health awareness, drug and alcohol free-living and taking personal responsibility for positive choices in life through residential and 1 day programs for school aged children	All	300-500	PROCESS	Education, health, sport	Australian Government, private sector, charity funds
63	WA	Strong Culture	2014-present	Promote adoption of healthy lifestyle behaviours and encourage traditional activities (e.g. hunting, bush tucker) to prevent chronic disease	All	Unknown	Unknown	Community, education, health	Australian Government
64	WA	Swan Nyungar Sports Education Program	2002-present	Improve educational outcomes among high school children through culture, language and sport	Urban	Unknown	IMPACT: social	Education, sport	Unknown
65	ACT, NSW	Swimming NSW Indigenous participation program	2012-2015	Drive swimming participation among babies and children, implement pathways for the development of talented swimmers and coaches	Urban, rural	1500	PROCESS	Community, health, sport	State or territory government

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^b	Participant numbers	Evaluation indicators ^c	Sectors involved	Funding source
66	NT	Tangentyere youth activity service	Unknown	Enable young people living in town camps to access and experience a range of sport and recreational activities	Urban	Unknown	None	Community, sport	Local government
67	Qld	Tennis Queensland Indigenous program	2012–2014	Develop tennis programs for communities and schools.	All	Unknown	None	Community, education, sport	Australian Government, state or territory government
68	WA	Troy Cook health and leadership program	2008–present	Build a healthy and active lifestyle, cultural identity for communities by educating children aged 10–18 years about health, mental well being and substance abuse, encouraging linking with sports clubs	All	4000	PROCESS	Education, health, sport	State or territory government, private sector, charity funds
69	WA	V Swans active education program	2007–present	To ensure young people are actively and positively participating in physical activity, education and community	Rural, remote	5000 young people and their families annually	IMPACT: social	Community, education, sport	State or Territory Government, Private sector
70	NSW	Walkabout kitchen	2014–present	Improve access to fresh fruit and vegetables, nutrition and physical activity education, improve the health of school children to improve attendance levels	Urban, rural	Unknown	None	Community, health	State or territory government
71	WA	West Coast Eagles Indigenous Leadership Program	2011–present	Teach life skills beyond the classroom to children in grades 8–10 to empower participants to make informed decisions that lead to a healthy lifestyle and about diabetes prevention, healthy eating, physical activity	Urban	150 – 200 per year	PROCESS	Education, health, sport	Private sector
72	ACT	Wirra club ACT	2014–present	Make an impact on closing the health gap through early prevention program delivery, including sessions on physical activity, connection to local sporting clubs for primary school children	Urban	81 in 3 schools	IMPACT: physical activity and fitness level	Community, education, health, NGO, sport	State or territory government, charity funds

73	Qld	Y'imba Bira Traditional Indigenous Games	Unknown	Instruct traditional game techniques and encourage participation in games modified from traditional practices. Expose participants to traditional culture, history and tools	Urban, rural	Unknown	None	Education, community	Aboriginal organisation
Adults and young people									
74	WA	Aboriginal sports program	2009-present	Encourage physical activity and sport at all levels, increase opportunities to learn skills to organise, deliver and manage community sport, assist talented people to access support to reach sporting goals	Urban, rural	Unknown	None	Sport	Australian Government
75	National	AFL Kickstart Program ^A	2000-present	Up to 3 community visits per year from professional players and coaches who deliver football activities, act as advocates and mentors to compliment work of community police, health, education and sport and recreation organisations	All	Unknown	PROCESS, IMPACT: social	Community, sport	Australian Government, private sector
76	Vic.	AFL Victoria's Indigenous Program	Unknown	Use football as a vehicle to promote a healthy lifestyle in Indigenous communities	All	Unknown	Unknown	Community, sport	NGO
77	Qld	Beat it lifestyle modification program	2013-present	Improve the prevention and management of type 2 diabetes	Remote	150	IMPACT: physical activity and fitness level, health	Community, health, local government	Local government
78	Vic.	Be deadly, get healthy	2014-present	To improve the health of families and reduce chronic disease through an initial health assessment and participation in regular physical activity sessions	Rural	27 in 12 month period 2014–2015	IMPACT: physical activity and fitness level, health, social	Community, health	Australian Government
79	WA	Bega Gambirringu's community engagement vehicle	2011-present	Increase opportunities for physical activity, support healthy communities, access to healthy food by tailoring and delivering culturally appropriate services	Rural, remote	1000+	PROCESS	Community, health	Australian Government, Aboriginal organisations
80	Vic.	Budjeri Napan Association Inc.	2007-present	Improve health through encouraging healthy active lifestyles. Promote potential pathways in sport, education and training	Urban, rural	1500	None	Community, health, sport	State or territory government, local health services

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^b	Participant numbers	Evaluation indicators ^c	Sectors involved	Funding source
81	Qld	Chronic illness program	2010–2015	Increase the awareness and understanding of the impact of lifestyle disease, inform the community of what can be done to avoid chronic illness and where to get assistance to change habits	Remote	Unknown	PROCESS	community, local government	Unknown
82	NSW	Clean slate without prejudice	2009–present	Crime prevention initiative, deterrence for at-risk youth and their families through boxing training three times a week, healthy breakfast, educational and cultural components	Urban	50 in 2011	IMPACT: social	Community, education, Police	Charity funds
83	NSW	Deadly Sista Girlz	2009–present	Provide health, fitness and well being programs to target and assist women, girls and their families who may not be able to access mainstream programs	Urban, rural	Over 100	IMPACT: health, social	Community, health, NGO	Australian Government, Charity funds
84	Vic.	Deadly Sport Gippsland	2014–present	Encourage and support positive lifestyle change in communities by promoting sporting role models, activities and events using social media	Rural	3000 in region	IMPACT: physical activity and fitness level, health	Community, sport	State or territory government
85	Vic.	East Gippsland Aboriginal sport and physical activity program	2009–present	Promote and support increased participation in sport and recreation	Rural	Unknown	None	Community, health, sport	Australian Government
86	Vic.	Feedin' the mob	2011–2014	Involve community in activities that draw on local culture to teach the benefits of healthy eating and lifestyle.	Urban	Whole of community	PROCESS; IMPACT: health	Community, health	Australian Government
87	Qld	F.I.T (Fit Indigenous trainers) club	Unknown	Build a team of trainers to raise awareness and assist in preventing obesity through fitness activities	Urban	Unknown	None	Community	Unknown
88	National	Football dreaming program	2012–present	Maximise football (soccer) participation opportunities for children and young adults; identify and develop talented footballers; use football as a vehicle to impact social development issues	All	Unknown	None	Sport	Australian Government

89	NT	Healthy Lifestyle & Tobacco Cessation Program	2010-present	Promote and educate about physical activity, nutrition, smoking and chronic disease risk factors	All	Unknown	Unknown	Community, health	Australian Government
90	Qld	Indigenous community sport and recreation program	2013-present	Promote engagement in recreation activities and social and emotional well being.	All	387 242 attendances in 2014 across 38 communities	PROCESS	Community, Police	State or territory government
91	NSW	Indigenous-FIT Program	2011-present	To increase physical activity through a 10-week, 1 h per week exercise program, ensure sustainability for adults and children in grade 7 and above	Urban, rural	Unknown	IMPACT: physical activity and fitness level, health	Community, education, health	Local health service
92	National	Indigenous Marathon Foundation	2010-present	Celebrate Indigenous achievement and resilience, use running to promote health and build self-worth, promote healthy and active lifestyles to reduce preventable diseases, create Indigenous role models, inspire Indigenous people and promote achievement to all Australia.	All	Approx. 15 runners per year in IMP, and over 5000 community runners	PROCESS, IMPACT: social	Charity, NGO	Australian Government, charity funds
93	NSW	Indigenous mountain bike project	2012-2015	Promote bike riding as a form of physical activity	Urban	Unknown	None	Community, NGO	Unknown
94	National	Indigenous Softball Program - Health Through Softball	2015-present	Provide opportunities for community participation in softball activities to help to improve health and physical well being and provide social benefits	All	100+ participants over 2 or more communities	PROCESS	Community, sport	Australian Government
95	NSW, Qld, Vic., SA	Indigenous surfing program	Unknown	Attract large numbers of young people up to age 25 years to beaches. Promote health, enjoyment and well being through surfing and ocean safety awareness, bringing positive education to remote and local communities.	Rural	700 in NSW	PROCESS, IMPACT: social	Education, Sport	Australian Government, state or Territory government, private sector, philanthropy, Aboriginal organisations
96	Qld	Kombat Chronic Disease (KCD)	1998-present	Promotion physical activity and other health risk factors through sports programs, promotional messages, health events, health checks	Remote	5000 people	None	Community, health, local government, NGO, sport	State or territory government

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Table 2. (continued)

ID	Location	Program name	Time period	Aims	Region ^B	Participant numbers	Evaluation indicators ^C	Sectors involved	Funding source
97	Vic.	MAYSAR, Melbourne Aboriginal Youth, Sport and Recreation Co-operative Ltd	1982-present	Provide community services to promote healthier lifestyles, including youth outreach, general fitness, lunches and hub	Urban	Unknown	None	Community, sport	Unknown
98	National	Move it mob style	2012-present	Promoting culture through dance and music in a positive high energy television program to encourage happy healthy lifestyles	All	Unknown	None	Media, health	Australian Government
99	Vic.	Noogal Toengorrt Tani cricket program	Unknown	Provide cricket participation and development opportunities for ages 12–23 years.	All	Unknown	None	Community, sport	State or territory government
100	WA	Remote Aboriginal swimming pools program	2000-present	Work in consultation with communities to run safe, efficient and effective aquatic facilities and to meet the needs and expectations of the communities	Remote	45 000 visits annually across 6 communities	IMPACT: physical activity and fitness level, health, social	Community, health, NGO	State or territory government, private sector
101	NT	RLSA NT remote pools project	2003-present	Maximise health, social and economic benefits of swimming pools in remote communities	Rural, remote	19 000 in 18 communities	None	Health, NGO	Australian Government, state or territory government, local government
102	Vic.	Rumbalara Football and Netball Club healthy lifestyles program ^A	2006-present	Build a strong and healthy community with a central focus on nutrition and exercise. Encourage healthy lives by making choices that lead to good physical, spiritual, social and well being for people and their families	Rural	Unknown	Unknown	Community, sport	Philanthropy, private sector, NGO
103	National	Sports healthy futures program	2013–2014	Improve overall health and well being of youth through participation in sports, deliver sporting equipment to community organisations, sporting clubs and schools in exchange for team members attending regular health checks	All	Unknown	None	Community, health, sport	Aboriginal organisation

104	NT	Sunrise Health Service physical activity program	2009-present	Promote healthy lifestyles through providing support to communities in developing and implementing strategies to increase the level and quality of physical activity, lifestyle and community well being	Rural, remote	Unknown	None	Community, health	Australian Government, state or territory government
105	NT	Tiwi Islands Youth and Communities	2003-present	Engages youth aged 12–19 years at-risk of entering the criminal justice system in prevention activities, such as cultural activities, sport and recreation	Remote	131 since 2003. Deliver preventive program to all school children	PROCESS, IMPACT: social	Community, education, health, police, sport	Local government, NGO
106	WA	Tobacco & Healthy Lifestyles Program	2015-present	Reduce the risk of chronic disease by lowering smoking and tobacco-use, increasing exercise and improving nutrition	Remote	Whole of community	PROCESS, IMPACT: health	Community, education, health	Australian Government
107	WA	WA Healthy Schools Project	2008–2015	Increase physical activity participation and healthy food and drink consumption	All	Unknown	PROCESS	Education, health, sport	Australian Government
108	Qld	Walkabout wonders	2013-present	Increase the knowledge of participants' own health and chronic disease and the benefits of regular exercise	Urban, rural	Unknown	None	Community, health	Australian Government, State or territory government
109	WA	Western Desert Sports Program	2002-present	Support healthier lifestyle choices	Remote	500	PROCESS	Community, sport	State or territory government, private sector
110	WA	Wirraka Maya's Leap Leadership swim for life program	2013–2014	Develop youth leadership skills and achievement in a structured environment. Enhance problem-solving and decision-making skills while improving self-esteem through swimming. Provide an opportunity to gain valuable water safety and lifesaving skills	Rural	Unknown	None	Community, health, NGO	Charity funds

^AProgram was identified in the bibliographic search.

^BRegion, according to Australian Institute of Health and Welfare Rural, Remote and Metropolitan Areas (RRMA) classification:⁴⁰

Urban: capital cities and other metropolitan centres (urban centre population >100 000)

Rural: rural centres (urban centre population 10 000–99 999)

Remote: Remote centres (urban centre population >4999) and other remote areas (<5000).

^CEvaluation indicators, according to Nutbeam and Bauman (2006):¹⁴

Process: 'set of activities designed to assess the success of program implementation'

Impact: 'set of activities designed to assess short-term progress in the implementation of a health promotion intervention'

Physical activity: any bodily movement produced by skeletal muscles that requires energy expenditure.⁴¹

Fitness: 'the condition of being physically fit and healthy'⁴² Health: any widely recognised indicator of physical or mental health status (e.g. blood pressure, weight, diet, smoking)

Social: any broader societal indicator of benefit (e.g. school attendance, crime rates).

and remote locations. The majority of Aboriginal and Torres Strait Islander people reside in areas defined as urban, as reflected in our program location findings, despite a higher proportion living in rural or remote areas when compared with the overall Australian population.¹⁸ WA had the largest number of programs, followed by NSW and Qld; all three states have the largest population of Aboriginal and Torres Strait Islanders in Australia at 43 731, 103 907 and 94 082.¹⁸ Ten programs were located in NT, which has the highest population proportion of Aboriginal and Torres Strait Islander people at ~30%¹⁹ and the fourth highest absolute number. However, the total number of remote programs identified ($n=14$) indicates gaps in program provision specific to population density are likely. While program development according to locally identified community needs is a vital component of self-determination and program success,²⁰ the widespread provision of culturally appropriate services is integral to initiatives to reduce population inequalities. It is encouraging that the majority of programs we identified involved Aboriginal and Torres Strait Islander stakeholders, as optimum program practice should encompass culturally specific input at all stages of development, implementation and evaluation.²¹

Since 2008, 'Closing the Gap' has been the main policy initiative to achieve Aboriginal and Torres Strait Islander health equality.²² We found that while a small number of programs had operated continuously for over a decade; the majority had shorter lifespans, limiting their sustainability. This may reflect current policy direction and typical short-term funding periods but ongoing commitment will be inherent to the success of the policy. Estimations of participant numbers were available for over half of sourced programs. Some programs had small numbers of participants (10–20) and others involved over 1000 people, but the extent of regular participation was unknown. Obtaining detailed information on reach and measuring its resultant impact was beyond the scope of this study, it also appeared to be beyond the scope of many of the program operations. Upstream initiatives and policies which reach larger numbers of people are likely to have greater population level effects. This has been suggested in mainstream public policy through approaching the social determinants of health²³ and is particularly pertinent for Aboriginal and Torres Strait Islander Australians.²⁴ However, current policy for disadvantaged groups focuses predominantly on individual behaviours. There is demonstrated effectiveness of group-based physical activity programs;^{11,25} such practice is recommended in combination with approaches to improve broader, structural determinants of health.²⁶

We found program aims predominantly focussed on physical activity to prevent or treat chronic diseases that are the major cause of the gap in life expectancy.¹ However, the Indigenous Chronic Disease Package (ICDP) which focussed comprehensively on both the prevention and management of chronic diseases existed only from 2009–2013.²⁷ This policy change may result in fewer programs

in the future, subsequently leading to poorer health in Aboriginal and Torres Strait Islander people, given the known benefits of physical activity. Almost a third of programs aimed to promote physical activity to achieve broader social benefits such as educational and employment outcomes and reduced rates of crime. Health and sport programs are worthy crime prevention approaches.²⁸ There are also recognised relationships between physical activity and fitness level and academic achievement²⁹ as well as social and mental health benefits specific to Aboriginal and Torres Strait Islander populations.^{30,31} However, a cautious approach to alluding to wider social benefits directly arising from individual programs should be taken in the absence of empirical evidence, as well as the direct effects of standalone programs on health. Yet the documentation of existing program evaluation measures in this snapshot represents a vital first step in reviewing programs collectively and some have demonstrated encouraging evidence of positive educational and employment outcomes.^{32,33} There is also some evidence of social benefits, such as community cohesion and cultural identity; derived from sport programs in this snapshot,^{31,34} which are important for Aboriginal and Torres Strait Islander health. Such programs might therefore contribute to corresponding 'Closing the Gap' policy indicators and should be resourced accordingly.

Most programs received financial support from national, state, territory or local government, which is a commendable response to population health disparities. However, funding sources across multiple jurisdictions also often lack long-term synergy and support. Sustainable program funding is challenging but more likely to be achieved where public, private and philanthropic sources can be combined, as was found for several programs. While financial contributions from participants can ensure continuation, this may not be appropriate for this population group given income inequalities.³⁵ Cost has been identified as a barrier to physical activity participation among Aboriginal and Torres Strait Islander people,³⁶ therefore, it is encouraging that the majority of programs incurred no participant costs. Multi-sector partnerships, evident for the majority of programs, can help ensure continuous support across organisations.

All 11 programs identified in the bibliography search included formal evaluation results. Yet of the 110 programs sourced, 65 had formal evaluation measures; the results of which cannot be found in academic literature. This discrepancy could be partly due to evaluation proposals currently in their infancy with results anticipated in the future, as well as a lag time before findings are published. There is an increasing requirement from funding sources to conduct formal evaluation of programs³⁷ which may translate to published results in the future. However, such program evaluation results may not be made publically available. Recommendations to improve the collection of quality evaluation data³⁸ may also be influencing current practice. The low number of published evaluations represents a current gap in the sharing of evidence

informed practice and rigorous science. No economic evaluations were uncovered; this also represents an avenue for future research to support ongoing investment in programs. While the purpose of this snapshot was to capture evaluation measures rather than results, findings suggest that evaluation of physical activity programs for Aboriginal and Torres Strait Islander people is more prevalent than published literature suggests. In order to ensure program effectiveness and future planning, the dissemination in a timely manner of well-designed process and impact evaluations,¹⁴ through formal and informal publication and media channels, is essential.

Strengths of this study include the comprehensive inclusion of relevant physical activity programs targeting Aboriginal and Torres Strait Islander people and the standardised documentation and description of program aspects. The inclusion of both published literature and online or grey sources enhances the scope and completeness of this work. Verification by program coordinators adds further accuracy to the findings. There are some limitations; other programs may exist, but their information was unable to be sourced. Given the widespread current use of the Internet to profile organisational information, we can be confident that the majority of existing, relevant programs were captured. The snapshot could only identify organised programs yet Aboriginal and Torres Strait Islander people may be more likely than non-Indigenous people to achieve physical activity through incidental means,³⁰ via necessary transport related activity associated with socioeconomic disadvantage³⁹ and within mainstream programs.¹⁷ Contact with some program coordinators was not possible and some differences in the understanding of program indicator information may have occurred.

Conclusion

This snapshot provides a comprehensive description of current physical activity program provision for Aboriginal and Torres Strait Islander people across Australia, representing an important first step in monitoring the implementation of programs to increase physical activity. Such programs are an essential part of closing the gap in health disparities.

Over 100 programs were found to be operating between 2012 and 2015 but identification of the majority of programs occurred through non-academic sources. It is recommended that all programs targeting Aboriginal and Torres Strait Islander people disseminate publically accessible details. This would provide a more complete picture of program provision, identify gaps in services and shared information platform on components of programs that could benefit populations in other locations. Many programs collect evaluation data, yet this data is commonly underrepresented in academic literature. The timescale of programs may be limited by short funding cycles, possibly affecting their overall impact and not typically allowing economic provision for analysis of program

effects when programs are increasingly required to show cost benefits. Culturally appropriate, sustainable and effective programs to improve chronic disease risk factors, such as physical activity initiatives, are an integral element of efforts to improve health for Indigenous communities.

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