Title:

Interventions to reduce suicidal thoughts and behaviours in people who have had contact with the criminal justice system: A rapid review evidence check

Authors:

Rohan Borschmann, Annie Carter, Amanda Butler, Louise Southalan, Melissa Willoughby, Emilia Janca, Stuart A. Kinner

Contents

Acronyms and abbreviations

ABS	Australian Bureau of Statistics
ACCHO	Aboriginal Community Controlled Health Organisation
ACCT	Assessment, Care in Custody and Teamwork
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ATSI	Aboriginal and Torres Strait Islander
BPD	Borderline Personality Disorder
CBSP	Cognitive Behavioural Suicide Prevention
CBT	Cognitive Behaviour Therapy
COAG	Council of Australian Governments
DBT	Dialectical Behaviour Therapy
DCS	Department of Corrective Services
DSH	Deliberate Self-Harm
ERIC	Emotional Regulation and Impulse Control
IPT	Interpersonal Psychotherapy
IQR	Interquartile Range
JBI	Joanna Briggs Institute
MBS	Medicare Benefits Schedule
MDD	Major Depressive Disorder
MDT	Multidisciplinary Team
MeSH	Medical Subject Headings
NMHRC	National Health and Medical Research Council
NGO	Non-Government Organisation
NHS	National Health Service
NSW	New South Wales
NT	Northern Territory
OT	Occupational Therapist
PBS	Pharmaceutical Benefits Scheme
PIT	Psychodynamic Interpersonal Therapy
PRISMA-ScR	Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews

PROSPERO	International Prospective Register of Systematic Reviews
QLD	Queensland
RCT	Randomised Controlled Trial
ROGS	Report On Government Services
SA	South Australia
SD	Standard Deviation
SIM	Sequential Intercept Model
SMI	Serious Mental Illness
SPA	Suicide Prevention Australia
SPRF	Suicide Prevention Research Fund
TAU	Treatment As Usual
TC	Therapeutic Community
VIC	Victoria
WA	Western Australia
WHO	World Health Organization

EXECUTIVE SUMMARY

This rapid review evidence check was prepared for the National Suicide Prevention Adviser and the National Suicide Prevention Taskforce, commissioned through the Suicide Prevention Research Fund, managed by Suicide Prevention Australia.

Background and purpose of the review

Suicide is a major global public health problem, and rates are elevated among people who come into contact with the criminal justice system. However, despite a considerable body of evidence documenting an association between contact with the criminal justice system and increased suicide risk, little is known about the effectiveness of interventions to prevent suicide (and reduce suicidal thoughts and behaviours) in various criminal justice settings.

Research questions

The research team was provided with three research questions:

1. *What role does a current or previous interaction with the criminal justice system play in suicidal behaviour, and how does it interact with other risk factors for suicide?*
2. *What interventions focussed on people in contact with the criminal justice system are effective in reducing suicidal thoughts and behaviours?*
3. *What recommendations could be made about interventions that may be most appropriate and feasible within the Australian context?*

Summary of methods

We conducted a rapid review to identify literature regarding the effectiveness of interventions to reduce suicide and suicide-related behaviours in people who have come into contact with the criminal justice system. We searched three key electronic databases on 11 May 2020: Embase, PsycINFO, and MEDLINE. We used keyword searches in Google, the Aboriginal and Torres Strait Islander Health Bibliography, the Indigenous Justice Clearinghouse, and the Health Issues in Criminal Justice database to identify relevant grey literature. We contacted state and territory government agencies, Commonwealth government agencies, not-for-profit organisations, academic institutions, and national leaders in the mental health, suicide prevention, and criminal justice sectors to obtain any published or unpublished information relating to suicide prevention efforts that may have been formally or informally evaluated.

Results

Our review included 36 articles: 32 primary research articles, two reviews, and two grey literature reports. Of the 65 stakeholders contacted, 34 responded and provided access to 24 grey literature reports (23 of which were excluded). The majority of suicide prevention interventions (n = 23; 64%) were set in adult prisons, five (14%) were set in youth detention, three (8%) were set in a forensic hospital, two (6%) were for both adults remanded in custody and those serving custodial sentences, one (3%) was for people serving community corrections orders, one (3%) was for both people serving a community forensic order and those serving a prison sentence, and one (3%) evaluated a suicide prevention intervention in the court setting. No studies were identified which examined suicide prevention interventions for people who were detained in police custody, for people on bail or on parole, or for people in the community who had previously been detained in prison, youth detention, or a forensic hospital.

Quality of included studies

The overall quality of the evidence supporting the effectiveness of interventions to prevent suicide in people who had come into contact with the criminal justice system (as measured by the Joanna Briggs Institute Critical Appraisal Checklist for Prevalence Studies) was poor. The most common methodological weaknesses included the use of a pre-test/post-test methodology without an appropriate control group for meaningful comparison; brief follow-up periods, with several ending upon completing the intervention; high rates of attrition (often attributed to constraints associated with conducting research in custodial settings); and the use of weak/anecdotal evidence from correctional staff or participants to support claims of a reduction in suicidal thoughts and behaviours.

Gaps in the evidence

Our search identified several key gaps in the evidence base regarding the effectiveness of interventions to prevent suicide in people who have had contact with the criminal justice system. Specifically:

1) We identified a dearth of robust evidence regarding interventions to prevent suicide and suicidal behaviours in Aboriginal and Torres Strait Islander people who come into contact with the criminal justice system. Given the markedly increased risk of suicide experienced by Indigenous Australians compared to non-Indigenous Australians, and their disproportionately high incarceration rates in every state and territory, this is a matter that requires urgent rectification.
2) More than three-quarters (78%) of the research we identified was conducted in either adult custodial (64%) or youth detention (14%) settings, with considerably fewer studies examining suicide prevention interventions in other settings. Of particular note, we identified no studies which examined suicide prevention interventions for people who were detained in police custody, or for people on bail or on parole.
3) Despite strong evidence that rates of self-harm and suicide are considerably higher after incarceration than in either youth detention or prison, we identified no studies that followed participants from custody into the community. As such, although we located some evidence of interventions that may have reduced suicide and/or self-harm in custodial settings, we did not identify any evidence that these interventions reduced the rate of suicide and/or self-harm in people who experience incarceration.

Policy implications and recommendations

Efforts to prevent suicide in people who come into contact with the criminal justice system should be informed by evidence, and by the lived experience of people who have had contact with this system. Given their dramatic and increasing over-representation at all levels of the criminal justice system, it is critical that this includes the voices of Indigenous Australians. Consistent with this, we recommend that the following draft recommendations, which were informed by (but go beyond) the evidence included in this review, be subjected to a process of review involving people with lived experience, including Indigenous Australians. The broader (largely observational) evidence base, combined with the evidence we identified and reviewed, provides some guidance regarding possible areas for targeted investment and policy reform, as outlined below. Each of these recommendations is expanded considerably in the main body of this report.

Recommendation 1: Greater, coordinated investment is required at the state, territory, and Commonwealth levels to prevent people from entering the criminal justice system.

Recommendation 2: Investment in systems to more efficiently share health-related information and data between community health care settings and custodial health care settings should be a priority for state, territory, and Commonwealth governments.

Recommendation 3: The Commonwealth government should invest in the creation of national guidelines for preventing suicide after release from custodial settings.

Recommendation 4: Criminal justice settings should be routinely included in all population-level national mental health policies.

Recommendation 5: There is an urgent need for more high-quality, longitudinal research examining the effectiveness of interventions designed to prevent suicidal ideation, self-harm, and suicide attempts in people who come into contact with the criminal justice system.

Conclusions

Whilst a considerable number of suicide prevention initiatives and interventions have been conducted in various jurisdictions and at various points along the criminal justice system pathway, the overwhelming majority of these have not been formally evaluated and/or suffer from significant methodological limitations. As such, drawing conclusions about the effectiveness of such programs is difficult. Contact with the criminal justice system, and imprisonment in particular, provides a rare opportunity to identify (and initiate care for) marginalised and under-served people who may be at increased risk of suicide.

INTRODUCTION

Suicide

Suicide continues to be a major global public health problem. The World Health Organization (WHO) estimates that 800,000 people worldwide die by suicide each year, accounting for 1.5% of all deaths globally[1]. For every person who dies by suicide, there are many more who attempt to take their own lives. Extrapolating data from household surveys, for each person who dies by suicide, 20 people attempt suicide and 200 people have suicidal ideation, amounting annually to 16 million suicide attempts and approximately 160 million people who express suicidal thoughts[2, 3]. These figures are also associated with significant financial ($511 million per year in Australia[4]) and societal costs, including emotional and psychosocial morbidity, health care utilisation, lost productivity, and the considerable distress caused to the family members and friends of people who die by suicide[5].

Suicide rates in Australia have been rising over the past 15 years[6]. In 2017, 3,128 people died from suicide, reflecting an increase of 9% from the previous year[7]. According to national survey data 2.3% of the adult population experiences suicidal ideation in any given year[8], while 0.4% (>90,000 Australians) report a suicide attempt in the past year[8]. Suicide is the leading cause of death in Australians aged 15-44 years[9] and approximately 75% of people who die by suicide are male[9]. Suicide, in addition to suicidal thoughts and behaviours (which includes suicidal ideation, suicide attempts, self-harm ideation and acts of self-harm) is more common in marginalised populations, including people who come into contact with the criminal justice system[10, 11].

Suicide prevention – a public health issue

Suicide often occurs in response to complex and interacting biological, psychological, interpersonal, environmental and societal influences[2]. Accordingly, suicide prevention requires a multi-sectoral approach, involving health, welfare, justice, and other sectors. Complicating both the study of suicide and efforts to formulate an effective response is the complex nature of suicide itself; while there are several well-established risk factors for suicidal behaviours such as self-harm[2] (including adverse childhood experiences, substance use issues, a history of hospitalisation due to mental illness, and poor problem-solving skills[12]), deaths due to suicide are considerably more difficult to predict. This is at least partly because the prevalence of risk factors for suicide is high in the general population, but only a minority of people experiencing these risk factors will die by suicide[13]. Furthermore, reporting of suicide is often inaccurate[14], and its low frequency exacerbates the methodological challenges associated with studying these deaths. Any comprehensive public health response to suicide must include primary prevention strategies that address a broad range of risk

and protective factors, and acknowledge the importance of social determinants of health (i.e., the conditions in which people are born, grow, live, work and age that can influence their health and wellbeing[15]). Examples of social determinants include access to education, food and housing stability, recreational activities, employment, and other societal resources. Not all precipitants of suicide are related to individual action; many extend beyond individual behaviours (e.g., stigma, discrimination, intergenerational trauma, and poverty) and, as such, need to be addressed through population-based preventative strategies[16]. The discipline of public health often serves as the convener of diverse perspectives and expertise (e.g., psychology, sociology, epidemiology, medicine) and is, therefore, well placed to address complex problems such as suicide.

Suicide rates are elevated among some marginalised populations in Australia, including Indigenous Australians[17] and people who come into contact with the criminal justice system[10, 11]. Australia has a long history of cultural genocide, including the removal of Indigenous children from their families and forced assimilation. The connection of this history with deaths in custodial settings has been explored at length in Australia's recent history. A key national milestone which continues to have relevance was the *1991 Royal Commission into Aboriginal Deaths in Custody*[18]. This found that the interconnected issues of cultural dislocation, personal trauma, and the ongoing stresses of disadvantage, racism, alienation and exclusion all contributed to the heightened risk of suicide experienced by Indigenous Australians. A report by the Australian Bureau of Statistics (ABS) in 2012 revealed that the rate of suicide among Indigenous Australians was 2.6 times higher than the rate for non-Indigenous Australians, and the rate for Indigenous males aged 25-29 years was five times higher than that of their non-Indigenous peers of the same age[19]. Rates of self-harm among young (aged 15-24 years) Indigenous people have also been reported to be 5.2 times higher than that of their non-Indigenous peers of the same age[20].

Whilst there is evidence to suggest that the risk factors for suicide and self-harm are different for Indigenous and non-Indigenous people who come into contact with the criminal justice system, to date no studies have comprehensively examined these differences[21]. A number of high-profile reports and inquiries in recent years have confirmed that the context of Indigenous Australians' lives continues to be one involving higher levels of disadvantage than their non-Indigenous peers, and that this is linked to criminal justice involvement. These inquiries include the *Royal Commission into the Protection and Detention of Children in the Northern Territory*; the *Senate Standing Committee on Finance and Public Administration's Inquiry into Aboriginal and Torres Strait Islander Experience of Law Enforcement and Justice Services*; the *Senate Standing Committee on Community Affairs' inquiry into Indefinite Detention of People with Cognitive and Psychiatric impairment in Australia*; the *Senate Legal and Constitutional Affairs Committee's Report on The Value of a Justice Reinvestment*

Approach to Criminal Justice in Australia; the *Senate Standing Committee on Indigenous Affairs inquiry into Harmful Use of Alcohol in Aboriginal and Torres Strait Islander Communities*; *Reports of the Aboriginal and Torres Strait Islander Social Justice Commissioner*; and *The Australian Law Reform Commission's inquiries into Family Violence*, and into the incarceration rate of Aboriginal and Torres Strait Islander peoples. The disadvantage outlined in each of these inquiries is reflected in compromised health, reduced life expectancy, poorer school performance, lower income, substance use, physical and sexual violence victimisation, child neglect, and mental illness. Several of these markers of disadvantage are known risk factors for suicide[22].

People who come into contact with the criminal justice system also die by suicide at a higher rate than the general population[23]. This is at least partly because important risk factors for suicide are also significantly related to criminal justice system contact, including poverty, adverse childhood experiences, substance use, mental illness, homelessness, and a lack of prosocial attachments[24]. The concept of intersectionality asserts that people are often disadvantaged by multiple sources of oppression, which do not exist independently of one another, but rather create a complex convergence of oppression[25]. For example, Indigenous Australians are dramatically overrepresented in the criminal justice system, meaning that they may face structural racism, social exclusion, and stigma related to their criminal justice involvement, increasing the likelihood of adverse outcomes including suicide. The criminal justice system disproportionately punishes people who experience systemic, entrenched, intergenerational disadvantage, and Indigenous people are disproportionately affected by this reality. The intersection of these issues necessitate legislative reform and policy responses to address systemic inequities. As evidenced by the elevated rates of suicide among marginalised populations[2], the opportunity to enjoy good health is distributed unequally in Australia. The factors that lead to this, and to the attainment of public health goals such as suicide prevention, lie within the policy responsibilities of both the Commonwealth and states/territories.

Suicide and self-harm among people who come into contact with the criminal justice system

The life trajectories of many people who come into contact with the criminal justice system include chronic instability, abuse, neglect, and entrenched, intergenerational disadvantage[26-28], all of which can increase one's risk of dying by suicide. Previous research has documented a high prevalence of complex, co-morbid health problems and behaviours in this population[29], including markedly elevated rates of mental disorders[30, 31], self-harm and suicidal behaviour[23, 32-37], and substance dependence[38]. It has been similarly well established that the incidence of suicide is higher in populations of incarcerated[10, 39-41] and formerly incarcerated[42-45] adults than in the general

population. This difference is even more pronounced among young people (those aged <25 years[46,47]) who come into contact with the adult criminal justice system, with one previous study demonstrating that one third of all deaths in young people in adult prisons were due to suicide[48].

Detained adolescents receive less research attention than their adult counterparts, but research underway in Australia suggests that justice-involved adolescents are also at increased risk of suicide. In a study of 48,963 young people followed for 14 years after contact with the youth justice system in Queensland, the researchers identified 458 suicides from a total of 1452 deaths (32%; unpublished data held by authors). Although the age- and sex-standardised mortality ratio was highest for those who had been detained, it was also elevated for those who had contact with the system but were never detained (i.e. those who had been sentenced to community-based orders, and those who had been sentenced but not convicted), indicating that preventive efforts should not be restricted to those in, or released from, detention. A recent scoping review of the health of young people in youth detention[49] revealed a similar picture, with the lifetime prevalence of a suicide attempt in young males and females in detention found to be 17.3% and 39.8% respectively, in comparison to 4.1% in the general population[49]. At the time of writing, children in Australia can be charged with a criminal offence at the age of 10 years, four years below the internationally recommended minimum age of criminal responsibility[50].

Indigenous adults account for 28% of all incarcerated adults in Australia and are over-represented in prisons by an age-adjusted factor of 12.1[51]. On an average night in 2019, more than half (53%) of all young people in youth detention identify as Aboriginal and/or Torres Strait Islander[52]. Additionally, young Indigenous Australians aged 10–17 are 22 times as likely as young non-Indigenous Australians to be in detention on an average night[53]. Among incarcerated Indigenous Australians, the 12-month prevalence of anxiety, depression, and psychotic disorders has been estimated at 25%, 14%, and 10% respectively[54]. Indigenous men and women released from prison are at approximately 5 and 13 times higher risk of preventable mortality respectively, compared to their counterparts from the general population[55]. As such, improving the health of people who come into contact with the criminal justice system is an important component of reducing health inequalities at the population level and closing the gap of Indigenous disadvantage in Australia.

Preventing suicides during incarceration is an international priority and many countries, including Australia, have created national guidelines for suicide prevention in custodial settings[56]. Importantly, the evidence indicates that the risk of dying by suicide is considerably greater *after* release from prison (when individuals typically have less direct support or access to services, and are thus more vulnerable)[42, 44, 57]. Following release from prison, the risk of self-harm is also elevated compared to

that of the general public[23, 32, 58], further increasing the risk of dying by suicide. This evidence highlights the vital need for transitional care to commence prior to release from custody, continuing in the weeks and months after release. Despite this evidence, however, no comparable guidelines exist in relation to preventing suicide deaths *after* release from prison.

The criminal justice system in Australia – setting the context

The criminal justice system in Australia includes police, the courts (including children's courts and specialist courts), the youth justice system (including detention and community-based supervision), prison, community-based adult supervision, and forensic psychiatric hospitals. In this review, "contact with the criminal justice system" refers to any one or more of these points of contact. Of all people who come into contact with the criminal justice system, most do so only for a brief period. For example, the median length of time spent in youth detention is just eight days, and the median time spent in adult prison after being sentenced is two years. For adults remanded in custody prior to sentencing, almost one half (49%) spend less than three months in prison. Most people who have been released from prison return at some stage, typically within the first two years following release[51]. As such, contact with the criminal justice system can most accurately be construed as a typically brief, repeated exposure to a different setting.

When discussing suicide prevention in criminal justice settings it is important to understand how criminal justice and public health policy making power and responsibility are distributed across levels of government in Australia. Criminal justice responsibilities in Australia are shared across Commonwealth and state/territory governments. The Commonwealth government has direct responsibility, and administers legislation, for national criminal justice agencies such as the Australian Federal Police and Australian Criminal Intelligence Commission, and plays a leadership role in particular regarding national and international aspects of serious and organised crime, human trafficking, child abuse, and financial transactions[59]. The Commonwealth does not operate prisons, although within the Australian Capital Territory it provides the policing function and, in this capacity, it has responsibility for police custody in that jurisdiction. The vast majority of criminal justice administration is undertaken by the states and territories, which are directly responsible for the regulation, funding and administration of police, courts, prisons, and criminal law within their own jurisdictions. Australian state/territory and federal governments have collectively endorsed several sets of directly relevant national standards and principles, including:

- In 2006 the Council of Australian Governments (COAG) Australian Health Ministers' Advisory Council endorsed the *National Statement of Principles for Forensic Mental Health*[60];

- In 2015 a working group established under the COAG Law, Crime and Community Safety Council developed the *National statement of principles relating to persons unfit to plead or not guilty by reason of cognitive or mental health impairment*, endorsed by all governments other than South Australia; and
- In 2018 the Corrective Services Administrators' Council, comprised of the criminal justice chiefs of all jurisdictions, developed the *Guiding Principles for Corrections in Australia*.

The Sequential Intercept Model

Any analysis of criminal justice policies and interventions needs to consider the scope of the intersection between the criminal justice and health systems, and to have a model outlining the links between different components of the systems. The Sequential Intercept Model (SIM) is a useful model which we used to inform our analysis and identify gaps in the literature. The SIM was proposed by Munetz and Griffin[61] as a framework for understanding the various opportunities to prevent individuals with mental illness from entering, or penetrating further into, the criminal justice system. Although it was originally conceived with people with mental illness in mind, the concept is also relevant to people with other vulnerabilities (e.g. cognitive disability, substance use disorders). Where community services are poorly developed and collaboration between mental health and criminal justice systems is weak, more people can be expected to move through all levels of the criminal justice system. Frequently, people who are caught in the cycle of incarceration, homelessness and mental health services are deemed “treatment resistant” or “difficult” when, in reality, their plights are often the result of inappropriate and/or inadequate services[62].

Ideally, the health, justice and social service sectors should work together to prevent people from coming into contact with the criminal justice system. Where these prevention efforts fail, the immediate next goal should be to divert people out of the criminal justice system at the earliest possible intercept point. Better integration of the criminal justice, substance use treatment, and mental healthcare systems has the potential to reduce the duplication of administrative functions, thereby freeing up scarce resources through their appropriate and efficient allocation[63]. The SIM helps to illustrate the broader interactions between the criminal justice system and health systems by breaking down the steps involved in an individual’s hypothetical path from the community through: (1) Law Enforcement, (2) Initial Detention and Initial Court Hearings, (3) Prisons and Courts, (4) Re-entry, and (5) Community Corrections. Importantly, each intercept point represents an opportunity to prevent suicide. By addressing problems at each level of the intercept model, communities can develop targeted strategies to enhance the effectiveness of the system, improve

health outcomes, and enhance community safety. The three key response areas which are needed in every community include[64]:

1. **Diversion programs** to keep people who have committed minor offences, no prior offences, or whose offending is a direct result of their illness in the community.

2. **Institutional services** to provide adequate health services in custodial settings for people who could not be diverted (due to severity of their crimes, established sentencing practices, or lack of diversion options).

3. **Re-entry transition programs** to link people to community-based health and social services when they are discharged from the criminal justice system.

Mental health service provision in criminal justice settings in Australia

States and territories are responsible for all mental health service provision within prisons and youth detention centres in Australia, and there is a high degree of variation in how these services are funded, governed, administered, and regulated. These mental health services have been almost entirely excluded from the extensive national mental health reforms which have characterised mental health policy, funding, measurement and quality improvement in Australia since 2000. For example, in relation to prisons and youth detention centres:

- The implementation plan for the *Fifth National Mental Health and Suicide Prevention Plan* does not include any indicators for prison settings;
- The *National Mental Health Services Planning Framework* does not include any forensic settings, including prisons;
- National funding models for mental health services do not extend to forensic or prison mental health services;
- The *National Standards for Mental Health Services* are not adapted for use in prison settings;
- The collection and reporting on key performance indicators within the *National Mental Health Performance Framework* does not include prison settings; and
- National seclusion and restraint monitoring and reporting does not include prison settings.

A further example of the exclusion of services in criminal justice settings from national health policies is the exclusion of state and territory prison mental health services from funding through the Commonwealth's Medicare program, which subsidises the cost of health services. Prison health services fall within the scope of section 19(2) of the *Health Insurance Act 1973 (Cth),* establishing Medicare, which provides that "*where health services are being provided by, on behalf of, or under*

an arrangement with any government entity (whether federal, state or territory), Medicare will not be available unless the Minister for Health or his/her delegate grants an exemption to this exclusion". At the time of writing, an exemption has not been granted for prisons and youth detention centres and, as such, states and territories are fully responsible for the funding and provision of health services in these settings.

Aims

Despite a considerable body of evidence documenting the poor health profiles of people who come into contact with the criminal justice system, and a strong association between contact with the criminal justice system and increased suicide risk, little is known about the effectiveness of interventions to prevent suicide (and reduce suicidal thoughts and behaviours) in criminal justice settings. The aim of this commissioned rapid review was to identify and synthesise literature regarding the effectiveness of interventions to reduce suicide and suicide-related behaviours in people who come into contact with the criminal justice system. Findings from the review will be used to inform the work of the National Suicide Prevention Taskforce.

METHODS

Overview

We conducted a rapid review to identify literature regarding the effectiveness of interventions to reduce suicide and suicide-related behaviours in people who have come into contact with the criminal justice system. Our review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines[65]. The review protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO) at the University of York, UK (CRD42020185989) prior to the searches being conducted.

Search strategy

Electronic database search

We searched three key electronic databases on 11 May 2020: Embase, PsycINFO, and MEDLINE, using variants and combinations of search terms relating to suicide prevention interventions (see Appendix 1). These included educational programs, policy change, improvements in environment, campaigns, and peer-based supports or treatments, for people in contact with the following criminal justice settings: police custody, on bail, in court facing charges, participating in diversion and/or appearing before a problem-solving court or court exercising therapeutic jurisprudence, remanded

in custody or held in custody through inability to meet bail conditions, on parole, serving community-based supervision orders/sentences, on community forensic orders, in custody (correctional facilities, prisons, jails), in a youth detention facility, or in a forensic hospital. In addition to database searching, we reviewed the reference lists of included studies and used professional networks of the review team to identify additional studies. Searches were limited to studies published in English between 1 January 2000 and 11 May 2020. Conference abstracts were excluded.

Grey literature search

We used keyword searches in Google, the Aboriginal and Torres Strait Islander Health Bibliography, the Indigenous Justice Clearinghouse, and the Health Issues in Criminal Justice database to identify relevant grey literature (see Appendix 1). We also used keyword searches on the websites of relevant organisations, including the American Foundation of Suicide Prevention, the International Society for the Study of Self-Injury, *beyondblue*, and the Black Dog Institute.

Key stakeholder liaison

We contacted state government, Commonwealth government, not-for-profit organisations, academic institutions, and national leaders in the mental health, suicide prevention, and criminal justice sectors to obtain any published or unpublished information relating to suicide prevention efforts that may have been formally or informally evaluated. We contacted 65 stakeholders via email and telephone between 01 May and 30 June 2020. Additionally, we used previous work conducted by the authors and the National Mental Health Commission to identify publicly available relevant policies, strategies and plans relating to the mental health of people who come into contact with the criminal justice system. Finally, we searched the websites of relevant department of corrections, police, and courts for programs policies relating to suicide prevention and mental health in criminal justice settings.

Study selection criteria

Inclusion criteria

Studies were eligible for inclusion if they:

- Reported on the effectiveness of interventions to reduce suicide and/or related outcomes (including self-harm, suicidal ideation, and suicide attempts) among people who had come into contact with the criminal justice system;
- Contained original data (quantitative, qualitative, mixed) or were reviews of original data;
- Were published in English;

- Were published between 1 January 2000 and 31 May 2020.

Exclusion criteria

Studies were excluded if:

- Participants had not come into contact with the criminal justice system;
- Participants were (or had been) detained for reasons not related to the criminal justice system (e.g., immigration detention); or
- Suicide and/or related outcomes were not reported as an outcome measure.

Types of studies included

Randomised controlled trials (RCTs), controlled before-and-after studies, quasi-experimental studies, observational studies, qualitative studies, quantitative studies (including systematic reviews, grey literature, and peer-reviewed and non-peer reviewed studies) were eligible for inclusion in the review. Interventions including (but not limited to) educational programs, new or amended policies, improvements in the built environment, campaigns, and peer-based supports or treatments were eligible for inclusion.

Study selection

Citations identified through the searches were imported into EndNote and duplicates were removed using a standard function. Citations were uploaded into the citation management software Covidence for screening. Titles and abstracts of potentially eligible studies were reviewed by a trained researcher. After title and abstract screening was completed, the full text of remaining articles was screened by two researchers. Any uncertainty or disagreements regarding eligibility were resolved through discussion with a third member of the research team.

Quality assessment

The Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Prevalence Studies[66] was used to assess the methodological quality of all primary research publications by evaluating the extent to which they addressed the possibility of bias in nine areas of study design, conduct, and analysis. Each of the nine domains received a score from 1 (poor quality) to 3 (high quality), and a total quality score was calculated by summing the individual domain scores. Total scores ranged from 9 to 27, with higher scores indicating higher quality. As some JBI domains were not relevant for some studies, these items were removed from the quality appraisal process for those studies and, to permit comparison between studies, each study also received a percentage score for quality based

on the total applicable denominator for that study. Scores fell into one of the following four categories: high (90-100%); medium (76-89%); low (61-75%); very low (0-60%). Four researchers (EJ, AC, AB, MW) independently assessed the quality of included publications and any uncertainty was resolved through further discussion.

Data extraction

Data were extracted relating to the (a) date; (b) setting; (c) intervention type (e.g., group program, policy change, tailored intervention); (d) duration of the intervention; (e) outcome of interest and how this was measured; (f) population demographics (e.g., age, sex, race/ethnicity); (g) number of participants; (h) type of criminal justice system contact (e.g., prison, diversion, etc.); (i) study evaluation design; (j) duration of follow-up; (k) key findings and effect of the intervention; and (l) limitations of the study (as determined by both the study authors and our research team). Data were extracted and entered into an Excel spreadsheet by four researchers (AC, EJ, AB, MW).

RESULTS

Electronic searches

The initial searches yielded 1,812 articles, of which 1,363 remained after duplicates were removed. A further 1,210 articles were removed after title and abstract screening. The full texts of the remaining 153 articles were screened; of these, 122 were excluded. Three primary research articles and one grey literature report (nested within identified reviews, but not identified during the initial searches) were added during this stage, and one additional grey literature report was sourced via stakeholder liaison. For all included reviews, in circumstances where the primary research articles within reviews could be accessed, we conducted the quality assessment and data extraction on the primary research articles and not based on information contained in the review. There were three primary research articles from two reviews that we could not access and, in these instances, the quality assessment and data extraction were performed based on information in the review. Our final list of included articles comprised 36 studies; 32 primary research articles, two reviews, and two grey literature reports (see Figure 1). An overview of included studies is located in Table 1.

Stakeholder feedback

Of the 65 stakeholders contacted, 33 responded and provided access to 24 grey literature reports. Of these, 23 were excluded and one – from The Western Australian Mental Health Commission – met the inclusion criteria and was included in our final review[67]. An overview of responses from state government, Commonwealth government, not-for-profit, and academic

organisations/institutions, and leaders in the mental health, suicide prevention, and criminal justice sectors is provided in Table 2.

Characteristics of included studies

Of the 36 included studies, 15 (41%) were conducted in the UK, 12 (33%) in the US, four (11%) in Australia, and one study (3%) in each of Austria, Israel, Pakistan, Canada, and Slovenia. Thirty-one studies (86%) involved adult correctional settings and five (14%) involved youth correctional settings. The majority of suicide prevention interventions (n = 23; 64%) were set in adult prisons, five (14%) were set in youth detention, three (8%) were set in a forensic hospital, two (6%) were for both adults remanded in custody and those serving custodial sentences, one (3%) was for people serving community corrections orders, one (3%) was for both people serving a community forensic order and those serving a prison sentence; one evaluated a suicide prevention intervention in the court setting. No studies were identified which examined suicide prevention interventions for people who were detained in police custody, for people on bail or on parole, or for people in the community who had previously been detained in prison, youth detention, or a forensic hospital.

In the following sections of this report, our findings are reported according to intervention type. Table 3 provides an overview of the criminal justice settings in which studies were conducted, and the effectiveness of these interventions.

Quality of the evidence

As outlined in Table 1, the overall quality of the evidence supporting the effectiveness of interventions to prevent suicide in people who had come into contact with the criminal justice system (as measured by the Joanna Briggs Institute Critical Appraisal Checklist for Prevalence Studies[66]) was poor. The most common methodological weaknesses included:

- The use of a pre-test/post-test methodology without an appropriate comparison group;
- The lack of a control group for meaningful comparison;
- Brief follow-up periods, with several ending upon completing the intervention;
- The use of selected samples (e.g., people with a mental illness, people with a documented history of self-harm);
- The use of small samples (typically <100);
- High rates of attrition (often attributed to constraints associated with conducting research in custodial settings); and
- The use of weak/anecdotal evidence from correctional staff or participants to support claims of a reduction in suicidal thoughts and behaviours.

Our searches identified only two randomised controlled trials (RCTs) – the methodology widely accepted as the gold standard methodology for studying causal relationships – and very few studies which used any kind of control or comparison group. As such, it is unclear whether the apparent 'positive findings' reported in the literature reflect changes caused by an intervention, or changes that happened irrespective of the intervention.

Academic literature

Group-based treatment programs

Eleven studies investigated group-based treatment or therapy programs in adult correctional settings[68-78]. Of these, ten were set in the prison environment with sentenced adults[68, 70-78] and one study was conducted in both an adult prison setting and a community corrections setting[69]. Although many authors concluded that their programs had contributed to reductions in suicidal thoughts and behaviours[68-71, 73-76, 78], the evidence supporting these conclusions was weak. Out of the 11 group programs targeted at adults in correctional settings, five[69, 73-76] were rated as medium/high quality (with JBI scores ranging from 78-90%) and demonstrated effectiveness in reducing the outcome measure(s) of interest. Despite this, there were significant methodological weaknesses which limit the findings of these studies and which are discussed below. Further, one of these studies[76], which evaluated the impact of an Aboriginal art group program in a custodial setting on suicide/self-harm risk factors, is discussed further under "Programs for Aboriginal and Torres Strait Islander peoples".

Johnson et al.[73] published an RCT investigating the impact of an interpersonal psychotherapy (IPT) group intervention for incarcerated adults in the US with major depressive disorder (MDD). The study found that after 20 x 90-minute group therapy sessions and four individual sessions over 10 weeks, IPT participants reported significantly reduced suicidal ideation in comparison to the control group[73]. This study did not investigate long-term, post-release outcomes, and only measured suicidal ideation for the 10-week duration of the program. Similarly, a UK-based RCT examined the impact of 20 cognitive behavioural suicide prevention (CBSP) sessions in six months in treating incarcerated individuals experiencing suicidal ideation and/or behaviour. The authors found that, after completing the 20 sessions, suicidal or self-injurious behaviour episodes had reduced by 50% for the CBSP group, but had changed very little for the control group[75]. Whilst this evidence appears promising and the study scored highly on the JBI (90%), the study did not measure whether these benefits were sustained long-term following project completion and/or release from prison into the community.

The 'Dealing with Feelings Skills Group Training' program delivered in a medium secure forensic hospital setting in the UK used cognitive behavioural group treatment adapted from dialectical

behaviour therapy (DBT) skills training for 44 women with either a primary or a secondary diagnosis of personality disorder. Following treatment, program completers (n = 29) reported lower scores of suicidality[74]. The study design did not include a control group which, in combination with the small sample size and potentially biased attrition of the 15 non-completers, limits the strength of these findings. Black et al.[69] published findings from the Systems Training for Emotional Predictability and Problem Solving (STEPPS) group treatment program for persons with borderline personality disorder (BPD), which was delivered to 67 incarcerated adults and 10 people serving community-based orders in Iowa, US. The program combined cognitive behavioural elements with skills training and consisted of 20 x 2-hour weekly sessions with therapists who followed detailed lesson plans[69]. Improvement in suicidal behaviour was observed at follow-up compared with baseline. The study was assessed as medium quality (JBI = 78%) and limitations included the lack of a control group, and the 100% attrition in the community corrections sample by week 12. As such, the impact of the program on a community corrections sample remains unknown.

The effectiveness of other group programs included in our review was unclear, due largely to the poor quality of the evidence (some of which was anecdotal in nature) used to report on suicidal behaviour[68,70-72,75,77-79].

Peer support programs

We identified three peer-support programs that had been evaluated against suicidal thoughts and/or behaviour. In their systematic review of the effectiveness of peer support in custodial settings, Griffiths and Bailey[80] included two studies examining whether "prisoner listeners" and "buddy" or "carer" schemes can support incarcerated adults with a history of self-harm[81, 82]. Griffiths and Bailey[80] did not assess the quality of these studies, though they did make broad statements about the lack of specific evaluation frameworks investigating outcomes of peer support and the descriptive nature of studies that instead reported on participant feedback. The "prisoner listener" scheme involves working with prison staff to train incarcerated adults who have shown an interest in becoming a listener and providing confidential support for other incarcerated adults. Griffiths and Bailey[80] concluded that the impact of prisoner listeners on suicide and self-harm in two UK prisons was difficult to determine. One study found that the scheme improved staff relations with incarcerated adults and was associated with reductions in self-harm and suicide[82]. However, as the full text of this article could not be located, results for this study were taken from the Griffiths and Bailey review[80], and it is unclear how the reported reductions in self-harm were determined. The second study examining the "buddy" and "carer" schemes could not determine the impact of the scheme on suicide/self-injury, and difficulties were acknowledged in assessing the impact of such

schemes[81]. Griffiths and Bailey[80] provided little description of what the "buddy" and "carer" schemes were but stated that they differed to "prisoner listener" schemes in that confidentiality was not a crucial component between "buddy" or "carer" and listener because it stands in opposition to the prison service focus of risk assessment and information sharing[80].

The "SAMS in Pen" is a prison-based peer suicide prevention service in Alberta, Canada. Volunteers from the prison population can apply for the training, which is provided by Samaritans of Southern Alberta and includes aspects of suicide prevention and intervention[83]. The study was assessed as being very low quality (JBI = 63%) and findings of the study, which sought to evaluate the impact of the intervention on suicide rates, were inconclusive due to the low frequency of suicides[83].

Individual treatment/tailored programs

We identified five individual/tailored programs designed to prevent suicide and suicidal behaviour[67,84-87]; three were conducted in prison settings either for sentenced adults[86, 87] or for those remanded in custody[84], one was conducted in a forensic hospital[85], and one was conducted in a court setting[67]. Perry et al.[87] examined the impact of the Problem-Solving Training (PST) intervention (a self-directed cognitive behavioural approach in which a person is encouraged to identify effective and adaptive ways of responding to problematic situations[87, 88]) in four UK prisons. Forty-eight participants completed the seven-session intervention. The authors reported that the intervention was effective in reducing self-harm, as the proportion of participants who reported self-harming following completion of the intervention (19%) was considerably lower than the proportion who reported self-harming in the three months prior to commencing the intervention (67%). However, the study was assessed as being medium quality and, in conjunction with the lack of a control group and largely descriptive nature of the results, limits the strength of these findings.

Low et al.[85] examined the effectiveness of a dialectical behaviour therapy (DBT) program delivered to female adults with borderline personality disorder (BPD) and a history of self-harm who were detained in a high-security forensic hospital in Woodbeck, England. Consistent with DBT principles, this 12-month program included weekly skills training sessions and weekly individual counselling sessions. Self-harm data were collected monthly from clinical ward records and the authors reported a significant reduction in self-harm over the 12-month duration of the program, which was maintained at 6-month follow-up[85]. The study quality was assessed as very low which, in combination with the absence of a control group, suggests weak findings.

Nee and Farman[86] evaluated the impact of a 12-month pilot program of DBT in three prisons in the UK. The authors reported a reduction in self-harm from the beginning of the program to the end,

although the strength of this finding was limited by the small sample size, the low number of self-harm incidents, and the method by which self-harm outcome data were collected (described as a 'hand trawl of prison self-harm records').

Camp et al.[84] examined the impact of the Enhanced Support Service (ESS) pilot program to reduce self-harm, violence, and disruption among sentenced adults, and those remanded in custody. The ESS program consisted of flexible, individualised psychosocial interventions developed through an extended assessment and engagement period, together with consultation and systemic work within the host prison[84]. The intervention was delivered by a multidisciplinary team (MDT) of clinical staff (a psychologist and another mental health professional) and a prison officer over a period of 8-10 weeks. Of the 82 service users who participated in ESS, analyses were performed on outcome data from just 35 (46%) participants, due to a high attrition rate. The authors reported that the proportion of participants who reported recent self-harm from pre-intervention to post-intervention decreased by 51%, although this study was assessed as very low quality, limited by the lack of control group and the high attrition rate.

In 2015 the Western Australian Mental Health Commission (MHC) conducted an evaluation of the START Court[67]; a Magistrates' Court operating as a Mental Health Court Diversion and Support program. The program is delivered by a multidisciplinary team including a magistrate, police prosecutor, duty lawyer service, court coordinator, psychiatrist, psychologist, clinical nurse specialists, and senior social worker, and provides individually tailored services to meet the needs of the individual. Among other indicators, the evaluation by the MHC aimed to quantify the extent to which the START Court Program improved participants' health and wellbeing, with findings indicating that two-in-three participants were assessed as being at lower risk of suicide following program completion[67]. It was noted that this reduction in risk, as measured by the Brief Risk Assessment (a clinician-rated instrument that considers seven historical factors and seven current factors to calculate an overall suicidality score), was not tested for clinical or statistical significance. These strength of these findings are limited due to the lack of a control group and the reduction in risk not be tested for clinical significance.

Multifaceted programs

Multifaceted prevention programs in correctional settings integrate multiple suicide prevention components as part of a broader systems approach[20]. Two multifaceted suicide prevention interventions were included in our review[89, 90]. In a naturalistic observation study of 520 males in a Slovenian prison, Sarotar et al.[90] aimed to assess diagnoses, characteristics, and care provision of adults diagnosed with mental disorders in the psychiatric outpatient clinic in the biggest male prison

in Slovenia[90]. The authors describe a prison-wide anti-suicide strategic plan which was implemented in 2004, and subsequent staff training and the implementation of routine screening for suicidal behaviour. The authors suggested that the decreased suicide rate observed following the plan's implementation might be explained by the implementation of the suicide strategy. However the study was deemed to be low quality and the analyses did not control for any potential confounding factors, casting doubt on the authors' conclusions.

In a cross-sectional study from an adult male prison in Illinois, USA, Freeman and Alaimo[89] described the components of a multifaceted suicide prevention program. Notable components included 1) mental health screening for all new arrivals who were acutely mentally ill and/or suicidal; 2) follow-up services for those who were suicidal; 3) referral and crisis intervention services for detainees housed in the general population of the jail; 4) community linkage of those who were suicidal; and 5) training procedures for correctional officers[89]. Following the implementation of the program the prison suicide rates reduced to a level of fewer than two suicides for every 100,000 admissions since 1990. The authors concluded that the comparatively low rate of suicides at the Cook County Jail can be directly attributed to the multifaceted program and its components. However, this was an uncontrolled before-after study with no appropriate comparison group, and the observed reduction in suicide rate could be attributable to other (unmeasured) factors. The study was also assessed as very low quality.

Models of care

We identified six studies which investigated the impact of different models of care across prison and forensic hospital settings, and for people serving forensic community-based orders[91-96]. Of these, two studies[92, 93] reported positive findings, which are outlined below. The remaining four studies[91, 94-96] reported either inconclusive findings or no impact on suicide or suicidal behaviours (see Table 1).

In a retrospective cohort study conducted in a prison in New York, US, Glowa-Kollisch et al.[93] investigated the impact of a new treatment unit for people detained with serious mental illness (SMI), named the Clinical Alternative to Punitive Segregation (CAPS) unit. The CAPS unit offered a range of therapeutic activities and interventions, including individual and group therapy, art therapy, medication, counselling, and community meetings. The authors reported that people who had spent time in both CAPS and the traditional restrictive housing units (RHU) self-harmed almost five times as frequently when housed in the RHU compared to when housed in the CAPS. This study was limited to 90 participants and the authors acknowledged that they did not control for potential confounders in their analyses.

Rivlin et al.[92] published a study that was included in Bennett and Shuker's 2017 literature review of the effectiveness of prison-based therapeutic communities (i.e., communities based on a residential, participative, group-based approach to recovering from long-term mental and substance use disorders)[97]. The study by Rivlin et al.[92] (the full text of which we were unable to locate) described the work conducted at HMP Grendon, the only UK prison to operate entirely as a series of democratic therapeutic communities. The authors stated that the rate of self-harm among incarcerated adults at HMP Grendon (29 incidents per 1,000 people per year in 2004-2005) was less than one quarter of the rate across all English prisons during the same period (137 incidents per 1,000 people per year). However, no causal conclusions can be drawn without accessing the full text of the Rivlin et al.[92] study and, as such, caution must be exercised when interpreting these findings.

Changes in legislation or policy

We identified five studies that investigated the impact of a policy or legislation change on suicidal thoughts and behaviours in justice-involved adults, all of which were conducted in custodial settings. In their retrospective case study with a mixed-methods approach, Slade and Forrester[98] aimed to identify factors associated with the sustained reduction in suicide rate in a London, UK prison between 2008 and 2011. The authors attributed this reduction partly to the implementation of the National Suicide Prevention Strategy (1991–2008) in adult male prisons in London, and partly to the implementation of the Local Suicide Prevention Strategy (multi-agency and cultural change) in 2009. However, this study was rated as low quality and, as neither the national strategy nor the local strategy were described in great detail, the contribution of the individual components of either strategy to reductions in suicide remains unclear.

In 2007 Shaw and Humber[99] published a cross-sectional analysis of the impact of a policy shift on the prevalence of suicide in adult prisons in the UK. The shift involved the National Health Service (NHS) assuming responsibility for the delivery of health care in prisons in April 2006, in addition to the implementation of the Assessment, Care in Custody and Teamwork (ACCT) approach, which involves skills-based suicide awareness training for staff, and each incarcerated person being monitored and supervised by a dedicated case manager. Despite the observed 14% reduction in prison suicides that occurred following the implementation of these changes, the authors noted that the small number of suicides means that caution is required when interpreting this finding[99].

In 2000 Fruehwald et al.[100] analysed 50 years of suicide data from Austrian prisons, including an examination of the impact of changes in 1975 to the country's legislation and law reform on the rates of suicide in prisons with both sentenced adults and those remanded in custody. Changes to the legislation included efforts to offer better therapeutic facilities, criminal law amendment

whereby only those people convicted of highly violent crimes were incarcerated, and increased employment of psychologists and social workers in Austrian prisons as a result of law reform. Analysis of the data indicated that suicide rates in prisons *increased* following the 1975 law reform, with increases in three consecutive 10-year periods commencing in 1967, 1977, and 1987. The study was assessed as being of medium quality (JBI = 76%). The authors suggested that the criminal law amendment whereby only those people convicted of highly violent crimes were incarcerated might have led to a prison population of people at increased risk of suicide[100]. Importantly, this paper also helps to highlight the meaningful impact that legislation changes (external to the policies and procedures within prisons) can have on prison suicide rates.

Kovasznay et al.[101] published findings from a study in which they attempted to identify modifiable risk factors for prison suicides in New York State, US. The authors described various changes in policies and procedures that they believed contributed to the observed reduction in suicides within New York State Department of Correctional Services (DOCS) facilities. These changes included environmental modifications, changes to clinical and administrative policies and procedures, and enhanced staff training[101]. The study was assessed as medium quality and involved important limitations, including the retrospective study design, the absence of analysis comparing the rates of suicide across the study period, and the lack of analyses establishing a causal relationship between the changes implemented and the reduction in suicides.

Programs delivered in youth detention

We identified five studies[102-106] which evaluated suicide prevention interventions for young people housed in youth detention settings, four of which[102-105] reported a reduction in suicidal thoughts and behaviours. In a retrospective cohort study from the US, Gallagher and Dobrin[103] investigated the impact of the implementation of intake screening in youth detention centres on subsequent suicide attempts. After analysing three years' worth of data, the authors reported that there were significantly lower odds of suicide attempts in facilities that screened the entire population of new arrivals, and in those that implemented screening within the first 24 hours.

Wakeman[104] examined the impact of a group DBT Core Mindfulness Skills program on suicide risk scores in a juvenile correctional facility in the US. In the first study, eight female participants aged 14-18 years completed the 4-week program and no significant reduction in suicide risk was observed. In the second study, 38 girls completed the program and the author reported a significant reduction in suicide risk scores since baseline. The study was considered low quality (JBI = 73%) and no control group was used in either study.

Welfare and Mitchell[105] investigated the impact of a group program called 'The Access Course' on suicidal ideation of 16 males aged 15-18 years at a youth detention centre in the UK. The 12-session program was delivered over four weeks, with each session consisting of an hour of classroom-based group work followed by an hour in the gym. The authors reported a reduction in mean scores on the Beck Hopelessness Scale between baseline and four weeks, although it was noted that suicidal ideation was measured only through the use of the Beck Hopelessness Scale, which the authors claimed to be 'a good predictor' of suicidal ideation[105]. However, a brief search of the literature suggests that the evidence is mixed[107, 108]. Further, the study was assessed as being low quality.

Programs designed for Aboriginal and Torres Strait Islander peoples

We identified two studies which evaluated an intervention aimed at reducing suicide in incarcerated Aboriginal and Torres Strait Islander people[76, 109]. The first study, conducted by Rasmussen et al.[76], evaluated the impact of an Aboriginal Art Program on suicide/self-harm risk factors, which were obtained from participants' risks and needs assessments in a prison in Queensland, Australia. The cultural space provided Aboriginal participants with a social environment to practice Aboriginal art, socialise, and make contact with visiting elders from the local community. The program was voluntary and accessible each day of the week, however it was restricted to people who were not presently at risk of suicide or self-harm, such that its relevance for the large number of incarcerated Indigenous people who are at current risk of suicide/self-harm is unclear[76]. The authors reported that, after adjusting for suicide/self-harm history, there was strong evidence that attending the program was associated with a reduced incidence of subsequently being assessed as at risk of suicide/self-harm. They further stated that for each day of attendance to the Aboriginal art program, an average reduction in suicide risk of 19% (CI 95%: 12–25%) was observed. The results of this study are limited due to the exclusion of potential participants deemed currently at risk of self-harm. The authors noted that the association between participation in the program and the observed reduced risk of self-harm/suicide should not be interpreted as causal.

The second study, the Indigenous Mental Health Intervention Program (IMHIP), is Australia's first Aboriginal and Torres Strait Islander-led, multidisciplinary, social and emotional wellbeing service for incarcerated Indigenous people. It provides early identification, in custody care, and transitional support to connect individuals back to their community upon release from incarceration[109]. The program is run by the Queensland Forensic Mental Health Service, in partnership with a non-government organisation (NGO) provider which delivers culturally appropriate and trauma-informed social and emotional wellbeing care to Indigenous people in a number of women's and men's

prisons in south-east Queensland. At the time of writing, there has been no published evaluation of IMHIP, a finding that serves as a barrier to the adoption of similar models elsewhere.

Feedback from stakeholder liaison

We received responses from 34 stakeholders; of these, 17 provided information on related programs and 17 did not identify anything relevant. Table 2 contains information on these programs and/or evaluations that are related to suicide prevention in criminal justice settings.

Police and suicide prevention services

In Victoria, the *'Protocol for mental health: A guide for clinicians and police'* is a joint initiative between the Department of Health and Human Services and Victoria Police which sets out the agreed arrangements for interactions between Victoria Police and mental health clinicians when supporting people with mental illness (including those experiencing suicidal thoughts and self-harm)[110]. In NSW, the memorandum of understanding (MoU) between the NSW Health and NSW Police Force was implemented in 2018 and sets out processes for data sharing and information exchange between the two agencies when responding to a person with mental illness and suicide-related issues[111]. Protocols in other jurisdictions include:

- Queensland's *'Improving outcomes from police interactions (a systematic approach)'*, which outlines the ways in which Queensland Police Service (QPS) and other frontline services have successfully implemented eight options for reform to help support and improve outcomes of interactions between first responders and people living with mental illness, including those in the criminal justice system[112].
- South Australia's Mental Health and Emergency Services MoU (2010) between SA Health, SA Ambulance Service, the Royal Flying Doctor Service, and South Australia Police which commits the signatory parties to work in cooperation to promote a safe and coordinated system of care and transport and defines the roles and accountabilities of the agencies throughout the process of ensuring access to assessment and treatment[113].

Whilst high-level MoUs and/or protocols for interagency collaboration could not be located in some jurisdictions, the following policy documents indicate that police training in suicide prevention is still considered to be a priority:

- Tasmania's *Suicide Prevention Strategy 2016-2020* identifies "training 'gatekeepers', including general practitioners, police, teachers and prison staff, to identify and support people at risk of suicide" as an approach underpinning the broader strategy[114];

- WA's *Suicide Prevention Strategy 2020* identifies first responders such as police officers and their training with evidence-based training programs as a priority in skilling the community to deal with suicide risk and behaviour effectively[115];
- ACT's Police, Ambulance and Clinician Early Response (PACER) program is a tri-service mental health co-response capability between ACT Policing, ACT Ambulance Service and Canberra Health Services[116].

The Queensland Forensic Mental Health Group (QFMHG) provided details of the *Partners in Prevention (PiP)* project, which encompasses five major initiatives designed to develop a comprehensive and holistic evidence-base to inform service and systems enhancements in Queensland relating to first responders. This included:

- A major data linkage study, built around a cohort of approximately 70,000 individuals who came into contact with police or paramedics as the subject of a suicide-related call between 2014-2017, their health services contacts from 2013-2018, and outcomes from 2014-2018[117];
- Consultation with individuals with lived experience of suicide, regarding optimal first responses to suicide crisis situations, and responses to individuals who are bereaved by suicide[118];
- A mixed-methods study of knowledge, skills, attitudes and confidence of police in responding to suicide-related crisis situations[119];
- Literature reviews, including a literature review of optimal care pathways following a suicide crisis call to police or paramedics.

In their review *'Developing an evaluation framework for collaborative suicide crisis response models'* the QFMHG aimed to undertake a systematic review of frameworks/techniques used to evaluate collaborative suicide prevention initiatives, and to outline a conceptual framework for evaluating first response interventions to suicide crisis situations, with specific focus on Police Communications Centre Mental Health Liaison (PCCMHL) services. They found that the evidence base is heavily focussed on mental health crises with little, if any, specific mention of suicidality. This was listed as a critical oversight, especially in light of the very low rates of diagnosed mental disorder among individuals who come into contact with police or paramedics as the subject of a suicide-related call identified in the PiP data linkage study. The QFMHS also runs the Mental Health Support to Police Negotiators and Police Communications Centre Mental Health Liaison Services. Initial evaluations of these services suggest that suicide crises and attempts make up a large percentage of demand for

these services. In partnership with QPS, QFMHS are developing a program of research around police negotiation incidents.

Court-based suicide prevention services

Court-based diversion and support programs exist in most jurisdictions, although with significant variation in the models used. Diverting people experiencing mental illness from prison is considered optimal for a number of reasons including that incarceration may exacerbate mental illness and increase the risk of suicide[120]. Whilst almost all jurisdictions in Australia have developed specialist 'problem-solving' or therapeutic courts in response to the over-representation of people with mental illness coming into contact with the criminal justice system, just four jurisdictions have established mental health courts[121]:

1. South Australia (the Magistrates Court Diversion Program [MCDP]);
2. Tasmania (the Mental Health Diversion List (MHDL);
3. Victoria (the Assessment and Referral Court (ARC) List);
4. Western Australia (the Specialist Treatment and Referral Team (START) Court).

Whilst preliminary evaluations of these courts suggest that they are having a positive impact on recidivism rates, there is limited evaluation of the impact of these courts on non-criminogenic factors including mental health outcomes such as suicidality[121]. Reasons for this gap may include the absence of policies relating to how quality treatment and care should be provided to people in court and court liaison settings, and how these services should be included in national mental health funding, planning, measurement and data collection in the national mental health policy landscape.

The evaluation of WA's START Court was the only evaluation of a court-based diversion program and/or mental health court we identified in Australia that evaluated the effectiveness of the court against suicide outcomes.

The SA Coroner's court also provided details of the SA suicide register and the early stages of its development. In developing the register they are working in conjunction with the SA Chief Psychiatrist's Office and have liaised with the Australian Institute of Health and Welfare (AIHW).

Community-based orders, release from prison and suicide prevention services

Policy approaches to the provision of mental health care for criminal justice-involved people in the community within jurisdictions in Australia differ depending on whether people are a) on parole or on

other community-based corrections orders; b) on non-custodial forensic orders; or c) released from prison and not subject to any order. All jurisdictions in Australia highlight the importance of an adequately trained community corrections workforce in order to manage the risk of and prevent suicide among people on community-based corrections orders. This can be seen in various policy documents including Victoria's *Correctional Suicide Prevention Framework (2015)* and *Protocol between Mental Health, Drugs and Regions Division and Community Correctional Services;* South Australia's Department of Correctional Services' *Research and Evaluation Agenda 2019-2022: A Catalyst for Change;* the *Queensland Suicide Prevention Plan 2019-2029*[122]; the *NT Suicide Prevention Strategic Action Plan 2014-2018*[123]; and WA's *Start Court Guidelines*[124].

A recent survey of prison mental health services[125] found variation between jurisdictions in the delivery of mental health services in community corrections. Whilst all prison mental health services in the states and territories provide treatment and care throughout incarceration and prior to release, SA does not provide a transitional service for people returning to community, and in the ACT this service is delivered by the forensic community outreach service[125]. Further, in relation to transitional and onward referral, all jurisdictions with the exception of the NT and WA provide referrals to community mental health services at the point of release from community corrections[125].

Whilst the importance of suicide prevention in community corrections is embedded in high-level policy documents and operational documents, we identified only two suicide prevention programs/services operating within the community corrections setting, via stakeholder consultation. Youth Justice WA provided details of the Youth Justice Practice Procedure currently being developed in relation to *'Assessment and Management of Deliberate Self-Harm and Risk of Suicide'*. The intent of the practice procedure is to guide the assessment and management of young people who present as suicidal or having engaged in self-harm, and are involved in the criminal justice system and subject to community-based supervision orders. The practice procedure provides detail in relation to key strategies required to assist a young person at imminent risk of suicide and guides the development safety plans. Further, WA Corrective Services provided details of their State Forensic Mental Health Services In-Reach Teams: the Transition Services and Consultant Liaison. Both are funded by the WA Mental Health Commission. The former assists people with mental health issues transitioning from prison into the community, with continued supports in place. The Consultant Liaison service provides over half the consultant psychiatrists across the metro prison estate. Both services are considered crucial in preventing suicide, though (at the time of writing) have not been formally evaluated.

The Offender Service SA indicated that they are currently lobbying with the Chief Psychiatrist of SA to have the mental health handover process from both community-to-prison and prison-to-community formalised and implemented. This lobbying is in recognition of the current failings of mental health handover between prison, community corrections, and community, and with the aim of improving this process.

Incarceration in adult prison and suicide prevention programs

Suicide prevention frameworks and operational protocols for people in prison exist in all jurisdictions in Australia. Stakeholders in NSW, SA, Victoria, WA, and QLD provided us with information on suicide prevention or mental health related programs in prison. Information on services in the NT, the ACT and Tasmania were sourced through Department of Corrections websites and information found in publicly available state and territory policies, strategies, and plans. Importantly, whilst several jurisdictions made claims regarding the effectiveness of their programs and initiatives, an overwhelming majority of these were unsubstantiated in light of the absence of formal evaluations.

The Department of Psychiatry at the University of NSW (UNSW) provided information on two current projects being implemented by the NSW Justice Health & Forensic Mental Health Network (The Network). In the first study, they developed and trialled a new tool for mental health and self-harm/suicide risk screening for use in NSW prison reception centres. They are currently examining the extent to which the screening tool is associated with subsequent self-harm-related events in custody. The second study is at a much earlier stage but is focused on the assessment/management of self-harm/suicide risk processes in NSW prisons. The network has funding through the NSW Health Zero Suicide initiative and the UNSW School of Psychiatry was recently successful in obtaining a small research grant from Suicide Prevention Australia to undertake this work. Given the early stage of development, neither project has been evaluated.

The SA Department of Corrective Services (DCS) provided details on six suicide and self-harm prevention prison services and policies. The Standard Operating Procedure (SOP) 090 is the prison policy used for the management of people at risk of suicide or self-harm. SOP 090 describes the DCS and South Australia Prison Health Service responsibilities, and resulting actions, to minimise the risk of incarcerated people attempting suicide or self-harm whilst in DCS custody. In addition, prisons have Local Interpretation Statements, which relate to the management of incarcerated people at increased risk of suicide or self-harm. The Psychological Skills Group (PSG) was developed by High Dependency Unit (HDU) clinicians, based on DBT. The program comprises 24 sessions over 12 weeks, including 12 'core' sessions and 12 'homework' sessions. The program aims to increase knowledge and skills in mindfulness, distress tolerance, emotional regulation, and interpersonal effectiveness. The

Mindfulness and Schema Therapy (MST) group-based program was also developed by HDU clinicians, and was designed for incarcerated people with personality disorders and other complex, chronic mental health problems. The program comprises 20 sessions over 10 weeks, including 10 'core' sessions and 10 'homework' sessions. The DCS Incident Review Committee manages a *Reducing Prisoners at Risk of Self-Harm and Suicide Action Plan.* The 'Connecting with People' project is being rolled out in corrections by SA Health. This model of care is about moving away from the more traditional methods of risk assessment such as rating scales (i.e., low, medium, or high risk) and aims to empower incarcerated people to take ownership of their management plan. Evaluation of the project is underway; however, this will be an evaluation of the *implementation* and not of suicide related *outcomes*. As such, its effectiveness remains unknown.

In Victoria, Forensicare provided information on relevant projects that have been conducted in prison settings. Firstly, the Melbourne Assessment Prison trialled an occupational therapist (OT) intervention in 2017 to improve the care of men in observation cells. The OTs introduced soft-furnishing and chalkboards into the rooms as well as trying to increase people's protective factors. The effectiveness of a 6-week resilience and coping enhancement intervention trialled with 110 people in Port Phillip Prison is currently being evaluated. The program is delivered over six weeks with 2 x 2hr session for three of those weeks and aims to reduce symptoms of psychological distress and related somatic/physical symptoms (e.g., headaches, stomach problems, tension). At the time of writing, no formal evaluation had been completed and, as such, no conclusions can be drawn about the program's effectiveness.

The Western Australia Department of Justice provided information on four suicide prevention strategies in prison. The first program, the At Risk Management System (ARMS), is a multi-disciplinary suicide prevention strategy for people in prison. The three-level system includes: primary prevention which encompasses strategies to create a physical and social environment in the prison that limits stress on incarcerated people; secondary prevention which encompasses strategies to support people at increased risk of self-harm or suicide; and tertiary prevention which encompasses strategies aimed directly at individuals who are identified as at risk of self-harm or suicide. The ARMS program was implemented across all prisons in 1998, providing a framework for suicide prevention which is formalised in policy, with clear procedures for staff to assist in the identification and management of people at risk to self and is scheduled for a formal review in 2021. Pivotal to the system is the Prisoner Risk Assessment Group (PRAG), which meets regularly to discuss the management of people at increased risk.

The second program is the Support and Monitoring System (SAMS) which is a whole-of-prison approach to the way people in prison who require multi-disciplinary intervention are identified and monitored. The system provides a standardised approach across all prisons managing people identified as vulnerable, at chronic risk to self, or experiencing sensitive cultural or spiritual issues. The purpose of SAMS is to ensure there is a collaborative, coordinated approach to identifying and managing people who are not an immediate risk to themselves, however require additional support, intervention and/or monitoring in prison. The SAMS program is scheduled for review in 2021.

In 2019/20 some WA prisons have introduced and commenced training in the use of a standardised risk assessment protocol incorporating the Columbia Suicide Severity Rating Scale. This process identifies suicide and self-harm risk not recognised by prison staff or articulated by incarcerated people in the referral, which might otherwise be overlooked. The Department of Justice stated that it has also introduced the routine use of safety plans as a brief intervention to mitigate risk, developed and conducted indigenous suicide prevention workshops for incarcerated people in the Kimberley, and developed group interventions to assist people to cope with adjusting to prison or release to community. Lastly, there are currently two State Forensic Mental Health Services In-Reach Teams (Mental Health Prison In-Reach) – the Transition Services and Consultant Liaison; both are funded by the WA Mental Health Commission. The former assists formerly incarcerated people (metro, regional and private) with mental health issues transition into the community with continued supports in place. The Consultant Liaison service provides over half the Consultant Psychiatrists across the metro prison area. Neither of these have been formally evaluated.

Queensland Corrective Services (QCS) provided information on a study by their research and evaluation group 'Predictors of suicide and attempted suicide in Queensland prisons'. The study examined risk factors for suicide/attempted suicide, including demographic type information (e.g., sex, age, Indigenous status, existing mental health issues). The primary aim of the study is to assess whether 'prison environment' factors such as the accommodation area, shared cell, protection status, recent/impending transfer, recent visits, identified concern/level of monitoring were associated with increased suicide and/or self-harm risk. An initial evaluation (the findings of which were unavailable) was based on only two years' worth of data and therefore the numbers were low. QCS intends to expand the scope to 10+ years' worth of data. This extended study is listed as a priority area of research on QCS' Research and Evaluation Group's program of deliverables.

Whilst the NT *Suicide Prevention Strategic Framework 2018-2023* acknowledged the importance of preventing custodial suicides and identified greater understanding of patterns of suicides in custodial services as key to informing suicide prevention activities, it did not provide information on specific

programs to address this[126]. The preceding *NT Suicide Prevention Strategic Action Plan 2015-2018*, however, identified the facilitation of prison in-reach co-case management meetings with relevant stakeholders, to ensure appropriate plans are in place to support people upon release, as a way to ensure support for people assessed as being at increased risk[126]. Similarly, Tasmania's *Suicide Prevention Workforce Development and Training Plan for Tasmania (2016-2020)* identified correctional staff in prison as a priority workforce group[127].

Youth detention and suicide prevention programs

A report published by Orygen in 2016[128] mapped the evolution of suicide prevention action in youth justice settings in Australia from 1995-2015. Of particular importance was the implementation of the Living Is For Everyone (LIFE) framework in youth justice settings which encompasses eight overlapping domains of care and support: 1) universal interventions; 2) selective interventions; 3) indicated interventions; 4) symptom identification; 5) finding and accessing early care and support; 6) standard treatment; 7) longer term treatment and support; and 8) ongoing care and support[129]. According to the Orygen report, every state and territory in Australia has a suicide prevention strategy or policy aligned to the LIFE Framework, and almost all jurisdictions identified youth justice as a high-risk group with identified actions. However, we were unable to establish whether or not this is currently the case. The authors also noted that published evaluations of state and territory policies were rare and the impact of these activities on suicide rates and suicidal-related behaviours had not been evaluated[128].

Stakeholders provided information on three relevant programs in youth justice settings. The Queensland Centre for Mental Health Research provided details of two projects in youth detention settings: the Indigenous Mental Health Intervention Program (IMHIP) & IMHIP–Youth. The IMHIP program is a prison in-reach and transitional service run by the Queensland Forensic Mental Health Service, in partnership with an NGO provider which delivers culturally appropriate and trauma informed social and emotional wellbeing care to Indigenous people in a number of women's and men's prisons in south-east Queensland. The Centre has recently been awarded NHMRC funding to develop, implement and evaluate an IMHIP-Youth model in youth detention centres in Queensland. These services are non-clinical services, based on a holistic Aboriginal social and emotional wellbeing paradigm, but addressing suicidality is one of the focal areas and reducing suicide is an important desired outcome.

Queensland Corrective Services provided information on the transdiagnostic intervention entitled ERIC (Emotional Regulation and Impulse Control). This intervention has been implemented in youth justice and youth alcohol and other drug practice settings in Queensland. QCS stated that the intervention had demonstrated effectiveness in assisting young people in managing impulsivity and

other behaviours that are known risk factors for suicidal ideation; however, no information was available on the design of the intervention, nor the method of evaluation. As such, caution should be exercised regarding the intervention's effectiveness.

Gaps in the evidence base

Our search of the academic and grey literature, in conjunction with feedback from government, academic, health, and advocacy stakeholders, identified several key gaps in the evidence base regarding the effective of interventions to prevent suicide in people who have had contact with the criminal justice system. Specifically:

1) We identified a dearth of robust evidence regarding interventions to prevent suicide and suicidal behaviours in Aboriginal and Torres Strait Islander people who come into contact with the criminal justice system. Given the markedly increased risk of suicide experienced by Indigenous Australians compared to non-Indigenous Australians[6], in addition to their disproportionately high incarceration rates in every state and territory[130], this is a matter that requires urgent attention. Rigorous evaluation in real-world criminal justice settings is complicated by political and structural considerations, resource limitations, duty of care and ethical considerations. With respect to interventions for Aboriginal and Torres Strait Islander peoples, the cultural capability of both the intervention and the evaluation method are also key considerations[131]. However, rigorous evaluation of interventions developed by and for Indigenous peoples is possible and should be a priority for investment in the next five years.

2) We identified a lack of research being conducted at most of the intercept points outlined in the Sequential Intercept Model[61]. Our findings indicated that more than three-quarters (78%) of research was conducted in adult custodial (64%) or youth detention (14%) settings, with considerably fewer studies examining suicide prevention interventions in other settings. Of particular note, we identified no studies which examined suicide prevention interventions for people who were detained in police custody, or for people on bail or on parole.

3) Despite strong evidence that rates of self-harm and suicide are considerably higher after incarceration than in either youth detention or prison, we identified no studies that followed participants from custody into the community. As such, although we found some evidence of interventions that may have reduced suicide and/or self-harm in custodial settings, we did not identify any evidence that these interventions reduced the rate of self-harm or suicidal behaviour in people who experience incarceration. Studies with longer-term follow-up in the

community are urgently required. Longitudinal studies with justice-involved populations are challenging and resource intensive[132], however data linkage (e.g., linking criminal justice records with ambulance, emergency department, hospital or death records) is rapidly emerging as a valuable method for efficiently following large samples of vulnerable individuals over time[133].

DISCUSSION

The aim of this commissioned rapid review was to identify and synthesise literature regarding the effectiveness of interventions to reduce suicide and suicide-related behaviours in people who have come into contact with the criminal justice system. After searching the peer-reviewed and grey literature, and contacting state and territory government agencies, Commonwealth government agencies, not-for-profit, and academic organisations/institutions, and leaders in the mental health, suicide prevention, and criminal justice sectors, we identified a number of suicide prevention interventions for people who have come into contact with the criminal justice system, in Australia and internationally. Such interventions have been conducted predominantly in adult custodial settings (for both sentenced adults and those on remand), youth detention settings, and forensic hospitals. We identified one intervention in a community corrections setting and one in a court setting, but no studies were identified which examined suicide prevention interventions for people who were detained in police custody, nor for people on bail, nor for people released from custody. Opportunities exist to prevent suicide at all intercept points in the criminal justice pathway, however our findings indicate that such opportunities are, at the time of writing, not being fully explored.

Despite the large number of interventions identified, our review also revealed that few had been rigorously evaluated, and even fewer had been evaluated against outcomes specifically related to suicide and suicidal behaviours. Numerous stakeholders indicated a strong desire to incorporate more rigorous monitoring and evaluation into their suicide prevention programs, but noted that budgets typically did not permit this. Addressing this will require meaningful investment from state/territory and Commonwealth governments and, importantly, such evaluations must be rigorous, independent, and published. The bulk of the current literature could be characterised as evaluation of interventions to prevent suicide in settings where the state/territory has a duty of care (i.e., in custodial settings), as opposed to interventions to prevent suicide in vulnerable people who move through those settings.

Our review identified an absence of evidence regarding interventions to prevent suicide and suicidal behaviours among Indigenous people who come into contact with the criminal justice system. The lack of evaluation of Indigenous programs we identified is not a new phenomenon in Australia. A 2016 report by the Centre for Independent Studies entitled *'Mapping the Indigenous Program and Funding Maze'*[134] found that, of the 1,082 Indigenous programs identified in their research, only 88 (8%) had been evaluated. A similar finding was reported in the Productivity Commission's 2016 report *'Overcoming Indigenous Disadvantage'*[135], which found that very few Indigenous programs had been rigorously evaluated and identified a pressing need for more and better evaluation of Indigenous policies and programs nationally in order to improve outcomes for Indigenous Australians. Whilst correctional departments in some jurisdictions have implemented policies to deliver culturally safe health care to Indigenous people in custody (e.g., the South Australian Prison Health Service's *Model of care for Aboriginal Prisoner Health and Wellbeing for South Australia),* without evaluations of these policies and programs it remains unclear which policies and programs are working and why[135]. Although unsurprising, the lack of evaluations of Indigenous programs in correctional settings is cause for concern. In order to understand the extent to which programs targeting Indigenous suicide and self-harm in the criminal justice setting are effective, it is imperative that evaluations of Indigenous specific programs are conducted, and that outcome data for other evaluations are stratified by Indigenous status whenever possible.

In most Australian states and territories, one important role that custodial staff play is determining the level of supervision an incarcerated person is likely to require (conjointly with psychologists and other mental health clinicians), and providing practical and emotional welfare support[56]. Research has suggested that the dominant paradigm in Australian prison systems is that preventing suicide (and self-harm) is the duty of *all* people who live and work in prisons (i.e., it is not simply the responsibility of mental health staff, or of custodial staff). For example, psychological, medical (including nursing), and correctional staff contribute to both the formal (e.g., screening instruments) and informal (e.g., monitoring people for signs of distress) identification of suicide risk[56]. Furthermore, multidisciplinary teams are responsible for designing and monitoring the management of people at increased risk and for documenting team decisions. In jurisdictions where service delivery in custodial settings is highly decentralised (e.g., Victoria), successful implementation of this model is likely to be particularly challenging.

In 2009 the US Department of Justice published a national survey on suicide in youth detention[136]. The survey found that, although more than three-quarters of suicides (78%) occurred in facilities with suicide prevention policies at the time of the suicide, only 20% of suicides occurred in facilities

that had all seven suicide prevention components (written policy, intake screening, training, CPR certification, observation, safe housing, and mortality review) at the time of the suicide. This study therefore highlights the importance of facilities implementing and maintaining not only individual components of suicide prevention, but a comprehensive suicide prevention program. The critical components of a comprehensive suicide prevention policy presented by the authors (and consistent with national correctional standards in the US) is located in Appendix 2. Importantly, successful implementation of such a comprehensive policy relies, to a large extent, on effective coordination across the many sectors working within criminal justice settings (including health, custodial, contractors). This, in turn, first requires a clear, evidence-informed, culturally capable suicide prevention strategy and plan.

Preventing suicides *during* incarceration is an international priority and many countries, including Australia, have created national guidelines for suicide prevention in custodial settings[56]. However, despite evidence that the risk of suicide death is much greater *after* release from prison[42, 44, 57], no comparable guidelines currently exist in relation to preventing suicide deaths *after* release from prison, when individuals typically have less direct support or access to services and are typically more vulnerable. Efforts to prevent suicide after release from prison are therefore pivotal, yet there is a paucity of research on suicide after release from prison, and inadequate investment in targeted prevention[137]. An opportunity exists to learn more from past tragedies, through systematic analysis and integration of the findings of coronial inquiries into deaths in (and soon after release from) custody. This would be a valuable and contained piece of research.

Limitations

Limitations of our review include our restriction to studies published in English and to those published since 2000, which may have resulted in high-quality research studies not being identified. There were three primary research articles from two reviews for which we were unable to locate the full-text; however, in these instances the impact was minimised by performing the quality assessment and data extraction based on information contained within the reviews. Our review focused on interventions which explicitly aimed to reduce suicide and/or related outcomes among people who had come into contact with the criminal justice system. It is possible that other programs which do not directly measure the impact on suicidal behaviour have the potential to reduce suicide by reducing risk factors and improving protective factors such as improved mental health and well-being, social supports, and other social determinants of health (e.g. housing, education, employment, food security). Directly measuring the impact of an intervention aiming to reduce suicide is challenging because, even among high-risk groups, suicide is a rare event, such that

very large samples are required to achieve statistically significant effects. Data linkage is emerging as a novel and valuable methodology for following large groups of vulnerable individuals over time, including for the purposes of evaluating interventions.

Recommendations

People who come into contact with the criminal justice system are distinguished by complex health-related needs and health risk behaviours, including suicide attempts and self-harm[138]. Contact with the criminal justice system, and incarceration in particular, provides a rare opportunity to identify (and initiate care for) marginalised people who might be at increased risk of suicide. Efforts to prevent suicide in people who come into contact with the criminal justice system should be informed by evidence, and by the lived experience of people who have had contact with this system. Given their dramatic and increasing over-representation at all levels of the criminal justice system, it is critical that this includes the voices of Indigenous Australians. Consistent with this, we recommend that the following draft recommendations, which were informed by (but go beyond) the evidence included in this review, be subjected to a process of review involving people with lived experience, including Indigenous Australians. Importantly, we note that the evidence most directly relevant to these issues is scant and often of poor quality. However, we also note that rates of suicide and self-harm are disproportionately high in criminal justice settings[10, 11, 23, 34, 35] and, as such, there is an urgent need to address this consistent finding. The broader (largely observational) evidence base, combined with the evidence we identified and reviewed, provides some guidance regarding possible areas for targeted investment and policy reform, as outlined below.

<u>Recommendation 1:</u> Greater investment is required at the state, territory, and Commonwealth levels to prevent people from entering the criminal justice system.

a) Contact with the criminal justice system, particularly imprisonment/detention, can exacerbate mental health vulnerabilities considerably, both during and after an episode of incarceration. Once a person has come into contact with the criminal justice system, efforts should be made to divert that person at the earliest possible intercept point to prevent further deterioration of mental health problems and other adverse outcomes associated with an increased risk of suicide (e.g., loss of employment, financial hardship, obtaining a criminal record). For children and adolescents, one important mechanism for reducing the potentially harmful impacts of youth detention is by raising the minimum age of criminal responsibility to at least 14 years of age, as previously endorsed by the UN Committee on

the Rights of the Child[139]. Critically, diversion should be both *from* the criminal justice system and *to* more appropriate services, including community mental health services where warranted. Young people should, to the greatest extent possible, be prevented from entering adult custodial settings. The annual Report on Government Services (RoGS) should routinely document the proportion of young people who have come into contact with the youth justice system who have subsequent contact with the adult criminal justice system, and the proportion of adults in the adult criminal justice system who have had previous contact with the youth justice system. The mechanisms for obtaining these data, through the use of routine, de-identified data linkage, are already in place.

Investments could be redirected towards, for example, supporting justice reinvestment initiatives. Relevant recommendations were made in 2018 by the Australian Law Reform Commission's report *Pathways to Justice – Inquiry into the Incarceration Rate of Aboriginal and Torres Strait Islander Peoples*, which included developing a national justice reinvestment body and support across levels of government for more local justice reinvestment pilots. Such recommendations seek to address evidence and data gaps, support local collaboration, and build on related work research and findings, such as the 2013 Report of the Senate Legal and Constitutional Affairs Committee into the value of a justice reinvestment approach to criminal justice in Australia[140], and the ARC-funded project examining justice reinvestment in the NSW town of Cowra[141].

<u>Recommendation 2:</u> Investment in systems to more efficiently share health-related information and data between community health care settings and custodial health care settings should be a priority for state, territory, and Commonwealth governments.

a) Failures of health information transfer between community and custodial health systems is an avoidable impediment to continuity of care, and results in under-ascertainment of self-harm and suicide risk among people entering custodial settings. Official handovers from community health care services to custodial health services should be implemented each time a person enters custody, and official handovers from custodial health services to community health services should be implemented each time a person is released from custody. Such handovers should at a minimum involve appropriate transfer of health information including medical history, a list of any regular medications, and any treatment plans. The siloed and fragmented nature of custodial health and community health service provision is a key, avoidable failing of the system that compromises the health and safety of

people entering custody from community, and those leaving custody to return to the community. It is also inconsistent with Rule 24.2 of the United Nations' *Standard Minimum Rules for the Treatment of Prisoners* (also known as the "Mandela Rules"), which states that custodial health care services should be organised "in a way that ensures continuity of treatment and care". It is notable that the World Health Organization's 2013 policy brief on the organisation of prison health, entitled *"Good governance for prison health in the 21st century"*, recommended that custodial health care (which, notably, would include suicide and self-harm prevention) should be the responsibility of a Ministry of Health (as opposed to a Ministry of Justice). At the time of writing, this is not the case in all jurisdictions in Australia.

b) Ideally, identifying those at increased risk would involve health staff routinely accessing relevant community health records and conducting needs-based assessments, especially near the time of an individual's release from custody or transfer to a different facility. Whenever a person with a history of self-harm or a previous suicide attempt (or those at increased risk for such) is identified in a criminal justice setting, individually-tailored care pathways between custody and community-based primary and secondary health-care services, and other social support services such as housing, should be clearly defined to support people leaving prison. This should be complemented by meaningful investment in evidence-based transitional support at the state/territory level.

c) Improved continuity between community health services and custodial health services could involve initiatives linked to Medicare funding (e.g., creating Medicare items relating to pre-release primary care prison in-reach services and post-release health assessment, and allowing Aboriginal Community Controlled Health Organisations [ACCHOs] to claim MBS item #715 in custodial settings), policy settings for Primary Health Networks (e.g., developing policy guidance for Primary Health Networks to assess the extent to which their commissioned services are providing accessible, connected care to people who are moving between custodial settings and the community), and through Commonwealth leadership on information sharing. Economic evaluation of these reforms would be essential to support both scalability and sustainability.

<u>Recommendation 3:</u> The Commonwealth government should invest in the creation of national guidelines for preventing suicide after release from custodial settings.

a) Preventing suicides *during* incarceration is an international priority and many countries, including Australia, have created national guidelines for suicide prevention in custodial settings. However, despite evidence that the risk of suicide death is considerably higher *after* release from prison/youth detention, no comparable guidelines currently exist in relation to preventing suicide deaths after release from custodial settings. In order to prevent suicide in people who have contact with the criminal justice system, the current focus must extend beyond custodial settings to the community, where most suicides in this vulnerable population occur.

b) Australia has routinely monitored and reported on deaths in custody since the Royal Commission in 1991. A valid[25] estimate of deaths after release from prison is now published triennially by the AIHW[142]; however systems do already exist that would permit robust, routine monitoring of deaths due to suicide and other causes, after release from prison and youth detention, in addition to other settings of interest, through data linkage. Given the large number of preventable deaths seen each year among justice-involved Indigenous and non-Indigenous Australians, funding for such a system should be a priority for the Commonwealth government.

<u>Recommendation 4:</u> Criminal justice settings should be routinely included in population-level national mental health policies.

a) This should include policies regarding service planning, outcomes required by the policies (i.e., key performance indicators), standards, safety and quality, data collection and publication, workforce planning, and inclusion of lived experience. Potential first steps could include:

- Creating a framework for national reporting against compliance with the *National Forensic Mental Health Principles* and the *National statement of principles relating to persons unfit to plead or not guilty by reason of cognitive or mental health impairment*;
- Developing a national approach to the standard of mental health care required in custodial settings, and how this should be measured and reported;
- Implementing processes to ensure that equivalent mental health services are accessible to people who come into contact with the criminal justice system, and to reduce stigma and discrimination regarding people with such experience;
- Establishing Forensic Consumer and Carer Liaison Panels, with appropriate representation of Indigenous people, to provide input to policy directions and service design initiatives;

- Establishing a statutory annual reporting requirement to publish data on forensic patients that captures the number of people that entered the system, the number that exited, the number continuing, the average duration of orders, the number held in custodial settings, and the number unable to be placed in the locations preferred by oversight bodies;
- Supporting culturally appropriate services for forensic clients including access to interpreters, service design initiatives, and models of care.

<u>Recommendation 5:</u> There is an urgent need for more high-quality, longitudinal research examining the effectiveness of interventions designed to prevent suicidal ideation, self-harm, and suicide attempts in people who come into contact with the criminal justice system.

<u>a)</u> This would ideally be in the form of a nationally-led research strategy which identifies priority areas and evidence gaps, commissioned on the basis that findings will be disseminated publicly in a timely manner.

<u>b)</u> Our review identified a paucity of research into suicide prevention in Indigenous people who come into contact with the criminal justice system. In light of the marked over-representation of Indigenous people in the criminal justice system, and the higher rates of self-harm and suicide among Indigenous people compared to non-Indigenous people, this is an urgent priority area for high-quality, targeted, culturally competent research leading to culturally relevant suicide prevention interventions. Preventing suicide in Indigenous women, among whom the prevalence of trauma and mental disorder is particularly high[143], should form a central component of such research.

<u>c)</u> Our review identified a limited amount of research focusing on preventing suicide in women who are involved in the criminal justice system (who have different mental health needs to men, and who have often been victims of violence and abuse). The patterns of suicide and self-harm also differ between women and men. For example, men are more likely to die from suicide, whereas women are more likely to self-harm. The number of women involved in the criminal justice system is growing at a rate that far exceeds that of men. Women need self-harm and suicide prevention interventions that are based in evidence using female samples, are trauma-informed, and are relevant to their unique needs.

<u>d)</u> More research is urgently needed in criminal justice settings other than prisons and youth detention centres. This includes police watch houses and other settings where the police

interact with vulnerable members of the community, courts, community-based correctional and youth justice settings, diversionary program settings, and secure forensic mental health settings.

e) Interventions must be subjected to rigorous and independent evaluation to determine their effectiveness, importantly including assessment of any potential adverse effects. Our search of the grey literature, in conjunction with feedback from key government, academic, health, and advocacy stakeholders, identified a large number of programs being implemented without being formally evaluated. Given the dearth of evidence, and the potential for well-meaning programs to cause iatrogenic harm, this is unacceptable.

f) Evaluations should incorporate longer follow-up periods to assess the long-term effectiveness of interventions to prevent suicidal thoughts and behaviours. Our review identified follow-up periods ranging from just 3-26 weeks in duration, with all but two of the 36 studies reporting follow-up periods from 3-12 weeks. Critically, such evaluations must include follow-up after release from custody, given that the vast majority of suicide deaths among justice-involved people happen in the community, after contact with the criminal justice system.

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APPENDICES

Appendix 1: Medline search strategy

1	((Offender* or detain* or imprison* or prison* or custod* or incarcerat* or supervis* or penitentiary or penitentiaries or (criminal* adj2 justic*) or misdemeanour* or misdemeanor* or (licen?e* adj4 releas*) or (licen?e* adj4 prison*) or (licen?e* adj4 offend*) or (licen?e* adj4 sentenc*) or (licen?e* adj4 communit*) or (licen?e* adj4 order*) or (licen?e* adj4 criminal*) or (licen?e* adj4 parole*) or (licen?e* adj4 period*) or (on licen?e) or (secure adj facility) or (secure adj facilities) or (supervision adj2 order) or (community adj2 correction*) or parole* or probation* or (community adj2 order) or (community adj2 service) or (on adj2 bail) or ((remand* or releas* or in) adj2 custody) or (police adj2 detain*) or inmate* or (court adj liaison*) or (forensic adj2 mental) or (special* adj2 court*) or (forensic adj order*) or (drug adj2 court*) or (treatment adj2 court*) or (problem-solving adj2 court*) or (problem solving adj2 court*) or (indigenous adj2 court*) or (mental adj2 impairment adj2 court*)) or (detention* adj2 (centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or jail or gaol or ((jail or goal or prison or custod* or incarcerat*) and (detain* or crim* or offenc* or punish* or detain* or convict* or sentenc*or felon*)) or (penal adj (system* or centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or (correction* adj (institut* or centre* or center* or complex* or unit or units or facilit* or service*)) or ((pre or await*) adj sentenc*)).tw,kf.
2	Exp prisoners/
3	Exp juvenile delinquency/
4	Exp Forensic psychiatry
5	Exp Criminals/
6	Exp Involuntary Treatment/
7	Exp Criminal law/
8	Exp Forensic Psychology
9	Exp “Commitment of Mentally Ill”
10	Exp Involuntary Treatment, Psychiatric
11	Exp Custodial Care/
12	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
13	etc

	Search	**Result**
1	((Offender* or detain* or imprison* or prison* or custod* or incarcerat* or supervis* or penitentiary or penitentiaries or (criminal* adj2 justic*) or misdemeanour* or misdemeanor* or (licen?e* adj4 releas*) or (licen?e* adj4 prison*) or (licen?e* adj4 offend*) or	116752

	(licen?e* adj4 sentenc*) or (licen?e* adj4 communit*) or (licen?e* adj4 order*) or (licen?e* adj4 criminal*) or (licen?e* adj4 parole*) or (licen?e* adj4 period*) or (on licen?e) or (secure adj facility) or (secure adj facilities) or (supervision adj2 order) or (community adj2 correction*) or parole* or probation* or (community adj2 order) or (community adj2 service) or (on adj2 bail) or ((remand* or releas* or in) adj2 custody) or (police adj2 detain*) or inmate* or (court adj liaison*) or (forensic adj2 mental) or (special* adj2 court*) or (forensic adj order*) or (drug adj2 court*) or (treatment adj2 court*) or (problem-solving adj2 court*) or (problem solving adj2 court*) or (indigenous adj2 court*) or (mental adj2 impairment adj2 court*)) or (detention* adj2 (centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or jail or gaol or ((jail or goal or prison or custod* or incarcerat*) and (detain* or crim* or offenc* or punish* or detain* or convict* or sentenc*or felon*)) or (penal adj (system* or centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or (correction* adj (institut* or centre* or center* or complex* or unit or units or facilit* or service*)) or ((pre or await*) adj sentenc*)).tw,kf.	

Justice setting thesaurus terms:

	Search	**Result**
2	Exp prisoners/	16580
3	Exp juvenile delinquency/	8549
4	Exp Forensic psychiatry	38787
5	Exp Criminals/	4838
6	Exp Involuntary Treatment/	2439
7	Exp Criminal law/	5745
8	Exp Forensic Psychology	42
9	Exp “Commitment of Mentally Ill”	6788
10	Exp Involuntary Treatment, Psychiatric	64
11	Exp Custodial Care/	185
12	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11	168,125

Suicide keyword terms:

	Search	**Result**
13	(((self or themsel*) adj2 (injur* or mutilat* or harm*3 or wound* or violen* or strangl* or strangu* or poison* or cut or cutting or hang*3)) or ((deliberate or intentional or non-fatal) adj2 (self or themsel*) adj6 (injur* or mutilat* or harm*3 or wound* or violen* or strangl* or strangu* or poison* or cut or cutting or hang*3)) or self-inflict* or NSSI or parasuicid*or para-suicid*).tw,kf.	17,548
14	(suicid* or (suicid* adj2 attempt*) or (suicid* adj2 thought*) or (suicid* adj2 behav*)).tw,kf.	77305

Suicide thesaurus terms:

	Search	Result
15	Exp suicide/	62259
16	Exp Suicide, Attempted/	19680
17	Exp Suicide, Completed/	44
18	Exp self-injurious behaviour/	69989
19	Exp self mutilation/	3197
20	Exp suicidal ideation/	6836
21	13 or 14 or 15 or 16 or 17 or 18 or 19 or 20	107,196

Intervention/ program keyword terms:

	Search	Result
22	(Intervention* or (education* adj2 program*) or (public adj3 polic*) or (health adj3 polic*) or (social adj3 polic*) or (health adj3 promotion) or (suicid* adj3 prevent*) or treatment or trial? or (random* control* trial) or (random* control*) or (prevent* adj3 activit*) or ((service* adj5 (access* or provi* or supplied or supply* or avail* or deliver*)) and (reent* or re-ent* or releas* or re-integrat* or reintegrat* or transition*)) or (intervention* or education* or prevention* or program* or treatment* or trial) adj4 (access* or provi* or supplied or supply* or avail* or deliver*)).tw,kf.	266,451

Interventions/ program thesaurus terms:

	Search	Result
23	Exp crisis intervention/	5631
24	Exp Health promotion/	76,005
25	Exp psychotherapy/	193,964
26	Exp program evaluation/	75,151
27	Exp Mental health services/	94,680
28	Exp health policy/	105,420
29	Exp policy	155,400
30	Exp public policy/	138,765
31	Exp primary prevention/	150,243
32	Exp counselling/	43,494
33	22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32	931,754
34	12 and 21 and 33	833
35	Limit 34 to yr=2000-2020	529
36	Limit 35 to english	485

EMBASE (Ovid) search strategy:

Justice setting keyword terms:

	Search	Result
1	((Offender* or detain* or imprison* or prison* or custod* or incarcerat* or supervis* or penitentiary or penitentiaries or (criminal* adj2 justic*) or misdemeanour* or misdemeanor* or (licen?e* adj4 releas*) or (licen?e* adj4 prison*) or (licen?e* adj4 offend*) or (licen?e* adj4 sentenc*) or (licen?e* adj4 communit*) or (licen?e* adj4 order*) or (licen?e* adj4 criminal*) or (licen?e* adj4 parole*) or (licen?e* adj4 period*) or (on licen?e) or (secure adj facility) or (secure adj facilities) or (supervision adj2 order) or (community adj2 correction*) or parole* or probation* or (community adj2 order) or (community adj2 service) or (on adj2 bail) or ((remand* or releas* or in) adj2 custody) or (police adj2 detain*) or inmate* or (court adj liaison*) or (forensic adj2 mental) or (special* adj2 court*) or (forensic adj order*) or (drug adj2 court*) or (treatment adj2 court*) or (problem-solving adj2 court*) or (problem solving adj2 court*) or (indigenous adj2 court*) or (mental adj2 impairment adj2 court*)) or (detention* adj2 (centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or jail or gaol or ((jail or goal or prison or custod* or incarcerat*) and (detain* or crim* or offenc* or punish* or detain* or convict* or sentenc*or felon*)) or (penal adj (system* or centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or (correction* adj (institut* or centre* or center* or complex* or unit or units or facilit* or service*)) or ((pre or await*) adj sentenc*)).tw,kw,dq.	166,313

Justice setting thesaurus terms:

	Search	Result
2	Exp detention/	2427
3	Exp custodial care/	2294
4	Exp prisoner/	17902
5	Exp criminal justice/	6630
6	Exp offender/	15125
7	Exp Forensic psychiatry/	13638
8	Exp Juvenile delinquency/	9093
9	Exp court/	10843
10	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9	205829

Suicide keyword terms:

	Search	Result
11	(((self or themsel*) adj2 (injur* or mutilat* or harm*3 or wound* or violen* or strangl* or strangu* or poison* or cut or cutting or hang*3)) or ((deliberate or intentional or non-fatal) adj2 (self or themsel*) adj6 (injur* or mutilat* or harm*3 or wound* or violen* or strangl* or strangu* or poison* or cut or cutting or hang*3)) or self-inflict* or NSSI or parasuicid*or para-suicid*).tw,kw,dq.	23085
12	(suicid* or (suicid* adj2 attempt*) or (suicid* adj2 thought*) or (suicid* adj2 behav*)).tw,kw,dq.	102152

Suicide thesaurus terms:

	Search	Result
13	Exp Suicide/	59794
14	Exp Automutilation/	18387
15	Exp Suicide attempt/	32469
16	Exp Suicidal ideation/	20444
17	Exp Suicidal behaviour/	106451
18	11 or 12 or 13 or 14 or 15 or 16 or 17	150323

Intervention/ program keyword terms:

	Search	Result
19	(Intervention* or (education* adj2 program*) or (public adj3 polic*) or (health adj3 polic*) or (social adj3 polic*) or (health adj3 promotion) or (suicid* adj3 prevent*) or treatment or trial? or (random* control* trial) or (random* control*) or (prevent* adj3 activit*) or ((service* adj5 (access* or provi* or supplied or supply* or avail* or deliver*)) and (reent* or re-ent* or releas* or re-integrat* or reintegrat* or transition*)) or (intervention* or education* or prevention* or program* or treatment* or trial) adj4 (access* or provi* or supplied or supply* or avail* or deliver*)).tw,kw,dq.	384882

Interventions/ program thesaurus terms:

	Search	Result
20	Exp crisis intervention/	6442
21	Exp education program/	49881
22	Exp intervention study/	44882
23	Exp health program/	131508
24	Exp program effectiveness/	3629
25	Exp health care policy/	193244
26	Exp public policy/	199113
27	Exp policy/	289025
28	Exp health promotion/	98573

29	Exp mental health service/	58911
30	Exp peer counselling/	574
31	19 or 20 or 21 or 22 or 23 or 24 or 24 or 26 or 27 or 28 or 29 or 30	965787
32	10 and 18 and 31	980
33	Limit 32 to yr=2000-2020	853
34	Limit 33 to english	822
35	Limit 34 to conference abstract	120
36	34 not 35	702

PsycINFO (Ovid) search strategy:

Justice setting keyword terms:

	Search	Result
1	((Offender* or detain* or imprison* or prison* or custod* or incarcerat* or supervis* or penitentiary or penitentiaries or (criminal* adj2 justic*) or misdemeanour* or misdemeanor* or (licen?e* adj4 releas*) or (licen?e* adj4 prison*) or (licen?e* adj4 offend*) or (licen?e* adj4 sentenc*) or (licen?e* adj4 communit*) or (licen?e* adj4 order*) or (licen?e* adj4 criminal*) or (licen?e* adj4 parole*) or (licen?e* adj4 period*) or (on licen?e) or (secure adj facility) or (secure adj facilities) or (supervision adj2 order) or (community adj2 correction*) or parole* or probation* or (community adj2 order) or (community adj2 service) or (on adj2 bail) or ((remand* or releas* or in) adj2 custody) or (police adj2 detain*) or inmate* or (court adj liaison*) or (forensic adj2 mental) or (special* adj2 court*) or (forensic adj order*) or (drug adj2 court*) or (treatment adj2 court*) or (problem-solving adj2 court*) or (problem solving adj2 court*) or (indigenous adj2 court*) or (mental adj2 impairment adj2 court*)) or (detention* adj2 (centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or jail or gaol or ((jail or goal or prison or custod* or incarcerat*) and (detain* or crim* or offenc* or punish* or detain* or convict* or sentenc*or felon*)) or (penal adj (system* or centre* or center* or complex* or unit or units or environment* or facilit* or service*)) or (correction* adj (institut* or centre* or center* or complex* or unit or units or facilit* or service*)) or ((pre or await*) adj sentenc*)).ti,ab,id.	141,225

Justice setting thesaurus terms:

	Search	Result
2	Exp legal detention/	778
3	Exp juvenile justice/	2837
4	Exp forensic psychiatry/	4646
5	Exp diversion programs/	175
6	Exp criminal conviction/	1170
7	Exp criminal responsibility/	920
8	Exp court referrals/	777
9	Exp involuntary treatment/	1349
10	Exp criminal offenders/	19738
11	Exp forensic evaluation/	3850
12	Exp mentally ill offenders/	3708
13	Exp probation/	1397
14	Exp prisoners/	11122
15	Exp criminal justice/	12806
16	Exp forensic psychology/	4654
17	Exp correctional psychology/	74

18	Exp criminal rehabilitation/	2686
19	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18	157,702

Suicide keyword terms:

	Search	**Result**
20	(((self or themsel*) adj2 (injur* or mutilat* or harm*3 or wound* or violen* or strangl* or strangu* or poison* or cut or cutting or hang*3)) or ((deliberate or intentional or non-fatal) adj2 (self or themsel*) adj6 (injur* or mutilat* or harm*3 or wound* or violen* or strangl* or strangu* or poison* or cut or cutting or hang*3)) or self-inflict* or NSSI or parasuicid*or para-suicid*).ti,ab,id.	15,659
21	(suicid* or (suicid* adj2 attempt*) or (suicid* adj2 thought*) or (suicid* adj2 behav*)).ti,ab,id.	63,587

Suicide thesaurus terms:

	Search	**Result**
22	Exp suicide/	34244
23	Exp self-mutilation/	1141
24	Exp attempted suicide/	10164
25	Exp self-injurious behaviour/	5937
26	Exp suicidal ideation/	9008
27	Exp suicidality/	2184
28	Exp self-inflicted wounds/	790
29	20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28	73,645

Intervention/ program keyword terms:

	Search	**Result**
30	(Intervention* or (education* adj2 program*) or (public adj3 polic*) or (health adj3 polic*) or (social adj3 polic*) or (health adj3 promotion) or (suicid* adj3 prevent*) or treatment or trial? or (random* control* trial) or (random* control*) or (prevent* adj3 activit*) or ((service* adj5 (access* or provi* or supplied or supply* or avail* or deliver*)) and (reent* or re-ent* or releas* or re-integrat* or reintegrat* or transition*)) or (intervention* or education* or prevention* or program* or treatment* or trial) adj4 (access* or provi* or supplied or supply* or avail* or deliver*)).ti,ab,id.	105,957

Interventions/ program thesaurus terms:

	Search	**Result**
31	Exp intervention/	105,957
32	Exp crisis intervention/	8277
33	Exp group intervention/	2249

34	Exp educational program evaluation/	6200
35	Exp mental health program evaluation/	2121
36	Exp educational programs/	89235
37	Exp health promotion/	24443
38	Exp suicide prevention	4676
39	Exp health care policy/	12233
40	Exp government policy making/	50541
41	Exp mental health service/	41443
42	exp peer counseling/	1115
43	30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42	367117
44	19 and 29 and 42	811
45	Limit 44 to yr=2000-2020	654
46	Limit 45 to English	625

Grey literature search strategy:

Table A1: Combinations of search terms for websites and grey literature databases.

(1) Suicide terms		(2) Justice setting terms		(3) Intervention terms
Suicide		Criminal		Intervention
Suicidal ideation		Offender		Crisis intervention
Suicidal behaviour		Prison		Psychotherapy
Self-harm		Jail		Counselling
Self-wound		Gaol		Program
Self-cut		Corrections		Peer counselling
Self-mutilate		Correctional		Policy
Self-injurious		Prisoner		Legislate
behaviour		Incarcerated		Legislation
Auto-mutilate		Incarceration		Education program
Hang		Incarcerate		Health promotion
		Bail		Suicide prevention
		Court		Suicide reduction
		Drug court		
		Specialist court		
		Indigenous court		
		Problem solving court		
	+	Remand	+	
		Forensic order		
		Diversion order		
		Forensic hospital		
		Community corrections		
		Probation		
		Tribunal		
		Parole		
		Custodial care		
		Prison program		
		Police		
		Police custody		
		Detention		
		Detainee		
		Police detainee		
		Penitentiary		
		Penitentiaries		

**We used combinations of search terms from 1, 2, and 3, or from two groups only.*

Appendix 2: Critical components of a suicide prevention strategy in youth detention centres as presented by the US Department of Health[136].

1. **Training.** All facility, medical, and mental health staff should receive 8 hours of initial suicide prevention training, followed by a minimum of 2 hours of annual refresher training. Training should provide information about predisposing factors, high-risk periods, warning signs and symptoms, identifying suicidal behavior despite the denial of risk, and components of the facility's suicide prevention policy.

2. **Identification/screening.** Intake screening for suicide risk should take place immediately upon confinement and prior to housing assignment and include inquiry regarding current and past suicidal behavior, earlier mental health treatment, recent significant loss, suicidal behavior by a family member or close friend, suicide risk during prior contact with or confinement in agency, and arresting or transporting officers' opinion whether youth is currently at risk. The policy should include procedures for referral to mental health personnel for further assessment.

3. **Communication.** At a minimum, facility procedures should enhance communication among facility staff (including medical and mental health personnel) and the arresting/transporting officer(s), family members, and suicidal youth.

4. **Housing.** Excessive and unjustified isolation should be avoided. Whenever possible, suicidal youth should be housed in the general population, mental health unit, or infirmary, in close proximity to staff. Youth should be housed in suicide-resistant, protrusion-free rooms. Removal of clothing (excluding belts and shoelaces) and use of restraints should be avoided when possible.

5. **Levels of supervision.** Two levels are normally recommended for suicidal youth:
    a. Close observation—reserved for youth who are not actively suicidal, but express suicidal ideation and/or have recent histories of self-destructive behavior and are now viewed as potentially suicidal—requires supervision at staggered intervals not to exceed every 15 minutes. In addition, a youth who denies suicidal ideation or does not threaten suicide, but demonstrates other concerning behavior (through actions, current circumstances, or recent history) indicating the potential for self-injury, should be placed on close observation.

b. Constant observation – reserved for youth who are actively suicidal (threatening/engaging in the act) – requires supervision on a continuous, uninterrupted basis.

In addition, an intermediate level of supervision can be used with observation at staggered intervals not to exceed every 5 minutes. Other supervision aides (e.g., closed-circuit television, companions or watchers) can be used as a supplement to, but not as a substitute for, these observation levels.

6. **Intervention.** A facility's policy regarding intervention should be threefold: All staff should be trained in standard first aid and cardiopulmonary resuscitation (CPR); Any staff member who discovers a youth attempting suicide should immediately respond, survey the scene to ensure the emergency is genuine, alert other staff to call for medical personnel, and begin life-saving measures; Staff should never presume that the youth is dead, but rather initiate and continue appropriate life-saving measures until relieved by medical personnel; All housing units should contain a first aid kit, pocket mask or mouth shield, Ambu bag, and rescue tool (to quickly cut through fibrous material).

7. **Reporting.** In the event of an attempted or completed suicide, all appropriate facility officials should be notified through the chain of command. All staff who came in contact with the victim before the incident (or in responding to the incident) should submit a statement as to their full knowledge of the youth and the incident.

8. **Follow-up/mortality review.** All staff (and youth) involved in the incident should be offered critical incident stress debriefing. If resources permit, a psychological autopsy is recommended. Every completed suicide and serious suicide attempt (i.e., requiring hospitalization) should be examined by a review process. Ideally, the review should be coordinated by an outside agency or facility to ensure impartiality. The mortality review, separate and apart from other formal investigations that may be required to determine the cause of death, should be multidisciplinary (i.e., involve correctional, mental health, and medical personnel) and include a critical inquiry of the following: the circumstances surrounding the incident; facility procedures relevant to the incident; all relevant training received by involved staff; pertinent medical and mental health services/reports involving the victim; possible precipitating factors leading to the suicide. Recommendations, if any, for

changes in policy, training, physical plant, medical or mental health services, and operational procedures.