

# Chronic disease prevention programs offered by Aboriginal Community Controlled Health Services in New South Wales, Australia

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Chronic disease accounts for about 80% of the mortality gap between Aboriginal and Torres Strait Islander and non-Indigenous Australians aged 35–74 years.<sup>1</sup> Diabetes, cardiovascular disease (CVD), and chronic kidney disease (CKD) are major contributors to the chronic disease burden.<sup>2</sup> Common and modifiable risk factors for chronic disease include high blood pressure, high cholesterol, tobacco use, overweight and obesity, and diabetes. Other non-traditional risk factors, such as socioeconomic disadvantage and low education level attained, are also associated with these diseases.<sup>3,4</sup>

The need to address risk factors for preventing chronic disease is well-recognised.<sup>5,6</sup> A review of 71 Aboriginal and Torres Strait Islander health promotion programs in Australia found most programs addressed nutrition and focused on individual behaviour change, with target audiences ranging from whole-of-community to specific subgroups, such as women or youth.<sup>7</sup> Community-based chronic disease programs, such as the '1 Deadly Step' program,<sup>8</sup> have highlighted some key enablers for successful implementation, including a strong local working group, resourceful clinic managers and staff, access to operational support, being free of charge, and inclusion of family members.<sup>8</sup> However, barriers include lack of resources and community infrastructure, distance to travel to attend the program, and

## Abstract

**Objectives:** To identify and describe chronic disease prevention programs offered by Aboriginal Community Controlled Health Services (ACCHSs) in New South Wales (NSW), Australia.

**Methods:** ACCHSs were identified through the Aboriginal Health and Medical Research Council of NSW website. Chronic disease programs were identified from the Facebook page and website of each ACCHS. Characteristics, including regions, target population, condition, health behaviour, modality and program frequency were extracted and summarised.

**Results:** We identified 128 chronic disease programs across 32 ACCHSs. Of these, 87 (68%) programs were broad in their scope, 20 (16%) targeted youth, three (2%) targeted Elders, 16 (12%) were for females only and five (4%) were for males only. Interventions included physical activity (77, 60%), diet and nutrition (74, 58%), smoking (70, 55%), and the Aboriginal and Torres Strait Islander Health Check (44, 34%), with 93 programs (73%) of ongoing duration.

**Conclusions:** Chronic disease prevention programs address chronic conditions by promoting physical activity, diet and nutrition, smoking cessation and health screening. Most target the general Aboriginal community, a few target specific groups based on gender and age, and more than one-quarter are time-limited.

**Implications for public health:** Chronic disease programs that are co-produced with specific groups, based on age and gender, may be needed.

**Key words:** Indigenous health promotion, health services research, chronic disease

other family priorities.<sup>9,10</sup>

In Australia, Aboriginal Community Controlled Health Services (ACCHSs) engage with their communities to deliver culturally appropriate comprehensive healthcare to Aboriginal and Torres Strait Islander people. This is achieved through the provision of primary care, allied health and preventive care services.<sup>11</sup> Although ACCHSs are more costly to run than mainstream GP practices,<sup>12</sup> they have shown greater benefits and outcomes for the Australian Indigenous

population by improving access to health services and, critically, have community-controlled governance.<sup>12-14</sup>

Despite evidence of the benefits of health promotion for the prevention of chronic disease and the importance of community-driven healthcare,<sup>15</sup> there is yet to be a detailed description of chronic disease programs within the setting of ACCHSs in Australia. This study aimed to identify and describe community-based chronic disease prevention programs being conducted by

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ACCCHSs located in New South Wales (NSW), Australia. The findings will be used to inform the development, implementation and evaluation of chronic disease programs for Aboriginal and Torres Strait Islander communities.

## Methods

### Search strategy and selection criteria

The data were collected by the first author (VS), a researcher of Aboriginal descent. All ACCCHSs in New South Wales, Australia, were

identified by searching the website of the Aboriginal Health and Medical Research Council (AH&MRC),<sup>16</sup> the peak body for ACCCHSs in New South Wales. Using each ACCCHSs' dedicated website and Facebook page, chronic disease prevention programs that targeted cardiovascular disease, obesity, diabetes and chronic kidney disease were identified. All relevant programs that were indicated as currently active and without restrictions to the population type were included. The search was conducted in March 2019.

### Data extraction

We adapted a framework used for the analysis of educational interventions for patients with CKD<sup>17</sup> and extracted the following characteristics about each program: the target population, the program facilitators, the medical condition being targeted, the targeted health behaviours including physical activity, diet and nutrition, smoking and the 715 Health Check screening,<sup>18</sup> which is an Australian Government subsidised health check to assess physical, psychological and social wellbeing for Aboriginal and Torres Strait Islander People. Modality and frequency of program delivery were also extracted.

### Data analysis and synthesis

Data were collated in a Microsoft® Excel® spreadsheet (Microsoft Office Professional Plus 2013 15.0.5189.1000). Two authors (VS, PLV) assessed and recorded the frequency of each program. Program characteristics were tabulated and total frequencies for each region were expressed in graphs.

## Results

### Programs by regions

We identified 32 ACCCHSs across the four regions (Southern, Western, Northern and Metropolitan) in New South Wales that had conducted chronic disease prevention programs. In total, 128 programs were identified and included in the study, with 39 (30%) programs being run across eight centres in the Southern region, 33 (26%) programs in ten centres in the Western region, 32 (25%) programs in nine centres in the Northern region, and 24 (19%) programs across five centres in the Metropolitan region (Table 1). The number of programs per ACCCHS ranged from one to eight, with a median of four (IQR, 3–6; Supplementary Table 1a). We excluded a total of 14 services: six identified

as Aboriginal Community Controlled Health-Related Services, three were residential drug and alcohol services only, three had no information on the public domain, one centre was not operational, and one did not have a New South Wales postcode (Supplementary Figure 1).

### Target group

Most programs did not specify a target group 87 (68%). Twenty-three (18%) programs targeted an age-specific population, with 20 (16%) programs aimed at youth and three (2%) specifically designed for Elders. Twenty-one (16%) programs were gender-specific, with 16 (12%) programs for women and five (4%) for men. One (1%) program was specifically for pregnant women and their families.

### Program facilitators

The majority of programs were facilitated by Aboriginal Health Workers or Indigenous Health Promotion Officers 89 (70%). Aboriginal Health Workers provide a variety of services in the community and/or hospital setting. Their primary healthcare role involves clinical assessment, monitoring and treatment, health promotion, cultural education, chronic disease management and advocacy.<sup>19</sup> Allied health professionals facilitated 39 (30%) programs. These included 13 exercise physiologists, 11 personal trainers, nine dietitians, five nutritionists, a diabetes educator, an exercise specialist and a surfing instructor. In some programs, more than one allied health professional type facilitated the program (Supplementary Table 1b).

### Chronic disease program focus

There were 107 (84%) programs designed to address CVD, 97 (76%) focused on obesity, 80 (63%) on diabetes, and 77 (60%) addressed CKD (Table 1). In total, 82 (64%) programs addressed multiple chronic conditions, while 44 (34%) programs focused solely on one chronic disease. Of those targeting only one chronic disease, 27 (61%) targeted CVD, 15 (34%) obesity and two (5%) diabetes (Figure 1). The conditions addressed by the programs across the various ACCCHSs are shown in Supplementary Table 1a.

### Chronic disease programs by region

#### Cardiovascular disease

In the Southern region, there were 36 (34%) programs that focused on CVD. The Western region had 25 (23%) CVD programs, and

Table 1: Chronic disease prevention programs delivered through 32 Aboriginal Controlled Community Health Services (ACCCHSs) in New South Wales, Australia.	
Program Characteristics	Number of Programs (%)
<b>AHMRC Regions (ACCCHSs involved)</b>	
Southern (8)	39 (30)
Western (10)	33 (26)
Northern (9)	32 (25)
Metropolitan (5)	24 (19)
<b>Target Population</b>	
All	87 (68)
Youth	16 (13)
Female	13 (10)
Male	4 (3)
Elders	3 (2)
Youth-Female	3 (2)
Youth-Male	1 (1)
Pregnant women and family	1 (1)
<b>Facilitator</b>	
Aboriginal Health Worker/Indigenous Health Promotion Officer	89 (70)
Allied Health Professional	39 (30)
<b>Chronic Disease Prevention Program<sup>a</sup></b>	
Cardiovascular disease	107 (84)
Obesity	97 (76)
Diabetes	80 (63)
Chronic kidney disease	77 (60)
<b>Targeted Health Behaviour<sup>a</sup></b>	
Physical activity	77 (60)
Diet and nutrition	74 (58)
Smoking	70 (55)
715 Health checks	44 (34)
<b>Modality<sup>a</sup></b>	
Interactive teaching	76 (59)
Didactic teaching	63 (49)
Activity groups	57 (45)
<b>Program Frequency</b>	
Ongoing	93 (73)
Block	24 (19)
Once only	11 (9)

Notes:  
 a: Some programs addressed multiple chronic conditions, multiple health behaviours and modalities. Percentage values do not total 100.  
 Definitions: AHMRC – Aboriginal Health and Medical Research Council

both Northern and Metropolitan regions had 23 (21%) CVD programs (Figure 2). The types of programs targeting CVD were also multifaceted, commonly addressing other chronic conditions and health behaviours that were known risk factors for CVD. For example, the Gym Group at Bullinah Aboriginal Health Service was a regular exercise group with a CVD focus that also included nutrition and weight management.

**Obesity**

Thirty (31%) obesity-focused programs were identified in the Western region, 25 (26%) in the Southern region and 21 (22%) programs in both the Northern and Metropolitan regions. These programs also addressed diabetes, diet and nutrition, physical activity and the completion of a 715 Health Check; for example, the NSW Knockout Health Challenge statewide community-led program that addressed obesity. It ran twice a year over 10 weeks and conducted physical activity challenges. The program targeted lifestyle-related risk factors for obesity and delivered cooking classes, goal setting, health education and support to quit smoking for chronic disease and weight reduction.

**Diabetes**

There were 22 (28%) diabetes programs delivered in the Southern region, 21 (26%) in the Western region, 20 (25%) in the Northern region and 17 (21%) in the Metropolitan region. Diabetes programs frequently addressed CVD and CKD, in addition to targeted health behaviours. The Too Deadly for Diabetes program in Walgett aimed to promote healthy eating, exercise and weight loss as well as reducing the HbA1c (also known as haemoglobin A1c, glycated haemoglobin) in community members with diabetes or pre-diabetes.

**Chronic kidney disease**

Chronic kidney disease was the focus of 22 (29%) programs in the Southern region and 21 (27%) in the Western region. Seventeen (22%) programs that targeted CKD prevention were delivered in both the Northern and the Metropolitan regions. Generally, programs addressed the common conditions that lead to CKD, such as obesity and diabetes. No programs specifically addressed CKD on its own (Figure 1).

Figure 1: Venn diagram showing overlap between chronic disease prevention programs targeting cardiovascular disease, obesity, diabetes and chronic kidney disease.

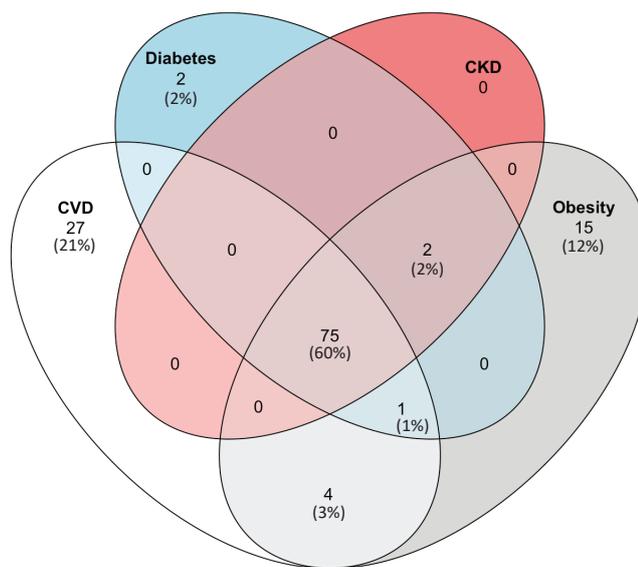
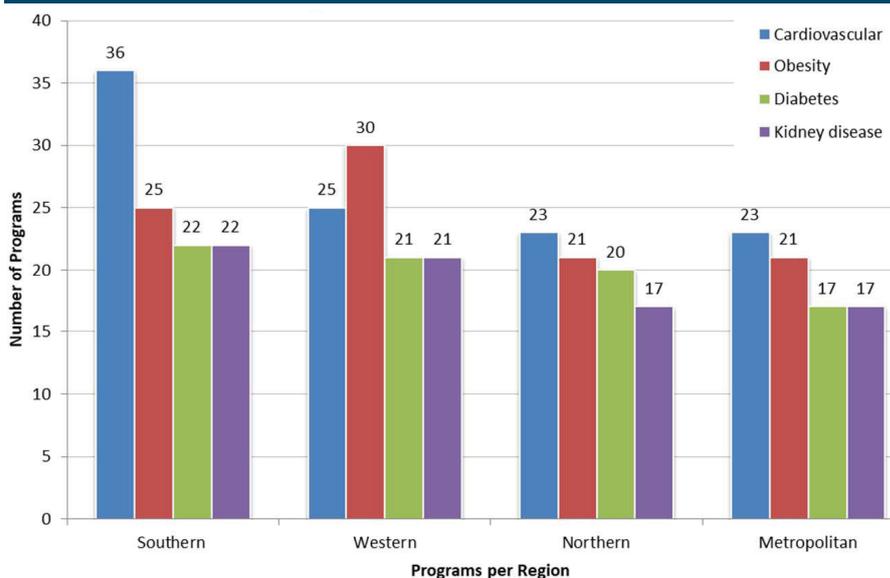


Figure 2: Aboriginal Community Controlled Health Services' programs for chronic health conditions, in NSW.



**Targeted health behaviours**

Health behaviours addressed by the programs were classified into four groups: increased physical activity (n=77), diet and nutrition (n=74), smoking cessation (n=70), and uptake of the 715 Health Checks (n=44) (Table 1).

**Smoking**

In total, 27 (39%) programs addressed smoking in the Southern region, 16 (23%) in the Northern region, 15 (21%) in the Western region and 12 (17%) in the Metropolitan region (Figure 3). The Tackling Indigenous Smoking program was a national program

delivered in multiple regions that raised education and awareness of tobacco use and provided support for individuals to quit smoking.

**Diet and nutrition**

There were 23 (31%) diet and nutrition programs in the Western region, 20 (27%) programs in the Southern region, 16 (22%) in the Northern region and 15 (20%) in the Metropolitan region. For example, the Cooking Healthy and Wise program at Redfern Aboriginal Medical Service delivered nutritional education and cooking skills demonstrations.

### Physical activity

Physical activity was targeted in 21 (27%) programs in the Southern region, 20 (26%) programs in the Western region, and 18 (23%) programs in both the Northern and Metropolitan regions. The Yerinfitt program in Yerin ACCHS was a health and wellbeing program that focused on physical activity by offering regular gym classes.

### The Aboriginal and Torres Strait Islander Health Check (the 715 Health Check)

We identified 14 (32%) programs that promoted the completion of a 715 Health Check in the Southern region, 13 (30%) in the Western region, 10 (23%) in the Northern region and seven (16%) in the Metropolitan region. Deadly Choices at Awabakal ACCHS was designed to promote a variety of health and wellbeing activities for Aboriginal and Torres Strait Islander people, who were eligible for a Medicare-subsidised health check, regardless of age.

### Delivery mode

Interactive teaching was used in 76 (59%) programs, such as The Community Garden Program at Albury–Wodonga, which provided participants with hands-on tending of the community garden and cooking workshops about preparing affordable, easy meals. Didactic teaching was conducted in 63 (49%) programs, where the facilitator provided information followed by a discussion in a one on one or small group basis. Good Tucker Talk and the Supermarket Tour were two programs that featured a dietician-led talk,

involving a trip to the supermarket to practise reading nutrition labels, and knowledge-building for participants to identify healthy food products. Group-based activities were delivered in 57 (45%) programs. Group work was particularly common in physical activity programs such as the Aboriginal Go4Fun program, where young participants learned by being involved in the nutritional and physical group activities.

### Program frequency

Most of the programs 93 (73%) were delivered on an ongoing basis, such as the 715 Health Check. Others were delivered in block mode, such as the Maruma-Li Yunarr group fitness program in which clients participated once a week for five weeks. In total, 24 (19%) programs were delivered in block mode and 11 (9%) programs were delivered as once-only events. The once-only programs were conducted as Community Events to raise awareness for specific health issues such as Diabetes Day and Community Day at Biripi Aboriginal Corporation Medical Centre.

### Discussion

Among the 32 ACCHSs in Australia's most populous state, New South Wales, which also has the largest number of Aboriginal people,<sup>20</sup> 128 programs targeted chronic disease prevention, specifically CVD, diabetes, obesity and kidney disease. More than half of the programs addressed all four chronic conditions, with CVD and obesity being more

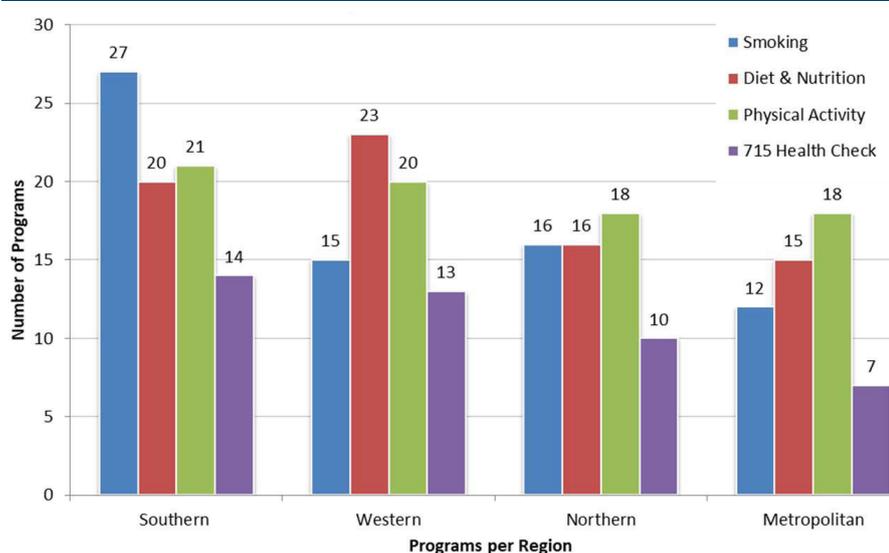
commonly addressed across all regions. Only a few programs were designed for a specific population based on gender or age. The targeted health behaviour changes embedded in the programs included physical activity, diet and nutrition, smoking cessation and the Aboriginal and Torres Strait Islander 715 Health Check, as they addressed the common modifiable risk factors of chronic disease. Different modes of delivery were used across the programs, including interactive teaching, didactic teaching and group-based activities. Most were conducted on an ongoing basis and were delivered by Aboriginal facilitators.

The National Strategic Framework for Chronic Conditions<sup>21</sup> has a strategic priority for Aboriginal and Torres Strait Islander health that includes the *Implementation Plan for the National Aboriginal and Torres Strait Islander Health Plan 2013–2023*.<sup>22</sup> The ACCHSs are the leading entities appointed to implement these health strategies as they are able to be responsive to local community needs, providing culturally safe access to early intervention and treatment services.<sup>22</sup>

This study found CVD and obesity were the two most commonly targeted chronic health conditions, followed by diabetes and CKD. This may reflect the high prevalence and severity of these conditions in Aboriginal and Torres Strait Islander people. Premature and preventable CVD deaths contribute to 24% of the mortality gap between Aboriginal and Torres Strait Islander and non-Indigenous Australians.<sup>2</sup> Obesity is estimated to cause one-third of the CVD and two-thirds of the diabetes disease burden.<sup>2,23</sup> Furthermore, Aboriginal and Torres Strait Islander people are twice as likely to have signs of CKD compared to non-Indigenous Australians (22% and 10%, respectively).<sup>2</sup> The onset of end-stage kidney disease occurs at a much younger age for Aboriginal and Torres Strait Islander people compared to the non-Indigenous population.<sup>24</sup>

Chronic kidney disease was the focus of 60% of the programs. The high proportion of programs addressing CKD is not unexpected since it is estimated that one in five (18%) Aboriginal adults have biomedical signs of the disease.<sup>25</sup> CKD has a substantial impact on the health, lifestyle, social and emotional wellbeing of Aboriginal and Torres Strait Islander people.<sup>26,27</sup> The impact is even greater on those living in rural and remote areas who often need to relocate to have access to treatment.<sup>2,26,27</sup> CKD continues to be under-

Figure 3: Aboriginal Community Controlled Health Services' programs in NSW, targeting specific health behaviours.



diagnosed in both Aboriginal and Torres Strait Islander and non-Indigenous populations.<sup>25</sup>

Smoking is the leading health risk factor responsible for approximately one-third of the CVD burden for Aboriginal and Torres Strait Islander people.<sup>2,23</sup> The annual rates of smoking have declined in Aboriginal and Torres Strait Islander people in non-remote areas;<sup>28</sup> however, when compared to the overall population, Aboriginal and Torres Strait Islander people have higher rates of daily smoking, across all age groups.<sup>29</sup> Young people between 15 and 17 years of age are five times more likely to smoke daily,<sup>2</sup> while 48% of Aboriginal and Torres Strait Islander women reported smoking during pregnancy compared with 11% non-Indigenous women.<sup>2</sup> Our study showed health behaviour programs addressed physical activity, diet and nutrition and smoking in similar proportions. Even though there were numerous programs that addressed smoking, only two programs were specifically targeted to youth, such as Smoke Free 4 Life at Murrin Bridge and Griffith, and only one for pregnant women: We're Tobacco Free for New Life, also implemented at Griffith Aboriginal Medical Service Incorporated. This is of particular interest given the Tackling Indigenous Smoking program is part of the National Health Plan 2013–2023 and the Chronic Disease Implementation package.<sup>22,30</sup>

Across all regions, a lower proportion of programs included the 715 Health Check. This health check provides an opportunity for Aboriginal and Torres Strait Islander people to check their health status and make the necessary lifestyle changes to prevent or delay the onset of chronic disease.<sup>30</sup> The aim of the 715 Health Check is to ensure Aboriginal and Torres Strait Islander people have access to primary healthcare that supports their needs and provides early detection of common treatable conditions. This is important to ensure diseases, such as CKD and diabetes, are detected during the early stages of the disease to help prevent its progression.

Although there was an array of programs targeted at the different gender and age groups, fewer than five per cent of programs were specifically for men and male youth. Compared to non-Indigenous Australians, Aboriginal and Torres Strait Islander men die earlier from chronic diseases such as CVD, respiratory disease, cancer, endocrine disease and injury.<sup>7,30,31</sup> There is clear evidence that Aboriginal and Torres Strait Islander men are

interested in their health but find it difficult to access primary healthcare services due to fear, shame, lack of knowledge, or culturally inappropriate staff and services.<sup>31</sup> To increase participation of Aboriginal and Torres Strait Islander men and youth, more programs may need to provide gender-specific services that are culturally appropriate and care for men's specific health needs without judgement or prejudice. We recommend the co-production of programs with Aboriginal and Torres Strait Islander youth, men and communities.<sup>32</sup>

This study provides an overview of chronic disease prevention programs available for the Aboriginal and Torres Strait Islander population across New South Wales, each playing a role in 'Closing the Gap'<sup>33</sup> on health inequities for Aboriginal and Torres Strait Islander peoples. We have been able to show health conditions that are currently targeted by these programs and have highlighted areas that need greater attention and investment in order to continue to decrease the health inequity gap. However, this study is limited because it is a descriptive review of information available in the public domain, and additional information including source of funding, program design and economic evaluation, could not be analysed as it was not freely accessible. Furthermore, we were unable to ascertain if the allied health workers, specifically, were Aboriginal or non-Aboriginal because this was not reported in the sources.

This comprehensive snapshot of existing chronic disease programs forms the foundation of an evidence-base for recognising the efforts of ACCHSs in New South Wales, which are responding to community needs for improving prevention, early detection and management of CVD, obesity, diabetes and CKD. Further research is needed to identify the effectiveness and sustainability of chronic disease prevention programs in ACCHSs. Recognising the barriers and enablers to program design, implementation and evaluation by elucidating community knowledge, beliefs and attitudes towards chronic disease will help inform public health policy and the Indigenous health agenda moving forward.

## Conclusion

Aboriginal Community Controlled Health Services are delivering key, preventative chronic disease programs to ensure Aboriginal and Torres Strait Islander people

have access to primary healthcare services that meet their needs and are culturally appropriate. In order to address health inequities, it is important these services attend to all risk factors associated with chronic disease, delivering equal care to people of all age groups and genders.

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## Supporting Information

Additional supporting information may be found in the online version of this article:

**Supplementary Figure 1:** Aboriginal Community Controlled Health Services in New South Wales, conducting health and wellbeing programs addressing chronic diseases.

**Supplementary Table 1a:** New South Wales Aboriginal Community Controlled Health Services (ACCHSs) - Health programs addressing chronic conditions.

**Supplementary Table 1b:** New South Wales Aboriginal Community Controlled Health Services (ACCHSs) - Health programs addressing chronic conditions – continued.