



Australian Government

Australian Institute of  
Health and Welfare



# Protective and risk factors for suicide among Indigenous Australians





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**About the cover artwork:**

Artist: Linda Huddleston

Title: The journey towards healing

At the centre of the artwork is the Clearinghouse. The black half-circles are the people who come to the Clearinghouse for information about mental health and suicide prevention.

The waves of red, yellow and white dots surrounding the inner circle represent strength and healing.

The footprints represent the journey towards healing.

The red and white circles around the edge represent different programs and policies aimed at helping people heal.

The hands represent success and wellbeing.



## Summary

Rates of suicide among Aboriginal and Torres Strait Islander people have increased by 20–24% over the past decade. Over a 5-year period from 2011 to 2016, suicide was the most common cause of injury-related death among Indigenous Australians, accounting for a third of all injury-related deaths.

Although our understanding of suicide has been increasing, there is yet to be a comprehensive review of recent evidence of the contribution of protective and risk factors for suicide among Indigenous Australians. Currently available data show that they vary by age, sex, the location and remoteness of communities, and over time.

The purpose of this report is to outline protective and risk factors that contribute to suicide among Indigenous Australians, as discussed in the literature and to outline the existing data collections and methods used for measuring protective and risk factors for suicide in these datasets.

This report has identified 17 key protective and risk factors as defined in the literature that may contribute to suicide among Indigenous Australians. It has highlighted their utility for understanding the intersections between protective and risk factors for suicide. These factors include:

- demographic factors—such as gender, age and location of residence
- variable factors—such as secure housing, alcohol and drug use, incarceration and employment
- factors specific to Indigenous Australians—such as cultural continuity, spirit, language and cultural understandings of wellbeing.

An understanding of the relationships between protective and risk factors of suicide among Indigenous Australians is key to the development of appropriate policies and suicide prevention programs.

It is important to use available data to explore the intersectional relationships between protective and risk factors that contribute to suicide among Indigenous Australians. Using data to understand why suicide prevalence varies by location and over time supports the ability for governments and communities to work together to implement evidence-based policies, interventions, and suicide prevention programs.







# 1

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## Introduction

# 1 Introduction

Rates of suicide among Aboriginal and Torres Strait Islander people have increased by 20–24% over the past decade (2009–2018) (ABS 2019a). Over a 5-year period from 2011 to 2016, suicide was the most common cause of injury-related death among Indigenous Australians, accounting for a third (33%, 706 deaths) of all injury-related deaths (AIHW 2020b). In 2018, intentional self-harm remained the fifth highest cause of injury-related deaths in the Indigenous Australian population (ABS 2019a).

Research suggests that suicide is influenced by a combination of factors that overlap and interact to affect a person's social and emotional wellbeing. These factors include:

- historical, environmental and societal circumstances such as government policies (past and present)
- historical events and cultural beliefs of wellbeing
- underlying differences between individuals in mental health, developmental experiences, socioeconomic status, education, and availability and accessibility of health care (ATSISPEP 2016; Deschner and Glanz 2016; Turrell et al. 1999).


For Indigenous Australians, unique historical events, community values and cultural beliefs of wellbeing shape interactions with other factors that can protect from, or increase the risk of, suicide. There is an increasing need for these protective and risk factors to be considered together to fully understand, address and design culturally appropriate responses into the future.

Indigenous Australians understand mental health and physical wellbeing to be an expression of the relationships that exist between land, body, mind and spirituality (Zubrick et al. 2014). The National Strategic Framework for Indigenous Australian Social and Emotional Wellbeing (SEWB) has established a holistic view of Indigenous Australians' mental health that:

- acknowledges the overlapping physical, emotional, cultural and spiritual influences of health and wellbeing (see Appendix A for more information) (PM&C 2017)
- recognises the importance of how land, culture, spirituality, ancestry, family and community influence Indigenous Australians' wellbeing (Gee et al. 2014; PM&C 2017)
- overlaps with many of the social determinants of health outlined by the World Health Organization (AIHW 2020i), and many of the Indigenous Australian cultural and social determinants of health, which promote cohesion and resilience (Lowitja Institute 2014).

Indigenous researchers have further emphasised the need for a more comprehensive understanding of factors that contribute to suicide among Indigenous Australians (ATSISPEP 2016; Dudgeon et al. 2017).

The Australian Government recognises the importance of working towards suicide prevention outcomes for Indigenous Australians. The National Suicide Prevention Taskforce (the Taskforce) supports the National Suicide Prevention Adviser in working towards zero suicides Australia-wide (Target 14 of the National Agreement on Closing the Gap 2020). The Terms of Reference of the National Suicide Prevention Adviser emphasise the need for suicide prevention for Indigenous Australians. The National Suicide Prevention Adviser's role is to:

- 
- reduce the risk that people will experience the kind of despair that leads to suicide
  - ensure that people who find themselves in despair get immediate and effective support
  - identify ways to connect services and empower communities to recognise and respond to people in distress and help to instil hope. (DoH 2020)

Supporting the Taskforce are various mental health and suicide prevention policies. Since the early 1990s, there have been many mental health and suicide prevention plans for both Indigenous Australians and non-Indigenous Australians (see Appendix A).

## Report overview

Although our understanding of suicide has been increasing, there is yet to be a comprehensive review into recent evidence of the contribution of protective and risk factors for suicide among Indigenous Australians. Currently available data show that they vary over time and according to the location and remoteness of communities.

These available data, however, do not provide a clear picture of the relative importance of each protective and risk factor to suicide outcomes for Indigenous Australians. Synthesising data on protective and risk factors and suicide outcomes can provide evidence about why suicide varies in some Indigenous communities more than others. This allows us to identify why there are differences between or within communities over time. This evidence can be used to target interventions and inform policy decisions. Additionally, it can support evidence-based suicide prevention programs that consider how interactions between protective and risk factors influence suicide among Indigenous Australians (Westerman and Sheridan 2020).

The purpose of this report is to:

- (a) outline protective and risk factors that contribute to suicide among Indigenous Australians, as discussed in the literature
- (b) outline the existing data collections and methods for measuring protective and risk factors for suicide

In doing so, this report creates a reference list of relevant data sources on protective and risk factors for suicide and identifies next steps to create more comprehensive models to understand suicide among Indigenous Australians. These insights can be used to guide future efforts on suicide prevention.



# 2

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## **Protective and risk factors for suicide among Indigenous Australians**



## 2 Protective and risk factors for suicide among Indigenous Australians

This chapter identifies key protective and risk factors for suicide among Aboriginal and Torres Strait Islander people using evidence from available literature, primarily from the past 5 years. A final list of 17 factors were identified following a review of 231 documents, which included:

- 214 reports, research articles and systematic reviews on factors contributing to suicide
- 17 key documents on factors contributing to health, wellbeing, suicidality and suicidal behaviour of Indigenous Australians

These key documents were selected to provide an overview of social, cultural, socioeconomic and environmental factors specific to Indigenous Australians, as well as factors identified through global research to contribute to suicide outcomes. It is important to note that, although a comprehensive literature search was used to produce a final list of protective and risk factors, the risk of suicide for individuals may be influenced by other factors outside this list.

A full description of the protective and risk factor literature review methods can be found in Appendix B.

### 2.1 Overview of variation in suicide

Understanding how protective and risk factors contribute to suicide is an important step to improve suicide prevention for Indigenous Australians. There are many protective and risk factors that may contribute towards, or protect against, suicidal behaviour. Most of these factors are common to all Australians, but some are unique to Indigenous Australians.

Protective and risk factors can vary over time and differ by location. Many existing datasets track individual protective and risk factors that are associated with suicide among Indigenous Australians. However, individual datasets do not tell us:

- the importance of a single factor in a single dataset in predicting suicide relative to other factors in other datasets
- how much suicide prevalence changes among Indigenous Australians when the protective and risk factors vary.

Given that suicide rates differ by age, sex and where people live, it is important to examine these demographic variables in addition to other variables when exploring the literature on protective and risk factors for suicide. Other protective and risk factors, such as housing conditions, employment rates and health care access, fluctuate in response to social or environmental changes within a location or community. Subsequently, some groups are more at risk of suicide than others, and social or environmental factors contributing to suicide risk can fluctuate over time.

### 2.2 Demographic factors

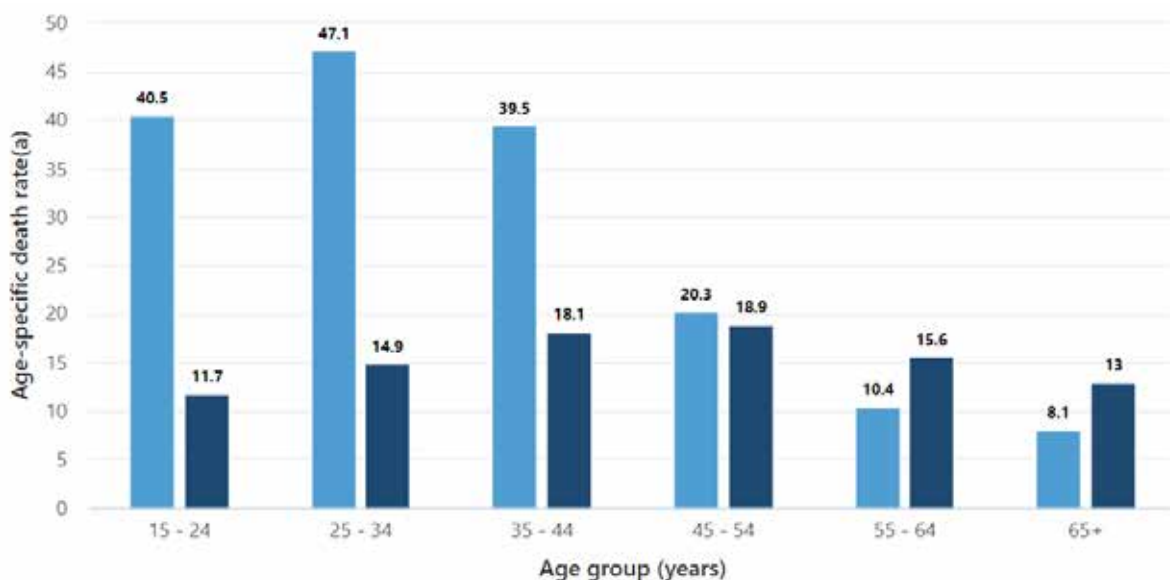
There is strong evidence in the literature that individual risk of suicidal behaviour is affected by demographic factors such as age, sex and place of residence.

## Age and sex

International evidence suggests that sex is one factor that may influence individual risk of suicidal behaviour (Canetto and Sakinovsky 1998; Dandona et al. 2018; Freeman et al. 2017; Gradus et al. 2020). This contributing factor has been observed in both the general Australian population and Indigenous Australians (AIHW 2020d, 2020f). Among Indigenous Australians, suicide deaths are 2.4 times as common in men than women (AIHW 2020f) (see Table 1). In 2018, intentional self-harm was the second leading cause of death among Indigenous Australian men, and men accounted for approximately three-quarters (76%, 129 of 169 deaths) of all suicide deaths among Indigenous Australians (ABS 2019a). Despite higher rates of suicide deaths for Indigenous men than women, rates of hospitalisation due to self-harm are higher for Indigenous women (AIHW 2019c; AIHW 2020j). Evidence further suggests that rates of suicide are increasing for all women in Australia, but not for men (AIHW 2020f; Stefanac et al. 2019).

Age is another factor that can contribute to variation in an individual's risk of suicide, both globally (Martini et al. 2019; Snowden et al. 2017; Twenge et al. 2019) and in the general Australian population (AIHW et al. 2020; Lee et al. 2019). The prevalence of suicide among Indigenous Australians also differs between age groups (AIHW 2020f). The highest rates of deaths by suicide occur among Indigenous men and women aged 15–44, ranging from approximately 40 to 47 deaths per 100,000 people in 2018 (ABS 2019a). In comparison, rates of deaths by suicide among Indigenous Australians are lower among older adults aged 65 and over (7–23 deaths per 100,000) and children aged between 5–17 (8 deaths per 100,000) (ABS 2019a). Notably, the rate of deaths by suicide among Indigenous Australians aged 15–24 (approximately 41 deaths per 100,000 people) is high when compared with non-Indigenous Australians of the same age (approximately 12 deaths per 100,000 people) (ABS 2019a; see Figure 2.1).

**Figure 2.1: Age-specific deaths by intentional self-harm, by Indigenous status 2014–18 (rate per 100,000)**



Source: ABS 2019a.

## Place of residence

Evidence shows that where a person lives contributes to their relative risk of suicide (Alothman and Fogarty 2020; Dandona et al. 2018; Fontanella et al. 2018; Khana et al. 2018; Knipe et al. 2017; Torok et al. 2017). For example, international evidence suggests that the remoteness of a community (Bhat et al. 2020; Subedi et al. 2019) and seasonal variation in climate can influence suicide patterns (Burke et al. 2018; Dixon and Kalkstein 2018; Gammans 2020; Holopainen et al. 2013; Kim et al. 2016; Yu et al. 2020).

Among Indigenous Australians, suicide rates vary between states and territories. Western Australia recorded the highest suicide rates for Indigenous Australians over the period 2014–2018 (approximately 38 deaths per 100,000 people), followed by the Northern Territory (approximately 26 deaths per 100,000 people) and Queensland (approximately 24 deaths per 100,000 people) (ABS 2019a).

Living in remote areas is associated with higher rates of suicide among Indigenous Australians. Between 2011–12 and 2015–16, the rate of suicide deaths of Indigenous men and women were highest in *Remote* areas and *Very remote* areas (AIHW 2020f) (see Table 1). Evidence also suggests that there is considerable variation in suicidal behaviours within each state and territory, even when community environments are similarly remote (Rouen et al. 2019).

**Table 1: Suicide deaths in the Indigenous Australian population, by remoteness of usual residence and sex, Australia, 2011–12 to 2015–16**

Remoteness	Men		Women	
	No. of deaths	Age adj. rate (per 100,000)	No. of deaths	Age adj. rate (per 100,000)
Major city	134	27.8	58	10.2
Inner regional	80	30.2	20	6.1
Outer regional	100	32.2	40	12.5
Remote	79	61.2	31	22.2
Very remote	99	37.2	53	19.2
Not available	9		2	
Total	501		205	

Source: AIH 2020f.

## 2.3 Variable factors that contribute to suicide rates of Indigenous Australians

Suicidal behaviour among Indigenous Australians has been linked to trauma from the effects of colonisation, such as the loss of connection to culture, Country and spirituality and the removal of children from their families, which is a trauma that is passed down through generations.



## Intergenerational trauma

Connection to culture, Country and spirituality maintains social and emotional wellbeing, supports strong self-identity and provides a sense of continuity among Indigenous Australians (PM&C 2017). However, evidence shows that events that stripped communities of their lands, restricted the teaching of cultural practices and removed individual rights during European colonisation have impacted Indigenous Australians' opportunity to pass down cultural values and engage in cultural practices (AIHW 2018c). Research suggests that this can have competing impacts:

- Trauma from colonisation can be intergenerational, passed to subsequent generations through the telling and retelling of, or silence around, past trauma (Bombay et al. 2009).
- The passing of knowledge over generations among Indigenous Australians has preserved rich cultural knowledge that can promote widespread positive impacts on individual, family and community wellbeing (Bombay et al. 2009).

Past policies of forced removal of Indigenous children from their families—known as the Stolen Generations—have also impacted the lives of many Indigenous Australians (Menzies 2019). In 2014–15, there were an estimated 20,900 surviving Indigenous Australians who had been removed from their families as children (ABS 2017b; AIHW 2018c). Those who were removed from their families were more likely to experience incarceration, higher levels of physical violence and homelessness and have lower incomes, compared with those who had not been removed (AIHW 2018c). People who have experienced intergenerational trauma from family separation may be more vulnerable to life stressors and poor mental health (De Maio et al. 2005; Menzies 2019).

## Connection to culture, Country and spirituality


Evidence suggests that the loss of culture and its lasting effects on Indigenous Australians is a risk factor for future suicidal behaviour (Dudgeon et al. 2010; Dudgeon et al. 2017).

### Cultural continuity and empowerment

The ability to exercise self-determination for Indigenous communities in relation to their own cultural and community wellbeing can be a powerful protective factor against suicide (Dudgeon et al. 2017). Evidence from indigenous youth in Canada demonstrates the importance of self-determination, finding that communities with moderate self-governance over their traditional lands, education, health, policing, and community facilities had fewer incidences of suicide and those with the highest levels of self-governance had no incidences of suicide (Chandler and Lalonde 1998, 2008). Opportunities to encourage cultural continuity can strengthen cultural identity, reinforce kinship and community relationships and protect against self-harm and youth suicide (AIHW and AIFS 2013; Gee et al. 2014; Zubrick et al. 2014).

In 2013, Aboriginal Elders suggested that high rates of youth suicide may be due in part to a lack of exposure to Indigenous cultural knowledge and language (Culture is Life 2013). This suggestion is supported by research that shows that Indigenous Australians who feel less connected to their culture have lower emotional wellbeing and greater depressive symptoms than those who feel more connected (Macedo et al. 2019; Salmon et al. 2019a; Williams et al. 2018). They also attend fewer cultural events that affirm group cohesion and self-identity (Lovett 2017; Salmon et al. 2019a). Without cultural connection, Indigenous Australians are separated from the protection and support that their culture, community and Country provide for their health and wellbeing.





Strengths-based responses that build cultural connection are particularly effective at reducing suicide in Indigenous communities (Dudgeon et al. 2017). For example, Elder-driven, on-Country programs, like the Yiriman Project in Western Australia, promote cultural continuity by reacquainting young people with their Country (Salmon et al. 2019b). Engaging in cultural practices, such as traditional food acquisition and food sharing, can also be healing through group cohesion and knowledge transfer (Delisle et al. 2018; Watkin Lui et al. 2016). A study by Gibson et al. (2021) examining deaths by suicide between 2001 and 2015 among young Indigenous Australians aged 10–19, found a relationship between suicide rates and cultural connectedness.

Connectedness was measured using 3 indicators:

- cultural social capital (as participation in cultural and community events, ceremonies and activities, frequency of contact with family and friends, and proportion of friendships with other Indigenous Australians)
- proportion of community residents who spoke an Indigenous language at home
- experience of discrimination in the previous 12 months.

Statistically higher rates of suicide occurred among young Indigenous Australians who lived in communities with low levels of cultural continuity and in communities with high levels of discrimination (Gibson et al. 2021).


Engagement programs are strengths-based and aim to divert attention away from issues that communities might be struggling with, such as alcohol and substance misuse or criminal activity. They create opportunities for young people and families that enhance prospects for quality education and employment, sport, men's and women's groups, art and painting workshops and walk-on-Country programs (ATSISPEP 2016; DoH 2014; Encompass Family and Community 2014; McCalman et al. 2010; Rasmussen et al. 2018; Taylor 2004). These cultural initiatives protect against suicide by empowering communities to preserve cultural connections that heal intergenerational trauma and foster individual and community resilience.

## Spirituality

For Indigenous Australians spirituality is a holistic philosophy in which all animate and inanimate elements of the universe—plants, animals, landforms and celestial bodies—are interconnected (Grievies 2009). This spirituality shapes how Indigenous Australians experience wellbeing. The interconnectedness between social connections, natural environment and physical selves forms the foundations of healthy self-identity (Grievies 2009; Lutschini 2005; Salmon et al. 2019b). Teachings of spirituality, especially at a young age, are therefore an important aspect of health for Indigenous Australians (Dudgeon et al. 2020; McNamara 2013).

## Language

To embrace the healing power of traditional beliefs and practices, languages can help people understand the concept of social and emotional wellbeing outside of clinical definitions that separate mental health from physical health. For example, some concepts or perspectives of health can be expressed only by a person's traditional language and are lost when translated (Sones et al. 2010). There is clear evidence that language is associated with cultural continuity and improved health and education performance among Indigenous Australians (Salmon et al. 2019b).



Indigenous Elders believe that cultural education for children and adolescents can strongly contribute to suicide prevention (Dudgeon et al. 2017). Findings from the Western Australian Aboriginal Child Health Survey of 5,289 children found that children who had primary carers fluent in an Aboriginal language (17%) were less at risk of clinically significant emotional or behavioural difficulties than children who had primary carers with limited (29%) or no Aboriginal language fluency (24%) (Zubrick et al. 2005). Healing initiatives that build and revitalise language have also been shown to reduce rates of suicide and self-harm among youth (Zubrick et al. 2014).

## 2.4 Variable factors that universally contribute to suicide

There is a range of general factors that contribute to suicidal behaviours among both Indigenous and non-Indigenous Australians.

### History of suicidal ideation and intentional self-harm

Thoughts or plans of suicide—known as suicidal ideation—are rare for many people and may only occur in a single instance, but for some people, once suicide ideation starts, it can be persistent (Klonsky et al. 2016; Klonsky et al. 2018).

Global evidence suggests that people with a history of suicidal ideation are at a greater risk of suicide (Baca-Garcia et al. 2011; Klonsky et al. 2018; Rossom et al. 2017). There is evidence of this same pattern among Indigenous Australians (Dickson et al. 2019; McHugh et al. 2017; Priest et al. 2011). In contexts and environments where the prevalence of suicidal ideation is high, the risk of suicide is also high among Indigenous Australians (Nathan et al. 2020; Shepherd et al. 2018). Suicidal ideation is particularly prevalent among Indigenous youth, with a recent systematic review finding that between 9–46% of Indigenous Australian youth were estimated to have had suicidal ideation (Dickson et al. 2019).

Intentional self-harm, or deliberately injuring or hurting oneself with or without the intention of dying, is one of the most reliable predictors of future suicide attempts (Cooper et al. 2005). Most people who self-harm do not go on to die by suicide, but a previous self-harm episode is a strong risk factor for suicide. Self-harm indicates that a person has greater emotional and physical capacity for suicide (Harris and Barraclough 1997; Willoughby et al. 2015). International evidence also shows that exposure to suicide in the general community can increase the risk of suicidal behaviour, mental illness and psychological distress (Andriessen et al. 2017; Cerel et al. 2019; Feigelman et al. 2018).

The relationship between individual suicide risk and a history of self-harm and suicidal behaviour also holds true for Indigenous Australians (Rouen et al. 2019; Shepherd et al. 2018). Additionally, evidence suggests that Indigenous Australians are nearly twice as likely to have been exposed to the suicide of another person as non-Indigenous Australians, and they are nearly 5 times as likely to have multiple suicide exposures (Maple et al. 2019). Of those who have been exposed to suicide, nearly 1 in 5 Indigenous Australians reported an increase in their own suicidal thoughts (Maple et al. 2019). A recent evaluation of the National Indigenous Crisis Response Service suggests that providing postvention support (such as bereavement support to family and friends) after a suicide can protect against suicide risk to individuals and families that have recently experienced a suicide or other traumatic incident in their close family network (Ridoutt et al. 2020).



## Maternal, infant, child and adolescent health

Targeted early intervention from preconception through to adolescent health can promote positive parenting, health and educational outcomes (Bowes and Grace 2014). Events that take place *in utero* and even before conception can have a considerable influence on child development, including social and emotional wellbeing after birth (CDCP 2006). For example, exposure of the foetus to alcohol during pregnancy can increase the risk of foetal alcohol spectrum disorder (FASD), including foetal alcohol syndrome (FAS), conditions that impair memory, language, learning and attention abilities (Cook et al. 2016). Both FASD and FAS are prevalent, alcohol-related birth defects in many international indigenous and non-indigenous populations (Popova et al. 2017; Reid et al. 2020; Symons et al. 2018), as well as in Indigenous Australian populations (Bower et al. 2018; Fitzpatrick et al. 2015).

Early intervention measures before and during pregnancy can reduce the likelihood of future child mental health conditions and suicidal ideation. Positive actions include avoiding drugs and alcohol and maintaining maternal mental and physical health (Giallo et al. 2018; Hammerton et al. 2015; Hare et al. 2020; Hertzman 2013; Kikkawa 2015; McDermott et al. 2009; Salmon et al. 2019a). Antenatal care is also associated with positive health outcomes for babies and mothers in the general Australian population (AIHW 2020c).

Healthy behaviours during early childhood are important because early experiences shape the way children perceive events later in life (Kolb and Gibb 2011). Early childhood adversity, including exposure to violence, child abuse, neglect and family economic hardship can place young children at risk of behavioural, physiological, and emotional harm (Hertzman 2013; Legislative Assembly Parliament of WA 2016).


Evidence suggests that Indigenous children and young people aged 5–17 experience higher suicide rates (8 per 100,000) than non-Indigenous children (2 per 100,000) (ABS 2019a). A recent systematic review suggests that rates of suicide among younger Indigenous Australians are even higher, estimating that Indigenous children and young people aged 5–14 were 10–14 times as likely, and those aged 15–24 years were 14 times as likely, as non-Indigenous Australians, to die by suicide (Dickson et al. 2019). Strengths-based early intervention programs for parents/carers may assist in lowering the risk of suicide among this population group (Ussher et al. 2016).

## Support networks

### Family and community

Family and community support can reduce suicide risk (Wyman et al. 2019). Support from parents can decrease depressive symptoms and suicidal ideation (Brausch and Decker 2014; Chang et al. 2017; Wang et al. 2021). International evidence shows that community social support is an important protective factor for suicide, especially for men (Šedivy et al. 2017).

For Indigenous Australians, social connection and group cohesion within communities and families are instrumental for maintaining wellbeing (Salmon et al. 2019a; Watkin Lui et al. 2016). However, many cultural practices that promote group cohesion have become less common or completely discouraged without any alternative options to maintain the social and cultural benefits of these practices among Indigenous Australians (Delisle et al. 2018). The capacity to rely on and provide support for family and community is an essential part of Indigenous cultures (Lohoar et al. 2014). Removal of these support networks may increase the risk of suicide (Abrutyn et al. 2020).



Programs that focus on strengthening family and community support networks among Indigenous Australians may be effective in suicide prevention. Such programs are desired by Indigenous communities, especially when the programs promote the ability of young people to build resilience to daily stressful events (AIHW and AIFS 2013; Bamblett et al. 2010; McCalman et al. 2015). Resilience helps to protect against negative effects from a person's environment, including depression and suicidality (Langham et al. 2018; McNamara 2013). For Indigenous Australians, the responsibilities of child rearing are commonly shared by the community, so effective parenting support extends to supporting community members to reinforce a positive environment for children (Byers et al. 2012; Denham 2015; Lohoar et al. 2014). Feeling connected to the wider community and strong mentoring can act as a source of resilience and empowerment for young people that can protect from suicide (McCalman et al. 2015).

## **Peers**

Global evidence shows that peer support and peer-support suicide prevention programs can reduce the risk of suicide (Petrova et al. 2015; Walker et al. 2009; Wyman et al. 2019). Both in-person and online peer-support programs can reduce risk of suicide and suicidal ideation (Sindoni 2020; Wyman et al. 2019). Conversely, bullying events and social stigma from peers can increase the risk of suicide (Karanikola et al. 2018; Schneider et al. 2012; Sigurdson et al. 2018). Among Indigenous school children, bullying is a commonly identified challenge to health and wellbeing (Priest et al. 2017). Indigenous Australian adolescents who are bullied both verbally and physically are at a greater risk of self-harm, suicidal ideation and suicide attempts than adolescents who are not bullied or experience only one type of bullying (Ford et al. 2017).

## **Family and domestic conflict**

Individuals who have experienced family or domestic violence are found to be more at risk of suicide (Maclsaac et al. 2018; Rahmani et al. 2019; Ursano et al. 2018). International evidence shows that intimate partner violence, non-partner violence, divorce, separation and childhood abuse are some of the most consistent contributing factors for suicide attempts (Devries et al. 2011). Early experiences of witnessing adult or child abuse in the home were also found to associate with a heightened risk of suicide attempts (Clark et al. 2011).

Family conflicts are one of the most common triggering events of child suicide among Indigenous Australians (Oprescu et al. 2017). As is the case for other international populations (Devries et al. 2011) and the general Australian population (AIHW 2020h), family disruption by separation and problems in intimate partner relationships may be precursors to Indigenous suicide as well. One study of Indigenous communities in North Queensland found that around a third (34–35%) of first-hand accounts of suicidal behaviours involved relationship problems and family conflict (Hunter et al. 1999). Additional evidence from 2018 shows that nearly three-quarters of Indigenous Australian women (74%) and more than half of men (56%) identified an intimate partner or family member as a perpetrator of physical harm (ABS 2019b).



## Discrimination

Discrimination has been found to be a risk factor for suicide for international indigenous and non-indigenous minority populations (Castle et al. 2011; Clark et al. 2011; Clements-Nolle et al. 2006; Wang et al. 2021; Williams et al. 2018). Discrimination is associated with higher levels of depression, anxiety and psychological stress, as well as poorer general health and physical health (Bastos et al. 2018; Priest et al. 2011).

In Australia, racism is estimated to more than double the risk of suicide in Indigenous youth (Priest et al. 2011). Racial discrimination increases perceived barriers to health care, especially for people who experience other additional forms of discrimination, such as gender, sexuality or age (Bastos et al. 2018). In 2014–15, a third (34%) of Indigenous Australians aged 15 or over felt they had been treated unfairly in the previous year because of their Indigenous origin (ABS 2017b). Another study found that of 122 Indigenous Australians surveyed, nearly two-thirds (59%) reported experiences of discrimination (Markus et al. 2016).

## LGBTIQ+

International evidence has shown that lesbian, gay, bisexual, transgender, intersex, queer, and other non-binary or gender-fluid individuals (LGBTIQ+) are at an increased risk of suicide (Clements-Nolle et al. 2006; Peter and Taylor 2014; Ream 2019; Van Der Pol-Harney and McAloon 2019). The first Australian National Trans Mental Health Study found that around a fifth (21%) of participants had experienced suicidal ideation or thoughts of self-harm on at least half of the days in the previous 2 weeks (Hyde et al. 2014).

It is difficult to estimate the number of suicides among LGBTIQ+ Indigenous Australians as sexuality is usually not recorded at the time of death (Ream 2019). Indigenous Australians who identify as LGBTIQ+ may face stigma, and many may fear exclusion from their families and communities (ATSISPEP 2015). The fear of stigma may deter Indigenous Australians from accessing health services, as there are few, if any, mental health services that target the specific needs of Indigenous Australians who are LGBTIQ+ (ATSISPEP 2015).

Although no data on suicide rates among LGBTIQ+ Indigenous Australians currently exists, suicide risk among LGBTIQ+ people in Indigenous communities is anecdotally thought to be high (ATSISPEP 2016; Rosenstreich 2013). In the Australian literature, evidence suggests that LGBTIQ+ people are anywhere from 5 to 11 times as likely to attempt suicide in their lifetime as the general population (Rosenstreich 2013; Skerrett et al. 2015). Although research on fatal incidences of suicide among LGBTIQ+ people is rare, one study in the USA using the National Violent Death Reporting System (NVDRS) found that nearly 1 in 4 (24%) suicide deaths among young people aged 12–14, and 1 in 10 suicide deaths among people aged under 30, involve LGBT people (Ream 2019). High suicide rates among LGBTIQ+ individuals, combined with the high suicide rates among Indigenous Australians, suggest a compounded risk of suicide among LGBTIQ+ Indigenous Australians.



## Nutrition and food insecurity

Internationally, research has found that moderate to severe food insecurity and poor-quality diets can increase risk of suicide (Davison et al. 2015; Koyanagi et al. 2019; Li et al. 2009; Sweetlet al. 2019). Food insecurity can cause high levels of psychological distress in both Indigenous Australians and non-Indigenous Australians, regardless of the remoteness of area (Cunningham and Paradies 2012). Improved food security may help to alleviate the risks of chronic disease and child safety for Indigenous Australian communities (House of Representatives Standing Committee on Indigenous Affairs 2020), factors that international evidence has shown can increase suicide risk (Racine 2018).

A large proportion of Indigenous Australians experience food insecurity, with around 1 in 5 (22%) reporting that they had run out of food in the past year and could not afford to buy more (ABS 2015). Additionally, higher food costs in rural, remote and very remote areas of Australia create substantial barriers to food security (Brimblecombe et al. 2014; Lee et al. 2016; Saethre 2005). Although there is limited evidence on the relationship between food insecurity and suicide among Indigenous Australians, food insecurity has been linked to suicide among other indigenous populations, with evidence suggesting that food insecurity accounts for 27% of the variation in suicidal ideation and 13% of the variation in suicide attempts among low-income Canadian indigenous people (Hajizadeh et al. 2019).


## Barriers to employment

Jobs are key to improving opportunities for all Australians (PM&C 2019). Stable employment can be a protective factor for suicide that provides avenues for suicide intervention (AIHW 2015; Bentley et al. 2016; Butterworth et al. 2011; PM&C 2019; Preti 2003).

Global evidence shows that unemployment is associated with increased suicide risk (Extremera and Rey 2016; Haw et al. 2015; Nordt et al. 2015; Platt and Hawton 2000). Unemployment is also suggested to increase the risk of suicide in Indigenous Australians (Milroy et al. 2017; Silburn et al. 2014). However, little research has specifically tested the relationship between suicide risk and unemployment among Indigenous Australians, and the limited existing empirical evidence is mixed (Dickson et al. 2019; Jamieson et al. 2011; Kuipers et al. 2012).

There are many barriers to employment for Indigenous Australians. Employment opportunities are affected by interconnecting social barriers such as educational attainment, income, and socioeconomic disadvantage, and individual barriers such as ill-health, disabilities, incarceration and substance abuse (AIHW 2019a; AIHW 2020e; PM&C 2019). Institutional racism in employment processes and work environments may further affect employment for Indigenous Australians (Booth et al. 2012; Paradies and Cunningham 2009). Improving any number of these circumstances while promoting culturally competent hiring processes could increase Indigenous Australian employment and retention rates (for example, Ferdinet al. 2014). Boosting employment among Indigenous Australians may help to combat social disadvantage (AIHW 2019a).

Beyond higher levels of income, being employed provides other personal and social benefits (PM&C 2019). Barriers to employment for many Indigenous Australians result in low employment rates relative to non-Indigenous Australians. In 2016, Indigenous Australians aged between 15–64 had an employment rate of 47% compared with a rate of 72% for non-Indigenous Australians (AIHW 2019a). The proportion of employed Indigenous Australians aged 15–64 decreases with increasing



remoteness, with 31% of Indigenous Australians employed in Very remote areas compared with 54% employed in Major cities (AIHW 2019a). There are limited opportunities, particularly in remote areas, for employment and career progression which are necessary to reduce poverty (Balboni et al. 2020; Silburn et al. 2014). As a result, differences in employment rates remain an ongoing issue for many Indigenous communities.

## Mental health and wellbeing


Research suggests that positive mental health and wellbeing can be a protective factor for suicide (Joiner et al. 2001; Siegmann et al. 2018). At the same time, mental health conditions can contribute to increased suicide risk (Bell et al. 2015; Chamberlain et al. 2009; Harris and Barraclough 1997; Shain 2016). Mental health conditions include a wide range of disorders varying in severity. Although psychological distress, mental disorders and mental illness may increase the risk of suicidal ideation, these factors cannot predict whether an individual will attempt suicide (Klonsky et al. 2016). While suicidal ideation is common, relatively few individuals go on to attempt suicide (Klonsky et al. 2016; Nordentoft 2011).

A large proportion of Indigenous Australians experience positive wellbeing, with evidence from 2014–15 showing that more than three-quarters (76%) of Indigenous Australians aged 15–24 said they were happy all or most of the time (ABS 2017b; AIHW 2018b). However, psychological distress among Indigenous Australians can be a precursor to suicide (Dudgeon et al. 2017; Kelly et al. 2009). In 2018–19, around 3 in 10 (31%) Indigenous Australians aged 18 and over experienced high or very high levels of psychological distress, regardless of remoteness area and age group (ABS 2019b). Females are more likely to have experienced psychological distress (35%) than males (28%) (ABS 2019b).

## Access to mental health care

Adequate mental health care can contribute to suicide prevention (Wilson et al. 2011). However, most people with a mental health condition do not receive treatment (NMHC 2018) either because they choose not to access treatment, or the appropriate services are not available (NMHC 2018). Evidence from suicide cases between 1994 and 2007 showed that Indigenous Australians are estimated to be half as likely as non-Indigenous Australians to be in contact with a mental health professional at any time in their life (Sveticic et al. 2012), and they are often unknown to local mental health services (Campbell et al. 2016; McHugh et al. 2017). Access to health care is positively associated with the mental health and wellbeing of Indigenous Australians (Schultz et al. 2019).

Indigenous community members have identified that clinically skilled, culturally responsive services that integrate traditional knowledge and healing into health care provision have the most positive influence on mental health outcomes (Close the Gap Campaign Steering Committee for Indigenous Health Equality 2020). The cultural safety and appropriateness of service delivery can determine the extent to which many Indigenous Australians use mental health services, are satisfied with service use, and experience positive outcomes after service use (Isaacs et al. 2017; Sabbioni et al. 2018). Indigenous community leaders have highlighted the lack of culturally safe and appropriate service provision as a contributor to less frequent access to mental health services by Indigenous Australians (Jennings et al. 2018). This is exacerbated by lack of transport, long waiting hours, problems with health insurance, and language barriers (Sveticic et al. 2012). These barriers become more apparent in remote areas, where services are sparse and often perceived as not culturally safe by community members (Bastos et al. 2018; Isaacs et al. 2017).



As a result, many community members have pushed for greater implementation of culturally responsive services and a wider incorporation of traditional knowledges, healings and therapies across Australian health care systems (Close the Gap Campaign Steering Committee for Indigenous Health Equality 2020). Many culturally appropriate support programs are led by Aboriginal Community Controlled Health Organisations (ACCHOs), which are organisations with Indigenous Australian ownership and community support (ATSISPEP 2016; McCalman et al. 2015). Jennings et al. (2018) point out that initiatives that support communication, or 'talk', between health professionals and Indigenous Australian clients can:

- foster relationships of trust
- strengthen engagement
- produce positive outcomes.

Culturally competent programs and services, including suicide prevention programs, are an important aspect to managing health and wellbeing for Indigenous Australians.

## Alcohol and drug use

Alcohol consumption and drug misuse are associated with increased suicide risk (Ashrafioun et al. 2017; Borges et al. 2017; Crossin et al. 2019; Evins et al. 2017; Kőlves et al. 2017; Larkin et al. 2017; Poorolajal and Darvishi 2016). Substance-use disorders are among the most common diagnoses of people who die by suicide (Turecki et al. 2019).


There are many reasons for the relationship between suicide risk and alcohol and other drug use (see Witt and Lubman 2018). For example:

- substance use can act as a central nervous system depressant, increasing impulsivity and psychological distress that leads to suicidal behaviour (Nock et al. 2008, 2009)
- substance dependence can be a symptom of major depression or other mental health conditions that contribute to higher suicide risk (AIHW 2020g; Yuodelis-Flores and Ries 2015).

This relationship between substance use and mental illness can be seen in Australia. From 2016–2019, the proportion of people diagnosed with, or treated for, a mental illness increased among users of cannabis, ecstasy, methamphetamine and cocaine (AIHW 2020a; AIHW 2020g). People with mental health conditions were also more likely to smoke daily and drink at risky levels than those without mental health conditions (AIHW 2020e; AIHW 2020a).

Alcohol and drug misuse have been identified as key risk factors for suicide, especially in Indigenous Australian communities (AIHW 2016). The Legislative Assembly of Western Australia (2016) reported that suicide was the most common cause of alcohol-related deaths among Aboriginal men and the fourth most common cause among Aboriginal women (Legislative Assembly Parliament of WA 2016). Volatile substance use, such as petrol sniffing, has also been identified among Indigenous Australians as a risk factor for mental and behavioural disorders, illness, and death, including suicide (d'Abbs and Shaw 2016; Marel et al. 2015). The risk of volatile substance use is especially high among Indigenous Australians aged 15–24 in remote communities (d'Abbs and Shaw 2016; Marel et al. 2015).





Experts have recommended that suicide prevention initiatives make greater acknowledgement of the relationship between alcohol and suicide risk to build more effective programs (Witt and Lubman 2018). In addition, communities across Australia have expressed the desire to reduce substance misuse because it compounds other suicide risk factors such as psychological distress, childhood trauma and incarceration, especially among young people (ATSIPEP 2016). Some communities have taken steps to reduce the supply and the demand of volatile substances (Marel et al. 2015), enforce dry communities, and reduce other drug use (AIHW 2020g). There are no estimates of how these actions have influenced suicide rates.


## Incarceration

Incarceration is known to be a contributing factor of higher suicide rates internationally (Favril et al. 2017; Fazel et al. 2016; Hawton et al. 2014; Lohner and Konrad 2006) and in the general Australian population (Butler et al. 2018). Incarceration also exaggerates other risk factors for suicide. For example, having ever experienced incarceration is associated with poorer mental health, greater psychological distress and problems with alcohol and drug use (Cossar et al. 2018; Fazel et al. 2016; Fazel and Seewald 2012; Shepherd et al. 2020). A recent meta-analysis found a significant relationship between incarceration, post-traumatic stress disorder (PTSD) and greater suicide risk across 36 studies (Facer-Irwin et al. 2019).

Indigenous Australians are substantially overrepresented in youth and adult justice systems, making up 28% of the total Australian prisoner population despite representing just 2% of the adult population (ABS 2016; AIHW 2020k). Many incarcerated Indigenous Australians are young—around a fifth (21%) are aged 24 or under (AIHW 2020k). Incarceration can increase suicide risk. One study found that nearly two-thirds (64%) of incarcerated Indigenous men had experienced suicidal ideation and more than half (55%) had attempted suicide (Shepherd et al. 2018). From 1991–2019, a third of deaths in custody of Indigenous Australians were self-inflicted—most frequently by hanging—though rates of self-inflicted deaths have been generally decreasing since 1998–99 (Doherty and Bricknell 2020; Gannoni and Bricknell 2019).

## Housing

A safe, secure home with working facilities is a key factor that supports the health and wellbeing of Indigenous Australians. Inadequate housing and homelessness can contribute to a person's risk of suicide, as well as other risk factors associated with suicide (Alonzo et al. 2017; Hunter et al. 1999; Nathan et al. 2020). Homelessness and unstable housing are significantly associated with a greater likelihood of suicidal ideation, mood disorders and anxiety disorders (Noël et al. 2016). In 2014–15, nearly 1 in 5 (19%) Indigenous Australians lived in a house that lacked at least one basic household facility for preparing food, washing clothes, washing people or sewerage facilities (AIHW 2019b). Nearly 1 in 3 (29%) lived in a house with major structural problems (AIHW 2019b). Additionally, approximately 1 in 5 (20%, or about 114,400 people) lived in overcrowded dwellings in 2016 (ABS 2017a; AIHW 2019b). An estimated 13% to 29% of Indigenous Australians experience homelessness at some point in their lives (AIHW 2019b).



Although there is currently limited empirical evidence directly linking unstable housing, homelessness and suicide among Indigenous Australians, evidence from international indigenous populations suggests that homelessness increases the likelihood of suicidal ideation and suicide attempts (Bingham et al. 2019; Kidd et al. 2019). Further evidence shows that not having affordable, secure and appropriate housing can have negative consequences, including poor health, and lower rates of employment and education participation—all of which can lead to social exclusion and disadvantage (AIHW 2017).

## Life stressors

Research suggests that experiencing stressful life events can increase a person's risk of suicide (Athey et al. 2018; Chamberlain et al. 2009; Stewart et al. 2019; Stone et al. 2016; Stone et al. 2018). Life stressors are known to have a large impact on the social and emotional wellbeing of Indigenous Australians (Purdie et al. 2010). In 2014–15, more than two-thirds (68%) of Indigenous Australians aged 15 and over had experienced at least one personal stressor in the previous 12 months (ABS 2017b). Research also suggests that children who live in families where over 6 life stressors occur within one year may be at greater risk of suicide due to malignant grief—an experience of unresolvable, collective and cumulative grief among individuals or communities that may ultimately lead to death (De Maio et al. 2005; Parker and Milroy 2014; Wynne-Jones et al. 2016). The stressors experienced most often were the death of a family member or close friend (28%), not being able to get a job (19%), serious illness (12%), and work-related stressors (11%) (ABS 2017b). Other examples include racism, stigma, environmental adversity, social disadvantage, family issues, overcrowding at home, alcohol or drug-related problems, and disability (Purdie et al. 2010).



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**What data are available on the identified protective and risk factors**



## 3 What data are available on the identified protective and risk factors

This chapter outlines what data are currently available to understand the effect of protective and risk factors on suicide among Aboriginal and Torres Strait Islander people. The methods used to collect these data and the limitations of available data collections are also outlined.

Understanding what data are available can provide a picture of what kind of information is collected on protective and risk factors for suicide. It helps us provide an evidence-based resource for implementing more holistic suicide prevention programs and services.

To identify relevant data sources of identified protective and risk factors, a search of all data sources that include Indigenous Australians with data on one or more factors identified in the previous chapter were explored.

These separate sources collect data that measure and track protective and risk factors over time. Although individual data sources alone cannot provide information on the relative contribution of each factor on suicide rates, they are useful as broad indicators of change, including in suicidal behaviours.

A full description of the methods used to assess and identify potential data sources can be found in Appendix B.

### 3.1 Data sources

There are several key data sources that track protective and risk factors to suicide among Indigenous Australians, including administrative data collections, survey data, indicator sets and linked collections. An overall summary of possible sources of data on protective and risk factors among Indigenous Australians within existing data collections is provided in Appendix C.

The main types of datasets used to collect data on Indigenous Australians are described below.

#### Administrative data collections

Administrative data collections contain data collected for the purposes of registration, transaction and record keeping (OECD 2001). Administrative data includes information such as current residence, date of birth and cause of death. The data are taken from administrative systems used in health care, education and taxation. Examples of relevant administrative data collections include the National Mortality Database and the National Hospitals Morbidity Database.

There are some limitations to Indigenous identification in administrative datasets. This can result in underestimation, underreporting, or underrepresentation in some areas (AIHW 2010).



## Survey data

Surveys collect data from a select sample of people for the purpose of data analysis and answering research questions (OECD 2001). Data from surveys are useful for tracking protective and risk factors for suicide among Indigenous Australians because they collect information on personal experiences, social connections and cultural values unavailable in administrative datasets.

Surveys specific to Indigenous Australians are desirable over mainstream surveys because they are designed to be culturally appropriate. Questions are phrased in ways that align more closely with cultural perceptions, values and practices of Indigenous Australians. As a result, these surveys provide data that more accurately represent their attitudes and experiences. Examples of relevant Indigenous Australian-specific survey include the National Indigenous Australian Social Survey (NATSISS) and the National Indigenous Australian Health Survey (NATSIHS).

Other survey datasets collect data on both non-Indigenous people and Indigenous Australians. These datasets are not specific to Indigenous Australians and, as a result, may be less comprehensive for Indigenous populations. However, these surveys allow for comparisons between non-Indigenous and Indigenous populations. Examples include employment surveys, education surveys and the Census.

Many mainstream survey datasets are limited because they contain small sample sizes of Indigenous Australians (AIHW 2010). Questions to evaluate Indigenous status may also be of variable quality compared to standardised health datasets.

## Indicator sets

When working towards goals or priorities, the government can use indicators—made up of groups of statistical values—to show the level of progress towards reaching these goals. Indicator sets are made up of a collection of indicators to track a goal's progress over time. For example, an indicator on 'healthy birthweight' tracks data on the weight of babies when they are born and shows changes over time. Examples of relevant indicator sets include the:

- Aboriginal and Torres Strait Islander Health Performance Framework
- national Key Performance Indicators for Indigenous-specific Primary Health Care
- Fifth National Mental Health and Suicide Prevention Plan indicator set, which has several indicators that report on Indigenous Australians.

For a list of all relevant datasets, refer to Appendix C.



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**How data can be used to explore the extent that factors contribute to suicide**



## 4 How data can be used to explore the extent that factors contribute to suicide

From a statistical point of view, a dataset that collates unit record (or individual) life history information, such as health care, welfare and social support, and suicide and self-harm data, is the ideal data source to determine which characteristics or factors are and are not associated with suicide. In the absence of such a dataset, an alternative approach is to link different datasets which, when combined, contain the necessary information. However, generating linked data is resource intensive as it requires ethical approval and statistical linkage techniques. The usefulness of the linked data will depend on the quality and consistency of the information used to match records in the different datasets.

A simpler approach that can provide insights at an area level is overlaying data from different data sources with matching geographic information. This approach is less resource-intensive, but, from an analytical point of view, it cannot be used to determine the extent to which factors are associated with suicide or suicidal behaviours at the individual level.

This chapter outlines the various ways that datasets, outlined in Appendix C, could be used or linked to understand the relative contributions of protective and risk factors to Aboriginal and Torres Strait Islander people's suicidal behaviours.


### 4.1 Overlaying data

Overlaying data is when different data sources are used to determine risk and protective factors in a particular geography, with the results overlaid on one another. In essence, it is a set of rates for a given geography, where the rates are determined using a collection of different data sources. This approach allows patterns to be viewed more broadly over many locations. For example, Community Insight Australia creates interactive heat maps that overlay summarised data of over 50 social indicators. These heat maps can be used to explore differences in the prevalence of social indicators between small population blocks and postcodes. Social indicators include housing, crime, health, economy, education and skills, deprivation, access to transport, and communities and environment. In theory, any data that records location can be overlaid.

Most of the protective and risk factors discussed in Chapter 2 are recorded in 2 Aboriginal and Torres Strait Islander-specific surveys: the NATSIHS and the NATSISS. Some are recorded in administrative data collections, such as the National Perinatal Data Collection (NPDC), the National Health Workforce Dataset (NHWDS) and the National Hospitals Data Collection (which includes admitted patients and emergency department visits). These collections have data available at the local level that can be overlaid with suicide data.

### 4.2 Data linkage

Data linkage is a way for information about people, places and events from different data collections to be brought together (PHRN 2020). When data on the same individual are present in 2 or more datasets, data can be linked to this individual using probabilistic linkage, which uses multiple records (such as date of birth, address, name) to link records between datasets that have the greatest probability of belonging to the same person (Doidge and Harron 2018). Matching multiple records of information to individual people allows the ability to tell a bigger story than would be possible with one database alone about relationships between factors and outcomes. As a result, data linkage is a technique that is useful to link data of protective and risk factors and suicide outcomes.



The ability to link data is dependent on whether all datasets to be linked include demographic information such as age, gender, date of birth and location of residence. Many datasets uphold strict privacy and confidentiality requirements subject to the *Privacy Act 1988*, including the Australian Privacy Principles contained in the Act. For privacy reasons, data collections are not permitted to collect the demographic information required for data linkage.

Administrative datasets usually include sufficient information for linkage. However, these administrative datasets are sometimes limited because the data collected are a by-product of service delivery—collected for the needs of operational or service providers—rather than for research purposes. As such, some of the protective and risk factors identified in this review are not collected in administrative datasets. Additionally, not all individuals in one dataset may be present in another dataset. This limits the quality of identification that can be done through data linkage.

Survey datasets, such as the NATSISS and NATSIHS, are also possible to link with administrative data on suicide. These datasets contain point-in-time data on aspects of cultural connection, spirituality, language, intergenerational trauma and racial discrimination that are not included in administrative data. However, not all survey datasets can be used for data linkage. Many non-national surveys do not obtain consent to link data from respondents at the time of administering the survey, and they are unable to be linked with other datasets. In addition, data linkage with these datasets can sometimes be limited by small sample sizes, missing demographic information, and poor overlap of individuals identified in both datasets. Previous projects that have linked survey datasets such as the Western Australian Aboriginal Child Health Survey to administrative datasets have demonstrated their usefulness for understanding the social and emotional wellbeing of Indigenous Australians (De Maio et al. 2005).

Data linkage using first responders' data offers another relevant source of data to understand suicide among Indigenous Australians. For example, the Queensland Forensic Mental Health Service, Metro North Hospital and Mental Health Service, and Queensland Centre for Mental Health Research conducted a study (Partners in Prevention) aimed at identifying the frequency, timing and caller characteristics to first responders by linking data from Queensland Police and Queensland ambulance records with data from the:

- Medicare Benefits Schedule (MBS)
- Pharmaceutical Benefit Scheme (PBS)
- National Deaths Index (NDI).

This study was able to identify 228,550 suicide-related calls to Queensland Police Service or Queensland Ambulance Service over a 3-year period from 1 February 2014 to 31 January 2017 (QFMHS et al. 2020). Indigenous Australians accounted for 13% of all callers (QFMHS et al. 2020).

Several other data sources of the general Australian population that contain information on Indigenous Australians could be useful to link to data on suicide deaths to track the impact of experiences during early childhood (the Child Protection National Minimum Dataset) and accessibility to services and carers (the YES Survey). AIHW's Health Performance Framework (HPF) collection could be of interest to identify relevant data sources for linkage.



## 4.3 Multi-source Enduring Linked Data Assets

Multi-source Enduring Linked Data Assets (MELDAs) are resources that include multiple linked datasets, allowing exploration between multiple protective and risk factors and outcomes of interest.

MELDAs expand the utility of existing collections. They facilitate longitudinal tracking of many facets of individual lives, supporting whole-of-government and whole-of-life approaches to research and policy (AIHW 2020a). Many data assets have emerged or progressed over the last 5 years, but many are either not available or have only just become available. Several recently available datasets offer a good opportunity to explore relationships between protective and risk factors for suicide among Indigenous Australians.

The National Integrated Health Services Information Analysis Asset (NIHSI AA) is a national, linked analysis resource that brings together information from key national health data assets. The NIHSI AA links multiple hospitals and services datasets, providing a fuller picture of the patient journey through the health care environment.


The NIHSI AA contains de-identified data from:

- National Admitted Patient Care (NAPC) data (in public and private hospitals)
- National Non-Admitted Patient Emergency Department Care Database (NNAPEDCD) data
- Emergency Department Care (EDC) data (for all participating states and territories)
- MBS
- PBS and Repatriation Pharmaceutical Benefits Scheme (RPBS) data
- National Residential Aged Care Data collection (NRACD) data
- National Deaths Index (NDI).

It is anticipated that the next version of the NIHSI AA available for data analysis will include Indigenous identifiers for all key collections included in the NIHSI.

There are some limitations to the NIHSI AA, such as the absence of a number of variables that are of interest to this work (such as variables from the Community Mental Health Care and Residential Mental Health Care collections). There are plans to include additional collections in future versions of the NIHSI AA. As such, it is likely that any exploration of protective and risk factors within the NIHSI AA would be an iterative process with the possibility of developing further as new data collections are included.

The Multi-Agency Data Integration Project (MADIP) is a secure data asset that combines information about health, education, government payments, income and taxation, employment, and population demographics over time. MADIP was first established by the Australian Bureau of Statistics (ABS) in 2015. MADIP uses a 'Person Linkage Spine'—a spine of key information that is separate from the main body of data—to link datasets. This improves privacy and security and enables more efficient, higher quality data linkage. As such, MADIP is governed by existing ABS Privacy and Security protections.




The ABS allows for project applications to be submitted for approved items or data sources to be linked and used. At the time of writing, MADIP had enduring linkages with the following datasets (in alphabetical order):

- Australian Apprenticeships Incentive Program (AAIP) and Training Contracts: 2006–2019
- Australian Early Development Census: 2009, 2012, 2015, 2018
- Australian Immunisation Register: 2020–21
- Australian Early Development Census (AEDC): 2009, 2012, 2015, 2018
- Census of Population and Housing: 2011, 2016
- Centralised Register of Medical Practitioners Provider Directory: 2011–2016
- Client Register: 2006–2020
- Death Registrations: 2005–2019
- Data Exchange Data: 2015–2020
- DOMINO Centrelink Administrative Data: 2009–June 2020
- Higher Education Information Management System Data: 2005–2019
- Jobkeeper: 2020–21
- MBS: 2011–June 2020
- Medicare Consumer Directory (MCD): 2006–June 2020
- Migration data: 2006–2018
- National Disability Insurance Scheme (NDIS) data: June 2019
- National Health Survey (NHS): 2014–15, 2017–18
- Personal Income Tax (PIT): Client Register, Payment Summary and Income Tax Return
- PBS: 2011–June 2020
- Registries Deaths Data: 2007–2019
- Single Touch Payroll: 2020–21
- Survey of Disability, Ageing and Carers (SDAC): 2018

By using MADIP, it is now possible to analyse how background characteristics and living conditions of Indigenous Australians relate to their use of social security and medical services. It is also possible to analyse how family background and educational choices influence post-school education and employment outcomes.

The current version of MADIP includes records of deaths from the ABS death registers from 2007 to 2017, allowing access to data on Indigenous suicide incidences.



Indigenous status in the MADIP 'core module items' is derived from both Census 2016 and SSRI data and applies an 'ever Indigenous' concept (MADIP 2020). That is, if a person is coded as Indigenous in either of the source datasets, then that person will be coded as Indigenous, even in cases where responses may conflict with one another. The use of only 2 data sources, and the 'ever Indigenous' concept may lead to non-negligible misidentification of Indigenous Australians. This can be mitigated by using Indigenous status of other datasets within MADIP to better identify Indigenous Australians.

MADIP is available for project approval for one-off linkages with other data sources outside these data assets. One-off linkages with data assets can allow for the reporting of more comprehensive longitudinal information.

Other MELDAs under development like the National Disability Data Asset (NDDA) provide high-quality, cross-jurisdictional linked data to understand the life experiences and outcomes of people with disability across Australia, including Indigenous people. Although the NDDA currently does not include data on suicide deaths, overlaying data from MELDAs like the NDDA with datasets that measure suicide deaths can provide more comprehensive information about relationships between factors like disability and suicide.



# 5



## Conclusion



## 5 Conclusion

This report has identified 17 key protective and risk factors as defined in the literature that may contribute to suicide among Aboriginal and Torres Strait Islander people. It has highlighted their utility for understanding the intersections between protective and risk factors for suicide. An individual's likelihood of suicide is influenced by the interactions of:

- demographic factors—such as gender, age and location of residence
- variable factors—such as secure housing, alcohol and drug use, incarceration and employment
- factors specific to Indigenous Australians—such as cultural continuity, spirit, language and cultural understandings of wellbeing.

It is important to use available data to explore the intersectional relationships between protective and risk factors that contribute to suicide among Indigenous Australians. Using data to understand why suicide prevalence varies by location and over time supports the ability for governing bodies to implement evidence-based interventions, policy and suicide prevention programs.

There are many ways to utilise data containing protective and risk factors to explore the relationship between suicide and protective and risk factors that contribute to suicide among Indigenous Australians. Overlaying datasets can provide high-level information about correlations between protective and risk factors and suicide outcomes. Another method, data linkage, matches multiple records of information to individual people. This allows us to see a bigger picture about an individual's life story, including the possible relationships between protective and risk factors for suicide.

Recently available enduring data assets such as the NIHSI AA and MADIP expand the utility of existing data collections by linking multiple datasets, allowing a more complete look at factors and interactions. These data assets can explore relationships between multiple protective and risk factors and suicide outcomes. It gives us an opportunity to compare the relative contribution of various protective and risk factors to Indigenous suicide.



# Appendixes

# Appendix A: Policy documents

## Council of Australian Governments (COAG) (1992–2020) / National Federal Reform Council (NFRC)

The Council of Australian Governments was established in 1992 to address issues of national importance. In COAG, there was a health council consisting of all Australian Government and state and territory health ministers, as well as the New Zealand Minister for Health and Minister for Veteran's Affairs. One of the key responsibilities of the health council was to develop successive National Mental Health plans.

In May 2020, Prime Minister Scott Morrison announced that a National Federal Reform Council would replace COAG. The new structure will include National Cabinet Reform Committees (including one for health) within the National Cabinet structure, a NFRC Taskforce on Indigenous Affairs, and a Joint Council on Closing the Gap.

### Closing the Gap

COAG members agreed to develop a strategy, called Closing the Gap, for improving Indigenous wellbeing with a set of 7 ambitious targets in 2009. These targets were embodied under the overarching National Indigenous Reform Agreement, from which a range of National Partnership Agreements stemmed. Each year the Prime Minister tables a report to parliament on the progress towards the Closing the Gap targets.

### Roadmap for Mental Health Reform (2012–2022)

In 2012, COAG released the Roadmap for National Mental Health Reform (2012–2022), which outlines a 10-year plan for state and federal governments to better support people with mental illness, their families, carers and communities, through the reduction of stigma and discrimination, as well as improved access to services.

Using the social determinants of health framework, the Roadmap sets out the intent of COAG to develop better mental health services and increase support in related areas such as housing, education and employment. The aim of the Roadmap is to ensure that government spending is based on evidence and best practice, to achieve 'the vision of an Australian society that values good mental health and wellbeing'.

### Fifth National Mental Health and Suicide Prevention Plan (2017–2022)

The COAG Health Council agreed the First National Mental Health Plan (1993–1998) in 1993. Since the end of that plan, the Second, Third, and Fourth Plans have been implemented. The current iteration is the Fifth National Mental Health and Suicide Prevention Plan (2017–2022) (the Fifth Plan).

The fourth of the 8 priority areas identified in the Fifth Plan is 'improving Indigenous Australian mental health and suicide prevention'. Action 13 under Priority Area 4 is to strengthen the evidence-base needed to improve mental health services and outcomes for Indigenous Australian people. This report is conducted in support of Action 13.



## Department of Health

The Department of Health works with 2 overarching documents to guide its policies and activities that are specifically related to Indigenous Australian health.

### **National Indigenous Australian Suicide Prevention Strategy 2013**

The National Indigenous Australian Suicide Prevention Strategy (NATSISPS) was released in 2013 in response to the June 2010 report of the Inquiry into Suicide in Australia by the Senate Affairs References Committee, *The Hidden Toll: Suicide in Australia* (Commonwealth of Australia 2010). The NATSISPS was developed by Indigenous Australian experts and leaders in mental health and suicide prevention as a strategic response to suicide among the Indigenous Australian population. The NATSISPS contains 6 goals that underpin the objective of reducing the prevalence, causes and impacts of suicide on individuals, their families and their communities.

The Australian Government announced the renewal of the NATSISPS in the Fifth Plan in response to changes in circumstances since the release of NATSISPS 2013. Gaaya Dhuwi (Proud Spirit) Australia (GDPSA) is responsible for the renewal of the NATSISPS and works closely with the Centre for Best Practice in Indigenous Australian Suicide Prevention (CBPATISIP) and the Suicide Prevention Taskforce. The draft strategy of the new NATSISPS will be issued for comment in the near future.

### **National Indigenous Australian Health Plan 2013–2023 (Health Plan)**

The Health Plan is an overarching document that sets out the broad vision and priorities for improving the health of Indigenous Australians, keeping culture, community control and engagement and human rights at the core of the plan. Its primary goal is to ‘contribute to achieving equality of health status and life expectancy between Indigenous Australians and non-Indigenous Australians by 2031’, in line with the Closing the Gap targets.

### **Implementation Plan for the National Indigenous Australian Health Plan 2013–2023 (Implementation Plan)**

The Implementation Plan was released in 2015 to set out the actions to be taken by the Australian Government, the Aboriginal community-controlled health sector and other relevant bodies to implement the Health Plan. The Implementation Plan was designed to support the Health Plan, the Fifth Plan and the Closing the Gap targets. Following the 2019 release of the Report Card on the progress of the Implementation Plan, the department announced that it would begin consulting on the Revision of the Implementation Plan.

### **National Indigenous Australians Agency (NIAA)**

The NIAA has overarching responsibility for implementing the Closing the Gap targets, as well as development, coordination and advice regarding policies, programs and service delivery for Aboriginal and Torres Strait Islander peoples.





## **National Strategic Framework for Indigenous Australians' Mental Health and Social and Emotional Wellbeing 2017–2023 (Strategic Framework)**

The NIAA'S Strategic Framework was developed to provide a framework for social and emotional health service provision that would be culturally appropriate for Indigenous Australians, whether they were attending an Indigenous-specific or a mainstream service. It was designed to provide support to the implementation of the Fifth Plan and the Health Plan.

### **The National Mental Health and Wellbeing Pandemic Response Plan**

In response to the mental health impacts of the COVID-19 pandemic, in May 2020, the National Cabinet endorsed the National Mental Health and Wellbeing Pandemic Response Plan. As part of this plan, a national Indigenous Australian COVID-19 working party was convened to guide a coordinated evidence-based response to support the specific mental health, and social and emotional wellbeing needs of Indigenous Australians.

### **Productivity Commission**

#### **Mental Health, Report no. 95**

The Productivity Commission's inquiry into mental health investigated the 'effect of mental health on people's ability to participate in and prosper in the community and workplace, and the effects it has more generally on our economy and productivity'. The inquiry took submissions from interested parties, such as government entities, service providers and people with lived experience. The final report was released on 16 November 2020.

## Appendix B: Methods

This report aimed to identify protective and risk factors for suicide among Indigenous Australians. Protective and risk factors were identified by reviewing key documents on factors contributing to the health, wellbeing, suicidality and suicidal behaviour of Indigenous Australians. These 17 documents were selected to provide an overview of cultural, historical, psychosocial, socioeconomic, environmental and other contextual factors specific to Indigenous Australians, as well as factors for non-Indigenous people that contribute to suicide outcomes.

These key documents were:

- The Fifth Plan Indicators (DoH 2017)
- The Social and Emotional Wellbeing Framework (Commonwealth of Australia 2017)
- *Working together: Indigenous Australian mental health and wellbeing principles and practice* (Dudgeon et al. 2014)
- *Solutions that work* (ATSISPEP 2016)
- Recent reviews of risk factors for self-harm and suicide in Indigenous Australian youth (ATSISPEP 2014; Dickson et al. 2019; Dudgeon et al. 2017)
- Reports on the social and cultural determinants of health among Indigenous Australians (AIHW 2018a; Calma and Dick 2007; Zubrick et al. 2014)
- Previous literature reviews on 'upstream' and 'downstream' factors for suicide among Indigenous Australians (Deschner and Glanz 2016; Dudgeon et al. 2010; Turrell et al. 1999)
- Reports on psychosocial risk factors for suicide in Australia (ABS 2019c)
- Reviews of risk factors for non-Indigenous suicide and international indigenous suicide (Clifford et al. 2013; Hawton and van Heeringen 2009; O'Connor and Nock 2014).

The documents varied in the number, specificity and type of protective and risk factors identified. Lists of factors specific to Indigenous suicide also differed from lists of factors specific to non-Indigenous suicide. To ensure a comprehensive list of factors that included important cultural and social indicators of suicide among Indigenous Australians, the final list of protective and risk factors for suicide in this report was determined based on:

- consideration of lists by Indigenous Australian community leaders and committees of high priority contributing factors for suicide
- consideration of factors with international evidence of their contribution to suicide outcomes
- consideration for how the data is divided within existing datasets or data collections.



A literature review was conducted to identify the extent each protective and risk factor has been found to contribute to suicide among Indigenous Australians. The scope of this literature review focused primarily on literature since 2015. A literature search of peer-reviewed articles and grey literature was conducted using web and peer-review databases. Databases searched were Google Scholar, JSTOR, Ovid, Proquest, Science Direct, Web of Science, and PubMed. From this literature search, a total of 214 articles were reviewed to collate and verify evidence on the relationship between suicide and the factors listed. A final list of 17 protective and risk factors for Indigenous suicide emerged using this process. No formal evaluation of the methodologies employed or the design of each of the studies was undertaken for this report. Final confirmation of protective and risk factors within this report was provided through consultation with representative Indigenous Australian committees.

# Appendix C: Data sources

*In alphabetical order*

## Aboriginal and Torres Strait Islander-specific primary health care data

The Australian Government provides funding through its Indigenous Australians' Health Programme (IAHP) to organisations delivering Indigenous-specific primary health care services (referred to hereafter as organisations). These organisations, designed to be accessible to Indigenous clients, are administered and run by:

- Aboriginal Community Controlled Health Organisations (ACCHOs)
- non-ACCHOs:
  - state/territory/local health services
  - non-government organisations (NGOs) (a small proportion of services).

There are 2 collections that consist of data from these organisations:

- National Key Performance Indicator (nKPI) collection
- Online Services Report (OSR) collection

The Australian Institute of Health and Welfare (AIHW) is the data custodian for both collections.

The nKPI collection includes Indigenous regular clients (those who attended a service 3 times in 2 years). Data are collected for 24 indicators covering maternal and child health, chronic disease risk factor monitoring and management, and health preventative activities. Data from around 250 services is collected across Australia.

The OSR collection includes around 266 organisations (as of 2017–18) funded by the Department of Health and the National Indigenous Australians Agency (NIAA) to provide health services to Indigenous people. Primary health care services data are collected and published. Data on substance use, social and emotional wellbeing (SEWB) and Link-Up services are available up to 2017–18 (responsibility of data collection of these services has transitioned to the NIAA).

## ABS Causes of Death collection

The data custodian of the Causes of Death collection is the ABS. Data reported in this data collection are compiled by jurisdiction of usual residence for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. Data for Victoria, Tasmania and the Australian Capital Territory have been excluded in line with national reporting guidelines.

Deaths that are referred to a coroner can take time to be fully investigated. To account for this, the ABS undertakes a revisions process for those deaths where coronial investigations remained open at the time an initial cause of death was assigned. Data are deemed preliminary when first published, revised when published the following year, and final when published after a second year.



## Alcohol and Other Drug Treatment Services National Minimum Dataset (AODTS NMDS)

The Alcohol and Other Drug Treatment Services National Minimum Dataset (AODTS NMDS) is a collection of data from publicly funded government and non-government agencies providing alcohol and/or drug treatment services, including community-based ambulatory services and outpatient services. The AODTS NMDS contains information about alcohol and other drug treatment services, the clients who use these services, the types of drug problems for which treatment is sought and the types of treatment provided.

## Australian Early Development Census (AEDC)

The AEDC data collection involves teachers completing the Australian version of the Early Development Instrument (AvEDI) for each child in their class in their first year of full-time school. The AvEDI is approximately 100 questions, and the responses provide information about 5 domains: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), communication skills and general knowledge.

Funded by the Australian Government in 2007, the AEDC Indigenous Adaption Study was carried out by the Centre for Developmental Health and the Kulunga Indigenous Research Network at Perth's Telethon Kids Institute. The study supported the validation of the AEDC, after adaptation, as a sensitive and appropriate measure of the development of Indigenous children. The adapted AEDC is used for all children and is included in all collections.

## Carer Experience Survey (CES)

The development of the Carer Experience Survey (CES) was funded by the Australian Government's Department of Health as a response to the Fourth National Mental Health and Suicide Prevention Plan. It was developed by the AMHOCN with guidance from the Mental Health Information Strategy Standing Committee. The questionnaire consists of 6 domains:

- Making a difference
- Providing information and support
- Valuing individuality
- Supporting active participation
- Showing respect
- Ensuring safety and fairness

The survey consists of 37 items. The survey is designed to be visually presented to the respondents. The survey has not been tested in Indigenous communities, but the AMHOCN notes it will take on board feedback to inform investigation into the appropriateness of the survey (AMHOCN – CES guidance for orgs). The demographic questions include a question on Indigenous status. Currently, the CES is pending implementation for Fifth Plan indicator set.



## Census of Population and Housing

The ABS Census collects information about each person and household in the country to provide estimates of the population. The Census uses the standard Indigenous status question for each household member.

## Child Protection National Minimum Dataset (CP NMDS)

The Child Protection National Minimum Dataset is an annual collection of information about child protection in Australia. It contains data on children who encounter state and territory departments responsible for child protection; Indigenous status and living arrangements data are included. The CP NMDS collection was implemented in 2012–13. Before that, a national aggregate child protection data collection was used for national child protection reporting (data for this collection began in 1990–91).

## General Social Survey (GSS)

The ABS is the data custodian of the General Social Survey (GSS). The GSS includes information about demographic, social and economic indicators, including personal and household characteristics, geography, language, cultural activities, social networks and support, health and disability, discrimination, education, employment, financial stress and resilience, income, transport, volunteer work, personal safety, sports participation, internet use, crime and housing, and sexual orientation. The data contribute to existing data on the Australian population. The information is used to inform government policies and legislation. In the 2014, the survey scope was increased to include samples from the 15–17 age group. The GSS is used for comparisons of Indigenous data from the NATSISS or the NATSIHS with non-Indigenous data.

## Longitudinal Study of Indigenous Children (LSIC)

Footprints in Time: The Longitudinal Study of Indigenous Children (LSIC) collects longitudinal data on around 1,700 Indigenous children and families. It also includes both quantitative and qualitative data on how a child's early years affect their development. It is one of the largest longitudinal studies of indigenous people worldwide (Footprints in Time 2019). The study began in 2008 with 2 groups of Indigenous children aged 0 to 18 months and 3.5 to 5 years. The Department of Social Services conducts the study, guided by the Footprints in Time Steering Committee. The study includes data on factors that influence the start in life of Indigenous children and how they grow up. Annual interviews result in a new 'wave' of data.

## Mayi Kuwayu survey

The Mayi Kuwayu National Study of Indigenous Australian Wellbeing (Mayi Kuwayu) is a survey developed by Indigenous Australians for Indigenous Australians. It has a strong focus on culture: what it means to Indigenous Australians and how it affects mental health and wellbeing.

Baseline data collection has finished, however, Mayi Kuwayu data are available only as a report tailored to the data request of the enquiring organisation. This method is used to ensure data are safe, confidential, accessible and protective of Indigenous Australian information. The Mayi Kuwayu survey is not nationally conducted and Mayi Kuwayu is a non-government organisation. The survey is also not conducted with a specific frequency.



## National Indigenous Australian Health Survey (NATSIHS)

The National Indigenous Australian Health Survey collects data from a range of health topics and focuses specifically on the Indigenous population. The ABS is the data custodian of this survey. The NATSIHS was most recently conducted in 2019. Topics include long-term health conditions; health actions and service use; nutrition; physical activity; physical measurements including a hearing test; risk factors such as alcohol consumption, discrimination, smoking and substance use; experiences of harm; medications; social and emotional wellbeing; cultural identification; language; general demographic information; personal and household characteristics; education and employment; and income.

The NATSIHS is broadly comparable to the NHS, the National Indigenous Australian Social Survey (NATSISS), and the GSS. However, caution needs to be taken as not all data items are comparable between the various surveys. If new questions have been added or data are not age-standardised, items might not be comparable. The ABS explanatory notes provide guidance.

## National Indigenous Australian Social Survey (NATSISS)

The ABS is the data custodian of the National Indigenous Australian Social Survey (NATSISS). The NATSISS was most recently conducted in 2015. It is an Indigenous-specific survey that covers topics such as: geography (such as remoteness area); cultural attachment; family and community experiences; health; housing; education; labour force characteristics; income and financial stress; use of technology; transport; and crime and justice.

The NATSISS is broadly comparable to the NHS, NATSIHS, and the GSS. However, caution needs to be taken because not all data items are comparable between the various surveys. If new questions have been added or data are not age-standardised, items might not be comparable. The ABS explanatory notes provide guidance.

The overall downside to the NATSISS is its low frequency and that it has been modified in the past. The latter limits the comparability of the survey with previous years and makes no guarantees that the family removal question will be included in future releases. The ABS also notes the NATSISS 2014–15 has an undercoverage of approximately 6% of Indigenous Australian persons in Australia.

## National Community Mental Health Care Database (NCMHCD)

The National Community Mental Health Care Database (NCMHCD) contains data on community (also sometimes termed 'ambulatory') mental health service contacts provided by government-funded community mental health care services. The NCMHCD includes data for each year from 2000–01 and is updated annually.

The NCMHCD includes information relating to each individual service contact to a mental health service, including clinical information such as principal diagnosis and mental health legal status. The Community Mental Health Care National Minimum Dataset (CMHC NMDS) is associated with the Mental Health Establishments (MHE) NMDS, which is used to collect data about the services that provide service contacts.



## National Death Index (NDI)

The NDI is a catalogue of death records that is used in data linkage for epidemiological studies. Its use is strictly confined to AIHW Ethics Committee-approved health and medical research. The NDI is Commonwealth database that contains person-level records of all deaths occurring in Australia since 1980. Data come from Registrars of Births, Deaths and Marriages in each jurisdiction, the National Coronial Information System and the ABS.

The AIHW maintains a secure physical and computer environment for the linkage of the NDI with other datasets for research purposes, along with other measures to protect the privacy of individuals and the confidentiality of information.

NDI records are supplemented with cause of death information using a one-off data linkage with the NMD. This enhancement enables research that requires both fact of death (whether a person died) and cause of death (what the person died from).

## National Deaths in Custody Program (NDICP)

The National Deaths in Custody Program (NDICP) records deaths that take place in prison, police custody and youth detention. The NDICP provides data from 1980 and continues to collect data today. The NDICP was created in 1992 after the recommendation by the Royal Commission into Aboriginal Deaths in Custody. There are 2 main data sources for the NDICP:

- state and territory police services and corrections departments
- coronial records accessed through the National Coronial Information System.

## National Drug Strategy Household Survey (NDSHS)

The National Drug Strategy Household Survey (NDSHS) contains data on drug use over time for Indigenous Australians. The survey collects information from teenagers and adults across Australia and asks what they think about tobacco, alcohol and other drugs, and about their use of these drugs. The survey started in 1985 and is held every 3 years.

## National Health Survey (NHS)

The 2017–18 NHS is the most recent in a series of Australia-wide health surveys by the ABS. The survey is conducted every 3 years. It was designed to collect a range of information about the health of Australians, including:

- prevalence of long-term health conditions
- health risk factors such as smoking, overweight and obesity, alcohol consumption and physical activity
- demographic and socioeconomic characteristics.

The survey draws on information from all states and territories and across urban, rural and remote areas of Australia (excluding very remote areas). For 2017–18, the survey included around 21,000 people in over 16,000 private dwellings. This collection is used to compare Indigenous data from the NATSISS and NATSIHS with non-Indigenous data.





## National Health Workforce Dataset (NHWDS)

The NHWDS is a combination of registration and survey data collected through the registration renewal process for registered health practitioners. It includes the category of Indigenous Australian health practitioner. Collection methodologies include survey administration and sourcing of administrative data. Data are collected annually by the Department of Health.

## National Hospital Morbidity Database (NHMD)

The National Hospitals Data Collection contains records for all episodes of admitted and non-admitted patient care from public and private hospitals in Australia. It includes information that reflects suicidal behaviour and the use of services and carers. The following major national hospital databases held by the AIHW are included in the collection:

- The National Hospital Morbidity Database (NHMD) – a compilation of episode-level records from admitted patient morbidity data collection systems in Australian public and private hospitals
- The National Public Hospital Establishments Database (NPHEd) – holds information on public hospital resources and includes information reported for public hospitals, local hospital networks (LHNs), and state and territory health authorities
- The NNAPEDCD – a compilation of episode-level records (including waiting times for care) for non-admitted patients registered for care in emergency departments in selected public hospitals
- The National Elective Surgery Waiting Times Data Collection (NESWTDC) – holds episode-level information on patients added to or removed from elective surgery waiting lists managed by public hospitals
- The National Non-Admitted Patient Care (aggregate) Database (NNAPC(agg)D) – holds clinic-level information on non-admitted patient care provided by public hospitals, LHNs, and selected other public hospital services managed by state and territory health authorities
- The National Non-Admitted Patient (episode-level) Database (NNAP(el)D) – holds episode-level information on non-admitted patient care provided by public hospitals, LHNs, and selected other public hospital services managed by state and territory health authorities.

## National Mortality Database (NMD)

The National Mortality Database (NMD) contains records of deaths in Australia from 1964 to 2019, including information about the person's sex, age at death, usual residence and Indigenous status. The NMD reports suicide deaths as part of the ABS Causes of Death collection. The other collection included in the NMD is the ABS Deaths, Australia collection.

## National Perinatal Data Collection (NPDC)

The AIHW is the data custodian of the NPDC. It is a national population-based cross-sectional collection of data on pregnancy and childbirth. The data are based on births reported to the perinatal data collection in each state and territory in Australia. Midwives and other birth attendants, using information obtained from mothers and from hospital or other records, complete notification forms for each birth.

## National Prisoner Health Data Collection (NPHDC)

The National Prisoner Health Data Collection (NPHDC) collects information about prison entrants and prison discharges. The NPHDC reports information about self-harm instances, mental health diagnoses and suicide deaths. The NPHDC is the only national source of information about the health of prisoners in Australia. It covers a broad range of health issues and social determinants of health.

## National Residential Mental Health Care Database (NRMHCD)

The National Residential Mental Health Care Database (NRMHCD) contains data on episodes of residential care provided by government-funded residential mental health services. The NRMHCD includes data for each year from 2004–05 and is updated annually.

Data collated include information about each episode of residential care provided by a residential mental health care service. Examples of data elements in the collection include:

- demographic characteristics of residents, such as age and sex
- clinical information, such as principal diagnosis and mental health legal status.

The RMHC NMDS is associated with the Mental Health Establishments (MHE) NMDS.

## Prisoner Health National Best Endeavours Dataset (NBEDS)

The Prisoner Health National Best Endeavours Dataset (NBEDS) defines data collected from all public and private prisons throughout Australia on prison entrants, prisoners who visit a prison clinic, prisoners who are taking prescription medication while in custody, prison clinic services and staffing levels, and prison discharges. The data are used to report against the National Prisoner Health Indicators, assist in monitoring the health of prisoners, and inform prisoner health service planning and delivery.

## Specialist Homelessness Services Collection (SHSC)

The Specialist Homelessness Services Collection (SHSC) contains information about adults and children who seek assistance from specialist homelessness agencies. The SHSC reports on homelessness and service use by location.

There are 2 parts to the SHSC — a Client collection and an Unassisted Persons collection:

- The Client collection captures information on adults and children who receive a service from an SHS agency.
- The Unassisted Person collection is used to gain information about adults and children whose request for service is not able to be met by an SHS agency.

## State and territory community and residential mental health care data

The state and territory health authorities receive these data from public sector residential health services. States and territories use these data for service planning, monitoring, and internal and external reporting.

The provision of mental health care services is the responsibility of the health authorities in each of the states and territories. More information is available from the applicable website for each jurisdiction.



## Survey of Disability, Ageing and Carers (SDAC)

The 2015 SDAC is the most recent in a series of comprehensive national surveys conducted by the ABS. The survey was designed to:

- measure the prevalence of disability in Australia
- measure the need for support of older people (those aged 65 years and over) and those with disability
- provide a demographic and socioeconomic profile of people with disability, older people and carers compared with the general population
- estimate the number of, and provide information about, those who provide care to people with disability and older people.

Collection of data for Indigenous Australians and other culturally and linguistically diverse populations is an area for development.

## Young People in Custody Health Survey NSW

The Young People in Custody Health Survey (YPICHS) was a collaboration between Juvenile Justice NSW and the Justice Health and Forensic Mental Health network. It was developed to be able to provide optimal health care to youth in custody. The YPICHS was first administered in 2003, again in 2009 and most recently in 2015.

## Your Experience of Service (YES) survey

At the national level, there has been strong interest among the states and territories in the development of a standardised, national measure of mental health consumer experiences of care which could support quality improvement, service evaluation and benchmarking between services. In 2010, the Australian Government Department of Health funded the National Consumer Experiences of Care project to develop a survey for use in public mental health services. This project resulted in the development of the Your Experience of Service (YES) survey instrument. The YES survey is designed to gather information from consumers about their experiences of care. It aims to help mental health services and consumers to work together to build better services.

The YES survey instrument is being made available by the department for use by appropriate organisations that enter a licensing agreement specifying conditions of use that are aimed at promoting consistency of use and reducing the risk of multiple versions being used.

## Youth Justice National Minimum Dataset (YJ NMDS)

The Youth Justice National Minimum Dataset (YJ NMDS) contains information about young people in Australia who were supervised by youth justice agencies because they were alleged or proven to have committed an offence. The YJ NMDS is the only national collection of youth justice data.

Before 2018–19, the YJ NMDS was known as the Juvenile Justice NMDS (JJ NMDS).

**Table C1: Administrative datasets**

Dataset	Collection type	Scope	Notes
ABS Causes of Death	General	National	99% of all deaths have Indigenous status recorded, however, data may underestimate the level of indigenous deaths and mortality. Caution should be exercised when interpreting data for indigenous people, especially with regard to year-to-year changes.
Alcohol and Other Drug Treatment Services National Minimum Dataset (AODTS NMDS)	General	National	Nil
Child Protection National Minimum Dataset (CP NMDS)	General	National	Nil
National Community Mental Health Care Database (NCMHCD)	General	National	Indigenous status data should be interpreted with caution because data from some jurisdictions are incomplete, however, the quality is deemed acceptable.
National Death Index (NDI)	General	National	Nil
National Hospital Morbidity Database (NHMD)	General	National	Separations for Indigenous people are under-enumerated so caution should be used in the interpretation of Indigenous status data. Overall Indigenous status data is considered of sufficient quality for statistical reporting.
National Perinatal Data Collection (NPDC)	General	National	Data by Indigenous status is reported by 1-year or 3-year period. Single-year data should be used with caution due to the small numbers involved.
National Residential Mental Health Care Database (NRMHCD)	Generals	National	Indigenous status data should be interpreted with caution due to errors in reporting Indigenous status. However, the quality is deemed acceptable and Western Australia implemented a system reducing the errors in 2019.
Online Services Report Collection (OSR)	Indigenous specific	National	ACCHOs data from around 250 organisations are collected. Not all mental health consults are registered.
Prisoner Health National Best Endeavours Dataset (NBEDS)	General	National	Aggregate data from Indigenous-specific primary health care services are included. Individual level data are not supplied.
Specialist Homelessness Services Collection	General	National	Nil
State/territory Community Mental Health Care Data and Residential Mental Health Care Data	General	State and territories	Various government and non-government collections from jurisdictions are included.
Youth Justice National Minimum Dataset (YJ NMDS)	General	National	Fewer than 5% of all young people since 2000–01 have an unknown Indigenous status.

**Table C2: Surveys**

Dataset	Collection type	Scope	Notes
Australian Early Development Census (AEDC)	General	National	Validated as an appropriate measure of development of Indigenous children. Administered and released every 3 years.
Carer Experience Survey (CES)	General	National	Independent administration by organisations.
Census Of Population and Housing	General	National	Indigenous undercount rate of 17.5%, which is similar to 2011 census (17.2%). Administered every 5 years.
Footprints In Time: Longitudinal Study of Indigenous Children (LSIC)	Indigenous specific	National	Longitudinal study collecting data in 'waves' from around 1,700 children and families. Administered annually. Selected locations across Australia (not nationally representative, but broadly reflects distribution of Indigenous children aged 0-5).
Mayi Kuwayu Survey	Indigenous specific	National	Baseline collection still ongoing.
National Indigenous Australian Health Survey (NATSIHS)	Indigenous specific	National	Limited comparability to previous years/other ABS surveys. Undercoverage rate of 66.5% (62.2% in 2012-13). Administered every 3 years, alternating with NATSISS.
National Indigenous Australian Social Survey (NATSISS)	Indigenous specific	National	Limited comparability to previous years/other ABS surveys. Undercoverage rate of 62% (53% in 2008). Administered every 3 years, alternating with NATSIHS.
National Deaths in Custody Program (NDICP)	General	National	Police services and correction departments' data and coronial records. Cause of death and Indigenous status are not always recorded. Administered annually.
National Drug Strategy Household Survey (NDSHS)	General	National	Not specifically designed to obtain reliable national estimates for Indigenous people. Interpret results with caution. Administered every 2-3 years.
National Health Workforce Dataset	General	National	The response rate for the Indigenous Australian health practice profession was 73.8%. Administered every 1-3 years.
Survey Of Disability, Ageing and Carers (SDAC)	General	National	SDAC 2018 does not report on the Indigenous population (previous releases do). Administered approximately every 3 years.
Your Experience of Service (YES) Survey	General	National	Independent administration by organisations.
Young People in Custody Health Survey NSW	General	NSW	Cultural appropriateness of questionnaire was assessed by an Aboriginal research consultation group. One-off administration.

**Table C3: Indicator sets**

Dataset	Collection type	Scope	Notes
Health Performance Framework (HPF)	Indigenous specific	National	Draws Indigenous data from about 70 data sources. New release every 2 years.
National Key Performance Indicators (nKPI)	Indigenous specific	National	Uses ACCHOs data. Not all mental health consults are registered as such. New release every 6 months.
Fifth National Mental Health and Suicide Prevention Plan	General	National	Not all indicators have Indigenous data.

**Table C4: Multi-source Enduring Linked Data Assets (MELDAs)**

Dataset	Collection type	Scope	Notes
Multi-Agency Data Integration Project (MADIP)	General	National	Linked dataset administrative data including mortality data.
National Integrated Health Services Information Analysis Asset (NIHSI AA)	General	National	Indigenous status identification included in all linked datasets except PBS data.



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# Abbreviations

AAIP	Australian Apprenticeships Incentive Program
AEDC	Australian Early Development Census
AMHOCN	Australian Mental Health Outcomes and Classification Network
AvEDI	Australian version of the Early Development Instrument
CES	Carer Experience Survey
COAG	Council of Australian Governments
EDC	Emergency Department Care
FAS	Foetal alcohol syndrome
FASD	Foetal alcohol spectrum disorder
GDPSA	Gayaa Dhuwi (Proud Spirit) Australia
GSS	General Social Survey
HPF	Health Performance Framework
LSIC	Longitudinal Study of Indigenous Children
MADIP	Multi-Agency Data Integration Project
NAPC	National Admitted Patient Care
NATSIHS	National Indigenous Australian Health Survey
NATSISS	National Indigenous Australian Social Survey
NBEDS	National Best Endeavours Dataset
NCMHCD	National Community Mental Health Care Database
NDDA	National Disability Data Asset
NDI	National Deaths Index
NDICP	National Deaths in Custody Program
NDIS	National Disability Insurance Scheme
NDSHS	National Drug Strategy Household Survey
NFRC	National Federal Reform Council
NHS	National Health Survey
NHWDS	National Health Workforce Dataset
NIAA	National Indigenous Australians Agency
NMD	National Mortality Database
NNAPEDCD	National Non-Admitted Patient Emergency Department Care Database
NPDC	National Perinatal Data Collection





NPHDC	National Prisoner Health Data Collection
NRACD	National Residential Aged Care Data
NRMHCD	National Residential Mental Health Care Database
NSW	New South Wales
NVDRS	National Violent Death Reporting System
OSR	Online Services Report
PIT	Personal Income Tax
PTSD	Post Traumatic Stress Disorder
RPBS	Repatriation Pharmaceutical Benefits Scheme
SEWB	Social and emotional wellbeing
SDAC	Survey of Disability, Ageing and Carers
SHSC	Specialist Homelessness Services Collection
WA	Western Australia
YPICHS	Young People in Custody Health Survey

## References

- Abrutyn S, Mueller AS and Osborne M (2020) Rekeying cultural scripts for youth suicide: how social networks facilitate suicide diffusion and suicide clusters following exposure to suicide. *Society and Mental Health* 10:112–35.
- ABS (Australian Bureau of Statistics) (2015) *Australian Indigenous Australian Health Survey: Nutrition results—food and nutrients*, Viewed 22 Jan 2020, <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4727.0.55.005~2012-13~Main%20Features~Food%20Security~36>.
- ABS (2016) *Estimates of Indigenous Australian Australians*, June 2016, Canberra: ABS.
- ABS (2017a) *Census of Population and Housing: Reflecting Australia—stories from the Census, 2016*, ABS cat. no. 2071.0. Canberra: ABS.
- ABS (2017b) *National Indigenous Australian Social Survey, 2014–15*. Cat no. 4714.0. Canberra: ABS.
- ABS (2019a) *Causes of Death, Australia, 2019*, Cat no. 3303.0, Canberra: ABS.
- ABS (2019b) *National Indigenous Australian Health Survey, 2018–19*, Cat no. 4715.0. Canberra: ABS.
- ABS (2019c) *Research Paper: Psychosocial risk factors as they relate to coroner-referred deaths in Australia, 2017*, Canberra, ACT: ABS.
- AIHW (Australian Institute of Health and Welfare) (2010) *National best practice guidelines for collecting Indigenous status in health data sets*, Cat. no. IHW 29, Canberra: AIHW.
- AIHW (2015) *Leading cause of premature mortality in Australia fact sheet: suicide*, Cat. no. PHE 193, Canberra: AIHW.
- AIHW (2016) *Australian Burden of Disease Study: impact and causes of illness and death in Indigenous Australian people 2011*, Canberra: AIHW.
- AIHW (2017) *Australia's welfare 2017*, Australia's welfare no. 13, Cat. no. AUS 214,, Canberra: AIHW.
- AIHW (2018a) *Australia's health 2018*, Canberra: AIHW.
- AIHW (2018b) *Indigenous Australian adolescent and youth health and wellbeing 2018*, Canberra: AIHW.
- AIHW (2018c) *Indigenous Australian Stolen Generations and descendants: numbers, demographic characteristics and selected outcomes*, Cat. no. IHW 195, Canberra: AIHW.
- AIHW (2019a) *Indigenous employment*, Canberra: AIHW.
- AIHW (2019b) *Indigenous housing*, Canberra: AIHW.
- AIHW (2019c) *Trends in hospitalised injury, Australia 2007–08 to 2016–17*, Canberra: AIHW.
- AIHW (2020a) *Alcohol and other drug treatment services in Australia, 2018–19*, Cat. no. HSE 243, Canberra: AIHW.
- AIHW (2020b) *Annual report 2019–20*, Canberra: AIHW.
- AIHW (2020c) *Antenatal care use and outcomes for Indigenous Australian mothers and their babies 2016–2017*, Canberra: AIHW.
- AIHW (2020d) *Deaths by suicide over time*, viewed 26 November 2020, <https://www.aihw.gov.au/suicide-self-harm-monitoring/data/deaths-by-suicide-in-australia/suicide-deaths-over-time>.

AIHW (2020e) *Indigenous Australian Health Performance Framework 2020 summary report*, Cat. no. IHPF 2, Canberra: AIHW.

AIHW (2020f) *Indigenous injury deaths 2011–12 to 2015–16*, Canberra: AIHW.

AIHW (2020g) *National Drug Strategy Household Survey 2019*, Cat. no. PHE 270, Canberra: AIHW.

AIHW (2020h) Psychosocial risk factors and deaths by suicide, viewed 26 November 2020, <https://www.aihw.gov.au/suicide-self-harm-monitoring/data/behaviours-risk-factors/psychosocial-risk-factors-suicide>.

AIHW (2020i) *Social determinants of health*, Canberra: AIHW.

AIHW (2020j) *Suicide and intentional self-harm*, Canberra: AIHW.

AIHW (2020k) *Youth justice*, Canberra: AIHW, viewed 26 June, <https://www.aihw.gov.au/reports/australias-welfare/youth-justice>.

AIHW and AIFS (2013) *Closing the Gap Clearinghouse. Strategies to minimise the incidence of suicide and suicidal behaviour*, Resource sheet 18, Canberra: AIHW and AIFS.

AIHW, Henley G and Harrison J (2020) *Suicide in Australia: Trends and analysis 1964 to 2018*, Canberra: AIHW.

Alonzo D, Moravec C and Kaufman B (2017) Individuals at risk for suicide: mental health clinicians' perspectives on barriers to and facilitators of treatment engagement. *Crisis* 38:158–67.

Alothman D and Fogarty A (2020) Global differences in geography, religion and other societal factors are associated with sex differences in mortality from suicide: an ecological study of 182 countries, *Journal of Affective Disorders*, 260:67–72.

Andriessen K, Rahman B, Draper B, Dudley M and Mitchell PB (2017) Prevalence of exposure to suicide: a meta-analysis of population-based studies, *Journal of Psychiatric Research* 88:113–20.

Ashrafioun L, Bishop TM, Conner KR and Pigeon WR (2017) Frequency of prescription opioid misuse and suicidal ideation, planning, and attempts, *Journal of Psychiatric Research*, 92:1–7.

Athey A, Overholser J, Bagge C, Dieter L, Vallender E and Stockmeier CA (2018) Risk-taking behaviors and stressors differentially predict suicidal preparation, non-fatal suicide attempts, and suicide deaths, *Psychiatry Research* 270:160–7.

ATSISPEP (Indigenous Australian Suicide Prevention Evaluation Projects) (2014) *Suicide prevention in Indigenous communities*, Western Australia: University of Western Australia.

ATSISPEP (2015) *Sexuality and gender diverse populations (Lesbian, Gay, Bisexual, Transsexual, Queer and Intersex - LGBTQI)*, Roundtable report, Canberra: ATSISPEP.


ATSISPEP (2016) *Solutions that work: what the evidence and our people tell us*, Perth: School of Indigenous Studies.

Baca-Garcia E, Perez-Rodriguez MM, Oquendo MA, Keyes KM, Hasin DS, Grant BF et al. (2011) Estimating risk for suicide attempt: are we asking the right questions? Passive suicidal ideation as a marker for suicidal behavior, *Journal of Affective Disorders* 134:327–32.

Balboni C, Bandiera O, Burgess R, Ghatek M and Heil A (2020) *Why do people stay poor?* CEPR Discussion Paper No. DP14534.

- Bamblett M, Bath H and Roseby R (2010) *Growing them strong, together: promoting the safety and wellbeing of the Northern Territory's children. Report of the Board of Inquiry into the Child Protection System in the Northern Territory*, Darwin: Northern Territory Board of Inquiry into the Child Protection System in the Northern Territory.
- Bastos JL, Harnois CE and Paradies YC (2018) Health care barriers, racism, and intersectionality in Australia, *Soc Sci Med*, 199:209–18.
- Bell S, Russ TC, Kivimäki M, Stamatakis E and Batty GD (2015) Dose-response association between psychological distress and risk of completed suicide in the general population, *JAMA Psychiatry*, 72:1254–6.
- Bentley KH, Franklin JC, Ribeiro JD, Kleiman EM, Fox KR and Nock MK (2016) Anxiety and its disorders as risk factors for suicidal thoughts and behaviors: a meta-analytic review, *Clinical Psychology Review*, 43:30–46.
- Bhat SK, Marriott R, Galbally M and Shepherd CCJ (2020) Psychosocial disadvantage and residential remoteness is associated with Aboriginal women's mental health prior to childbirth, *International Journal of Population Data Science*, 5.
- Bingham B, Moniruzzaman A, Patterson M, Sareen J, Distasio J, O'Neil J et al. (2019) Gender differences among Indigenous Canadians experiencing homelessness and mental illness, *BMC Psychology* 7:57.
- Bombay A, Matheson K and Anisman H (2009) Intergenerational trauma. *Journal de la santé autochtone*, 5:6–47.
- Booth AL, Leigh A and Varganova E (2012) Does ethnic discrimination vary across minority groups? Evidence from a field experiment, *Oxford Bulletin of Economics and Statistics*, 74:547–73.
- Borges G, Bagge CL, Cherpitel CJ, Conner KR, Orozco R and Rossow I (2017) A meta-analysis of acute use of alcohol and the risk of suicide attempt, *Psychological Medicine*, 47:949–57.
- Bower C, Watkins RE, Mutch RC, Marriott R, Freeman J, Kippin N et al. (2018) Fetal alcohol spectrum disorder and youth justice: a prevalence study among young people sentenced to detention in Western Australia, *BMJ Open*, 8:e019605. doi:10.1136/bmjopen-2017-019605
- Bowes J and Grace R (2014) *Review of early childhood parenting, education and health intervention programs for Indigenous children and families in Australia*, Canberra: AIHW.
- Brausch AM and Decker KM (2014) Self-esteem and social support as moderators of depression, body image, and disordered eating for suicidal ideation in adolescents, *Journal of Abnormal Child Psychology*, 42:779–89.
- Brimblecombe J, Maypilama E, Colles S, Scarlett M, Dhurrkay JG, Ritchie J et al. (2014) Factors influencing food choice in an Australian Aboriginal community, *Qual Health Res*, 24:387–400.
- Burke M, González F, Baylis P, Heft-Neal S, Baysan C, Basu S et al. (2018) Higher temperatures increase suicide rates in the United States and Mexico, *Nature Climate Change*, 8:723–9.
- Butler A, Young JT, Kinner SA and Borschmann R (2018) Self-harm and suicidal behaviour among incarcerated adults in the Australian Capital Territory, *Health and Justice*, 6:13.

- Butterworth P, Leach LS, Strazdins L, Olesen SC, Rodgers B and Broom DH (2011) The psychosocial quality of work determines whether employment has benefits for mental health: results from a longitudinal national household panel survey, *Occupational and Environmental Medicine*, 68:806–12.
- Byers L, Kulitja S, Lowell A and Kruske S (2012) 'Hear our stories': Child-rearing practices of a remote Australian Aboriginal community, *The Australian Journal of Rural Health*, 20:293–7.
- Calma T and Dick D (2007) Social determinants and the health of Indigenous peoples in Australia – a human rights based approach, *International Symposium on the Social Determinants of Indigenous Health, Adelaide*.
- Campbell A, Chapman M, McHugh C, Sng A and Balaratnasingam S (2016) Rising Indigenous suicide rates in Kimberley and implications for suicide prevention, *Australasian Psychiatry*, 24:561–4.
- Canetto SS and Sakinovsky I (1998) The gender paradox in suicide, *Suicide and Life-Threatening Behavior*, 28:1–23.
- Castle K, Conner K, Kaukeinen K and Tu X (2011) Perceived racism, discrimination, and acculturation in suicidal ideation and suicide attempts among black young adults, *Suicide and Life-Threatening Behavior*, 41:342–51.
- CDCP (Centers for Disease Control and Prevention) (2006) Recommendations to improve preconception health and health care—United States. *MMWR Recommendations and Reports*, 55(RR-06):1–23.
- Cerel J, Brown MM, Maple M, Singleton M, Venne J, Moore M et al. (2019) How many people are exposed to suicide? Not six, *Suicide and Life-Threatening Behavior*, 49:529–34.
- Chamberlain P, Goldney R, Delfabbro P, Gill T and Dal Grande L (2009) Suicidal ideation: the clinical utility of the K10, *Crisis*, 30:39–42.
- Chandler MJ and Lalonde C (1998) Cultural continuity as a hedge against suicide in Canada's First Nations, *Transcultural Psychiatry*, 35:191–219.
- Chandler MJ and Lalonde CE (2008) Cultural continuity as a protective factor against suicide in first nations youth, *Horizons: A Special Issue on Aboriginal Youth, Hope or Heartbreak: Aboriginal Youth and Canada's Future*, 10:68–72.
- Chang EC, Chang OD, Martos T, Sallay V, Lee J, Stam KR et al. (2017) Family support as a moderator of the relationship between loneliness and suicide risk in college students: having a supportive family matters! *The Family Journal*, 25:257–63.
- Clark TC, Robinson E, Crengle S, Fleming T, Ameratunga S, Denny SJ et al. (2011) Risk and protective factors for suicide attempt among indigenous Maori youth in New Zealand: the role of family connection, *International Journal of Indigenous Health*, 7:16.
- Clements-Nolle K, Marx R and Katz M (2006) Attempted suicide among transgender persons: the influence of gender-based discrimination and victimization, *Journal of Homosexuality*, 51:53–69.
- Clifford AC, Doran CM and Tsey K (2013) A systematic review of suicide prevention interventions targeting indigenous peoples in Australia, United States, Canada and New Zealand, *BMC Public Health*, 13:463.



Close the Gap Campaign Steering Committee for Indigenous Health Equality (2020) *Close the Gap 2018: a ten-year review - the Closing the Gap strategy and recommendations for reset*, Close the Gap Campaign Steering Committee.

Community Affairs References Committee (2010) *The Hidden Toll: Suicide in Australia*, *Commonwealth of Australia* [https://www.aph.gov.au/parliamentary\\_business/committees/senate/community\\_affairs/completed\\_inquiries/2008-10/suicide/report/index](https://www.aph.gov.au/parliamentary_business/committees/senate/community_affairs/completed_inquiries/2008-10/suicide/report/index)

Commonwealth of Australia (2017) *National Strategic Framework for Aboriginal and Torres Strait Islander Peoples' Mental Health and Social and Emotional Wellbeing*, *Canberra: Department of the Prime Minister and Cabinet*.

Cook J, Green C, Lilley C, Anderson S, Baldwin M, Chudley A et al. (2016) Fetal Alcohol spectrum disorder: a guideline for diagnosis across the lifespan, *CMAJ*, 191-197.

Cooper J, Kapur N, Webb R, Lawlor M, Guthrie E, Mackway-Jones K et al. (2005) Suicide after deliberate self-harm: a 4-year cohort study, *American Journal of Psychiatry*, 162:297-303.

Cossar R, Stoové M, Kinner SA, Dietze P, Aitken C, Curtis M et al. (2018) The associations of poor psychiatric well-being among incarcerated men with injecting drug use histories in Victoria, Australia, *Health and Justice*, 6:1.

Crossin R, Scott D, Arunogiri S, Smith K, Dietze PM and Lubman DI (2019) Pregabalin misuse-related ambulance attendances in Victoria, 2012-2017: characteristics of patients and attendances, *Medical Journal of Australia*, 210:75-9.

Culture is Life (2013) *The Elders' Report into Preventing Indigenous Self-harm and Youth Suicide*, Perth: Culture is Life.

Cunningham J and Paradies YC (2012) Socio-demographic factors and psychological distress in Indigenous and non-Indigenous Australian adults aged 18-64 years: analysis of national survey data, *BMC Public Health*, 12:95.

d'Abbs P and Shaw G (2016) *Monitoring trends in the prevalence of petrol sniffing in selected Australian Aboriginal communities 2011-2014: Final Report*, Menzies School of Health Research.

Dandona R, Kumar GA, Dhaliwal RS, Naghavi M, Vos T, Shukla DK et al. (2018) Gender differentials and state variations in suicide deaths in India: the Global Burden of Disease Study 1990-2016, *The Lancet Public Health*, 3:e478-e89.

Davison KM, Marshall-Fabien GL and Tecson A (2015) Association of moderate and severe food insecurity with suicidal ideation in adults: national survey data from three Canadian provinces, *Soc Psychiatry Psychiatr Epidemiol*, 50:963-72.


Delisle A, Kiatkoski Kim M, Stoeckl N, Watkin Lui F and Marsh H (2018) The socio-cultural benefits and costs of the traditional hunting of dugongs *Dugong dugon* and green turtles *Chelonia mydas* in Torres Strait, Australia, *Oryx*, 52:250-61.

De Maio J, Zubrick S, Silburn SR, Lawrence DM, Mitrou FG, Dalby R et al. (2005) *The Western Australian Aboriginal Child Health Survey: Measuring the social and emotional wellbeing of Aboriginal children and intergenerational effects of forced separation*, Perth: Curtin University of Technology and Telethon Institute for Child Health Research.

- Denham WW (2015) Alyawarra kinship, infant carrying, and alloparenting, *Mathematical Anthropology and Culture Theory*, 8.
- Deschner M and Glanz E (2016) Preventing the tragedy of suicide among indigenous people in Canada: Physician advocacy through the training pipeline and beyond, *University of Ottawa Journal of Medicine*, 6:17–20.
- Devries K, Watts C, Yoshihama M, Kiss L, Schraiber LB, Deyessa N et al. (2011) Violence against women is strongly associated with suicide attempts: evidence from the WHO multi-country study on women's health and domestic violence against women. *Social Science and Medicine* 73:79–86.
- Dickson JM, Cruise K, McCall CA and Taylor PJ (2019) A systematic review of the antecedents and prevalence of suicide, self-harm and suicide ideation in Australian Indigenous Australian youth. *International Journal of Environmental Research and Public Health* 16:3154.
- Dixon PG and Kalkstein AJ (2018) Where are weather-suicide associations valid? An examination of nine US counties with varying seasonality. *International Journal of Biometeorology* 62:685–97.
- DoH (Department of Health) (2014) Yiriman Project, Canberra: DoH, viewed 14 September 2020, <https://www1.health.gov.au/internet/publications/publishing.nsf/Content/suicide-prevention-activities-evaluation~Appendices~appendixa~project49>.
- DoH (2017) *The Fifth National Mental Health and Suicide Prevention Plan*, Canberra: Commonwealth of Australia.
- DoH (2019) Actions to support older Indigenous Australian people: A guide for aged care providers, Canberra: DoH, viewed 26 November 2020, <https://www.health.gov.au/resources/publications/actions-to-support-older-aboriginal-and-torres-strait-islander-people-a-guide-for-aged-care-providers>
- DoH (2020) The Prime Minister's National Suicide Prevention Adviser. Canberra: DoH.
- DOHA (Department of Health and Ageing) (2013) *National Indigenous Australian Suicide Prevention Strategy*. Canberra: Department of Health and Ageing.
- Doherty L and Bricknell S (2020) *Deaths in custody in Australia 2018–19*, Statistical Report no. 31. Canberra: AIC.
- Doidge JC and Harron K (2018) Demystifying probabilistic linkage: common myths and misconceptions, *International Journal of Population Data Science*, 3.
- Dudgeon P, Calma T and Holland C (2017) The context and causes of the suicide of Indigenous people in Australia, *Journal of Indigenous Wellbeing*, 2:5–15.
- Dudgeon P, Bray A, Darlaston-Jones D and Walker R (2020) *Aboriginal participatory action research: an Indigenous research methodology strengthening decolonisation and social and emotional wellbeing*, Discussion paper, Melbourne: The Lowitja Institute.
- Dudgeon P, Wright M, Paradies Y, Garvey D and Walker I (2010) The social, cultural and historical context of Indigenous Australian Australians. In P Dudgeon, H Milroy and R Walker (eds) *Working together: Indigenous Australian mental health and wellbeing principles and practice*, 2nd editio, Canberra: Australian Government, 25–42.
- Dudgeon P, Walker R, Scrine C, Shepherd C, Calma T, Ring I et al. (2014) *Effective strategies to strengthen the mental health and wellbeing of Indigenous Australian people*, Issues paper no. 12. Cat. no. IHW 143. Canberra: AIHW and AIFS.

- Encompass Family and Community (2014) Youth alcohol and drug practice guide 4: learning from each other: Working with Indigenous Australian young people, Brisbane: Dovetail.
- Evins AE, Korhonen T, Kinnunen TH and Kaprio J (2017) Prospective association between tobacco smoking and death by suicide: a competing risks hazard analysis in a large twin cohort with 35-year follow-up, *Psychological Medicine*, 47:2143–54.
- Extremera N and Rey L (2016) Attenuating the negative impact of unemployment: the interactive effects of perceived emotional intelligence and well-being on suicide risk, *PLoS One*, 11:e0163656.
- Facer-Irwin E, Blackwood NJ, Bird A, Dickson H, McGlade D, Alves-Costa F et al. (2019) PTSD in prison settings: a systematic review and meta-analysis of comorbid mental disorders and problematic behaviours, *PLoS One*, 14:e0222407.
- Favril L, Vander Laenen F, Vandeviver C and Audenaert K (2017) Suicidal ideation while incarcerated: prevalence and correlates in a large sample of male prisoners in Flanders, Belgium, *International Journal of Law and Psychiatry*, 55:19–28.
- Fazel S and Seewald K (2012) Severe mental illness in 33 588 prisoners worldwide: systematic review and meta-regression analysis, *The British Journal of Psychiatry*, 200:364–73.
- Fazel S, Hayes AJ, Bartellas K, Clerici M and Trestman R (2016) Mental health of prisoners: prevalence, adverse outcomes, and interventions, *The Lancet Psychiatry*, 3:871–81.
- Feigelman W, Cerel J, McIntosh JL, Brent D and Gutin N (2018) Suicide exposures and bereavement among American adults: evidence from the 2016 General Social Survey, *Journal of Affective Disorders*, 227:1–6.
- Ferdinand A S, Paradies Y, Perry R and Kelaher M (2014) Aboriginal health promotion through addressing employment discrimination, *Australian Journal of Primary Health*, 20:384–8, <https://doi.org/10.1071/PY14035>
- Fitzpatrick J, Latimer J, Carter M, Oscar J, Ferreira M, Olson H et al. (2015) Prevalence of fetal alcohol syndrome in a population-based sample of children living in remote Australia: The Lililwan Project, *J Paediatr Child Health*, 51(4):450–7.
- Fontanella CA, Saman DM, Campo JV, Hiance-Steelesmith DL, Bridge JA, Sweeney HA et al. (2018) Mapping suicide mortality in Ohio: a spatial epidemiological analysis of suicide clusters and area level correlates, *Preventive Medicine*, 106:177–84.
- Ford R, King T, Priest N and Kavanagh A (2017) Bullying and mental health and suicidal behaviour among 14- to 15-year-olds in a representative sample of Australian children, *Australian and New Zealand Journal of Psychiatry*, 51:897–908.
- Freeman A, Mergl R, Kohls E, Székely A, Gusmao R, Arensman E et al. (2017) A cross-national study on gender differences in suicide intent, *BMC Psychiatry*, 17:234.
- Gammans M (2020) Temporal displacement, adaptation and the effect of climate on suicide rates, *Nature Climate Change*, 10:499–501.
- Gannoni A and Bricknell S (2019) *Indigenous deaths in custody: 25 years since the Royal Commission into Aboriginal Deaths in Custody*, *Statistical Bulletin no. 17*, Canberra: Australian Institute of Criminology, <https://www.aic.gov.au/publications/sb/sb17>



- 
- Gee G, Dudgeon P, Schultz C, Hart A and Kelly K (2014) Indigenous Australian social and emotional wellbeing, In P Dudgeon, H Milroy and R Walker (eds) *Working together: Indigenous Australian mental health and wellbeing principles and practice*, 2nd edition, Canberra: Australian Government, 55–68.
- Giallo R, Pilkington P, Borschmann R, Seymour M, Dunning M and Brown S (2018) The prevalence and correlates of self-harm ideation trajectories in Australian women from pregnancy to 4-years postpartum, *Journal of Affective Disorders*, 229:152–8.
- Gibson M, Stuart J, Leske J, Ward R and Tanton R (2021) Suicide rates for young Indigenous Australian people: the influence of community level cultural connectedness, *Medical Journal of Australia*, 214(11):514–8.
- Gradus JL, Rosellini AJ, Horváth-Puhó E, Street AE, Galatzer-Levy I, Jiang T et al. (2020) Prediction of sex-specific suicide risk using machine learning and single-payer health care registry data from Denmark, *JAMA Psychiatry*, 77:25.
- Grieves V (2009) *Aboriginal spirituality: Aboriginal philosophy, the basis of Aboriginal social and emotional wellbeing*, Darwin: Cooperative Research Centre for Aboriginal Health.
- Hajizadeh M, Bombay A and Asada Y (2019) Socioeconomic inequalities in psychological distress and suicidal behaviours among Indigenous peoples living off-reserve in Canada, *CMAJ*, 191:E325–e36.
- Hammerton G, Zammit S, Mahedy L, Pearson RM, Sellers R, Thapar A et al. (2015) Pathways to suicide-related behavior in offspring of mothers with depression: the role of offspring psychopathology, *Journal of the American Academy of Child and Adolescent Psychiatry*, 54:385–93.
- Hare MJL, Barzi F, Boyle JA, Guthridge S, Dyck RF, Barr ELM et al. (2020) Diabetes during pregnancy and birthweight trends among Aboriginal and non-Aboriginal people in the Northern Territory of Australia over 30 years, *The Lancet Regional Health - Western Pacific*, 1:100005.
- Harris EC and Barraclough B (1997) Suicide as an outcome for mental disorders: a meta-analysis, *British Journal of Psychiatry*, 170:205–28.
- Haw C, Hawton K, Gunnell D and Platt S (2015) Economic recession and suicidal behaviour: Possible mechanisms and ameliorating factors, *International Journal of Social Psychiatry*, 61:73–81.
- Hawton K and van Heeringen K (2009) Suicide, *The Lancet*, 373:1372–81.
- Hawton K, Linsell L, Adeniji T, Sariaslan A and Fazel S (2014) Self-harm in prisons in England and Wales: an epidemiological study of prevalence, risk factors, clustering, and subsequent suicide, *The Lancet*, 383:1147–54.
- Hertzman C (2013) The significance of early childhood adversity, *Paediatrics and Child Health*, 18(3):127–8.
- Holopainen J, Helama S, Björkenstam C and Partonen T (2013) Variation and seasonal patterns of suicide mortality in Finland and Sweden since the 1750s, *Environmental Health and Preventive Medicine*, 18:494–501.
- House of Representatives Standing Committee on Indigenous Affairs (2020) *Report on food pricing and food security in remote Indigenous communities*, Canberra: Commonwealth of Australia.
- Hunter EM, Reser J, Baird M and Reser P (1999) *An analysis of suicide in Indigenous communities in north Queensland: the historical, cultural and symbolic landscape*, Cairns: University of Queensland, Department of Social and Preventive Medicine.

- Hyde Z, Doherty M, Tilley M, McCaul K, Rooney R and Jancey J (2014) The first Australian national trans mental health study: summary of results. Perth, Australia: School of Public Health, Curtin University.
- Isaacs AN, Sutton K, Hearn S, Wanganeen G and Dudgeon P (2017) Health workers' views of help seeking and suicide among Aboriginal people in rural Victoria, *Australian Journal of Rural Health*, 25:169–74.
- Jamieson LM, Paradies YC, Gunthorpe W, Cairney SJ and Sayers SM (2011) Oral health and social and emotional well-being in a birth cohort of Aboriginal Australian young adults, *BMC Public Health*, 11:656.
- Jennings W, Bond C and Hill PS (2018) The power of talk and power in talk: a systematic review of Indigenous narratives of culturally safe healthcare communication, *Aust J Prim Health*, 24:109–15.
- Joiner Jr TE, Pettit JW, Perez M, Burns AB, Gencoz T, Gencoz F et al. (2001) Can positive emotion influence problem-solving attitudes among suicidal adults? *Professional Psychology: Research and Practice*, 32:507.
- Karanikola MN, Lyberg A, Holm A-L and Severinsson E (2018) The association between deliberate self-harm and school bullying victimization and the mediating effect of depressive symptoms and self-stigma: A systematic review, *BioMed Research International*, 2018.
- Kelly K, Dudgeon P, Gee G and Glaskin B (2009) *Living on the edge: Social and emotional wellbeing and risk and protective factors for serious psychological distress among Indigenous Australian people*, Darwin: Cooperative Research Centre for Aboriginal Health.
- Khana D, Rossen LM, Hedegaard H and Warner M (2018) A Bayesian spatial and temporal modeling approach to mapping geographic variation in mortality rates for subnational areas with R-INLA, *Journal of Data Science*, 16.
- Kidd SA, Thistle J, Beaulieu T, O'Grady B and Gaetz S (2019) A national study of Indigenous youth homelessness in Canada, *Public Health*, 176:163–71.
- Kikkawa D (2015) *Multiple disadvantage and major life events in report from Wave 5*. Canberra: Department of Social Services.
- Kim Y, Kim H, Honda Y, Guo YL, Chen B-Y, Woo J-M et al. (2016) Suicide and ambient temperature in East Asian countries: a time-stratified case-crossover analysis, *Environmental Health Perspectives*, 124:75–80.
- Klonsky ED, May AM and Saffer BY (2016) Suicide, suicide attempts, and suicidal ideation, *Annual Review of Clinical Psychology*, 12:307–30.
- Klonsky ED, Saffer BY and Bryan CJ (2018) Ideation-to-action theories of suicide: a conceptual and empirical update, *Current Opinion in Psychology*, 22:38–43.
- Knipe DW, Padmanathan P, Muthuwatta L, Metcalfe C and Gunnell D (2017) Regional variation in suicide rates in Sri Lanka between 1955 and 2011: a spatial and temporal analysis, *BMC Public Health*, 17:193.
- Kolb B and Gibb R (2011) Brain plasticity and behaviour in the developing brain, *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 20:265.

- Kölves K, Draper BM, Snowdon J and De Leo D (2017) Alcohol-use disorders and suicide: results from a psychological autopsy study in Australia, *Alcohol*, 64:29–35.
- Koyanagi A, Stubbs B, Oh H, Veronese N, Smith L, Haro JM et al. (2019) Food insecurity (hunger) and suicide attempts among 179,771 adolescents attending school from 9 high-income, 31 middle-income, and 4 low-income countries: a cross-sectional study, *Journal of Affective Disorders*, 248:91–98.
- Kuipers P, Appleton J and Pridmore S (2012) Thematic analysis of key factors associated with Indigenous and non-Indigenous suicide in the Northern Territory, Australia, *Rural Remote Health*, 12:2235.
- Langham E, McCalman J, Redman-MacLaren M, Hunter E, Wenitong M, Britton A et al. (2018) Validation and factor analysis of the child and youth resilience measure for Indigenous Australian boarding school students, *Frontiers in Public Health*, 6:299.
- Larkin C, Griffin E, Corcoran P, McAuliffe C, Perry IJ and Arensman E (2017) Alcohol involvement in suicide and self-harm: findings from two innovative surveillance systems, *Crisis* 38:413–22.
- Lee S, Dwyer J, Paul E, Clarke D, Treleaven S and Roseby R (2019) Differences by age and sex in adolescent suicide, *Australian and New Zealand Journal of Public Health*, 43:248–53.
- Lee A, Rainow S, Tregenza J, Tregenza L, Balmer L, Bryce S et al. (2016) Nutrition in remote Aboriginal communities: lessons from Mai Wiru and the Anangu Pitjantjatjara Yankunytjatjara Lands, *Aust N Z J Public Health* 40, Suppl 1:S81–8.
- Legislative Assembly Parliament of WA (2016) *Learnings from the message stick: The report of the Inquiry into Aboriginal youth suicide in remote areas*, Perth: Parliament of Western Australia.
- Li Y, Zhang J and McKeown RE (2009) Cross-sectional assessment of diet quality in individuals with a lifetime history of attempted suicide, *Psychiatry Research*, 165:111–9.
- Lohner J and Konrad N (2006) Deliberate self-harm and suicide attempt in custody: distinguishing features in male inmates' self-injurious behavior, *International Journal of Law and Psychiatry*, 29:370–85.
- Lohoar S, Butera N and Kennedy E (2014) *Strengths of Australian Aboriginal cultural practices in family life and child rearing*, Melbourne: AIFS.
- Lovett R (2017) Indigenous children's resilience: the role of demographics, relationships, achievement and culture, in Walter M, Martin KL and Bodkin-Andrews G (eds), *Indigenous Children Growing Up Strong*, London: Springer, 287–308.
- Lowitja Institute (2014) *Cultural determinants of Indigenous Australian health roundtable*, Melbourne: The Lowitja Institute.
- Lutschini M (2005) Engaging with holism in Australian Aboriginal health policy: a review, *Australia and New Zealand Health Policy*, 2:15.
- Macedo DM, Smithers LG, Roberts RM, Haag DG, Paradies Y and Jamieson LM (2019) Does ethnic-racial identity modify the effects of racism on the social and emotional wellbeing of Aboriginal Australian children? *PLoS One*, 14:e0220744.
- MacIsaac MB, Bugeja L, Weiland T, Dwyer J, Selvakumar K and Jelinek GA (2018) Prevalence and characteristics of interpersonal violence in people dying from suicide in Victoria, Australia, *Asia Pacific Journal of Public Health*, 30:36–44.

- Maple M, Sanford R, Pirkis J, Reavley N and Nicholas A (2019) Exposure to suicide in Australia: a representative random digit dial study, *Journal of Affective Disorders*, 259:221–7.
- Marel C, MacLean S and Midford R (2015) *Review of volatile substance use among Indigenous Australian people*, Australian Indigenous HealthInfoNet. <https://vsu.mhc.wa.gov.au/media/1281/aihr-1.pdf>
- Markus A, Scanlon Foundation, Australian Multicultural Foundation and Monash U (2016) *Australians today: the Australia@2015 Scanlon Foundation Survey*, Caulfield East, Vic.: Monash University.
- Martini M, da Fonseca RC, de Sousa MH, de Azambuja Farias C, Cardoso TdA, Kunz M et al. (2019) Age and sex trends for suicide in Brazil between 2000 and 2016, *Soc Psychiatry Psychiatr Epidemiol*, 54:857–60.
- McCalman J, Bainbridge R, Russo S, Rutherford K, Tsey K, Wenitong M et al. (2015) Psycho-social resilience, vulnerability and suicide prevention: impact evaluation of a mentoring approach to modify suicide risk for remote Indigenous Australian students at boarding school, *BMC Public Health*, 16:1–12.
- McCalman J, Tsey K, Wenitong M, Wilson A, McEwan A, James YC et al. (2010) Indigenous men's support groups and social and emotional wellbeing: a meta-synthesis of the evidence, *Aust J Prim Health* 16:159–66.
- McDermott R, Campbell S, Li M and McCulloch B (2009) The health and nutrition of young indigenous women in north Queensland – intergenerational implications of poor food quality, obesity, diabetes, tobacco smoking and alcohol use, *Public Health Nutrition*, 12:2143–9.
- McHugh C, Balaratnasingam S, Campbell A and Chapman M (2017) Suicidal ideation and non-fatal deliberate self-harm presentations in the Kimberley from an enhanced police–mental health service notification database, *Australasian Psychiatry*, 25:35–9.
- McNamara PM (2013) Adolescent suicide in Australia: rates, risk and resilience, *Clinical Child Psychology and Psychiatry*, 18:351–69.
- Menzies K (2019) Understanding the Australian Aboriginal experience of collective, historical and intergenerational trauma, *International Social Work*, 62:1522–34.
- Milroy J, Dudgeon P, Cox A, Georgatos G and Bray A (2017) What the people said: findings from the regional roundtables of the Indigenous Australian Suicide Prevention Evaluation Project, *Journal of Indigenous Wellbeing*, 2:16–32.
- Nathan S, Maru K, Williams M, Palmer K and Rawstorne P (2020) Koori voices: self-harm, suicide attempts, arrests and substance use among Indigenous Australian adolescents following residential treatment, *Health and Justice*, 8:4.
- NMHC (National Mental Health Commission) (2018) *National report 2018*, Canberra: NMHC.
- Nock M, Borges G, Bromet E, Alonso J, Angermeyer M, Beautrais A et al. (2008) Cross-national prevalence and risk factors for suicidal ideation, plans and attempts, *British Journal of Psychiatry*, 192:98–105.
- Nock M, Hwang I, Sampson N, Kessler RC, Angermeyer M, Beautrais A et al. (2009) Cross-national analysis of the associations among mental disorders and suicidal behavior: findings the WHO World Mental Health Surveys, *PLOS Medicine*, 6:e1000123.

- Noël F, Moniruzzaman A, Somers J, Frankish J, Strehlau V, Schutz C et al. (2016) A longitudinal study of suicidal ideation among homeless, mentally ill individuals, *Soc Psychiatry Psychiatr Epidemiol*, 51:107–14.
- Nordentoft M (2011) Absolute risk of suicide after first hospital contact in mental disorder, *Archives of General Psychiatry*, 68:1058.
- Nordt C, Warnke I, Seifritz E and Kawohl W (2015) Modelling suicide and unemployment: a longitudinal analysis covering 63 countries, 2000–11, *The Lancet Psychiatry*, 2:239–45.
- O'Connor RC and Nock MK (2014) The psychology of suicidal behaviour, *The Lancet Psychiatry*, 1:73–85.
- OECD (Organisation for Economic Co-operation and Development) (2001) *Glossary of statistical terms*, viewed 20 November, <https://stats.oecd.org/glossary/index.htm>
- Oprescu F, Scott-Parker B and Dayton J (2017) An analysis of child deaths by suicide in Queensland Australia, 2004–2012: what are we missing from a preventative health services perspective? *Journal of Injury and Violence Research*, 9.
- Paradies Y and Cunningham J (2009) Experiences of racism among urban Indigenous Australians: findings from the DRUID study, *Ethnic and Racial Studies*, 32:548–73. <https://doi.org/10.1080/01419870802065234>
- Parker R and Milroy H (2014) Indigenous Australian mental health: an overview. In P Dudgeon, H Milroy and R Walker (eds) *Working together: Indigenous Australian mental health and wellbeing principles and practice*, 2nd edition, Canberra: Australian Government, 25–38.
- Peter T and Taylor C (2014) Buried above ground: a university-based study of risk/protective factors for suicidality among sexual minority youth in Canada, *Journal of LGBT Youth*, 11:125–49.
- Petrova M, Wyman PA, Schmeelk-Cone K and Pisani AR (2015) Positive-themed suicide prevention messages delivered by adolescent peer leaders: proximal impact on classmates' coping attitudes and perceptions of adult support, *Suicide and Life-Threatening Behavior*, 45:651–63.
- PHRN (Population Health Research Network) (2020) Data linkage, Perth: PHRN Program Office. Viewed 24 November, <https://www.phrn.org.au/about-us/data-linkage>
- Platt S and Hawton K (2000) Suicidal behaviour and the labour market, in Hawton K and van Heeringen K (eds), *The international handbook of suicide and attempted suicide*, West Sussex, England: John Wiley and Sons, Ltd, 309–84.
- PM&C (Prime Minister and Cabinet) (2017) *National strategic framework for Indigenous Australian peoples' mental health and social and emotional wellbeing*, Canberra: PM&C.
- PM&C (2019) *Closing the Gap Prime Minister's Report 2019*, Canberra: PM&C, viewed 9 November 2020, <https://ctgreport.niaa.gov.au>
- Poorolajal J and Darvishi N (2016) Smoking and suicide: a meta-analysis, *PLoS One*, 11:e0156348.
- Popova S, Lange S, Probst C, Gmel G and Rehm J (2017) Estimation of national, regional and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: a systematic review and meta-analysis, *The Lancet Global Health*, 3:e478–e489.
- Preti A (2003) Unemployment and suicide, *Journal of Epidemiology and Community Health*, 57:557–8.

- Priest N, Thompson L, Mackean T, Baker A and Waters E (2017) 'Yarning up with Koori kids' - hearing the voices of Australian urban Indigenous children about their health and well-being, *Ethnicity and Health*, 22:631–47.
- Priest NC, Paradies YC, Gunthorpe W, Cairney SJ and Sayers SM (2011) Racism as a determinant of social and emotional wellbeing for Aboriginal Australian youth, *Medical Journal of Australia*, 194:546–50.
- Purdie N, Dudgeon P and Walker R (2010) *Working together: Indigenous Australian mental health and wellbeing principles and practice*, 1st edition. Canberra: Department of Health and Ageing.
- QFMHS (Queensland Forensic Mental Health Service), MNHHS and QCMHR (2020) *Partners in prevention: understanding and enhancing first responses to suicide crisis situations: summary report*, Brisbane: Queensland Health.
- Racine M (2018) Chronic pain and suicide risk: a comprehensive review, *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 87:269–80.
- Radford K, Mack HA, Draper B, Chalkley S, Daylight G, Cumming R et al. (2015) Prevalence of dementia in urban and regional Aboriginal Australians, *Alzheimer's and Dementia*, 11:271–9.
- Rahmani F, Salmasi S, Rahmani F, Bird J, Asghari E, Robai N et al. (2019) Domestic violence and suicide attempts among married women: a case-control study, *Journal of Clinical Nursing* 28:3252–61.
- Rasmussen MK, Donoghue DA and Sheehan NW (2018) Suicide/self-harm-risk reducing effects of an Aboriginal art program for Aboriginal prisoners, *Advances in Mental Health*, 16:141–51.
- Ream GL (2019) What's unique about lesbian, gay, bisexual, and transgender (LGBT) youth and young adult suicides? Findings from the National Violent Death Reporting System, *Journal of Adolescent Health*, 64:602–7.
- Reid N, Hayes N, Young SB, Akison LK and Moritz KM (2020) Caregiver-reported physical health status of children and young people with fetal alcohol spectrum disorder, *Journal of Developmental Origins of Health and Disease* 12(3):1–8.
- Ridoutt L, Cowles C, Noel J, Kelleher K, Stanford D, Williams M et al. (2020) *Final report summative evaluation of the National Indigenous Critical Response Service*, Sydney: Human Capital Alliance.
- Rosenstreich G (2013) *LGBTI People Mental Health and Suicide*. Sydney: National LGBTI Health Alliance.
- Rossom RC, Coleman KJ, Ahmedani BK, Beck A, Johnson E, Oliver M et al. (2017) Suicidal ideation reported on the PHQ9 and risk of suicidal behavior across age groups, *Journal of Affective Disorders*, 215:77–84.
- Rouen C, Clough AR and West C (2019) Non-fatal deliberate self-harm in three remote indigenous communities in Far North Queensland, Australia, *Crisis*, 40:422–8.
- Sabbioni D, Feehan S, Nicholls C, Soong W, Rigoli D, Follett D et al. (2018) Providing culturally informed mental health services to Aboriginal youth: The YouthLink model in Western Australia, *Early Intervention in Psychiatry*, 12:987–94.
- Saethre E (2005) Nutrition, economics and food distribution in an Australian Aboriginal community, *Anthropological Forum*, 15:151–69.

- Salmon M, Doery K, Dance P, Chapman J, Gilbert R, Williams R et al. (2019a) *Defining the indefinable: descriptors of Indigenous Australian peoples' cultures and their links to health and wellbeing*, Canberra: Indigenous Australian Health Team, Research School of Population Health, The Australian National University.
- Salmon M, Skelton F, Thurber KA, Bennetts Kneebone L, Gosling J, Lovett R et al. (2019b) Intergenerational and early life influences on the well-being of Australian Indigenous Australian children: overview and selected findings from *Footprints in Time*, the Longitudinal Study of Indigenous Children, *Journal of Developmental Origins of Health and Disease*, 10:17–23.
- Schneider SK, O'Donnell L, Stueve A and Coulter RWS (2012) Cyberbullying, school bullying, and psychological distress: a regional census of high school students, *American Journal of Public Health*, 102:171–7.
- Schultz R, Quinn S, Wilson B, Abbott T and Cairney S (2019) Structural modelling of wellbeing for Indigenous Australians: importance of mental health, *BMC Health Serv Res*, 19:488.
- Šedivy NZ, Podlogar T, Kerr DCR and De Leo D (2017) Community social support as a protective factor against suicide: a gender-specific ecological study of 75 regions of 23 European countries, *Health and Place*, 48:40–6.
- Shain B (2016) Suicide and suicide attempts in adolescents, *Pediatrics*, 138.
- Shepherd SM, Spivak B, Arabena K and Paradies Y (2018) Identifying the prevalence and predictors of suicidal behaviours for indigenous males in custody, *BMC Public Health*, 18:1159.
- Shepherd SM, Spivak B, Ashford LJ, Williams I, Trounson J and Paradies Y (2020) Closing the (incarceration) gap: assessing the socioeconomic and clinical indicators of indigenous males by lifetime incarceration status, *BMC Public Health*, 20:710.
- Siegmann P, Teismann T, Fritsch N, Forkmann T, Glaesmer H, Zhang XC et al. (2018) Resilience to suicide ideation: A cross-cultural test of the buffering hypothesis, *Clinical Psychology and Psychotherapy*, 25:e1-e9.
- Sigurdson JF, Undheim AM, Wallander JL, Lydersen S and Sund AM (2018) The longitudinal association of being bullied and gender with suicide ideations, self-harm, and suicide attempts from adolescence to young adulthood: a cohort study, *Suicide and Life-Threatening Behavior*, 48:169–82.
- Silburn S, Robinson G, Leckning B, Henry D, Cox A and Kickett D (2014) Preventing suicide among aboriginal Australians, in P Dudgeon, H Milroy and R Walker (eds) *Working together: Indigenous Australian mental health and wellbeing principles and practice*, 2nd edition, Canberra: Australian Government, 147–64.
- Sindoni MG (2020) '#YouCanTalk': A multimodal discourse analysis of suicide prevention and peer support in the Australian *BeyondBlue* platform, *Discourse and Communication*, 14:202–21.
- Skerrett DM, Kőlves K and De Leo D (2015) Are LGBT populations at a higher risk for suicidal behaviors in Australia? Research findings and implications, *Journal of Homosexuality*, 62:883–901.
- Snowdon J, Phillips J, Zhong B, Yamauchi T, Chiu HFK and Conwell Y (2017) Changes in age patterns of suicide in Australia, the United States, Japan and Hong Kong, *Journal of Affective Disorders*, 211:12–9.

- Sones R, Hopkins C, Manson S, Watson R, Durie M and Naquin V (2010) The Wharerata Declaration: the development of indigenous leaders in mental health, *International Journal of Leadership in Public Services*, 6:53–63.
- Stefanac N, Hetrick S, Hulbert C, Spittal MJ, Witt K and Robinson J (2019) Are young female suicides increasing? A comparison of sex-specific rates and characteristics of youth suicides in Australia over 2004–2014, *BMC Public Health*, 19:1389.
- Stewart JG, Shields GS, Esposito EC, Cosby EA, Allen NB, Slavich GM et al. (2019) Life stress and suicide in adolescents, *Journal of Abnormal Child Psychology*, 47:1707–22.
- Stone DM, Holland KM, Schiff LB and McIntosh WL (2016) Mixed methods analysis of sex differences in life stressors of middle-aged suicides, *American Journal of Preventive Medicine*, 51:S209–S18.
- Stone DM, Simon TR, Fowler KA, Kegler SR, Yuan K, Holland KM et al. (2018) Vital signs: trends in state suicide rates: United States, 1999–2016 and circumstances contributing to suicide — 27 states, 2015, *Morbidity and Mortality Weekly Report*, 67:617–24.
- Subedi R, Greenberg TL and Roshanafshar S (2019) Does geography matter in mortality? An analysis of potentially avoidable mortality by remoteness index in Canada, *Health Rep*, 30(5):3–15.
- Sveticic J, Milner A and De Leo D (2012) Contacts with mental health services before suicide: a comparison of Indigenous with non-Indigenous Australians, *Gen Hosp Psychiatry*, 34:185–91.
- Sweetland AC, Norcini Pala A, Mootz J, Kao JC-W, Carlson C, Oquendo MA et al. (2019) Food insecurity, mental distress and suicidal ideation in rural Africa: evidence from Nigeria, Uganda and Ghana, *International Journal of Social Psychiatry*, 65:20–7.
- Symons M, Pedruzzi RA, Bruce K and Milne E (2018) A systematic review of prevention interventions to reduce prenatal alcohol exposure and fetal alcohol spectrum disorder in indigenous communities, *BMC Public Health*, 18:1227.
- Taylor J (2004) *Social indicators for Aboriginal governance: insights from the Thamarrurr region, Northern Territory*, Canberra: ANU Press.
- Torok M, Konings P, Batterham PJ and Christensen H (2017) Spatial clustering of fatal, and non-fatal, suicide in New South Wales, Australia: implications for evidence-based prevention, *BMC Psychiatry*, 17:339.
- Turecki G, Brent D A, Gunnell D, O'Connor RC, Oquendo MA, Pirkis J et al. (2019) Suicide and suicide risk, *Nature Reviews Disease Primers*, 5:1–22.
- Turrell G, Oldenburg BF, McGuffog I and Dent R (1999) *Socioeconomic determinants of health: towards a national research program and a policy and intervention agenda*, Brisbane: Queensland University of Technology.
- Twenge JM, Cooper AB, Joiner TE, Duffy ME and Binau SG (2019) Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017, *Journal of Abnormal Psychology*, 128:185–99.
- Ursano RJ, Stein MB, Herberman Mash HB, Naifeh JA, Fullerton CS, Zaslavsky AM et al. (2018) Documented family violence and risk of suicide attempt among U.S. Army soldiers, *Psychiatry Research*, 262:575–82.



- Ussher JM, Charter R, Parton C and Perz J (2016) Constructions and experiences of motherhood in the context of an early intervention for Aboriginal mothers and their children: mother and healthcare worker perspectives, *BMC Public Health*, 16:620.
- Van Der Pol-Harney E and McAloon J (2019) Psychosocial interventions for mental illness among LGBTQIA youth: a PRISMA-based systematic review, *Adolescent Research*, Review 4:149–68.
- Walker RL, Ashby J, Hoskins OD and Greene FN (2009) Peer-support suicide prevention in a non-metropolitan U.S. community, *Adolescence*, 44:335–47.
- Wang L, Lin H-C and Wong YJ (2021) Perceived racial discrimination on the change of suicide risk among ethnic minorities in the United States, *Ethnicity and Health*, 26(5):631–45.
- Watkin Lui F, Stoeckl N, Delisle A, Kiatkoski Kim M and Marsh H (2016) Motivations for sharing bushmeat with an urban diaspora in Indigenous Australia, *Human Dimensions of Wildlife*, 21:345–60.
- Westerman T and Sheridan L (2020) Whole of community suicide prevention forums for Aboriginal Australians, *Australian Psychologist*, 55:363–74.
- Williams AD, Clark TC and Lewycka S (2018) The associations between cultural identity and mental health outcomes for Indigenous Maori Youth in New Zealand, *Front Public Health*, 6:319.
- Willoughby T, Heffer T and Hamza CA (2015) The link between nonsuicidal self-injury and acquired capability for suicide: a longitudinal study, *J Abnorm Psychol*, 124:1110–5.
- Wilson CJ, Rickwood DJ, Bushnell JA, Caputi P and Thomas SJ (2011) The effects of need for autonomy and preference for seeking help from informal sources on emerging adults' intentions to access mental health services for common mental disorders and suicidal thoughts, *Advances in Mental Health*, 10:29–38.
- Witt K and Lubman DI (2018) Effective suicide prevention: Where is the discussion on alcohol? *Australian and New Zealand Journal of Psychiatry*, 52(6):507–8.
- Wyman PA, Pickering TA, Pisani AR, Rulison K, Schmeelk Cone K, Hartley C et al. (2019) Peer-adult network structure and suicide attempts in 38 high schools: implications for network-informed suicide prevention, *Journal of Child Psychology and Psychiatry*, 60:1065–75.
- Wynne-Jones M, Hillin A, Byers D, Stanley D, Edwige V and Brideson T (2016) Aboriginal grief and loss: a review of the literature, *Australian Indigenous Health Bulletin*, 16:1–9.
- Yu J, Yang D, Kim Y, Hashizume M, Gasparrini A, Armstrong B et al. (2020) Seasonality of suicide: a multi-country multi-community observational study, *Epidemiology and Psychiatric Sciences*, 29:e163.
- Zubrick S, Silburn S, Lawrence D, Mitrou F, Dalby R, Blair E et al. (2005) *The West Australian Aboriginal child health survey: the social and emotional wellbeing of aboriginal children and young people*. Perth: Curtin University of Technology and Telethon Institute for Child Health Research.
- Zubrick SR, Shepherd CC, Dudgeon P, Gee G, Paradies Y, Scrine C et al. (2014) Social determinants of social and emotional wellbeing, in Dudgeon P, Milroy H and Walker R (eds), *Working together: Indigenous Australian mental health and wellbeing principles and practice*, Vol. 2. Barton, ACT: Commonwealth of Australia 2014, 93–112.

Rates of Aboriginal and Torres Strait Islander suicide have increased over the past decade. Various protective and risk factors can influence suicidal behaviour among Indigenous Australians. These factors need to be considered together in order to fully understand, address and design culturally appropriate responses into the future.



Stronger evidence,  
better decisions,  
improved health and welfare

