Rapid Evidence Review of Harm Minimisation Strategies addressing illicit drug use with Select At-Risk Cohorts

July 2023

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Suggested citation

Thompson, K., Nicholas, R., Fischer, J., Muminovic, A., Bower, M., McEntee, A., Bartram, A., Hines, S., Brickley, B. Smith, J.A., Moore, S. & Bowden, J., (2023). Rapid Evidence Review of Harm Minimisation Strategies with Select At-Risk Cohorts. National Centre for Education and Training on Addiction (NCETA) and Rural and Remote Health NT, Flinders University, South Australia.

Acknowledgement of Country

NCETA and Rural and Remote Health NT respectfully acknowledge the Traditional Owners and Custodians of the lands on which campuses are located, these are the Traditional lands of the Arrernte, Dagoman, First Nations of the South East, First Peoples of the River Murray and Mallee region, Jawoyn, Kaurna, Larrakia, Ngadjuri, Ngarrindjeri, Ramindjeri, Warumungu, Wardaman and Yolngu people. We honour their Elders past, present and emerging.

Funding

This research was commissioned by the Alcohol and Drug Foundation (ADF) supported by funding from the Northern Territory Primary Health Network (PHN) through the Australian Government's PHN Program.

Acknowledgements

We thank Associate Professor Caitlin Hughes and Dr Cassandra Wright for being expert advisors on the project and Ellen Wynn for her assistance screening studies.

We would also like to thank the organisations that responded to our direct call for relevant documents to supplement the structured rapid evidence review search process.

About NCETA

NCETA is based at Flinders University in South Australia and is a collaboration between the University and the Australian Government Department of Health. It is Australia's national research centre on alcohol and other drugs (AOD) workforce development with an international reputation as a catalyst for change in the AOD field. NCETA's areas of expertise includes developing strategic resources and programs, and the provision of training and other workforce development approaches to cater for the needs of: specialist AOD workers; frontline health and welfare workers; Aboriginal and Torres Strait Islander workers; community groups; mental health workers; police officers; and employers and employee groups.

The Centre focuses on supporting evidence-based change and specialises in change management processes and making complex and disparate information readily accessible to workers and organisations. We aim to advance the capacity of organisations and workers to respond to AOD-related problems. Our core business is the promotion of workforce development (WFD) principles, research and evaluation of effective practices; investigating prevalence, and effects of alcohol and other drug use in society; and the development and evaluation of prevention and intervention programs, policy and resources for workplaces and other organisations.

About Flinders Rural and Remote Health NT

Flinders Rural and Remote Health NT is a hub for innovative health research, education, and workforce development in the Northern Territory. It has served the NT community in this way for the past 25 years, and has campuses based in Nhulunbuy, Darwin, Katherine, Tennant Creek and Alice Springs. All activities are driven by our values which focus on long-term and short-term needs of the NT community. Flinders in the NT delivers the Northern Territory Medical Program (NTMP), provides student placement and workforce capacity support through the University Department of Rural Health, including the Flinders NT Regional Training Hub, who in collaboration with stakeholders, is tasked to further develop capacity for NT medical specialist and rural generalist training thereby addressing workforce need. Flinders in the NT also provides workforce development through postgraduate education (Remote Health Practice program), cultural awareness and other training. Our research in the NT sits at the nexus of rural and remote health, and Aboriginal and Torres Strait Islander health, with a rapidly growing Aboriginal and Torres Strait Islander research workforce.

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Abbreviations

AA - Alcoholics anonymous
AADANT - Association of Alcohol and Other Drug Agencies NT
ACCHO - Aboriginal Community Controlled Health Organisation
ADF – Alcohol and Drug Foundation
AOD – Alcohol and other drugs
ASSIST - Alcohol, Smoking and Substance Involvement Screening Test
BBV - Blood borne viruses
B-MAT – Buprenorphine-based medication-assisted treatment
CBPR – Community-based participatory research
CPC – Community Partnership Committee
CRA - Community reinforcement approach
CTC - Communities That Care
CRAFT - Community Reinforcement and Family Training
DLM - Deadly liver mob
EDM – Electronic dance music
FASD – Foetal alcohol spectrum disorder
HCV - Hepatitis C virus
HIV - Human immunodeficiency virus
IRIS - Indigenous Risk Impact Screen
MDMA – Methylenedioxymethamphetamine
NCETA – National Centre for Education and Training on Addiction
NDS - National Drug Strategy
NHMRC - National Health and Medical Research Council
NSP - Needle and syringe program
NSW – New South Wales
NT – Northern Territory
PHN – Primary Health Network
PRS – Peer recovery support
SDH - Social determinants of health
SMART - Self-Management and Recovery Training
STI - Sexually transmitted infections
SUD - Substance use disorders
STS – Severe traumatic stress
THC - Tetrahydrocannabinol
OUD – Opioid use disorder
XR-NTX – Extended-release naltrexone
WYDAC – Walpiri Youth Development Aboriginal Corporation
YMCA – Young Mens Christian Association

Executive summary

Background

The Alcohol and Drug Foundation (ADF) commissioned Rural and Remote Health Northern Territory (NT) and the National Centre for Education and Training on Addiction (NCETA) to undertake the NT Illicit Drugs Needs Review. This review comprised three deliverables:

1. Quantitative analysis of national datasets relating to NT illicit drug use and harms
2. Qualitative study of NT key stakeholder perspectives of illicit drug use and harms
3. Rapid review of evidence-based strategies to address illicit drug use-related harms among three cohorts of interest identified in the first deliverable.

This rapid evidence review reports on harm minimisation strategies for the following three cohorts:

- Aboriginal and Torres Strait Islander peoples
- Rural and remote people
- Young men (later broadened to young people due to an absence of studies specifically addressing young men)

The specific aims of this rapid evidence review were to:

1. Identify effective harm minimisation **messages** for the identified cohorts
2. Identify effective harm minimisation **approaches** for the identified cohorts
3. Based upon findings, present **considerations and recommendations** when designing / implementing messages and approaches for the identified cohorts.

For ease of presentation, each cohort is discussed separately. However, it should be noted that they are not mutually exclusive, as illustrated by the Venn diagram in Figure 1, below:

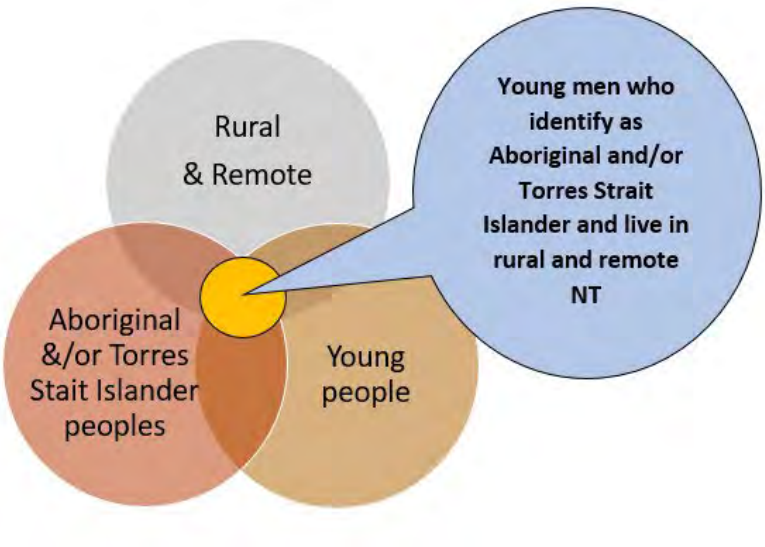

Figure 1: Venn diagram showing intersection of the three cohorts

Northern Territory population

The Northern Territory is a vast, sparsely populated jurisdiction covering an area of 1,349,129 square kilometres. Nearly 50% of the NT population live in remote/very remote areas (versus 22% nationally). In 2021, the NT had a population of approximately 251,000, almost 31% of whom identified as Aboriginal or Torres Strait Islander. [1] Seventy per cent of people living remotely identify as Aboriginal and Torres Strait Islander, living in one of 600 communities or remote outstations. Across the NT, over 200 languages are spoken. The NT has proportionately more males (50.5%), than females (versus 49.3% nationally) [2] and the median age in the NT is younger than the national average (33 years vs 38 years). [3]

Rapid evidence review methods

Study design: Desktop review.

Search strategy: A rapid evidence review search of MedLine and CINAHL databases, using ADF agreed search terms for studies published in the last decade. Identified records were downloaded into Covidence. Duplicates were removed and records screened for inclusion - the latter by at least one team member. Discrepancies were resolved through consensus voting.

For each included study, key data were extracted and tabulated. A rapid review was then undertaken, supplemented by key literature and established evidence obtained through a grey literature search and from 10 documents received after sending direct requests to 49 organisations.

Search results: The rapid evidence review yielded 6,598 peer-reviewed studies. After removal of duplicates and screening, 26 studies remained (Aboriginal and Torres Strait Islander peoples n=12; rural and remote n=11). No studies were identified by the rapid evidence review that specifically focused on young males. However, nine studies were identified which focused on young people generally; and these were deemed relevant for inclusion.

The 26 peer-reviewed studies identified by the rapid evidence review were supplemented with six other harm minimisation interventions/studies that were identified by other means, of relevance to the cohorts and published within the past 10 years. The total number of studies on which this report is based is therefore 32, excluding other contextual sources of information such as guidelines, declarations and statistical reports.

Key findings

Effective messages

Little evidence was identified in the rapid evidence review regarding effective messaging.

For Aboriginal and Torres Strait Islander peoples:

One study found in the rapid evidence review described messaging delivered through a radio campaign. Key principals included co-design with Aboriginal and Torres Strait Islander Elders and local service providers; advertising in locally owned and operated Aboriginal and Torres Strait Islander radio media; engaging locally known and respected Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander community members to give voice to the radio messages. Messaging covered effects of alcohol use, financial cost of substance use, effects of methamphetamines, peer pressure and substance use, effects of yarndi (cannabis) use, effects of tobacco smoking and safe partying messaging. As with two other evaluations of the impact of a campaign on Aboriginal and Torres Strait Islander youth in Perth metropolitan area, the research did

not evaluate the impact of the program on AOD use but found that there was a high level of recall of the advertisements among community members. There was no major impact on the incidence of help seeking [include reference].

For rural and remote people:

- No studies with implications for messaging were identified by the rapid evidence review, but other literature (not studies *per se*) indicated the importance of the following:
    - Messaging cognisant of context to mitigate unintended harm
    - Having rural and remote workers familiar with patterns, prevalence and drug effects
    - Addressing socio-normative barriers, such as stigma.

For young people:

- A narrative review from the grey literature indicated that the following would be important for messaging young people:
    - Recognising heterogeneity amongst young people
    - Involving young people in the co-design, development and implementation of messages
    - Creating positive messaging
    - Building trust with peer and health organisations that are perceived by young people as truthful
    - Being culturally and locally relevant, informative and action oriented
    - Locating messages in places and resources used by young people.

- Examples of key messages were provided in two evaluations of the Western Australia Mental Health Commission Strong Spirit Strong Mind Metro Project, although the impacts were only evaluated in relation to awareness of AOD harm. The messaging campaign was found to increase awareness of harms amongst Aboriginal and Torres Strait Islander youth. It was based on the following messages:
    - Alcohol and drugs messes with your mind and affects your relationships
    - No alcohol and drugs is the safest choice
    - Alcohol and drugs can put you in shameful and dangerous situation
    - Alcohol and drugs can weaken your spirit
    - When our spirit is strong our mind is strong and we make good choices
    - Strong inner spirit keeps our family strong, our community strong and our culture alive.

Effective approaches to reduce illicit drugs harms

Aboriginal and Torres Strait Islander peoples

- Five studies demonstrated statistically significant improvements in AOD use outcomes or other factors likely to reduce AOD harms and another two provided promising[1] results.
- The studies demonstrating effectiveness involved:
    - Cultural sensitivity and adaptation
    - Compassion and self-determination

[1] The intervention showed some success in reducing illicit drug use and/or harms but the effect was not statistically significant, or there was a statistically significant effect for a population important for reducing harm to people who use illicit drugs, such as physicians.

- Services provided by First Nations peoples (particularly peer workers)
- Strengths-based approaches
- Opioid agonist therapy (where appropriate).

Rural and remote people

- Three studies reported statistically significant improvements in illicit drug use outcomes or other factors likely to reduce harms and another two provided promising results
- The studies demonstrating effectiveness involved:
  - Developing and implementing comprehensive plan for informing and educating the broader community about initiatives
  - AOD education and training for the whole primary health care workforce
  - Multi-disciplinary teams, inclusive of peers.

Young people

- Five studies reported statistically significant effects on reducing illicit drug use and/or harms and another two provided promising results.
- The studies demonstrating effectiveness involved:
  - Cultural appropriateness
  - Peer input in design and delivery
  - Technology-based interventions
  - Family, kinship and community.

Based on the literature considered in this report (academic peer-review and grey), a number of approaches were identified for minimising the harms of illicit drug use with the three cohorts. The strength of their evidential basis ranged from promising to statistically significant. Together, these could be considered a non-exhaustive list of best practice design principles (see table 1):

Table 1: Effective approaches identified across studies yielded by the rapid evidence review for the three cohorts across peer-review and grey literature

Setting	Cohort		
	Aboriginal and Torres Strait Islander	Rural and Remote	Young People
Community based settings			
Psychological interventions or talking therapies	✓		✓
Programs supporting family members of people with illicit drug concerns	✓		✓
Culturally appropriate residential rehabilitation programs (specifically drawing on the learnings from the NSW Healing Model of Care for the Service, developed using a community-based participatory research process	✓		
Culturally-adapted versions of Communities That Care	✓		
Aboriginal-adapted Community Reinforcement Approach	✓		
Ntaria Aboriginal Community initiative	✓	✓	
Workforce development			
Whole of workplace setting AOD education and training, delivered in combinations of face to face, tele-mentoring, and online learning		✓	
NT Remote AOD Workforce Program		✓	
Engagement			
Cultural appropriateness	✓	✓	✓
Compassion and self-determination	✓		
Addressing the specific needs and circumstances of target groups	✓	✓	✓
Meeting people where they are at, accepting of relapse and non-linear trajectories			✓
Peer input: design, delivery	✓	✓	✓
Technological interventions: Digital, computer, radio and mobile based	✓	✓	✓
Involvement, where possible, of family, kinship and community	✓	✓	✓

Other important considerations

The literature also provided the following considerations and recommendations when designing/implementing message and approaches:

- **Social determinants of health (SDH):** Taking into consideration the ways in which SDH impact levels of illicit drug-related harm in the NT is a critically important starting point for program and service planning and development aimed at reducing these harms, particularly among Aboriginal and Torres Strait Islander peoples in the NT.
- **Strengths-based approaches:** This involves building on the SDH that contribute to social and emotional wellbeing, a holistic concept which recognises the importance of connection to land, culture, spirituality, ancestry, family and community.
- **Literacy and socio-normative barriers**: Strategies targeting Rural and Remote people need to consider barriers related to varying literacy rates as well as the intricacies of living in small towns, especially regarding confidentiality and stigma.
- **Masculinities*:*** Although there are no studies on the importance and benefits of addressing masculinities in relation to illicit drug use harm minimisation strategies targeting young men, this is a burgeoning area of research that is likely to be relevant.
- **Youth as a developmental stage:** The considerations for strategies targeting young people need to accommodate their brain development, decision-making and broader socio-cultural and educational contexts.

Limitations

This report should be considered within the context of the following limitations:

- The search strategy did not yield many interventions that were particularly relevant to the primary health care setting (especially for young people).
- Most interventions focussed on both alcohol and drugs where clients of those programs are highly likely to be experiencing poly substance use harms (including alcohol). Therefore, separating alcohol from illicit drugs is likely to create an artificial divide which does not reflect the reality of substance use.
- Few included studies were conducted in the NT.
- Few studies focused on cannabis and methamphetamine – drugs that are relevant to the NT.
- Findings from other First Nations contexts would need to be adapted, tested and evaluated in NT contexts.
- Studies reported as successful elsewhere may not have the same results for cohorts or sub-groups in the Northern Territory, especially without co-design, cultural appropriateness and community involvement.
- Consistent with the rapid evidence review approach, the quality of evidence was assessed according to the single dimension of the NHMRC designation of levels of evidence (see Table 2) without taking diagnostic accuracy, prognosis, aetiology or screen intervention into account. [4] Evidence was therefore assessed for high or low potential for biased results.
- A lack of evidence does not mean that interventions were ineffective. Rather, a lack of evidence implies that interventions have not been evaluated; have been evaluated in ways that make it difficult to draw conclusions regarding effectiveness; or have insufficient sample sizes to demonstrate statistically significant changes.
  Statistical significance does not indicate effect size.

- More robust evaluations of interventions are needed to provide better guidance on programs to reduce illicit drug harms amongst the cohorts in the NT. It is therefore important for evaluation to be included in project design and budgeted accordingly.

Conclusion

This rapid evidence review was based on 32 studies published in the past decade. Only four publications were identified that discussed harm minimisation messaging. These publications were relevant to two out of the three cohorts of interest; Aboriginal and Torres Strait Islander peoples and young people. The publications found high levels of message recall and improved awareness of AOD harms but did not evaluate the impacts of messaging on illicit drug use *per se*.

The literature revealed five engagement approaches that were relevant to all three cohorts: cultural appropriateness; addressing specific needs and circumstances; peer input in design and delivery; technological interventions; and involvement of family, kinship and community. Other important considerations for the design and implementation of messages and approaches included considering the social determinants of health, strengths-based approaches, literacy and socio-normative barriers, masculinity and youth as a development stage. More broadly, this rapid evidence review highlighted the need for NT-specific research, including well-designed evaluations that can reliably attribute the role of specific messages, approaches and considerations in reducing illicit drug use and related harms for each of the three cohorts.

Chapter One: Introduction

In this report, we present the findings of a rapid evidence review of strategies to address illicit drug use-related harms amongst three cohorts. In this introductory chapter, we describe the background, aims and methods of this report. In Chapters Two, Three and Four, we describe our rapid evidence review results according to each cohort.

For each cohort we provide:

- A snapshot table summarising studies related to each cohort (identified by the rapid evidence review and grey literature)
- A description of the studies, including methodological quality according to NHMRC Levels of Evidence
- A summary of effective messages
- A summary of effective approaches.

Whilst the cohorts are presented in individual chapters for clarity of presentation, they are not mutually exclusive. For example, there are many young Aboriginal and Torres Strait Islander people living in rural and remote areas in the Northern Territory (NT), and for whom the results presented in each chapter are more or less relevant, as illustrated earlier in the Venn diagram in Figure 1.

The three chapters are then followed by Chapter Five which describes some key considerations and recommendations when designing or implementing messages and approaches.

Chapters 2-4 are mostly – but not exclusively, based on studies reporting on strategies. Chapter Five is largely based on contextual literature that does not report on specific studies or evaluations of studies/strategies.

The report appendix contains three tables summarising the studies yielded by the rapid evidence review and attributed to each cohort. The tables in the appendices are presented in significant depth compared to the snapshot tables provided at the start of each cohort chapter. Where studies were relevant to multiple cohorts, they are repeated in the relevant tables.

Background

NCETA and Rural and Remote Health NT were commissioned by the Alcohol and Drug Foundation (ADF) to locate and analyse existing data sources to measure illicit drug use and associated harms in the Northern Territory (NT). Findings of this request were detailed in a quantitative report. [5] Qualitative work has also been completed, based on five dyadic interviews and 11 one-on-one interviews with key stakeholders in the NT. [6]

The quantitative report found that the NT has a high prevalence of illicit drug use in general, and cannabis use in particular. Prevalence rates for illicit drug use are higher than the comparable national average (16%), as demonstrated in relation to the level of use in following demographic subgroups in the NT:

- Men (23%)
- Young people aged 14-24 years (28%)

- Aboriginal and Torres Strait Islander peoples (29%)
- People living outside of Darwin (i.e., Rural and Remote) (23%)
- Australian born (22%)
- People identifying as homosexual or bisexual (44%*).[2]

When the national prevalence of cannabis use is considered (12%), the following demographic groups in the NT reported higher cannabis use:

- Men (19%)
- People aged 14-24 years (25%)
- People aged 25-29 years (20%)
- People aged 30-39 years (16%)
- Identification as Aboriginal and Torres Strait Islander (25%)
- Identification as non-Indigenous peoples (15%)
- People living outside of Darwin (20%)
- Australian born (19%)
- Identification as heterosexual (16%) or homosexual/bisexual (39%*)[3]
- Employed (16%).

The report notes that targeted strategies are required to reduce NT's high prevalence of illicit drug use in general (and cannabis use specifically).

The following three cohorts at risk of harm from illicit drug use were considered of particular interest:

1. Aboriginal and Torres Strait Islander peoples
2. Rural and remote residents
3. Young men aged 14-29 years.

The ADF subsequently requested a rapid evidence review to search academic and grey literature to identify effective harm reduction approaches and messages for reducing harm among these cohort/s.

The cohort of Young men was redefined as young people following the rapid evidence review failing to identify any literature specifically about Young men.

Note: The UNODC and WHO have endorsed International Standards on Drug Use Prevention (2nd Edition, 2018).

These Standards describe the interventions and policies that have been found to be effective by the scientific evidence in preventing substance use. They aim to serve as the foundation of an effective health-centred national substance use prevention system guiding policymakers and other national stakeholders to develop programmes and policies that are an effective investment in the future of children, youth, families and communities.

The UNODC/WHO standards should be considered in relation to this Rapid evidence review.

For more information: International Standards on Drug Use Prevention (unodc.org)

[2] * Estimate has a relative standard error between 25-50% and should be interpreted with caution.
[3] * Estimate has a relative standard error between 25-50% and should be interpreted with caution.

Aims

In relation to illicit drug use, the aim of this rapid evidence review was to summarise the evidence (both within Australia and internationally) in relation to harm minimisation strategies amongst people who use illicit drugs, with a focus on:

- Effective messages for the cohorts
- Effective approaches for the cohorts
- Considerations and recommendations when designing / implementing messages and approaches.

Also of interest was any gendered aspects of the studies related to the above, as was the strategy setting (Primary Care or Other).

Methods

A literature review was conducted to address the aims. A structured rapid evidence review was undertaken (see Appendix 1), directed by agreed upon search terms (see Appendix 2).

Structured rapid evidence review

A structured search was undertaken to capture relevant peer reviewed and grey literature. The search involved searching two electronic databases for studies published from 2013:

1. Medline
2. The Cumulative Index to Nursing and Allied Health Literature (CINAHL)

As noted above, the three cohorts of interest for the Evidence Review were identified as:

- Aboriginal and Torres Strait Islander peoples
- Rural and remote residents
- Young men (aged 14-29 years) [later broadened to Young people due to a lack of relevant literature].

The search terms that were used to identify literature are described in Appendix 2.

Screening

One researcher undertook the extensive literature search and exported all identified literature into Covidence. Two team members independently screened all literature at two levels of review: Level 1 involved screening titles and abstracts for relevance/applicability; and Level 2 involved screening full texts for eligibility. Discrepancies were resolved through discussion and article decisions were made via consensus voting.

Data extraction

One team member extracted key information from all eligible references. Accuracy of the data extracted was confirmed by a second team member.

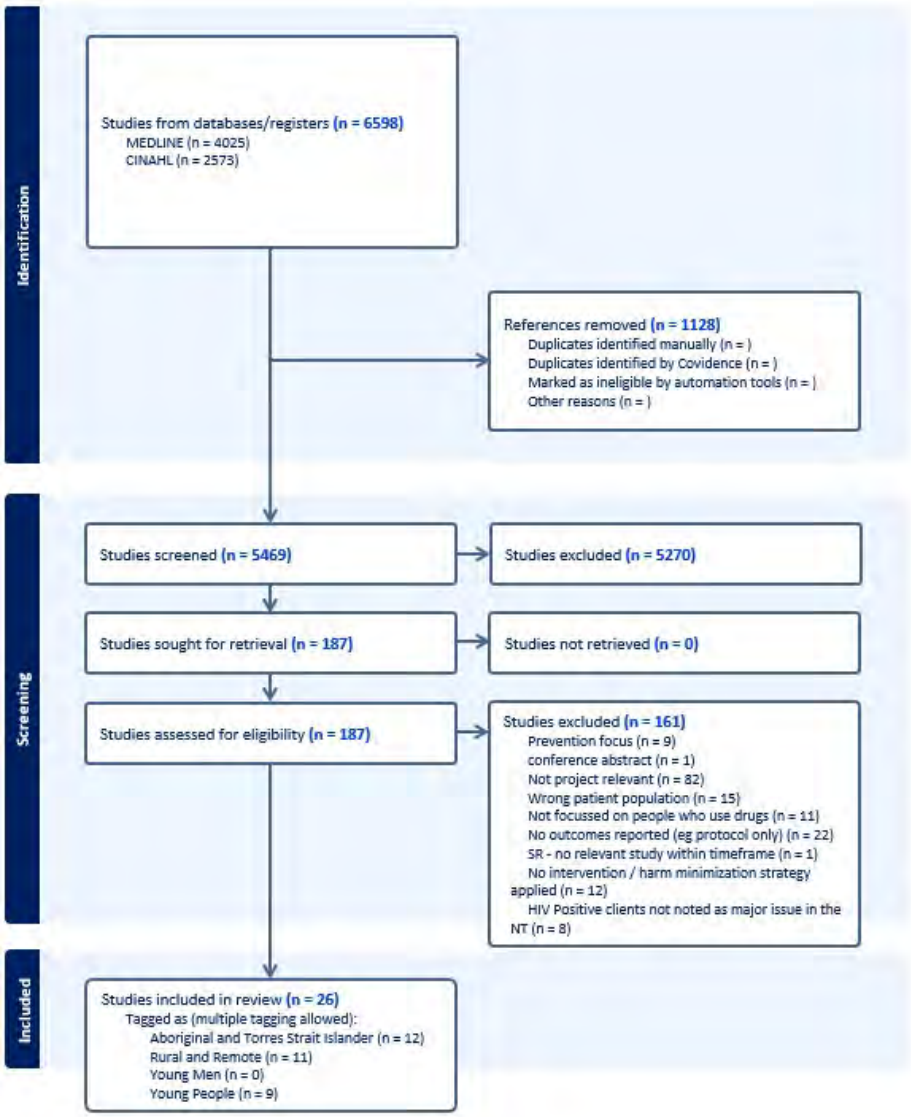

Figure 2: Flow diagram of systematic review search methodology

The review of two major databases identified 6,598 studies. After removing duplicates, 5,469 studies were screened. Following exclusions, 187 studies were assessed for eligibility. Following final exclusions, 26 studies were included for review. Of those, 12 studies related to Aboriginal and Torres Strait Islander peoples and 11 to people living in Rural and Remote areas. As no studies were relevant to young men, 9 studies were included for review which related to young people (see Figure 2).

Where relevant, articles were coded to more than one cohort. For example, one study was relevant to all three cohorts. [7]

The studies informing the discussion of evidence for each cohort are summarised as snapshot tables in each chapter, as well as in depth in tables in Appendices 3-5. Contextual literature is cited throughout this report and included in the reference list.

Evidence assessment

The quality of studies included in the Evidence Review were assessed via the NHMRC levels of evidence framework for interventions [4] (see Table 2).

Table 2: NHMRC designation of levels of evidence for all studies included in report, reproduced from NHMRC, showing descriptions and spread across cohorts

NHMRC Level of evidence	Study design	Cohort[4]		
		Aboriginal and Torres Strait Islander	Rural and Remote	Young people
I	Evidence obtained from a systematic review of all relevant randomised controlled trials.	2	0	1
II	Evidence obtained from at least one properly-designed randomised controlled trial.	4	0	4
III-i	Evidence obtained from well-designed pseudorandomised controlled trials (alternate allocation or some other method).	0	2	0
III-ii	Evidence obtained from comparative studies (including systematic reviews of such studies) with concurrent controls and allocation not randomised, cohort studies, case-control studies, or interrupted time series with a control group.			
III-iii	Evidence obtained from comparative studies with historical control, two or more single arm studies, or interrupted time series without a parallel control group.			
IV	Evidence obtained from case series, either post-test or pre-test/post-test.	9	6	4
N/A	Did not meet the criteria of NHMRC Levels I-IV.	2	3	3
	Total number of studies included for each cohort (Note: some studies coded to multiple cohorts)	**17**	**11**	**12**

Two review members independently assigned each study to a level of evidence populated in Covidence. Conflicts were resolved through discussion and decisions were made via consensus.

When interpreting the levels of evidence above, it should be noted that:

> *'These levels of evidence are a convenient way of summarising study designs according to their generally perceived capacity to minimise or eliminate bias in the effect being measured. It is important that they are not perceived to represent the strength of evidence, to which study design is only one of several contributors'*. [4]

[4] Counts include studies identified by the rapid evidence review and via other approaches. Some studies coded to multiple cohorts.

As noted earlier, snapshot tables are included in Chapters 2-4 to provide an overview of studies yielded by the rapid evidence review for each cohort. For each study, we describe the strength of the evidence as follows (Table 3):

Table 3: Meaning of labels used in snapshot tables to describe strength of evidence

Label	Meaning
Yes*.	The intervention had a statistically significant effect on reducing illicit drug use and/or harms.
Promising.	The intervention showed some success in reducing illicit drug use and/or harms but the effect was not statistically significant, or there was a statistically significant effect related to reducing harms among people who use illicit drugs (e.g. increased reach of an intervention/ service that intends to reduce use and/or harms).
No.	The intervention did not directly reduce illicit drug use and/or harms.
Various.	There was a mixture of findings including those that had statistically significant effects, and/or were either promising (as defined above), resulted in no reduction of illicit drug use and/or harms, or were unclear (as defined below).
Unclear.	There was insufficient detail to determine if the intervention did or did not reduce illicit drug use and/or harms.

Supplementary literature

Experienced researchers supplemented the results from the structured rapid evidence review with searches of the grey and peer-review literature. Literature was also identified through a desktop search of key Australian organisation websites, and by consulting the ten documents identified after receiving responses from 22 of the 49 organisations that were emailed with a direct request for relevant material (Appendix 1). In particular, a report by the Association of Alcohol and Other Drug Agencies NT (AADANT) [8] provided important context for Chapters Two and Four. That report documents a year of consultation and sector development by a Youth Project Officer in the Youth AOD space in the NT.

Other documents provided by organisations were examples of drug information flyers (of which two are reproduced in Chapter Two) and various materials such as drug treatment or counselling guidelines which were not relevant to the main aims of this report.

Where the supplementary literature was a study and/or an evaluation, it has been included in the snapshot tables and discussed in the text. The number of further studies identified for each cohort was:

- Aboriginal and Torres Strait Islander peoples = five additional studies (mixture of peer-review and grey literature)
- Rural and Remote people = no additional studies
- Young people = three additional studies (grey literature only), of which two also relate to Aboriginal and Torres Strait Islander peoples.

Chapter Two: Aboriginal and Torres Strait Islander peoples

In 2021, the NT had a population of approximately 251,000, 30% of whom identified as Aboriginal or Torres Strait Islander. [1]

This section of the Review is concerned with potential responses to illicit drug use among Aboriginal and Torres Strait Islander peoples in the NT. It considers literature included from the rapid evidence review strategy supplemented by other literature and established evidence where relevant.

As illustrated by the list of search terms located in Appendix 1, literature identified as relevant to Aboriginal and Torres Strait Islander peoples included other Indigenous First Nations populations outside of Australia and the Torres Strait Islands. Whilst Indigenous First Nations populations are not directly comparable, they do often share experiences of unacceptable health disparities, histories of oppression and marginalisation and the intricacies of working with traditional and Western models of health and wellness.

It is important to note that the summarised evidence largely addresses alcohol and drug programs together rather than focussing on programs specifically focussing on illicit drugs *per se*. The fact that there are few studies focussing on illicit drugs alone, is likely to be an artifact of the way in which the programs that are the focus of the studies are structured. That is, most programs provide both alcohol and drug services. Also, clients of those programs are highly likely to be experiencing poly substance use harms (including alcohol). [5] Therefore, separating alcohol from illicit drug problems is likely to create an artificial divide which does not reflect the reality of client presentations.

Description of studies

Of the 5,469 studies included in the rapid literature review, 12 were identified as being relevant to informing the evidence base regarding the reduction of illicit drug-related harm among Aboriginal and Torres Strait people in the NT. They are summarised in brief in Table 4 below and in depth in Appendix 3. A further five studies that were identified outside of the formal rapid review process are shaded in grey. Of the 17 included studies, ten were conducted in Australian and seven were conducted in North America.

Table 4: Snapshot table of included studies related to Aboriginal and Torres Strait Islander peoples

Article	NHMRC Level of Evidence	Intervention	Effectiveness
Bo, I., et al (2023) [9]	Level I	Various. 30 studies in a systematic review.	**Yes*** Prevention or reduction of substance abuse amongst Black, Hispanic and Native American adolescents.
Krakouer et al., 2022 [10]	Level I	Systematic review of 17 studies. Nine studies evaluated the program's impact on substance use and 10 studies assessed program acceptability (two studies evaluated both).	**Yes*** Only three out of nine studies yielded a statistically significant reduction in substance use. Acceptable components included cultural safety, Aboriginal and Torres Strait Islander AOD workers, inclusion of family and kin, outreach and group support.
Leske, S et al., 2016 [11]	Level II	Culturally adapted and un-adapted interventions for mental and substance use disorders.	**No** Small sample and methodological limitations.
Liddell, J. & Burnette, CE., 2017 [12]	Level II	Various 14 culturally-informed interventions in a systematic review.	**Promising** All studies reported at least some improvement but not all were statistically significant. Methods ranged from RCT to exploratory and qualitative.
MacLean, S et al., 2015 [13]	Level II	Various 31 studies of methamphetamine interventions yielded by a systematic review strategy and presented in narrative form.	**No** No evidence was identified that specifically related to effective treatment outcomes for Indigenous Australians who experience methamphetamine dependence or problematic use.
Venner, K et al., 2021 [14]	Level II	Motivational Interviewing and the Community Reinforcement Approach (MICRA) vs Treatment as usual (TAU).	**No** No treatment group differences between culturally tailored evidence-based treatments for substance use disorder and treatment as usual.
Calabria, B et al., 2020 [15]	Level IV	Aboriginal-adapted Community Reinforcement Approach (CRA).	**Yes*** Reduction in the use of AOD and over the counter medication, and levels of psychological distress. Increase in levels

			of empowerment for Aboriginal and non-Aboriginal clients.
Geia, L., et al., (2018) [7]	Level IV	Various. Four studies in a systematic review.	**Unclear** Results were inconsistent.
Henderson, R et al., 2023 [16]	Level IV	Opioid Agonist Therapy. 27 studies in a realist review.	**Promising** Reduction in drug-related medical evacuations, criminal charges, and child protection cases. Increase in school attendance, cleanliness, and community spirit.
Kelley, A et al., 2017 [17]	Level IV	3 year Peer Recovery Support (PRS)- Transitional Recovery and Culture Program	**Yes*** Involvement in PRS decreased substance use significantly among peers. Peer attendance at voluntary self-help groups and support from family and friends increased as a result of PRS.
Kelley, A et al., 2018 [18]	Level IV	3-year culturally-based prevention program	**No** Results of evaluation indicate that substance use was similar among intervention and non-intervention youth.
Kelley, A et al., 2023 [19]	Level IV	Culturally-based Talking Circle intervention	**Yes*** Talking circle participants demonstrated a higher sense of Native‐Reliance, decrease in substance use, and a decrease in PHQ‐9 depressions scores from baseline to 6‐month postintervention.
Treloar, C et al., 2018 [20]	Level IV	Peer-driven, incentivised health promotion program	**Unclear** While acceptability and engagement of program was high among staff and clients, pilot testing raises issues to consider in scaling up of program.
Calabria et al, 2014. [21]	Level IV	Community Reinforcement Approach (CRA) and Community Reinforcement and Family Training (CRAFT).	**No – But resources were developed that were acceptable to clients and staff.**
Munro, A et al., 2017 [22]	Level IV	Community-led radio advertising campaign.	**Unclear** Increase in community awareness, but no increase in help-seeking.

Western Australia Mental Health Commission, 2016 [23]	N/A	'An evaluation'	**No – but increased awareness** 86% of 155 young Aboriginal people aged 12-25 were more aware of the harms associated with alcohol and other drug use as a result of the Campaign, with around a quarter naming each harm covered in the Campaign.
Western Australia Mental Health Commission, n.d. [24]	N/A	Focus groups collecting both qualitative and quantitative data, plus measures of changes (tools not described).	**No – but increased awareness** 65% of 167 Aboriginal and Torres Strait Islander youth aged 12-25 in the Perth metropolitan area were more aware of the harms of alcohol and drug use.

*Indicates intervention had a statistically significant effect on reducing illicit drug use and/or harms.

Methodological quality

The 12 studies on which this chapter is based comprise Two NHMRC Level I studies, four Level II studies Nine NHMRC Level IV studies and two studies that were out of scope of NHMRC Levels I-IV.

As shown in ***Table 4***, five studies had a statistically significant effect on reducing illicit drug use and/or harms, whilst another two had promising results.

While NHMRC Level IV studies were predominant, this should be seen in the context of the higher level NHMRC study approaches not necessarily being 'fit for purpose' in terms of evaluating complex programs such as services provided for First Nations peoples worldwide. The nature of these programs makes it difficult to conduct randomised control trials and as such, quasi-experimental designs may be more culturally appropriate. [9] That said, there also remains a lack of data-driven program evaluations that could inform program development.

Effective messaging to reduce illicit drug use harms

Three studies from the grey literature provide information about messages designed for Aboriginal and Torres Strait Islander people. [22-24] They provided few insights into any key messages which could be implemented to reduce the harms associated with illicit drugs among Aboriginal and Torres Strait Islander peoples in the NT specifically, with only one study found. [22]

In 2012, a radio campaign was undertaken that aimed to reduce AOD harms among Aboriginal and Torres Strait Islander peoples in rural NSW. The campaign was the subject of an evaluation study. [22] It was undertaken in a community in which 30% of the population identified as Aboriginal or Torres Strait Islander and was developed in conjunction with Aboriginal and Torres Strait Islander Elders and local service providers. The advertisements were produced by a locally run and owned Aboriginal and Torres Strait Islander radio station. Locally known and respected Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander community members were used to voice the radio advertisements. The campaign provided messages on:

- The effects of alcohol use
- The financial costs of AOD use
- The effects of methamphetamine

- Peer pressure and substance use
- Effects of yarndi (cannabis) use
- Effects of tobacco smoking
- Safe partying (focusing on avoiding harms associated with gross intoxication).

A post campaign survey found that most respondents (79%) reported listening to radio on a daily basis, and 75% reported hearing one or more of the advertisements. Overall, the evaluation demonstrated that while the program had limited impact on formal help-seeking, radio can be a relevant and well-trusted form of media in Aboriginal and Torres Strait Islander communities. The evaluators reported that radio reaches a large cross-section of the community and achieved high recall of substance use harm-related messages, provided those messages are derived from meaningful consultation with the community. The impact on AOD use was not measured, and there was no substantive increase in help-seeking.

Additionally, the following 'Strong Spirit Strong Mind' resources were provided by the WA Mental Health Commission in response to our direct call for material (See Figures 3 and 4). Although not evaluated to our knowledge in relation to AOD use, the Strong Spirit Strong Mind campaign has been evaluated at least twice with Aboriginal and Torres Strait Islander youth, in relation to the awareness of AOD harm. [23, 24] These studies are described in Chapter Four with a focus on young people.

Figure 3: Strong Spirit Strong Mind resource about Mixing Drugs (courtesy WA Mental Health Commission)

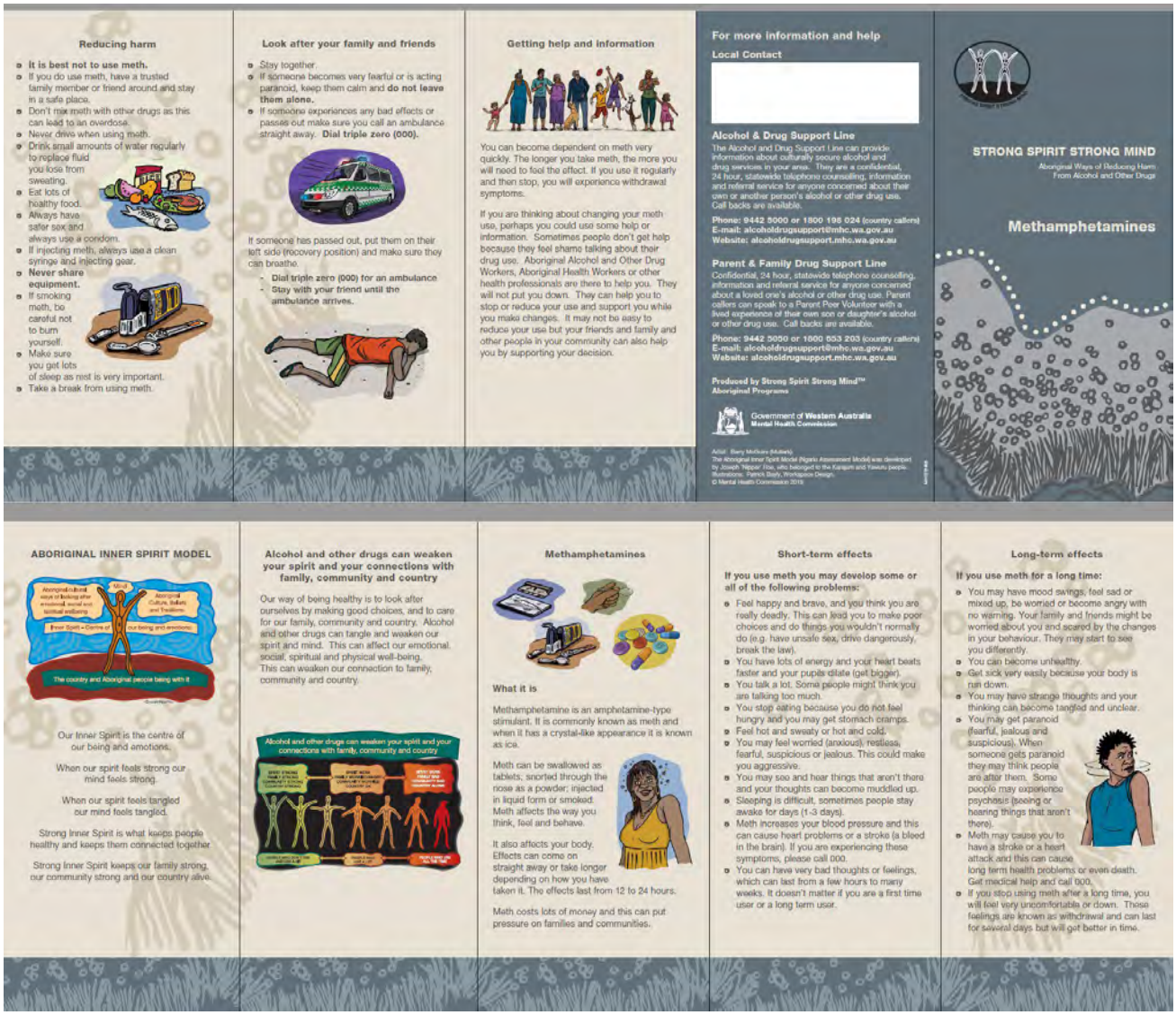

Figure 4: Strong Spirit Strong Mind resource for Methamphetamines (courtesy WA Mental Health Commission)

The brochures in Figures 4 and 5, together with other resources on methamphetamine, cannabis and alcohol use can be viewed at https://strongspiritstrongmind.com.au/

Effective approaches to reduce illicit drug use harms

Of the 12 studies examined, five documented a statistically significant effect on reducing illicit drug use and/or harm [9, 10, 15, 17, 19] and two documented promising signs of effectiveness. [12, 16] Seven studies did not demonstrate a degree of effectiveness, and in three studies, effectiveness was unclear. The studies demonstrating effectiveness or promise:

- Involved cultural sensitivity and adaptation [9, 10, 12, 15, 19]
- Involved compassion and self-determination [16]

- Had services provided by First Nations peoples (particularly peer workers) [17]
- Involved opioid agonist therapy (where appropriate). [16]

The available literature concerning evidence to support more specific approaches to reduce illicit drug harm among Aboriginal and Torres Strait Islander peoples in the NT is provided below. This is divided into primary care and community settings.

Primary care settings

Deadly Liver Mob

The Deadly Liver Mob (DLM) program was identified by the rapid review search. It was a pilot program conducted by mainstream primary health services in Western Sydney, aimed at improving hepatitis C virus (HCV) health promotion, and screening for HCV, HIV, and sexually transmissible infections (STIs) among Aboriginal and Torres Strait Islander peoples. The DLM uses an incentive-based, peer-driven intervention in which Aboriginal and Torres Strait Islander peoples who inject drugs are invited to an education session with an Aboriginal and Torres Strait Islander worker at the needle and syringe program (NSP) health service. After this, participants are offered referral to the co-located sexual health service for STI and blood born virus (BBV) assessment and screening. If the client takes up the offer of screening, the worker then accompanies the DLM client to the sexual health service. Sexual health clinic staff manage screening, delivery of results, and provision of treatment (if required) as per standard care. [20]

The evaluation of DLM [20] reported that significant numbers of clients were engaged in the program, acceptability of the program was high among staff and clients, and the additional resources required to deliver the program (relating to incentive payments) were modest.

There were some key learnings from the program. The first of these was the centrality of Aboriginal and Torres Strait Islander worker involvement in program design. Also important was the issue of overcoming stigma related to Aboriginality, HCV, and injecting drug use. Client engagement increased when health-related stigma was minimised by the program. A walk-in, one-stop shop model of care, with flexible appointments, short wait times, and child-friendly waiting areas was also important for increasing community adoption. Finally, there was also strong (but not universal) support for the provision of incentives to clients. [20]

The Program demonstrated that while ACCHOs remain the cornerstone of delivery of primary care for Aboriginal and Torres Strait people, publicly-funded mainstream services have a key role to play in managing BBV and STIs given their specialist services are able to act as an alternative option for service access among this population. [20]

Methamphetamine specific interventions

A literature review [13] identified no evidence that related to effective primary health care interventions for Aboriginal and Torres Strait Islander people experiencing methamphetamine dependence or problematic use. The review noted that studies involving people in the non-Aboriginal and Torres Strait Islander population who use methamphetamine suggest that psychological and residential treatments show short term promise while longer-term outcomes are less clear. Community-driven programs involving Aboriginal and Torres Strait Islander populations in Australia and internationally, appear to have a high level of community acceptability. However, in these programs, long term outcomes such as methamphetamine use are rarely evaluated. The authors called for improved

national data on prevalence of methamphetamine use among Aboriginal and Torres Strait Islander people and levels of treatment access. They also called for the adoption of strength-based approaches to addressing methamphetamine use, to counteract the stigma and despair that frequently accompanies it, along with the provision of culturally sensitive information and educational resources to Aboriginal and Torres Strait Islander people who use methamphetamine.

Community based settings

A recent systematic review of community-based models of AOD support for Aboriginal and Torres Strait Islander peoples [10] highlighted the shortage of evidence to guide program development in this area. This finding was consistent with an earlier similar study. [25] Of the seventeen studies eligible for inclusion in that review, nine evaluated the program's impact on substance use and 10 assessed program acceptability (two studies evaluated both). Only three out of nine impact studies yielded statistically significant reductions in substance use. The authors concluded that the available literature provides limited evidence to suggest that community-based models of AOD support can yield statistical and clinically meaningful reductions in substance use among Aboriginal and Torres Strait Islander peoples. However, non-statistically significant findings are likely due to small sample sizes and the low methodological quality of the research. [10]

The majority of programs included in the review were considered acceptable models of community-based AOD programs for Aboriginal and Torres Strait Islander peoples. The most common acceptability component was 'culturally safe, appropriate, or responsive'. This component included: a focus on cultural engagement; restoring cultural connections; Aboriginal and Torres Strait Islander specific resources; support delivered 'on Country'; alignment with Aboriginal and Torres Strait Islander cultures, values and traditions; and involving the local community. [10] The authors concluded that the emphasis on culture is key to ensuring the acceptability of such programs. Specifically, Aboriginal and Torres Strait Islander clients valued programs that were delivered by local their own community members, leaders or Elders. [10]

A further systematic review focussed on community-based substance use demand-control programs targeting Aboriginal and Torres Strait Islander adolescents and young adults. found only four articles which met their inclusion criteria. [7] The only one that was published in the last decade focussed on alcohol. A further 19 papers that described characteristics of programs that may be associated with improved outcomes were included to provide context. Two of the articles which met inclusion criteria focussed on volatile substances, one on alcohol and one on substance misuse more broadly. [7]

The authors also reported that the most striking finding of the review was that only four evaluation studies of Aboriginal and Torres Strait Islander youth programs were identified as having been published in the twenty years to 2017. The authors also noted that none of these evaluations used research designs that would allow their findings to be described as contributing to evidence-based practice, and it was not possible to aggregate their results in any way that allowed general statements about effective practice to be made. [7]

General themes to arise from the review were that interventions:

- Should be initiated by, or negotiated with, local Aboriginal and Torres Strait Islander peoples and communities
- Should be implemented in ways that are culturally safe

- Are likely to be more effective if delivered by Aboriginal and Torres Strait Islander community-controlled organisations, and that they need to be given support to develop the capacity to do so and take full control within an agreed timeframe. [7]

A 2018 study [26] sought to assess the suitability of the evidence-based Communities that Care (CTC) program in preventing AOD (in particular methamphetamine) harm in Aboriginal and Torres Strait Islander communities. The CTC has a risk / protective factor framework comprising four domains: Family, School, Community, and Peers. The study sought to better understand whether risk and protective factors for methamphetamine use, as described by Aboriginal and Torres Strait Islander stakeholders, align with the CTC risk and protective factor framework. [26]

Many of the factors identified in the study did align with the CTC risk and protective factor framework, albeit with some modifications. This suggested that many of the risk factors that are relevant to adolescents in mainstream contexts are also relevant to Aboriginal and Torres Strait Islander adolescents. That said, the study also found that that some key risk and protective factors for Aboriginal and Torres Strait Islander peoples fell outside the CTC framework. Specifically, the authors added an additional domain to the original CTC model, namely *Culture and Identity.* The protective factors associated with this domain were: identity; pride; connection with Aboriginal and Torres Strait Islander culture; and culturally appropriate services and programs. The risk factors associated with this domain were: racism and negative stereotypes; complex trauma and grief; and an inability to practise cultural practices. [26]

The authors concluded that an expanded or adapted CTC framework incorporating the additional factors identified in this study could provide a useful planning and evaluation framework for substance use programs. That notwithstanding, an uncritical application of the CTC risk and protective factor framework, without consideration of the key factors of relevance to Aboriginal and Torres Strait Islander communities could miss important issues. [26]

Similarly, a NSW study examined and evaluated the feasibility and acceptability of the Aboriginal-adapted Community Reinforcement Approach (CRA). [15] The CRA is an evidence-based CBT intervention targeting harmful drug and alcohol use. Aboriginal and non-Aboriginal clients received tailored CRA delivery. The study found that tailored CRA was feasible to deliver in a rural, community-based health setting, and was rated by clients as highly effective and acceptable. The CRA was associated with statistically significant reductions in the use of alcohol, tobacco, cannabis, amphetamine and over-the-counter medication, levels of psychological distress, and an increase in levels of empowerment for Aboriginal and non-Aboriginal clients. [15]

Another study with statistically significant findings considered the impact of community-based peer recovery support (PRS) on substance use by American Indian peoples. [17] American Indian peer mentors met with peers in person or over the phone over a 6-month period. Whilst the details of their support were not documented, it involved a variety of recovery support activities such as talking circles and weekly ‘wellbriety’ meetings as well as broader social support related to transport, education, employment, eating, etc. Data were collected from 65 peers participating in the PRS program who completed baseline and 6-month follow up. Significant differences were observed for past 30-day alcohol use, illegal drug use days and alcohol and drug use days. Moreover, binge drinking and combined drug and alcohol use days reduced, although the differences were not statistically significant. Whilst involvement in PRS decreased substance use significantly, retention of peers was a challenge, with the 65 study participants representing 29% of those who started the program. Possible reasons for attrition from PRS programs include transience, incarceration, relapse, lack of transport to attend meetings and inconsistent communication due to a lack of resources, of

which the latter two are particularly relevant for people living in rural and remote areas (see Chapter Three). A major strength of the study was thought to be facilitation by a tribal consortium and the program being delivered to people in recovery by cultural peers with the lived experience of recovery. [17]

In all cases, approaches to minimise harms of illicit drug use amongst Aboriginal and Torres Strait Islander peoples should be culturally appropriate. [7, 9, 17-19] Regarding cultural sensitivity, a meta-analysis of randomized control trials for culturally sensitive prevention programs for substance use amongst adolescents of colour found that the included studies reflected eight dimensions of an ecological validity model. Specifically, the studies involved cultural sensitive language, persons, metaphors, content, concepts, goals methods and/or context. [9] The studies reflected various settings including school and community. Cultural sensitivity and cultural appropriateness are also discussed in Chapter Four in relation to studies relating to Aboriginal and Torres Strait Islander youth.

Moving from cultural relevance to interpersonal relations and feelings of control, the realist review of best practice and contextual factors enhancing treatment of opioid dependence in Indigenous contexts highlights the ways in which compassion and self-determination in opioid treatment programs can support outcomes beyond substance use reduction. [16] Compassion and self-determination were both found to lead to successful outcomes. These holistic factors were considered highly relevant for mitigating systematic health inequities and addressing social determinants of health.

For a recently released comprehensive examination of AOD treatment for Aboriginal and Torres Strait Islander peoples, see Tracy et al. [27]. The report outlines currently available research and discusses core principles for providing treatment to Aboriginal and Torres Strait Islander peoples.

Summary

This rapid evidence review found little empirical evidence to support specific recommendations for approaches to reduce illicit drug harms among Aboriginal and Torres Strait Islander peoples in the NT. It is noteworthy that much of the literature focuses on both alcohol and illicit drugs is predominantly descriptive in nature, and provides no insight into gender issues in interventions.

Despite the above, it is possible to distil the literature into a series of guiding principles that could support program development in this area. These are outlined below:

1. Programs that are most likely to be successful are strengths-based, holistic approaches that build on individual, community and cultural strengths.
2. Culture (beliefs, practices, attitudes, behaviours and norms) and concepts of social and emotional wellbeing should be central to interventions.
3. Community engagement, co-design and trust are fundamental to harm reduction programs and services.
4. Program flexibility is important, offering options such as one-stop-shops, outreach services and home visits.

The available evidence also points to the following programs that could be implemented in community settings:

- Culturally adapted versions of Communities that Care [26]
- Aboriginal-adapted Community Reinforcement Approach [15]

Community radios may also have a role to play in relevant health messaging. This is because they reach a large portion of the community and elicit a high recall of substance use harm-related messages. It is, however, critically important that those messages are derived from meaningful consultation with the community.

Chapter Three: Rural and Remote people

The Northern Territory (NT) is a vast, sparsely populated jurisdiction. The NT covers an area of 1,349,129 square kilometres and nearly 50% of the NT population live in remote/very remote areas compared with 22% nationally. Seventy per cent of people who live remotely in the NT identify as Aboriginal, living in one of 600 communities or remote outstations. Across the NT over 200 languages are spoken. [28]

People living in rural and remote Australia are twice as likely as their major city counterparts to smoke daily, and 1.6 times as likely to consume alcohol at levels that exceed risk guidelines. [29]

Rural and remote Australians have limited access to both emergency and chronic AOD-related treatment. [30] Over the past decade, the rate of drug-induced deaths has increased at a faster rate in regional and remote areas, up 41% since 2008, with benzodiazepines the drug type most commonly identified in drug-induced deaths. [29] There are also inequalities in service access.[31] Only 7% of AOD treatment services are located in regional and remote Australia, with many rural and remote people are having to travel over an hour to obtain support. Specialist rural and remote agencies also have higher rates of treatment seeking than city counterparts (652 clients per 100,000 population compared with 586 clients per 100,000)further compounding barriers to treatment. [30]

Description of studies

Of the 5,469 studies included in this review, 11 were identified as being relevant to informing the evidence base regarding the reduction of illicit drug-related harm among rural and remote people in the NT. They are summarised in brief in Table 5 below and in depth in Appendix 4.

Nine of the 11 included studies were conducted in North America, one in India and one in Australia. Eight of the North American studies were concerned with primary care initiatives to reduce barriers to opioid substitution and agonist treatment. [32-36] A further North American study was an initiative to reduce fatal overdoses. [37] Three studies (two North American [38, 39] and another Indian) [40] examined education and training as a means of increasing service capacity to respond to substance use. Geia and colleagues conducted a systematic review of demand control program outcomes for adolescent and young adult substance use in Australian Indigenous communities. [7]

Table 5: Snapshot table of included studies related to Rural and Remote people

Article	NHMRC Level of Evidence	Intervention	Effectiveness
Pijl, EM et al., 2022 [41]	Level III-2	Opioid Agonist Therapy	**Unclear** Synthesis of barriers and facilitators. Three opioid agonist therapy interventions yielded statistically significant reductions in substance use. Their results ranged from promising to unclear. Most promising support factors were holistic approach to care, within community-based holistic models.
Hughes, P et al., 2021 [35]	Level III-3	Telehealth for Opioid Agonist Therapy	**Promising re: reach** Medications for opioid use disorder visits increased. New patient visits remained constant. Clinic's catchment area increased in size, with new patients coming primarily from rural areas.
Buck-McFadyen, E et al., 2021 [32]	Level IV	Rural Outpatient Opioid Treatment (ROOT) delivered by multidisciplinary primary care team.	**No** No participants' OAT doses were meaningfully changed throughout the duration of the program.
Carroll E et al., 2022 [33]	Level IV	Nurse led weekly B-MAT clinic	**Promising re: access** County-wide access expanded by 34% over seven months, leading to additional service provision to 21 patients. 75% of participants were program active for at least 30 days.
Geia, L., et al., *(2018)* [7]	Level IV	Various Four studies in a systematic review.	**Unclear** Evidence is inconsistent. A further 19 studies were identified which described program characteristics.
Sagi, M et al., 2018 [40]	Level IV	Physician tele-mentoring	**Promising** Findings were statistically significant, but this was a feasibility study focussed on physicians rather than an intervention addressing clients. Physicians play an important role in harm minimisation for rural and remote people. Significant increase in knowledge at 1 and 3 months (3.00 ± 0.86, P < 0.001; 3.16 ± 0.90, P < 0.001 respectively). 10 Participants reported improved confidence in managing a case of substance use disorder.
Englander, H et al., 2021 [39]	Level IV	Registrant mentoring	**No – but knowledge and skills improved.** Participants knowledge and skills improved; were highly satisfied; more prepared to treat SUD; believed the program built a community of practice and reduced provider isolation.

Table 5: Snapshot table of included studies related to Rural and Remote people

Article	NHMRC Level of Evidence	Intervention	Effectiveness
Zittleman, L et al., 2022 [38]	Level IV	Staff training (4x training sessions covered opioid use disorder treatment)	**Yes*** Opioid use disorder treatment-related components increased from a mean of 4.7 at baseline to 13.0 at 12-month follow-up. Referring patients for treatment increased from 18.8% to 74.4%. The increase in number of people with a prescription for buprenorphine was significantly greater in the study region over a 4-year period compared with the rest of the state (Wald $\chi 2=15.73$, $P < .001$).
Childs, E et al., 2021 [34]	N/A	Harm-reduction strategies	**Unclear** Qualitative interviews documenting challenges and strategies for engaging communities.
Mema, S et al., 2019 [37]	N/A	Outreach service – mobile supervised injecting centre (Bus)	**Promising re: access** Many clients reported positive experiences in terms of access to service and physical safety. However, new challenges are presented which may undermine continuity and quality of the service.
Ostrach, B et al., 2022 [36]	N/A	Overdose reduction – dispensing policy	**Unclear** Some improvement in access; although high medication costs, and stigmatizing treatment by some pharmacists remained

*indicates intervention had a statistically significant effect on reducing illicit drug use and/or harms.

Methodological quality

The 11 studies found as a result of the formal rapid review process comprised two NHMRC Level III studies, six Level IV studies and three studies out of scope of NHMRC Levels I-IV. No studies were identified by means other than the rapid review process (e.g. grey literature).

Effective messaging to reduce illicit drug use harms

This review did not identify any evidence for effective messaging in rural and remote areas. Some considerations for designing and implementing effective messages are provided in Chapter Five.

Effective approaches to reduce illicit drug use harms

Of 11 studies, one reported a statistically significant outcome directly related to the aims of this report, [38] and four reported promising outcomes. [33, 35, 37, 40]

One study [38] took a health service workplace-based approach to increase service capacity for providing opioid substitution therapy. The whole workplace participated in four opioid-related education sessions and one workshop. The latter to identify current workplace strengths. The study found that treatment engagement and continued treatment was significantly higher than other areas of the State over a 12-month period.

To increase health professional literacy and self-competency in responding to AOD related issues, two studies took e-health approaches. One study [40] used telementoring as a means of providing physician AOD education and training. Telementoring entailed online workshops and eLearning components. Significant increases in knowledge and confidence between baseline and three-month follow-up were found. Another study [35] examined the impact of telehealth on rural opioid use disorder treatment during COVID-19. The number of clients 'visiting' the clinic increased during the study time-period.

One study examined health professional approaches to clinical care to address opioid use disorders treatment. [32] the study involved a multi-disciplinary team approach, inclusive of peers, nurses, social workers, providing wrap-around care for 12 weeks and aftercare. The evaluation was largely descriptive, with no participant's doses meaningfully changed throughout the study period.

Three studies were concerned with approaches to reduce opioid-related overdoses. One study [33] took a nurse-led approach to increase buprenorphine treatment for opioid use disorder by implementing a nurse-led weekly clinic. The evaluation for this study was again largely descriptive, but county-wide access to buprenorphine increased; and no fatal overdoses were recorded. Another study [36] entailed implementing dedicated buprenorphine dispensing arrangements. A reliable supply was found to improve access to buprenorphine, however high medication costs and poor pharmacist attitudes impaired potential effectiveness. The approach of a third study [37] was implementing a mobile supervised injection service in the form of a bus. Whilst this study found an increase in access to safer injecting facilities; hours of operation; privacy; and difficulty in physically responding to overdoses when they occurred in the facility limited operation effectiveness.

An integrative review examined barriers and facilitators to opioid agonist therapy in rural and remote communities identified holistic approaches to treatment as promising, within community-based holistic care models. [41] Additional promising approaches were identified in the broader literature.

One systematic review [7] of demand control programs targeted at adolescent and young adult substance use in Australian Indigenous communities found limited evidence for reviewed approaches. The authors concluded that more formal evaluations of approaches are required.

Some potentially effective approaches in the rural and remote context are provided in

Table 6, mapped to National Quality Framework Standards [42] and are therefore categorised as workforce development and clinical practice; collaboration and partnership; or planning and engagement.

Table 6: Potentially effective approaches in the rural and remote context

Included Studies	Other Identified Examples
Workforce development and clinical practice	
AOD education and training for the whole primary health care workplace [38] Reduce stigma associated with AOD use within workplaces [36] Tele-mentoring, with sessions involving discussing patient case summaries, along with e-learning; with a secondary aim of building a community of practice [40]	AOD education and training [43] Proactively educating colleagues about harm reduction [44, 45] NT Remote AOD Workforce Program. This program based in Central Australia, has been successful by: • Physically locating workers within primary health care to work directly with remote communities • Providing culturally appropriate and evidence-based services • Developing an AOD workforce with a professional identify and clear role
Collaboration and partnerships	
Holistic approaches to care, within community-based holistic models [41] Multi-disciplinary teams, inclusive of peers [32, 39]	Ntaria Aboriginal Community initiative: • Collaboration of community members, Western Aranda Health Aboriginal Corporation, and NT Health • Partner to develop and maintain supportive local environments and to address community identified health concerns • Activities are supported by a multi-disciplinary team [46]
Planning and engagement	
Identifying local champions to advocate for harm reduction strategies [34] Proactively educating communities about harm reduction prior to initiative implementation [34] Obtaining “buy-in” from law enforcement and local government [34] Ensuring client confidentiality [37] Ensuring reliable supply chains for supporting harm minimisation initiatives [36]	Embedding validated screening and brief interventions into population and clinical activities: • Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) [47] • Alcohol, Smoking and Substance Involvement Screening Test – Lite (ASSIST-Lite) [48] • Indigenous Risk Impact Screen (IRIS) [49]

These policy documents, amongst others, are underpinned by several principles of practice, of relevance to designing/implementing approaches in rural and remote Australia. These principles of practice include:

- Appropriate, skilled and well-supported workforce
- Collaboration with consumers and communities in design, decision-making and delivery
- Clinical and cultural governance, transparency and accountability
- Implementation of social and emotional wellbeing models.

Pertinently, the Orange Declaration on Rural and Remote Mental Health, [50] identified ten key problems and solutions to addressing mental health issues, inclusive of AOD concerns in rural and remote Australia. (Figure *5* below).

	Problem	Evidence themes	Solution
1.	Rural communities are different from cities and are not homogenous	Contextual variance—one size does not fit all	Whole-of-community, place-based approaches are promising
2.	The rural mental health system is not working	Consistently poor rural health outcomes	New service models tailored to context must be considered
3.	Top-down service models are based on urban assumptions	Connecting policy, people and place	Co-designed bottom-up processes should be pursued
4.	Services are not based on needs	Service versus people-centred approaches	Holistic and integrated care models need testing
5.	Funding models are misaligned	Funding and investment	New better-aligned funding models are needed
6.	Fragmentation and competition hinder service provision, decreases robustness	System-level fragmentation and service instability	Whole of community approaches are needed
7	Structural inequity in mental health service provision is amplified in rural areas	Care provision—scope, scale and emphasis	Prevention and early intervention must be considered
8.	The rural mental health workforce is stretched beyond capacity and capability	Workforce capacity, capability and sustainability	New rural workforce models are needed
9.	Telehealth alone is not the answer	Technology—component or solution	Digital technology contributes now and can do more as part of new systems
10.	Data sets are incomplete, disjointed and limited	Data, research, evaluation and organisational continuous learning	Enhance data collection, monitoring, linkage, analysis and planning

Figure 5: The Orange Declaration on Rural and Remote Mental Health, ten key problems and solutions to addressing mental health issues in rural and remote Australia

Source: Perkins, D., Farmer, J., Salvador‐Carulla, L., Dalton, H., & Luscombe, G. (2019). The Orange Declaration on rural and remote mental health. Australian Journal of Rural Health, 27(5), 374-379.

The Orange Declaration outlines several considerations for the design and implementation of rural and remote initiatives:

- Applying whole of community, place-based approaches
- Develop service models tailored to community context
- Apply and evaluate holistic and integrated care models

- Prevention and early intervention initiatives should be a priority
- Applying and/or evaluating how digital technology contributes to harm minimisation
- Enhance data collection, monitoring and linkage, analysis and planning. [50]

Summary

The rapid review search strategy yielded few relevant studies. Two were assessed as NHMRC Level III, six as Level IV, and three were out of scope of NHMRC Levels I-IV, identifying a lack of quality effectiveness data. This later limitation is consistent with assessments by Pijl et al. [41] and Geia et al. [7] of the quality of existing literature. The national social, economic, and political context in which studies were conducted should also be considered. Whilst the size of rural and remote areas of included studies are similar, approaches taken to address illicit drug related harm are vastly different.

Nevertheless, there was promising evidence for workforce development and clinical practice; collaboration and partnership; and planning and engagement, as effective approaches to reducing rural and remote illicit drug related harm emerged from the included studies. These approaches are consistent with current NT and National strategies and frameworks which aim to reduce illicit drug related harm in rural and remote Australia.

There are also promising methodologies for working with people living in rural and remote regions to design/implement approaches and messages. One of which, identified above is group telementoring for rural and remote health professionals, within a defined period of time, inclusive of a team of multi-disciplinary mentors. [38, 39]

Chapter Four: Young people

One of the three cohorts of interest identified by the quantitative review was young men aged 14-29 who use illicit drugs. [5] Although no studies focussing specifically on young men were identified by the search strategy for the present review, twelve studies were identified which focussed on young people, including three studies identified beyond the rapid review protocol. [7, 9, 12, 18, 19, 23, 24, 51-55] The studies are summarised in brief below in Table 7 and in depth in Appendix 5.

Description of studies

All studies relating to young people aimed to assess the impact of interventions designed to reduce AOD consumption, although one was more concerned with determining the moderating effects of resilience and trauma on AOD use. [51] Five papers presented the findings of specific interventions, using randomised control trials [51, 52, 54] and a pre/post test design [19] whilst one considered the impact of various culturally-based programs in six American Indian communities. [18] The details of each program were not provided. Rather, examples were grouped into different kinds of activities (e.g., camps, classes, sports) targeting different populations (youth, parents, cultural leaders, community, policy makers, staff, elders and teachers). That particular study is best understood as the outcomes of a culturally-based approach rather than the evaluation of a specific intervention *per se*, such as the Talking Circle intervention evaluated elsewhere. [19] The other three papers were systematic reviews. [7, 9, 12]

In addition, three studies were identified in the grey literature. One is a narrative review of messaging illicit drug harm reduction to young adults in Australia [55] and the other two are pre/post tests of the Western Australia Mental Health Commission's Strong Spirit Strong Mind Metro Project which aims to prevent and delay the early uptake of AOD by increasing awareness and knowledge of AOD harms and available AOD support services. [23, 24]

Table 7: Snapshot table of included studies related to young people

Article	NHMRC Level of Evidence	Intervention	Effectiveness
Bo, I., et al (2022) [9]	Level I	Various. 30 studies in a systematic review.	**Yes*** Prevention or reduction of substance abuse amongst Black, Hispanic and Native American adolescents.
Liddell, J. and C.E. Burnette, (2017) [12]	Level II	Various. 14 studies in a systematic review.	**Promising.** All studies reported at least some improvement but not all were statistically significant. Methods ranged from RCT to exploratory and qualitative.
Braciszewski, J.M., et al (2018) [52]	Level II	A computer- and mobile phone-based substance use intervention.	**Yes*** Significantly reduced frequency of Marijuana use and higher percent days abstinence among iHelp participants, compared to the control group.
Fishman, M., et al., (2021) [54]	Level II	Four components: (1) home delivery of XR-NTX; (2) family engagement; (3)	**Yes*** Compared to treatment as usual, participants received significantly more doses of XR-NTX,

		assertive outreach; and (4) contingency management for receipt of XR-NTX doses.	lower rates of opioid relapse at both 12 and 24 weeks and fewer overall days of opioid use.
Kurtz, S.P., et al., (2019) [51]	Level II	Standardized assessment interventions were delivered in two modalities: 1) a computer-assisted personal interview conducted by an age-peer, and 2) an audio computer-assisted self-interview.	**Yes*** Participants in the peer condition reduced their drug use and related health consequences to a greater degree than participants in the self arm, and both intervention conditions were efficacious compared to control. High resilience predicted more successful substance use outcomes. Participants with low resilience scores had poorer outcomes, and those outcomes were largely unaffected by intervention condition. Regardless of the level of resilience, participants with Severe Traumatic Stress (STS) did not benefit from the interventions.
Geia, L., et al., (2018) [7]	Level IV	Various. Four studies in a systematic review.	**Unclear.** Inconsistent findings.
Kelley, M., et al., (2023) [19]	Level IV	Cultural-based talking circle.	**Yes*** Participants demonstrated a higher sense of Native ‐ Reliance, decrease in substance use, and a decrease in the PHQ ‐ 9 depressions scores from baseline to 6 ‐ month postintervention.
Kelley, A., B. Fatupaito, and M. Witzel, (2018) [18]	Level IV	A 3-year culturally-based prevention program of various programs across 6 communities.	**No** Substance use was similar among intervention (n = 200) and non-intervention youth (n = 369). The reach of prevention activities increased 365% from 2015 to 2017. Community participation increased 365.7% from 2014 to 2017 and these results suggest the program was effective in reaching youth, community, and elders through various culturally based prevention activities.
Kazemi, D.M., et al., (2013) [53]	Level IV	The Brief Motivational Intervention (BMI) therapy session with peer-interventionists.	**Promising** Participant use of illicit drugs decreased between baseline (27.5%) and 6 months (21.9%). The greatest decrease was seen in the mandated group, with 20.4% of the participants in the group using illicit drugs at baseline and only 10.3% at 6 months.
ADF, 2021 [55]	N/A	Various. An unspecified number of studies in a narrative review.	**Various** (see Table 8). Whilst there are a number of key components and principles that have been attributed to effective harm reduction messaging campaigns for young adults, a lack of program evaluation means that there is a lack of agreement in the literature about forms or delivery for messaging.
Western Australia Mental Health Commission, 2016 [23]	N/A	'an evaluation'	**No – but increased awareness** 86% of 155 young Aboriginal people aged 12-25 were more aware of the harms associated with alcohol and other drug use as a result of the Campaign, with around a quarter naming each harm covered in the Campaign.

Western Australia Mental Health Commission, n.d. [24]	N/A	Focus groups collecting both qualitative and quantitative data, plus measures of changes (tools not described).	**No – but increased awareness** 65% of 167 Aboriginal and Torres Strait Islander youth aged 12-25 in the Perth metropolitan area were more aware of the harms of alcohol and drug use.

*Indicates intervention had a statistically significant effect on reducing illicit drug use and/or harms.

The types of interventions reported in the studies included: a locally-developed community-driven program, [7] a stay in an outstation with cultural activities, [7] a rehabilitation centre and a remote outstation [7], a diversionary program of socio-cultural activities, [7] a computer- and mobile phone-based substance use intervention, [52] home delivery of extended release naltrexone supported by family engagement, assertive outreach and contingency management, [54] a computer-assisted interview (conducted either by an age-peer or self), [51] a Talking Circle, [19] various culturally-based prevention activities, [18] and therapy sessions led by a peer interventionist [53]. None of these studies were conducted in a primary care setting. Many of the interventions in one of the systematic review studies were conducted in schools and treatment facilities. [12]

The authors of the systematic review of demand control programs for Australian Indigenous communities noted that none of the four papers they reviewed 'used research designs that would allow their findings to be described as contributing to evidence-based practice, and it is not possible to aggregate their results in any way that allows general statements about effective practice to be made'. [7]

The study of three years of various culturally-based activities for Native American youth in six communities found no significant difference in substance use between intervention and non-intervention youth, and a decrease in community readiness decreased from 2015-2017. However, the reach of prevention activities increased 365% from 2015-2017. [18]

Six studies identified by the rapid review protocol describe studies undertaken in North America. Target populations included:

- Native American youth [18, 19]
- Youth exiting foster care [52]
- Youth enrolled in inpatient/residential opioid use disorder (OUD) treatment intending to pursue outpatient OUD treatment with extended-release naltrexone (XR-NTX) [54]
- Youth who consume AOD in the context of electronic dance music (EDM) event, [51] and
- Freshmen living in residential colleges. [53]

Although the studies did not specifically recruit young men, the findings from these interventions may be generalisable to young men experiencing similar transitions and events (such as those exiting foster care, experiencing housing instability).

Study limitations included methodological considerations associated with small trials, [52] small sample sizes, [54] the lack of a control group [53] and self-report data [51, 52] which is particularly vulnerable to issues of recall and social desirability bias.

All papers considered a range of substances. That is, none were focussed solely on illicit substances. One paper that evaluated a treatment specifically for opioid drug use still considered data on participants' use of other licit and illicit drugs, including alcohol. [54] Of the four studies identified in a systematic review of substance use programs designed to minimise harm amongst Aboriginal and

Torres Strait Islander Youth, one targeted alcohol, and the others were concerned with petrol sniffing [7]. The study on the use of alcohol and illicit drug use in an EDM context used an intervention that was designed to address only alcohol use. [53]

The age range of participants differed widely across all the studies. Studies considered youth from ages as low as 9, [12] 11, [9] 12, [18, 24] 18, [19, 51, 52, 54] and 20 [53] through to ages as high as 18, [9, 12] 19, [52] 20, [18, 53] 24, [19] 25, [24] 26, [54] and 39. [51]

Methodological quality

Using the NHMRC categories for level of evidence, one study was Level I, four were Level II, and four were Level IV. The three studies from the grey literature could not be easily accommodated by the NHMRC Levels of Evidence I-IV (see Table 2). One study did not describe the method used for data collection [23], one was based on focus groups but implied measuring changes [24] and the other was a narrative review [55].

Effective messaging to reduce illicit drug use harms

None of the peer-review studies provided details of specific messaging. Whilst messaging was included amongst the activities designed and delivered by Native American communities in six American Indian communities in the Rocky Mountain Region over a three-year period, the details of specific messages were not provided by the authors [18]. Rather, they were subsumed under the approach of culturally-based prevention, as were the activities delivered by the communities.

Three studies identified in the grey literature provide more insight into effective messaging to reduce illicit drug use harms amongst young people.

The Western Australia Mental Health Commission's Strong Spirit Strong Mind Metro Project which commenced in 2010 aims to prevent and delay the early uptake of AOD by increasing awareness and knowledge of AOD harms and available AOD support services. The primary target groups was Aboriginal and Torres Strait Islander young people aged 12-25 in the Perth metropolitan area. These two studies should be considered important to the cohort of Aboriginal and Torres Strait Islander peoples but they are described in detail here because the evaluations were focussed on youth.

The Strong Spirit Strong Mind Metro Project was based on key messages. According to an undated fact sheet, [24] the four key messages are:

1. Alcohol and drugs messes with your mind and affects your relationships
2. No alcohol and drugs is the safest choice
3. Alcohol and drugs can put you in shameful and dangerous situations
4. Alcohol and drugs can weaken your spirit.

An evaluation undertaken in 2016 [23] reports three key messages as:

1. When our spirit is strong our mind is strong and we make good choices
2. Strong inner spirit keeps our family strong, our community strong and our culture alive
3. Drugs and Alcohol messes with your mind and affects your relationships.

Campaign media included online videos, radio, bus and train interiors, social media (Facebook and YouTube), targeted advertising and search engine marketing. [24]

Two evaluations of the Strong Spirit Strong Mind Metro Project have been identified. One undated report refers to a campaign evaluation with 155 young Aboriginal people but does not describe the methodology. [24] The campaign is descried as 'very effective' based on brand awareness, message recall, AOD harms awareness, etc. Notably, 83% of 'respondents' reported that they were more aware of the harms associated with AOD use and around one quarter could name each harm covered in the campaign.

A fact sheet also refers to a campaign evaluation conducted in 2017 involving 17 face-to-face focus groups with 167 young Aboriginal and Torres Strait Islander people aged 12-25, through which qualitative and quantitative data was collected. At that time, the campaign included animated videos. One of the aims of the focus groups was to measure changes in knowledge, attitudes and intentions. Of particular relevance to this report, 65% of respondents were more aware of the harms of AOD use. Neither evaluations presented data around the impact of the Strong Spirit Strong Mind Metro Project on AOD use. Regarding the approach taken to design messages, the fact sheet states that concept testing was conducted with young Aboriginal and Torres Strait Islander people and their communities.

Based on the findings of a narrative review of the evidence for AOD messaging to young people [55], the elements most likely to contribute to successful messages are summarised in Table 8, below:

Table 8: Elements for success when messaging young people about the harms of illicit drug use, based on a narrative review by the ADF

Messages about illicit-drug use that are most likely to minimise illicit drug use harms:			
✓ **Are co-developed** with peers, thereby ensuring they are:	• Credible • Relevant	• Targeted • Engaging	• Acceptable • Trusted.
✓ **Involve young peers** in:	• Developing appropriate technological channels, to ensure that initiatives are properly targeted and relevant • The delivery of harm reduction programs or messaging, especially where illicit drug use is normalised and where problematic use is socially sustained • Considering the involvement of champions who are considered 'respected, credible and influential community figures' by young men.		
✓ **Are accessible:**	• For young people living in urban, rural, regional and remote areas • Can be easily accessed through Google searches.		
✓**Are based on an understanding** of:	• The information-seeking sites and sources used by young men, that is friends more than family • Who young people trust, e.g. peer-branded sources more than government • Why young people use illicit drugs, including for enjoyment or pleasure, or – as noted by AADANT's Youth Project Officer, boredom and frustration [8] • The language used by young people and their various sub-cultures • The settings in which drugs are used by young people (e.g., Festivals, homes, workplaces) • How young people use their time (e.g. young people spend large amounts of time on-line and using mobile phones, although it is unclear if face-to-face harm reduction interventions [for illicit drug use] are more effective with young people than digital interventions. [55]		

Messages about illicit-drug use that are most likely to minimise illicit drug use harms:	
✓**Are tailored** for**:**	Different groups of young people, related but not exclusive to the following aspects of their lives: • Social • Geographic • Political • Geographic • Cultural, especially in relation to young Aboriginal and Torres Strait Islander men.
✓**Include messages** that:	• Are positive • Emphasise what young men can gain from behaviour change • Build on the trust that young people have in peer and health organisations, relative to government sources • Are located in places and resources already used by young people.
✓Are **perceived by young people** as:	• Truthful • Positive • Culturally relevant • Locally relevant • Informative • Action oriented, e.g., use screening and/or a brief intervention rather than passively providing information.
✓**Provide** young people with:	• Anonymity and confidentiality • Personalised information • The opportunity to engage and interact with a trained professional.
✓**Involve the people around young people**:	• Increasing the knowledge and skills of friends from whom they may seek advice • Engaging staff who work in nightlife settings • Working with managers and supervisors in workplaces.

The elements listed above are not exhaustive nor do they guarantee successful outcomes. Moreover, they need to be incorporated into initiatives in cautious and sophisticated ways to avoid unintended consequences.

In particular, whilst there is strong evidence for 'the role of peer-based educators as a preferred and trusted source of information among young people'. [55] some studies have identified the risk that peer engagement for AOD prevention can increase the use of alcohol and other drugs, [56] especially amongst groups who have already started using illicit substances. [57] One review of peer-led education noted the following five common components 'across the peer-led intervention programs with demonstrated effectiveness': [57]

1. Programs based on social influence and social learning theories
2. Programs integrating peer-led interventions in larger programs of prevention
3. Programs selecting peer leaders based on the nomination of their peers rather than selection by adults or volunteers
4. Where the peer leaders adopted the desired target behaviours associated with the intervention
5. Programs involving the target population in the development of the content.

Effective approaches to reduce illicit drug use harms

As shown in Table 7, five studies had a statistically significant effect on reducing illicit drug use and/or harms [9, 19, 51, 52, 54] and two showed promise. [12, 53]

Participants in the computer- and mobile phone-based intervention [52] reported reduced cannabis use and more abstinent days when compared to the control group. Participants receiving home delivery of opioid treatment reported significantly more doses, lower rates of opioid relapse and fewer overall days of opioid use when compared to those receiving treatment as usual. However, relapse was still 61%. [54]

Reporting of success for the study of a computer-assisted interview for people who use AOD in an electronic dance music context focussed on the relative merits of peer-delivered versus self-assessed interviews with a dual focus on resilience as a moderator of substance use. [51] The study found that participants in the Peer condition reduced their drug use and related health consequences more than participants in the Self arm. Both intervention conditions were efficacious compared to control, with the self-delivered version showing a small but significant effect over control. Regarding resilience as a moderator, high resilience predicted more successful substance use outcomes. Participants with low resilience scores had poorer outcomes, and those outcomes were largely unaffected by intervention condition. One particularly important finding for vulnerable populations was that regardless of the level of resilience, participants with STS did not benefit from the interventions. The authors suggest that person-delivered interventions may be more suitable for youth who screen positive for STS, recommending instead that those people be referred to mental health professionals. [51]

When considering a specific culturally-based activity - the Talking Circle, young Native American participants showed improvement on all measures, including a decrease in substance use and depression. They also demonstrated a higher sense of Native-Resilience. [19]

The evaluation of therapy sessions for freshmen students led by a peer interventionist reported decreases in illicit drug use between baseline and six months for two groups referred to as ‘voluntary’ or ‘mandated’ participants. The mandated group refers to students who had violated a campus alcohol policy and chosen to participate in the study intervention instead of the college program they would have typically been required to do. For both groups combined, the use of illicit drugs decreased between baseline (27.5%) and 6 months (21.9%). The greatest decrease was seen in the mandated group, with 20.4% of the participants in the group using illicit drugs at baseline and only 10.3% at 6 months. [53]

Only one study yielded by the rapid evidence review was conducted in Australia. [7] The population of interest for that study was Aboriginal and Torres Strait Islander youth. By undertaking a systematic review, the authors identified four interventions in northern Australia (Queensland and the NT). Nineteen other relevant studies were also discussed in relation to their implications for programs for Aboriginal and Torres Strait Islander youth. However, the authors found a lack of detail and/or appropriate research design from which to discern any evidence of effectiveness.

Five studies reported statistically significant findings in reducing illicit drug use. [19, 51-54] One of those did not involve personal interaction with another human, but did provide a ‘character’ in the form of Peedy the Parrot. [52] The other four were talk-based, involving therapy, counselling, an interview or talking with at least one other human.

Many of the interventions included in the systematic review of culturally-informed interventions for substance abuse among Indigenous Youth in the United States involved talking circles. [12]

Across the studies, four principles could be identified that were encouraged by the researchers and/or directly attributed to the success of their interventions: cultural appropriateness, peer input, technology-based interventions and the involvement of family (discussed in more detail below).

In addition to the studies from the academic and grey literature that are reported in the snapshot table above, six other activities were mentioned in literature that was either published prior to 2013 or for which evaluations have not been located. They are listed here as possibilities for further investigation. The *NT Child and Adolescent Health and Wellbeing Strategic Plan 2018–2028 Background Document* considered two programs that addressed drug use by young people as ones that 'may/could be working' [58]. These were:

1. *'Warlpiri Youth Development Aboriginal Corporation (WYDAC) (no evidence base available). Both Youth and Client Services assist youth, for example: WYDAC Client Service teams utilise professionally qualified, on the ground and local staff to provide early intervention, counselling and rehabilitation support for Warlpiri youth at risk. These issues may variously include drugs and alcohol, relationship and family violence, suicidal ideation, criminal behaviour, depression, neglect and sexual health, all which impact on a young person's sense of safety and wellbeing. The program applies a wide range of professional, evidence-based and culturally appropriate activities to promote individual, family and community health and well-being. There is a strong partnership between the WYDAC Client and Youth Service teams, all ultimately focused on positive pathways for young Warlpiri people. This includes the Mt Theo outstation program', [58]*

2. *'Bushmob (no evidence available) is a community based service for high risk Young People aged 12 – 25 years who use AOD and engage with the youth justice system. Bushmob is described by its funders as either a youth alcohol and other drug service, or Sentenced Youth Camp. It is more accurately described, however, as a therapeutic service for high risk young people whose complex needs generally include alcohol and other drug use and recidivistic engagement with the youth justice system'. [58]*

In addition, notes from an AADANT Youth Sector Forum in Katherine mention the following initiatives being run through YMCA:

1. 'Certificate I in Self Development for Young People that will cover a range of personal skills and beliefs'
2. Local Drug Action Group – YMCA
3. Male only programs for Young People. [8]

Finally, a NSW program that was considered successful for reducing offending via reducing drug use amongst at-risk Aboriginal youth was the Youth Drug and Alcohol Court (YDAC) for offenders aged 14-18, or who were 18 at the time of committing an offence. The YDAC program ran from 2000-2012, and 'aimed at reducing offending by reducing drug and alcohol use amongst, and offering a range of therapeutic interventions to young people who [were] involved in the criminal justice system in NSW. [59][5]

[5] The YDAC is also described in a presentation available at https://aija.org.au/wp-content/uploads/2017/08/Turner2.pdf accessed 27 June 2023.

Cultural appropriateness

Regardless of setting, cultural appropriateness is of central importance in relation to the provision of AOD services for First Nations peoples, including Aboriginal and Torres Strait Islander peoples.

Systematic reviews of initiatives targeting AOD use by Aboriginal and Torres Strait Islander youth [7], Native American youth [18, 19] and adolescents of colour [9] all stress the importance of working with culture.

> A key difference in culturally based programming is that it is based on thousands of years of knowing. Tribes possess a rich history and knowledge base that can inform prevention work. This kind of prevention involves working with what is in the community rather that adding foreign programming, ideas, curricula, and practices that are not based on the language, values, traditions, and beliefs of a tribal communities. Building on community strengths rather than weaknesses is important for tribal communities. [18]

Cultural appropriateness was also noted in the intervention directed at freshmen, albeit narrowly framed as 'ethnicity'. Still, it highlights the importance of cultural factors in designing and implementing alcohol prevention programmes on college campuses. [53]

The interventions designed for Native American youth were based in Native American ways of knowing, incorporating the values and beliefs of native-reliance and the traditional Talking Circle practice. [19] In reflecting on the success of the Talking Circle intervention, the authors suggest that: 'The incorporation of cultural values, beliefs, and practices into prevention efforts enhances the acquisition of coping skills and, ultimately, leads to a reduction in substance use and related health issues'. [19] Both studies focussed on Native American youth engaged the broader community in study design. For the Talking Circle study, a 'Community Partnership Committee (CPC) within the urban Native American community in northern Florida was formed to conduct and oversee the intervention adaptation and tailoring process for the relevancy for young adult urban Native Americans ages 18–24'. Culture may not only be important to designing interventions that are acceptable to target groups. One of the Native American youth studies suggests that the incorporation of cultural values may contribute to minimising AOD use: 'The increase in the cultural identity measure of Native - Reliance, and the decrease in substance use and depression at the 6 - month post assessment may also be explained by the holistic thinking process of Native Americans'. [19]

Several studies recommended addressing the specific needs and circumstances of target groups. [7] This is important to ensure that interventions are culturally appropriate. [7, 18, 19] Kelley et al describe this as meeting communities "where they are at", especially considering their ability to deliver interventions and or their capacity to provide support. [18] This was the premise of the trial of home delivery of opioid use disorder treatment, [54] which addresses a fundamental barrier to accessing medication. Meeting people where they are at was also essential to the assertive outreach approach which was accepting of relapse and non-linear trajectories.

Whilst cultural appropriateness is undoubtedly important, one systematic review and meta-analysis of randomised control trials was unable to conclusively report on evidence for the relative benefits of culturally sensitive programs for substance use due to a lack of control groups in individual studies. [9] Nonetheless, the authors of the systematic review describe programs that reflect youth cultural values as beneficial for reducing or preventing substance use amongst Hispanic, Black and Native American adolescents. [9]

Peer input: design, delivery

Several studies recommend involving youth/peers in the design and execution of approaches, [52] especially in relation to Aboriginal and Torres Strait Islander youth. [7] Age is also an important aspect of selecting peers. [51]

Technology-based interventions

Two studies considered technology-based interventions. [51, 52] Researchers evaluating the success of the computer- and mobile phone-based substance use intervention commented that it 'may prove valuable with other populations that could benefit from long-term monitoring and support without major involvement of treatment professionals. Such populations could be found among former prisoners, persons in remote areas with less access to traditional intervention services … or underage youth who typically do not access traditional services'. [52] However, one challenge for mobile phone and text-messaging interventions, relates to people changing their phone number. Also, 'vulnerable populations may be at risk of losing cell phone coverage more often than individuals in the general population'. [52] This may be an important consideration for interventions in the NT where network coverage may not be reliable in rural and remote areas.

Braciszewski et al comment on the potential advantages of using a tool which is not facilitated by another person. [52] Their use of an animated character (Peedy the Parrot) may have been non-threatening to participants. Peedy the Parrot could also have been suitable for their cohort of youth who had been in foster care and may not have experienced secure relationships with others, may be suspicious of professionals or who have difficulty trusting others. The use of an interactive computer-generated character like Peedy could also offset some of the confidentiality concerns for people who use drugs reporting their use of illicit drugs. Regarding young men, future research is needed to determine the feasibility and effectiveness of using interactive computer-generated characters instead of other humans (peers, professionals, etc). At least in relation to severe traumatic stress, one of the studies yielded by this rapid evidence review suggests the importance of personalised treatment from a mental health professional. [51] In relation to technology-based interventions, the ADF narrative review of messaging finds inconclusive evidence for the relative effectiveness of face-to-face versus virtual or online delivery. [55]

Family, kinship and community

The involvement of family, kinship and community is emphasised in relation to cultural appropriateness, as already noted. For the individual, family involvement may also increase the success of strategies. One of the systematic review studies highlighted the importance of including family and community to support intervention goals. [12]

The home delivery of opioid use disorder treatment study involved family engagement moderated by a therapist. [54] The authors consider family involvement important to the success of the programme. They note:

> *'With expectations and agreements in place from the beginning, the therapist was poised to navigate circumstances in which the short-term stated intentions of patients (e.g., avoiding or declining XR-NTX doses) and the natural parental guidance of families (e.g., insistence on XR-NTX doses) conflicted. When family influence prevailed, as it often did, the young adult patients would usually acknowledge in*

> *retrospect, perhaps reluctantly, that things had turned out for the better. Our conclusion is that, although nuanced, respecting the confidentiality of youth, promoting youth self-efficacy and emerging autonomy and engaging families are all actually quite compatible with one another'. [54]*

However, the relative or combined impact of this one aspect of the study was not evaluated. In fact, Fishman et al attribute the success of the home delivery of opioid use disorder treatment to all four aspects of their model (ie home delivery of XR-NTX; assertive outreach; and contingency management for receipt of XR-NTX doses). [54] It may therefore be the case that family involvement alone (or any other single approach) is insufficient to expect successful outcomes.

Summary

The search strategy identified nine peer-reviewed studies concerned with illicit drug use by young people [7, 9, 12, 18, 19, 51-54] and three studies from the grey literature [23, 24, 55]. Seven studies reported successful outcomes related to reduced AOD use [9, 12, 19, 51-54] which were more or less explicitly attributed to cultural appropriateness [9, 18, 19] peer input in design and delivery, [51, 52] the use of technology [51, 52] and the involvement of family, kinship and community. [12, 54]

As none of the studies were single-sex, and very few reported results by gender, [12] inferences were unable to be made about the elements of a successful message or approach specifically targeting young men, the benefits of an intervention involving only young men, or the potential limitations of mixing gender in group interventions and evaluations. Our finding of a lack of published and evaluated studies on illicit drug use by young men is consistent with the Alcohol and Drug Foundation's narrative review of illicit drug harm reduction to young adults in Australia [55] which found an overall lack of evaluation, which in turn is unsurprising given the apparent lack of initiatives to help men who use illicit drugs, let alone young men – or young men of colour. Indeed, the preface to a book on the topic of health promotion to adolescent boys and young men of colour states that 'While there are pockets of health promotion innovation strategies targeting boys and young men of colour, these strategies are typically poorly funded, time-bound, and seldom scaled to a level to meet population health needs'. [60]

Nonetheless, there may be strategies in the NT which are either not described in the published literature, or are inaccessible by the search strategy. In either case, such un-documented interventions may not be randomised control trials (NHMRC Level I) or utilise a pre/post design with baseline data. However, as demonstrated by the study of various culturally-based prevention activities designed for different audiences and deployed over three years to six communities, researchers need to be flexible and innovative to identify best available data such as secondary or administrative data. This may be useful where highly researched populations have survey fatigue or do not believe that their participation in a survey will be genuinely beneficial. [18]

Overall, the studies in the rapid evidence review provide some important considerations for designing strategies intended to address illicit drug use by males in the NT. However, there was inconclusive evidence for the relative importance and impact of those considerations. The generalisability of North American studies to young males who use illicit drugs in the NT is also questionable, especially given the likelihood that young males may also be Aboriginal and Torres Strait Islander and/or live in rural and remote locations. In particular, there is insufficient evidence to confidently predict what an effective strategy would look like, especially in relation to specific messaging. To that end, the design of any future strategies intended to address illicit drug use by males in the NT should be founded on

an in-depth understanding of how young men use illicit drugs, created with co-design and peer-involvement, undertaken with community support and sufficiently evaluated.

More importantly, there is a need to address systematic barriers relevant to different populations of young people and young males. This was noted in relation to the lives of youth in foster care. [52] The impact of severe traumatic stress (STS) was highlighted by the study by Kurtz et al, which found that 'regardless of the individual's level of resilience, however, participants with STS were generally unaffected by the intervention. [51]

To provide an evidence base for effective strategies for reducing the harm of illicit drug use by young men in the NT, we suggest that there is a need to:

- Conduct research to determine the context in which young males use illicit drugs in the NT, including their own strategies for minimising the harms of illicit drug use
- Identify different sub-groups of young men who use illicit drugs in the NT, especially young Aboriginal and Torres Strait Islander men and or those who live in rural and remote communities
- Identify unpublished and/or unevaluated strategies already in use in the NT and where possible, conduct evaluations
- Engage young male peers and their communities in the planning, design, implementation and evaluation of strategies, in consideration of the elements outlined above, especially:
    - Cultural appropriateness
    - Addressing specific needs and circumstances
    - Peer input
    - Technology-based interventions
    - Involvement of family
    - Masculinity.

Young Aboriginal and Torres Strait Islander males should be given particular consideration in future strategy development and implementation, as part of a recent urgent call for further investment in Aboriginal and Torres Strait Islander men's health research funding. Researchers recently considered the population size, health need and disease burden of Aboriginal and Torres Strait Islander peoples against an analysis of Category 1 research funding (ARC and NHMRC) in Australia for the 10-year period from 2011-2020. They found 'that Aboriginal and Torres Strait Islander men remain almost invisible within the Australian health research landscape'. [61] The current review highlights the need for funding to be directed into illicit drug use by young males in the NT, especially that which provides a much needed evidence-base for successful harm reduction strategies and messaging.

Chapter Five: Considerations and recommendations when designing/implementing messages and approaches for all cohorts

In this chapter, we describe some important considerations and recommendations when designing/ implementing messages and approaches. This chapter is based on the supplementary literature described in the introduction, especially literature that is not a description or evaluation of a study or strategy.

The considerations are presented according to each cohort. However, as noted in the introduction, the cohorts are not mutually exclusive categories; nearly 50% of the NT population live in remote/very remote areas (versus 22% nationally). In 2021, almost 31% of the population identified as Aboriginal or Torres Strait Islander. [1] The NT has proportionately more males (50.5%), than females (versus 49.3% nationally) [2] and the median age in the NT is younger than the national average (33 years vs 38 years). [3] These statistics suggest that the findings from all chapters of this report are applicable to many people who are Aboriginal and Torres Strait Islander peoples, and/or living in rural and remote areas in the Northern Territory, and/or young, and/or male (see Figure 1).

Aboriginal and Torres Strait Islander peoples

The centrality of a social determinants of health / social and emotional wellbeing approach

The health of disadvantaged Australians, particularly many Aboriginal and Torres Strait Islander peoples, is adversely affected by a range of social determinants. Social determinants of health are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems. [62]

Taking into consideration the ways in which SDH impact levels of illicit drug-related harm in the NT is a critically important starting point for program and service planning and development aimed at reducing these harms among Aboriginal and Torres Strait Islander peoples in the NT.

A range of SDH impact the health of people and communities. These include SDH related to:

- Income and social protection
- Education
- Unemployment and job insecurity
- Working life conditions
- Food insecurity
- Housing, basic amenities and the environment

- Early childhood development
- Social inclusion and non-discrimination
- Structural conflict
- Access to affordable, quality health services
- Distribution of power and resources. [62, 63]

Many Aboriginal and Torres Strait Islander peoples are also subject to additional SDH factors that are specific to them as a group. The SDH factors which are likely to have adverse impacts include those related to:

- Colonisation, dispossession, and interpersonal and systemic racism
- Destruction of traditional economies through dispossession
- Undermining of identity, spirituality, language and culture through establishing missions and residential schools
- Destruction of traditional forms of governance, community organisation and cohesion through imposition of colonial approaches to government
- The breakdown of traditional patterns of individual, family and community life
- Exclusion from government policy and processes
- High rates of incarceration. [63, 64]

Conversely, there is a range of SDH that impact positively on the health of Aboriginal and Torres Strait Islander peoples. These include:

- Spiritual connectedness to culture and caring for Country
- Spiritual beliefs, traditional knowledge, traditional healing
- Knowledge transmission and continuity
- Self-determination, leadership, sovereign rights, representation
- Traditional languages
- Family, kinship and community
- Community control capacities, land rights and control over land
- Infrastructure, resources, and service systems
- Inclusion in policy processes. [63, 64]

The adoption of strengths-based approaches is central to reducing illicit drug-related harm among Aboriginal and Torres Strait Islander peoples in the NT. This involves building on the SDH that contribute to social and emotional wellbeing, a holistic concept which recognises the importance of connection to land, culture, spirituality, ancestry, family and community. Culture and cultural identity are critical to the social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples.[65]

A representation of the factors contributing to Aboriginal and Torres Strait Islander social and emotional wellbeing appears in Figure 6, below, from Gee, Dudgeon, Schultz, Hart, & Kelly [66].

Figure 6: Social and Emotional Wellbeing from an Aboriginal and Torres Strait Islander peoples' Perspective. Source: Gee, Dudgeon, Schultz, Hart, & Kelly (2014)

The implications of social determinants of health on illicit drug program and service provision in the NT

Snijder et al. underook a systematic literature review to inform the development of an ecological model of AOD use and related harms among Aboriginal and Torres Strait Islander Australians. [67] Individual-level risk factors for substance use harms that were identified included low socio-economic status, high psychological distress, poly drug use and being male. Relationship-level risk factors identified were peer pressure and partner/family substance use. The key community-level risk factor was the availability of substances. Societal risk factors included intergenerational trauma caused by government policies.

The protective factors identified in the systematic review were supportive environments and positive role models. Culturally distinct factors included cultural connection as a protective factor, but cultural obligations around sharing was a risk factor. The authors indicated that the findings highlight the importance of tailored preventative approaches for Aboriginal and Torres Strait Islander communities that address identified risk factors and promote protective factors across all ecological levels. [67]

As noted, interventions to address harmful illicit use among Aboriginal and Torres Strait Islander peoples also need to be provided in the context of cultural understandings of health and social and emotional wellbeing. [68, 69] In this context, illicit drug interventions should seek to reduce SDH factors which threaten health and social / emotional wellbeing, and harness and enhance protective

SDH factors. This contrasts with an approach which only focuses on the provision of tertiary treatment services. [67]

Effectively reducing illicit drug-related harm among Aboriginal and Torres Strait Islander peoples in the NT will require multi-faceted and multi-setting approaches. In this regard, Gray and colleagues, [70] in their examination of Aboriginal and Torres Strait Islander-specific alcohol and other drug interventions, proposed a service provision model which includes the spectrum of interventions across the domains of demand, supply and harm reduction activities. An adaptation of this appears diagrammatically below in Table 9:

Table 9: Tiered model of illicit drug misuse intervention for Aboriginal and Torres Strait Islander peoples. Source: Adapted from Gray et al., (2010)

Tier	Domain		
	Demand reduction	***Supply reduction***	***Harm reduction***
Non-substance use services	• Primary health care services • Pre- and post-natal care programs • Accident and emergency services • Supported accommodation • Employment programs • Education programs • Recreational programs • Childcare and support		• Youth shelters • Women's refuges • Hepatitis B vaccination
Open access substance misuse services	• Telephone information services for clients, the public and service providers • School-based AOD education • AOD-specific health promotion programs • AOD-specific primary health care interventions • Brief interventions • AOD counselling services • Assessment and referral services • 12 Steps groups • Education, training and support for AOD agencies and workers	• Limiting availability of volatile substances • Supply-side drug law enforcement	• Mobile assistance patrols • Sobering-up shelters • Needle exchange services
Structured community-based specialist substance misuse services	• Diversion programs • Behavioural family therapy • Pharmacotherapies • Community/home-based detoxification • After-care services and support		
Residential substance misuse services	• In-patient detoxification • Residential rehabilitation		
Highly specialist nonsubstance misuse specific services	• Specialist hospitals and hospital units		

Rural and Remote people

Lower AOD literacy in rural and remote areas may mitigate influence messaging effectiveness. [71] The NT Alcohol and Other Drugs Workforce Development Strategic Framework recommended ensuring that all workers (particularly those in rural and remote areas) undertaking AOD work develop a foundational understanding of illicit drug use and related concerns (e.g., wellbeing); different types of drugs, patterns and prevalence; drug effects) in order to talk about evidence-based harm reduction options with clients and communities. [71]

Similarly, socio-normative barriers reduce the effectiveness of harm minimisation strategies. [45, 72, 73] Factors such as stigma are intensified in regional and remote communities, reducing the likelihood of individuals being attentive to harm reduction messaging, or attending and engaging with treatment services.

The effective approaches identified in Chapter Three are consistent with Australia's current approach to addressing regional, rural and remote needs, as established in several NT and national strategies and plans. For example:

- *National Strategic Framework for Rural and Remote Health [46]*
- *National Drug Strategy [69]*
- *National Strategic Framework for Aboriginal and Torres Strait Islander People' Mental health and Social and Emotional Wellbeing [74]*
- *NT Health Strategic Plan [28]*
- *Australian Commission on Safety and Quality in Health Care [75]*

Young people

Masculinities

There is little literature on the help-seeking behaviours of men in relation to illicit drug use, let alone young men. However, young men are probably less likely than young women to seek help for their illicit drug-use. As summarised by Seidler at al 'Among men, high conformity to traditional masculine norms has been correlated with less help-seeking behaviour and more negative attitudes toward seeking psychological treatments … with men repeatedly found to be half as likely to seek help for mental health concerns from a GP or mental health professional compared with women … This finding is consistent across countries, racial and ethnic groups and throughout the lifespan'. [76] However, despite the widely-held idea that traditional ideas of masculinity are a barrier to men seeking help, or responsible for them delaying seeking help from health professionals, [77] researchers conducting a 2016 systematic review of the role of masculinity in men's help-seeking for depression identified six qualitative studies supporting the idea that traditional masculine ideals of strength or self-reliance could be reframed in ways consistent with help-seeking, particularly through ideas of 'fighting depression'. [76] They also highlight how 'men will seek help if it is accessible, appropriate and engaging' .[76] For example, when considering the literature on type of therapy and therapist preferred by men with depression, participants in nine studies 'tended to prefer action-focused interventions based on problem-solving strategies…'. [76]

Moreover, masculinity need not be constructed as necessarily problematic. A scoping review prepared for VicHealth considers how the developing concept of 'healthy or 'healthier' masculinities

can be used to have a positive impact on men's health, not only regarding themselves and their relations to other men but to women and girls as well. [78]

These flexible perspectives on masculinity suggest that there may be potential in determining the meaning and experience of masculinity for young men in the NT and working alongside them to identify which aspects of masculinity could be used to develop a strengths-based approach to the design of initiatives designed to help young men:

- Recognise when they need help for their illicit drug use
- Know who and where they can turn to for help
- Feel capable (if not empowered or proud) to ask for that help.

This strategy, of course, relies on help being available and appropriate, which has not been the case for young men in the NT, especially those in rural and remote areas. [8] To that end, the design of spaces intended for young men should be undertaken with a consideration of their impact on 'healthy masculinity', as has been illustrated based on interviews with men in drug treatment programmes and recovery homes in Ontario. [79]

According to Merlino et al, 'commentary on the intersection between masculinities and health literacy is scant'. [80] Smith et al researched the health literacy of young Aboriginal and Torres Strait Islander males in the NT, for a project funded by the Lowitja Institute. [81] They describe elsewhere how their 'Findings revealed that Aboriginal and Torres Strait Islander males conceptualise and negotiate health from both Western and Aboriginal paradigms and are constantly resisting and embracing different constructions of masculinity – sometimes simultaneously'. [82] The implications of this are that:

> *'Within an Australian health promotion context, this means adopting more nuanced approaches to Indigenous masculinities when developing gender sensitive, culturally appropriate and contextually relevant interventions, and strategies tailored the needs of young Aboriginal and Strait Islander males. Outreach health promotion efforts that incorporate a deeper focus on relationships between friends, family and the broader community are particularly important. Opportunities for the intergenerational exchange of cultural knowledge are also highly valued. Embracing emerging social media platforms as a means to engage and interact with this population about their health and well-being also has significant potential'. [82]*

Findings also reinforce a strengths-based approach that could be used to minimise the harms of illicit drug use by young Aboriginal and Torres Strait Islander Males in the NT.

> *'Young Aboriginal and Torres Strait Islander males possess health literacy abilities that enable them to support the well-being of themselves and others. Health policymakers, researchers and practitioners can help strengthen and expand existing support structures for this population by listening more attentively to their unique perspective's'. [81]*

In particular, the authors recommend that 'campaigns framed through the lens of responsible fatherhood, as well, could help promote health literacy and health-related behaviours by fostering healthy masculine and cultural norms' [81] for Aboriginal and Torres Strait Islander males. Young men should not be excluded from discussions about fatherhood.

Decision-making

With specific reference to the importance of decision making and the social or peer pressure often felt by young people to use drugs, Winters and Arria [83] refer to their research group's development of a 12-Step Program for Decision Making for adolescents receiving drug treatment. The program involves teaching '12 decision-making skills, including impulse control, attention regulation, minimizing arousal, anger management, and taking healthy risks'. The 12 steps proposed by Winters are (Pers. Comm. 29 May 2023):

1. Impulse control
2. "Second thought" processes
3. Social decision making
4. Dealing with risk situations
5. Taking healthy risks
6. Attention regulation
7. Anger control
8. Modulating reward incentives
9. Choosing options
10. Considering consequences
11. Minimizing arousal
12. Dealing with peer influences

One strategy that Winters and Arria 'teach teenagers is the following: ""*red lig*ht - "pause and evaluate the situation;" *yellow light* - "consider several options and choose a suitable one;" and *green light* - "verbally and/or behaviourally respond with the choice you made, and evaluate the impact of your response. [83]"" The program has not been trialled (pers. comm. 29 May 2023), but it is provided here as an example of an initiative designed to provide decision-making skills, situational awareness and other personal skills that could be used to inform or inspire the development of strategies to help young men in the NT navigate situations involving drug use in ways that increase their ability to minimise drug-related harms.

The AADANT Youth Project Officer observed that, there are limited resources in the NT even at the level of AOD information-provision for young people in the NT. This was the case in school, community and youth spaces. [8] Likewise, the Officer reported that anecdotally, there was 'a lack of AOD education for those referring young people including families, youth workers, schools, health services and youth justice'. [8] This deprived young people from: a language through which issues could be discussed, a pathway for seeking help and a means to reduce the shame and stigma that can perpetuate the use of illicit drugs.

One of the education-related recommendations made by the AADANT Youth Project Officer was to 'produce a NT specific Youth AOD awareness campaign in collaboration with stakeholders, young people and community'. [8]. Where a suite of materials are produced, the three cohorts of interest to the present piece of research should be considered key audiences. In fact, based on the successful engagement of young people in the creation of two short films [8], there appears to be capacity and a model for engaging young men in creating strategies to minimise the harms of illicit drug use.

Recognising adolescent brain development

Drawing from a neuroscientific approach to drug use by adolescents, Winters and Arria warn that simply educating 'youth about the dangers of risk-taking is a no-win struggle against biological processes' [84]. Whilst their warning is delivered within a framework of prevention and treatment, they make three recommendations that could also apply to approaches and messages:

1. Teaching young people about how their brains are developing
2. Providing opportunities for safe risk-taking that engender personal growth, not only meeting a need for arousal

3. Promoting ‘a lifestyle that supports healthy brain development’. [83]

With regard to ‘teaching young people about how their brains are developing, NSW Health has recently released a series of short, animated videos called “Respect your brain” aimed at teenagers to people aged 25 years. Whilst the videos do not directly cover brain development, five videos each address the ways in which their brains are affected by using alcohol and antidepressants, alcohol, cannabis, MDMA and vaping.[6]

Notably, scare tactics and shock campaigns are inappropriate because:

- Young people are inclined to interpret dramatic messaging in scare-tactics as exaggerated
- Scare-tactics can be misaligned with users’ positive experiences of drug-use
- Scare-tactics can stigmatise and ‘other’ people who use drugs, making them less likely to seek help
- Young people may not relate to the representations of drug users in shock campaigns
- Scare-tactics are consequence-based and young people often do not have a fully developed capacity for logic.

As noted in one set of guidelines for cannabis messaging, ‘Using consequences as a motivation for behavior [sic] change with people who have an undeveloped logic center [sic] is a recipe for disaster’. [85] This may explain the finding of a series of focus groups with young people in the NT which found ‘young people could identify unhealthy behaviours but the link with future disease was not as clear’ and reported that ‘a very small number of young people identified increasing awareness of the effects of drugs, alcohol and smoking in their communities as being important’. [58]

Young people in context

It is important to consider young people’s drug use within the broader socio-cultural and educational dimensions of their lives. A review of risk and protective factors related to the AOD harms amongst 12-17 year olds, an ADF report considers the impact of the following six domains: [56]

1. Peer and individual
2. Family
3. Leisure
4. School
5. Local community
6. Broader environment.

In support of this broader contextualisation of AOD, the AADANT Youth Project Officer found that ‘Many Young People identified by services as having AOD concerns/issues have compounding and contributory factors including additional risk factors relating to housing, family relationships, education and training, mental health issues and/or primary health issues. Many of these issues are connected with living below the poverty line’. [8] The impacts of overcrowding and remoteness were also highlighted. Overcrowding deprives young people of the personal space they need ‘to deal with their AOD concerns, and/or to have space from other family members’ issues’. [8] Regarding remoteness, participants in a Youth Sector Forum held in Darwin reflected on how there were limited to no services

[6] https://yourroom.health.nsw.gov.au/getting-help/Pages/Respect-Your-Brain.aspx

that travelled to remote communities, nearly all services needed to be accessed by a Young Person coming to town and finding their own accommodation and support structures beyond the service'. [8] This was supported by qualitative interviews, with participants calling for more outreach services and services that are delivered in communities, on country. [6]

The considerations discussed above regarding designing harm reduction messages for young people may also be relevant for people with foetal alcohol spectrum disorders (FASDs) who can experience cognitive impairment related to their exposure to alcohol before birth, especially regarding reasoning, judgment, considering consequences and difficulties with impulsivity. [86]

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Appendices

Appendix 1: Electronic databases and organisation websites searched, and organisations directly contact via email

Electronic database search	Website search: Organisations	Direct contact: Organisations
1. Medline 2. Cumulative Index to Nursing and Allied Health Literature (CINAHL)	1. AIHW clearinghouse 2. Harm Reduction Australia 3. Australian Indigenous HealthInfoNet 4. Lowitija Institute 5. National Centre for Youth Substance Use Research	1. Australian Injecting and Illicit Drug Users League 2. NSW Users and AIDS Association (NUAA) 3. Peer Based Harm Reduction WA 4. Bloodwood Tree Association Incorporated 5. Larrakia Nation Aboriginal Corporation 6. Palmerston Association Inc. 7. Winnunga Nimmityjah Aboriginal Health and Community Services 8. Alcohol Tobacco & Other Drug Association ACT (ATODA) 9. Alcohol, Tobacco and other Drugs Council Tasmania (ATDC) 10. Association of Alcohol and Other Drug Agencies NT (AADANT) 11. Network of Alcohol and Other Drugs Agencies (NADA) 12. Queensland Network of Alcohol and Other Drug Agencies (QNADA) 13. South Australian Network of Alcohol & other Drug Agencies (SANDAS) 14. Victorian Alcohol and Drug Association (VAADA) 15. Western Australian Network of Alcohol and other Drug Agencies (WANADA) 16. National Aboriginal Community Controlled Health Organisation (NACCHO) 17. Aboriginal Health Council Western Australia (AHCWA) 18. Aboriginal Health Council of South Australia (AHCSA) 19. ACT PHN 20. Adelaide PHN 21. Brisbane North PHN 22. Brisbane South PHN 23. Central and Eastern Sydney PHN 24. Central Queensland, Wide Bay, Sunshine Coast PHN 25. Country South Australia PHN 26. Country Western Australia PHN 27. Darling Downs and West Moreton PHN 28. Eastern Melbourne PHN 29. Gippsland PHN 30. Gold Coast PHN 31. Hunter New England and Central Coast PHN

		32. Murray PHN 33. Murrumbidgee PHN 34. Nepean Blue Mountains PHN 35. North Coast PHN 36. North Western Melbourne PHN 37. Northern Queensland PHN 38. Northern Sydney PHN 39. Perth North PHN 40. Perth South PHN 41. South Eastern Melbourne PHN 42. South Eastern New South Wales PHN 43. South Western Sydney PHN 44. Tasmania PHN 45. Western New South Wales PHN 46. Western Queensland PHN 47. Western Sydney PHN 48. Western Victoria PHN

PHN = Primary Health Network

Appendix 2: Search terms

Drug use	Illicit use	Harm reduction	Evaluation	Target group
Drug Prescript* Substance* Pharmaceutical Cocaine Cannabis Marijuana Hemp Amphetamine* Methamphetamine* Benzodiazepine* Opioid* Opium Heroin Morphine Opiate* Stimulant* Hallucinogen* MDMA Ecstasy GHB LSD Ketamine Fentanyl Codeine Narcotic* Analges* Inhalant Phencyclidine Nang Petrol	Addict* Depend* Non-medical “non medical” Misuse Extra-medical “extra medical” Inject* Drug abuse Illicit	((Reduce OR minimise OR minimize) AND harm) ‘Harm reduction” “Harm minimisation” “Harm minimization” “Needle program” “Syringe program” NSP “Diversion program” “Overdose prevention” “Needle clean*” “Clean needle” Naloxone “Peer led education” “Peer led program” “Peer-led education” “Peer-led program” “Peer distribution program” “Opioid agonist treatment” OAT “Opioid substitution therapy” OST “Blood-borne virus screening” “Blood borne virus screening” “BBV screening” “Pill testing” “reagent test” “Drug checking” Drug-checking	Evaluat* Intervention Efficacy Effective Effectiveness Appraise Assessment Assess	<u>Group 1:</u> Native Indigenous Aboriginal “Torres Strait Islander” “First Nation” Māori Inuit Métis “American Indians” <u>Group 2:</u> Young Youth Minor Adolescent Teenag* Student AND Men Male Bloke Man <u>Group 3:</u> rural remote regional non-metropolitan non-urban

Glue Sniff* “Volatile substance*” “Volatile solvent*”		“Sobering up shelter” “Sobering up service” “sober up” “Medication-Assisted Treatment” “Medication assisted treatment” MATOD “Drug consumption room” “drug and alcohol treatment” “safe injecting room” Education Campaign “Health promotion” “health messag*”		

Appendix 3: In depth summary of studies related to Aboriginal and Torres Strait Islander peoples as identified by the rapid evidence review

Article	Country in which study conducted	Target population and substance	Aim of study	Intervention	NHMRC Level of Evidence and study design.	Effective strategies (approaches and messages)	Evidence of effectiveness	Primary care vs other	Limitations
Bo, A et al., 2023 [9]	United States	11-18 years 51% female, mean age 13.6 N=36 reports of 30 unique studies. Sample size of included comparisons of each treatment group to a control group ranged from 31 to 2212. Substance: alcohol, cigarettes, marijuana, illicit and other drugs, and unspecified substance use.	To synthesize the efficacy of culturally sensitive prevention programs for substance use outcomes among U.S. adolescents of colour (aged 11 to 18 years old) and explore whether the intervention effects vary by participant and intervention characteristics	Any culturally sensitive universal, selective, or indicated individual-, family-, school-, or community-based substance use prevention programs or positive youth development. programs conducted in the United States	Level I	Culturally sensitive programs that address substance- specific risks and protective factors; address positive youth development factors; and reflect adolescents' cultural values, norms, practices and worldviews. Messages No effective messages were described.	Preventing or reducing substance use among Black, Hispanic, and Native American adolescents. Average treatment effects were statistically significant for all substance use behavioural outcomes but not for substance use consequences.	Other	Not all eligible studies may have been identified. Unable to make conclusions about the efficacy of culturally sensitive relative to non-culturally sensitive programs. Moderator analysis risks.
Krakouer, J et al., 2022 [10]	Australia	Aboriginal and Torres Strait Islander peoples Substance: Alcohol, other drugs.	To examine the impact and acceptability of community-based models of AOD support for Aboriginal and Torres Strait Islander peoples	A systematic review of the empirical literature from the past 20 years	Level I	Making sure that culturally safe, holistic and integrated AOD outreach support is led by Aboriginal and Torres Strait peoples and organisations that involve local community members. Messages No effective messages were described.	Three out of nine studies yielded a statistically significant reduction in substance use.	Other	Overall lack of effectiveness studies evaluating community-based AOD programs. Men were under-represented in the reviewed studies.
Leske, S et al., 2016 [11]	Australian study using data from Australia, Canada, New Zealand and the United States.	Indigenous adults with mental and substance use disorders in Australia, Canada, New Zealand and the United States. N=16 studies included. Substance: alcohol and illicit drugs.	To systematically review the evidence-base for the effectiveness of culturally un-adapted, culturally adapted and culture-based interventions for Indigenous adults with mental or substance use disorders	Culturally adapted and un-adapted interventions for mental and substance use disorders	Level II	No effectiveness shown. Messages No effective messages were described.	No effectiveness shown.	Other	Limited program descriptions available. Intervention heterogeneity and use of co-interventions limit conclusions about the effectiveness of any one intervention. Unclear if cultural adaptation contributes to success in either mental health or substance use programs due to a small and methodologically weak evidence-base.
Liddell, J. & Burnette, CE., 2017 [12]	United States	American Indigenous youth, ages 9–18, involved in studies published between the years 1988 and 2016. Substance: alcohol and other drugs.	To explore the current state of empirically based and culturally-informed AOD use and abuse prevention and intervention efforts for Indigenous youth in the United States	Systematic review Culturally-informed AOD use and abuse prevention and intervention efforts for Indigenous youth in the United States	Level II	Culturally-informed interventions. Messages No effective messages were described.	All studies reported at least some improvement but not all were statistically significant. Methods ranged from RCT to exploratory and qualitative.	Other	Grey literature not included. May be additional culturally-informed interventions. U.S. studies only, which limits generalisability. Research remains scarce and fragmented.
MacLean, S et al., 2015 [13]	Australia	Aboriginal and Torres Strait Islander peoples Substance Methamphetamine	To review available literature to provide primary health-care (PHC) staff with advice to support best practice responses to methamphetamine use (MU) among Indigenous people	Structured search of relevant databases to identify literature from January 1999 to February 2014, providing an overview of prevalence, treatment, education and harm reduction, and community responses. Written as a narrative review	Level II	Including psychological interventions such as cognitive behaviour therapy (CBT), contingency management (CM), motivational interviewing and stepped care treatment models. Considering residential rehabilitation. Messages	No evidence was identified that specifically related to effective treatment outcomes for Indigenous Australians experience methamphetamine dependence of problematic use.	Other	May be additional literature.

						No effective messages were described.			
Venner, K et al., 2021 [14]	United States	American Indians Substance: alcohol, other drugs	To evaluate differences between evidence-based treatments and treatment as usual for substance use disorder	Motivational Interviewing combined with the Community Reinforcement Approach (MICRA)	Level II	No treatment group differences were observed. <u>Messages</u> No effective messages were described.	No treatment group differences were found between culturally tailored evidence-based treatments for substance use disorder and treatment as usual.	Other	Sample size May not be generalisable.
Calabria, B et al., 2020 [15]	Australia	Aboriginal and non-Aboriginal clients in rural NSW. N=55. Mean age 32.5. Substance: alcohol, tobacco, cannabis, amphetamine and over the counter medication.	To examine the feasibility and acceptability of – and conduct a pre/post-evaluation of the Aboriginal-adapted Community Reinforcement Approach (CRA) delivered in New South Wales, Australia	Aboriginal-adapted Community Reinforcement Approach (CRA)	Level IV	Involving co-design and cultural sensitivity Reducing technical language <u>Messages</u> No effective messages were described.	Statistically significant reduction in the use of alcohol, tobacco, cannabis, amphetamine and over the counter medication, and levels of psychological distress, and an increase in levels of empowerment for Aboriginal and non-Aboriginal clients.	Other	Reliance on self-report data. Risk of social desirability bias. Potential for bias from relatively small sample sizes. The pre-/ post-evaluation design does not provide causal evidence.
Geia, L et al., 2018 [7]	Australia	Indigenous young people (adolescents and young people). Substance: alcohol, other drugs	To identify preventative approaches to substance use in Aboriginal and Torres Strait Islander communities	Demand reduction programs. 4 studies from a systematic review	Level IV	Engaging locals in initiating and implementing interventions. Interventions being delivered by Indigenous community-controlled organisations. Supporting Indigenous community-controlled organisations to develop the capacity to deliver interventions and take full control within an agreed timeframe. Addressing the needs of participants by taking their specific attributes and the circumstances under which the program is to be delivered into account. <u>Messages</u> No effective messages were described.	Reduction of binge drinking and volatile substance use, but results were inconsistent. More formal program evaluations are required.	Other	One study did not have a study design detailed.
Henderson, R et al., 2023 [16]	American study using data from the USA, Canada, Australia, New Zealand.	First nations people from a variety of countries. Substance: opioids	To examine international literature to identify best practices for treatment of opioid dependence in Indigenous contexts	Opioid treatment programs	Level IV	Valuing compassion. Basing interpersonal relationships on non-judgmental care and respect for the client. Involving client self-determination and meaningful engagement. <u>Messages</u> No effective messages were described.	Reduction in drug-related medical evacuations, criminal charges, and child protection cases. Increase in school attendance, cleanliness, and community spirit.	Primary care	Did not include grey literature. Descriptions in some studies were incomplete, programme mechanisms had to be interpreted.
Kelley, A et al., 2017 [17]	United States	American Indians Substance: alcohol and drug use	To examine the impact of PRS on substance use, emotional and psychological problems, and social connections among peers	Transitional Recovery and Culture Program	Level IV	Involving peers with the lived experience of recovery to other people in recovery.	Involvement in PRS decreased substance use significantly among peers. Peer attendance at voluntary self-help groups and support from	Other	Attrition and small sample size. PRS supports and services delivered to peers were not documented because of the

			involved in the Transitional Recovery and Culture Program (TRAC) program			Messages No effective messages were described.	family and friends increased as a result of PRS.		confidential nature of PRS and the exploratory nature of this pilot program. Potential involvement in other recovery programs and services that supported successes in addition to the TRAC program.
Kelley, A et al., 2018 [18]	United States	People aged 12-20 years. N=569. Mean age 14 years. 200 in intervention group and 369 non-intervention. Target populations for the intervention activities designed by communities included youth, parents, cultural leaders, community, policy makers, staff, elders and teachers. Substance: alcohol (binge drinking), any illegal drug, marijuana, prescription drugs, methamphetamine, and inhalants	To determine 1) if there are differences in American Indian youth who participate in culturally-based prevention activities compared with American Indian youth who do not participate in these activities, 2) if the prevention program was effective in increasing community readiness over a 3-year period and 3), if community involvement in prevention activities increase overtime	3-year culturally-based prevention program	Level IV	Increasing youth access to cultural activities, promoting opportunities for social-support, strengthening community connections and support for prevention activities, and hosting a variety of sober activities. Asking for community members to help in the dissemination process along with working in communities with their local radio stations, newspapers, message boards, and word-of-mouth helps ensure that program information is shared and that community-feedback is collected. Messages No effective messages were described.	Substance use was similar among intervention (n = 200) and non-intervention youth (n = 369). The reach of prevention activities increased 365% from 2015 to 2017. Community participation increased 365.7% from 2014 to 2017 and these results suggest the program was effective in reaching youth, community, and elders through various culturally based prevention activities.	Other	Sampling could introduce selection bias. Reliance on self-report data. Risk of social desirability bias. Non-intervention group participated in other cultural activities Impact of universal prevention strategies.
Kelley, M et al. 2023 [19]	United States	Native American young adults residing in urban communities in Florida, aged 18-24. N=75. Mean age 22 years. 40 females and 35 males. Substance: alcohol, other drugs	To evaluate a cultural-based Talking Circle intervention for the prevention of substance use among urban Native American young adults	Talking Circle intervention with three components: being responsible, being disciplined, and being confident	Level IV	Incorporating cultural values, beliefs, practices and holistic thinking into prevention efforts to enhance the acquisition of coping skills, to reduce substance use and related health issues. Messages No effective messages were described.	Participants improved significantly on all measures after completing the Talking Circle. They demonstrated a higher sense of Native-Reliance, decrease in substance use, and a decrease in the PHQ-9 depressions scores from baseline to 6-month postintervention.	Other	Only one urban Native American community involved – may not be generalisable.
Treloar, C et al., 2018 [20]	Australia	Aboriginal people in Western Sydney, NSW Substance: injectable drug use	To evaluate a pilot study examining the acceptability of the program as a first step of a scalability assessment	Peer-driven, incentivised health promotion program	Level IV	Making sure that strategies are culturally sensitive, acceptable and scalable. Messages No effective messages were described.	Acceptability and engagement was high among staff and client, but pilot testing raises issues about scalability.	Primary care	Staff provided data was richer than client data. Difficulties in obtaining client interviews. High level these only were examined
Calabria et al., 2014. [21]	Australia	Aboriginal Community Controlled Health Service (ACCHS) and AOD treatment service in rural NSW.	To tailor CRA and CRAFT for delivery to Aboriginal Australians; and explore the perceptions of health care providers participating in the tailoring process as well as their experiences of participating in CRA and CRAFT counsellor certification	No intervention. Based on meeting notes and interviews.	Level IV	Modifying technical language. Reducing the number of treatment sessions, and including an option for group treatment. Gaining a counsellor certification. Messages	No intervention but resources were developed that were acceptable to clients and staff.	Primary care	No client outcome measurements reported.

						No effective messages were described.			
Munro, A et al., 2017. [22]	Australia	Aboriginal people in a remote community in Western NSW.	To examine the impact of a locally designed AOD radio advertising campaign	Community-led radio advertising campaign	Level IV	<u>Messages</u> Messages were not evaluated, but they related to: • The effects of alcohol use • The financial costs of AOD use • The effects of methamphetamine • Peer pressure and substance use • Effects of yarndi (cannabis) use • Effects of tobacco smoking • Safe partying (focusing on avoiding harms associated with gross intoxication).	Community awareness increased but no impact on help seeking.	Other	Researchers recognise they could have engaged with evaluation researchers earlier. Literature review not undertaken to inform project.
Western Australia Mental Health Commission, 2016 [23]	Australia	155 respondents. Young Aboriginal people, families and communities and available support services in the Perth metropolitan area. Substance: AOD	To increase awareness and knowledge of the harms associated with alcohol and other drug (AOD) use	The Strong Spirit Strong Mind Metro Project (as the document is undated, it is difficult to determine the elements of the campaign at the time it was written).	N/A Insufficient information provided	Key messages of strategy: • When our spirit is strong our mind is strong and we make good choices; • Strong inner spirit keep our family strong, our community strong and our culture alive • Drugs and Alcohol messes with your mind and affects your relationships.	Campaign described as very effective according to awareness. 83% of respondents indicated they were more aware of the harms associated with alcohol and other drug use as a result of the Campaign, with around a quarter naming each harm covered in the Campaign.	Other	Insufficient information provided on data collection methods and campaign. Focussed on harm awareness, not harm minimisation.
Western Australia Mental Health Commission, n.d. [24]	Australia	167 Aboriginal and Torres Strait Islander Young people aged 12-25 in Perth metropolitan area. Substance: AOD	To prevent and delay the early uptake of alcohol and other drug use by increasing awareness and knowledge of the harms associated with alcohol and other drug use; and to increase awareness and knowledge of available alcohol and other drug support services	The Strong Spirit Strong Mind Metro Project. Focus groups collecting qualitative and quantitative data, plus measures of changes (tools not described).	N/A Focus groups were held. Data produced was qualitative and quantitative. Reference to changes being measured but insufficient detail on the measures.	Key messages of strategy: • Alcohol & drugs mess with your mind and affects your relationships • No alcohol and drugs is the safest choice • Alcohol and drugs can put you in shameful and dangerous situations • Alcohol and drugs can weaken your spirit.	Campaign found to perform above expectations according to awareness. 65% of respondents were more aware of the harms of alcohol and drug use.	Other	Focussed on harm awareness, not harm minimisation.

Appendix 4: In depth summary of studies related to Rural and Remote people as identified by the rapid evidence review

Article	Country	Target Population and substance	Study Aim	Intervention	Study Design and NHMRC Level of Evidence	Effective strategies (approaches and messages)	Evidence of effectiveness/Results	Primary care vs other	Limitations
Pijl, EM et al., 2022 [41]	Canada	N=26 studies, of which three were intervention studies Substance: opioids	To explore the facilitators and barriers of OAT in rural and remote Canadian communities	Integrative review.	Level III-2	Holistic approaches to care, nested in a community-based holistic model Messages No effective messages were described.	Three opioid agonist therapy interventions yielded statistically significant reductions but results ranged from promising to unclear.	Other	Further research is required
Hughes, P et al., 2021 [35]	United States	N=242 (Mean age: 37.5 years; Male: 43%) Substance: opioids	To track changes in care utilization of medication for opioid use disorder (MOUD) services before, during, and after COVID-19-associated changes in policy and service delivery	Examination of visit data of MOUD patients at a family medicine clinic using a retrospective, open-cohort design	Level III-3	Using telehealth Messages No effective messages were described.	MOUD visits increased during COVID (436 pre vs. 581 post, $p < 0.001$); new patient visits remained constant (33 pre vs. 29 post, $p = 0.755$); clinic's catchment area increased in size, with new patients coming primarily from rural areas.	Primary care	Uncertain if individual participants were tracked across time periods.
Buck-McFadyen, E et al., 2021 [32]	Canada	Rural N=16 (male: n=5) Substance: opioids	To examine the effectiveness of OAT Rx delivered by a multidisciplinary primary care team (peer workers, nurses, social workers)	Rural Outpatient Opioid Treatment (ROOT).	Level IV	Multi-disciplinary teams, including peers and wrap-around care. Messages No effective messages were described.	No participants' OAT doses were meaningfully changed throughout the duration of the program.	Primary care	No control group.
Carroll E et al., 2022 [33]	United States	Rural N=23 (Male: n=12; 41% aged 30-39 years; PWID: n=8) Substance: opioids	To assess buprenorphine access & care quality	Nurse led weekly B-MAT clinic	Level IV	Having nurse practitioners in primary care settings provide B-MAT in a low-threshold, office-based setting Messages No effective messages were described.	County-wide access expanded by 34% over seven months. 75% of participants were program active for at least 30 days. One nonfatal overdose.	Primary care	Qualitative; Descriptive; No control group.
Geia, L et al., 2018 [7]	Australia	Indigenous young people (adolescents and young people). Substance: alcohol, other drugs	To identify preventative approaches to substance use in Aboriginal and Torres Strait Islander communities	Demand reduction programs. 4 studies from a systematic review.	Level IV	Engaging locals in initiating and implementing interventions. Interventions being delivered by Indigenous community-controlled organisations. Supporting Indigenous community-controlled organisations to develop the capacity to deliver interventions and take full control within an agreed timeframe. Addressing the needs of participants by taking their specific attributes and the circumstances under which the program is to be delivered into account. Messages	Reduction of binge drinking and volatile substance use, but results were inconsistent. More formal evaluations are required.	Other	One study did not have a study design detailed.

						No effective messages were described.			
Sagi, M et al., 2018 [40]	India	N=38 Physicians Substance: All	To develop an innovative telementoring model and looked at feasibility as well as acceptability among remote PCPs on drug addiction management.	Physician telementoring	Level IV	Incorporating tele-mentoring; patient case summaries workshops; and eLearning. <u>Messages</u> No effective messages were described.	Significant increase in physician knowledge at 1 and 3 months (3.00 ± 0.86, P < 0.001; 3.16 ± 0.90, P < 0.001 respectively). 10 Participants reported improved confidence in managing a case of substance use disorder on.	Primary care	Focus was health professionals
Englander, H et al., 2021 [39]	United States	N=143 Registrants Substance: All	To better understand the local barriers and suggested strategies to increasing the acceptability and implementation of harm reduction programs in response to local drug-related epidemics.	Registrant mentoring	Level IV	No impacts on illicit drug use/harms but knowledge and skills improved.	The study was not designed to measure reductions in drug use, but participants knowledge and skills improved. They were highly satisfied; more prepared to treat SUD; believed the program built a community of practice and reduced provider isolation.	Other	Focus was health professionals
Zittleman, L et al., 2022 [38]	United States	N=42 primary care services Substance: opioids	To increase the number of rural PCPs providing OUD treatment with buprenorphine	Staff training	Level IV	Staff training sessions covering: OUD epidemiology, pharmacology, neurobiology of addiction, and detailed treatment steps; as well as workshopping to identify current practice strengths <u>Messages</u> No effective messages were described.	OUD treatment-related components increased from a mean of 4.7 at baseline to 13.0 at 12-month follow-up ($F[2,56]=31.17$, $P <.001$). Referring patients for treatment increased from 18.8% to 74.4%. The increase in number of people with a prescription for buprenorphine was significantly greater in the study region over a 4-year period compared with the rest of the state (Wald $\chi2=15.73$, $P <.001$).	Primary care	Focus was health professionals

Mema, S et al., 2019 [37]	Canada	Rural towns N=82 (Males: 68%; Aboriginal: 41%) Substance: opioids	To prevent fatal overdoses, reduce public drug use, & connect clients to health services	Outreach service – supervised injecting centre via a bus	N/A	Provision of supervised privacy for injecting <u>Messages</u> No effective messages were described.	Many clients reported positive experiences in terms of access to service and physical safety. However, new challenges are presented which may undermine continuity and quality of the service.	Other	Cross-sectional; Non-representative sample
Childs, E et al., 2021 [34]	United States	Non-urban N=22 Health professionals Substance: All	To understand challenges and strategies for engaging communities in accepting harm reduction perspectives and services.	None	N/A	NA	Qualitative interviews documented potential strategies of (1) identifying local champions to advocate for harm reduction strategies, (2) proactively educating communities about harm reduction prior to implementation, (3) improving the visibility of harm reduction services, (4) obtaining “buy-in” from law enforcement & local government	Primary care	Qualitative; Descriptive
Ostrach, B et al., 2022 [36]	United States	Rural N=16 Substance: opioids	To prevent fatal overdoses by exploring the experiences of rural patients with OUD filling prescriptions for buprenorphine-containing medications at community pharmacies	Overdose reduction – dispensing policy. The local county health departments each entered into dedicated dispensing arrangements with a local independent community pharmacy to ensure a stable supply of medication for their patients with OUD who were prescribed buprenorphine	N/A	Having dedicated dispensing arrangement for ensuring stable OUD supplies. <u>Messages</u> No effective messages were described.	Some improvement in access; although high medication costs, and stigmatizing treatment by some pharmacists remained	Primary care	Only abstract available

Appendix 5: In depth summary of studies related to young people as identified by the rapid evidence review

Article	Country	Target population and substance	Aim of study	Intervention	NHMRC Level of Evidence and study design	Effective strategies (approaches and messages)	Evidence of effectiveness/Results	Primary care vs Other Setting	Limitations
Bo, A et al., 2023 [9]	United States	11-18 years 51% female, mean age 13.6 N= 36 reports of 30 unique studies. Sample size of included comparisons of each treatment group to a control group ranged from 31 to 2212. Substance: alcohol, cigarette, marijuana, illicit and other drugs, and unspecified substance use	To synthesize the efficacy of culturally sensitive prevention programs for substance use outcomes among U.S. adolescents of colour (aged 11 to 18 years old) and explore whether the intervention effects vary by participant and intervention characteristics.	Any culturally sensitive universal, selective, or indicated individual-, family-, school-, or community-based substance use prevention programs or positive youth development programs conducted in the United States.	Level I	Culturally sensitive programs that address substance- specific risks and protective factors; address positive youth development factors; and reflect adolescents' cultural values, norms, practices and worlviews. <u>Messages</u> No effective messages were described.	Prevention of reduction of substance use among Black, Hispanic, and Native American adolescents. Average treatment effects were statistically significant for all substance use behavioural outcomes but not for substance use consequences.	Other	Not all eligible studies may have been identified. Unable to make conclusions about the efficacy of culturally sensitive relative to non-culturally sensitive programs. Moderator analysis risks.
Liddell, J & Burnette, CE., 2017 [12]	United States	American Indigenous youth, ages 9–18, involved in studies published between the years 1988 and 2016 Substance: alcohol, other drugs	To explore the current state of empirically based and culturally-informed AOD use and abuse prevention and intervention efforts for Indigenous youth in the United States.	Systematic review Culturally-informed AOD use and abuse prevention and intervention efforts for Indigenous youth in the United States.	Level II	Culturally-informed interventions. <u>Messages</u> No effective messages were described.	All studies reported at least some improvement but not all were statistically significant. Methods ranged from RCT to exploratory and qualitative.	Other	Grey literature not included. May be additional, culturally-informed interventions not listed. North-American Studies only which limits generalisability.
Braciszewski, JM et al., 2018 [52]	United States	N =33 participants (17 female, 16 male) aged 18-19yo exiting foster care, average age of 18.91. Substance: alcohol, other drugs	To describe 'the feasibility, acceptability, and initial efficacy of iHeLP, a computer- and mobile phone-based intervention based in Motivational Interviewing for reducing substance use among youth exiting foster care.	iHeLP (Interactive Healthy Lifestyle Preparation), a computer- and mobile phone-based substance use intervention.	Level II	Nonthreatening intervention tools. Computerized Interventions. Asking for youth input in the design and execution of different approaches is essential. <u>Messages</u> No effective messages were described.	Significantly reduced frequency of Marijuana use among iHelp participants and higher percent days abstinent than the control group.	Other	Findings may be limited to youth in foster care, who are exposed to more Adverse Childhood Experiences (ACEs). Authors note limitations around: Small trial, unpopularity of urine drug screens, and retrospective self-report data. Participants may reduce one substance while increase the use of another; thus, future technology-based interventions should adapt to such changes and provide tailored content relevant to current behavior'.
Fishhman, M et al., 2021. [54]	United States	Young adults aged 18–26 years enrolled in inpatient/residential opioid use disorder (OUD) treatment intending to pursue outpatient OUD treatment with extended-release naltrexone (XR-NTX). N= 38 (25 males) Substance: alcohol, other drugs	To further test the youth opioid recovery support model (YORS) intervention compared to treatment as usual in a pilot randomized controlled trial (RCT)	Single-site randomized controlled trial with 24-week follow-up. Components of trial included: (1) home delivery of XR-NTX; (2) family engagement.; 3) assertive outreach; and (4) contingency management for receipt of XR-NTX doses. The comparator was TAU, which consisted of a standard referral to outpatient care following an inpatient stay.	Level II	Assertive outreach approaches to re-establish care, prevent a lapse from progressing to a full relapse and prevent disaster. Accepting relapse and non-linear trajectories. Home-based care. Family involvement. <u>Messages</u> No effective messages were described.	Compared to treatment as usual, YORS participants received significantly more doses of XR-NTX, lower rates of opioid relapse at both.	Other	Small sample size. Missing UDS data. A high-severity population of young adults. This study mostly refers to the medication adherence for opioid disorders, which has not been identified as a problem in the NT. Although the relapse rate for YORS was much lower than for TAU it was still 61%.

									Further work is also needed to understand the relative contribution of the intervention's various components to determine whether all are needed for all patients.
Kurtz, SP et al., 2019. [51]	United States	Young people aged 18-39, mean age 25.79. 57% were male. N=602 AOD used in the context of electronic dance music (EDM) events. Substance: alcohol, other drugs	To examine resilience as a moderator of substance use outcomes by intervention condition among a sample of not-in-treatment young adults with extensive multidrug use; and (2) to examine resilience as a differential moderator of intervention outcomes between participants with severe traumatic stress (STS) symptoms and those without STS	Three-armed randomized controlled trial (RCT). Standardized assessment interventions were delivered in two modalities: 1) a computer-assisted personal interview conducted by an age-peer, and 2) an audio computer-assisted self-interview.	Level II	Peer-interventions. Screening for severe traumatic stress. <u>Messages</u> No effective messages were described.	Participants with high resilience reduced their substance use (days drug use, p<.0001; days abstinent, p<.05) to a greater extent than those with low resilience; effect sizes were small (d=.22, days drug use; d=.20, days abstinent) for both outcomes. The RCT study found intervention effects in a stepwise pattern: participants in the Peer condition reduced their drug use and related health consequences to a greater degree than participants in the Self arm, and both intervention conditions were efficacious compared to Control. High resilience predicted more successful substance use outcomes. Participants with low resilience scores had poorer outcomes, and those outcomes were largely unaffected by intervention condition. Regardless of the level of resilience, participants with severe traumatic stress did not benefit from the interventions.	Other	Self-report AOD use. Findings may not be generalizable to young adults who use drugs in non-EDM contexts or report lower levels of polydrug use
Geia, L et al., 2018 [7]	Australia	Indigenous young people (adolescents and young people). Substance: alcohol, other drugs	To identify preventative approaches to substance use in Aboriginal and Torres Strait Islander communities	Demand reduction programs. 4 studies from a systematic review.	Level IV	Engaging locals in initiating and implementing interventions. Interventions being delivered by Indigenous community-controlled organisations. Supporting Indigenous community-controlled organisations to develop the capacity to deliver interventions and take full control within an agreed timeframe. Addressing the needs of participants by taking their specific attributes and the circumstances under which the program is to be delivered into account. <u>Messages</u> No effective messages were described.	Reduction of binge drinking and volatile substance use, but results were inconsistent. More formal evaluations are required.	Other	One study did not have a study design detailed.

Kelley, M et al., 2023 [19]	United States	Native American young adults residing in urban communities in Florida, aged 18-24. N=75. Mean age 22 years. 40 females and 35 males. Substance: alcohol, other drugs	To evaluate a cultural-based Talking Circle intervention for the prevention of substance use among urban Native American young adults, ages 18–24.	Talking Circle intervention. Three components: being responsible, being disciplined, and being confident.	Level IV	Incorporating cultural values, beliefs, practices and holistic thinking into prevention efforts to enhance the acquisition of coping skills, to reduce substance use and related health issues. <u>Messages</u> No effective messages were described.	Participants improved significantly on all measures after completing the Talking Circle. They demonstrated a higher sense of Native-Reliance, decrease in substance use, and a decrease in the PHQ-9 depressions scores from baseline to 6-month postintervention.	Other	Only one urban Native American community involved – may not be generalisable.
Kelley, AB et al.,2018 [18]	United States	People aged 12-20 years. N=569. Mean age 14 years. 200 in intervention group and 369 non-intervention. Target populations for the intervention activities designed by communities included youth, parents, cultural leaders, community, policy makers, staff, elders and teachers. Substance: alcohol (binge drinking), any illegal drug, marijuana, prescription drugs, methamphetamine, and inhalants	To determine 1) if there are differences in American Indian youth who participate in culturally-based prevention activities compared with American Indian youth who do not participate in these activities, 2) if the prevention program was effective in increasing community readiness over a 3-year period and 3), if community involvement in prevention activities increase overtime	3-year culturally-based prevention program.	Level IV	Increasing youth access to cultural activities, promoting opportunities for social-support, strengthening community connections and support for prevention activities, and hosting a variety of sober activities. Asking for community members to help in the dissemination process along with working in communities with their local radio stations, newspapers, message boards, and word-of-mouth helps ensure that program information is shared and that community-feedback is collected. <u>Messages</u> No effective messages were described.	Substance use was similar among intervention (n = 200) and non-intervention youth (n = 369). The reach of prevention activities increased 365% from 2015 to 2017. Community participation increased 365.7% from 2014 to 2017 and these results suggest the program was effective in reaching youth, community, and elders through various culturally based prevention activities.	Other	Self-report. Different activities with different focusses, e.g., misusing prescription drugs, binge drinking, underage drinking.
Kazemi, DM et al., 2013 [53]	United States	Freshmen students aged 17-20 living in residential halls. Mostly European American (65%). N=583. Mean age 18 (436 voluntary and 147 mandated[7]). Substance: alcohol, other drugs	To compare the impact of the Brief Motivational Intervention (BMI) on drinking and associated consequences among the mandated and the voluntary student participants	The Brief Motivational Intervention (BMI)	Level IV	Using a client-centred harm reduction approach. Using motivational interviewing. Incorporating cultural factors in designing and implementing alcohol prevention programmes. <u>Messages</u> No effective messages were described.	Participant use of illicit drugs decreased between baseline (27.5%) and 6 months (21.9%). The greatest decrease was seen in the mandated group, with 20.4% of the participants in the group using illicit drugs at baseline and only 10.3% at 6 months.	Other	No control group. Whilst all participants were voluntary, the mandated group had chosen to participate as an alternative to the program typically required for students who had violated a campus alcohol policy. Self-report. The BMI intervention was designed to address only alcohol use and not illicit drugs because it incorporates alcohol education, personalized feedback and alcohol skills training. Whilst illicit drug use reduced over the intervention, the number of drinks and average number of hours

[7] 'Mandated college students are students who have violated a campus alcohol policy and are required to complete an alcohol education, counselling or intervention programme.' They 'were given an option of completing either the university standard alcohol prevention session or participate in the BMI study' [53].

									drinking increased for the mandated group between 3 and 6 months.
ADF, 2021 [70]	Australian study using international literature.	Young people. Substance: illicit drugs.	To determine the most effective types of messaging interventions and delivery modes for young people.	Various. An unspecified number of studies related to illicit drug use messaging for young people, with an emphasis on RCTs.	N/A. Beyond scope of NHMRC Levels 1-IV. Narrative review - search methodology not described.	Various findings related to different aspects of messaging (evaluation, funding, type of campaign, campaign managers, drug use setting, etc). (see Table 8). <u>Messages</u> No effective messages were described.	Whilst there are a number of key components and principles that have been attributed to effective harm reduction messaging campaigns for young adults, a lack of program evaluation means that there is a lack of agreement in the literature about forms or delivery for messaging.	Other	Search strategy not described.
Western Australia Mental Health Commission, 2016 [23]	Australia	155 respondents. Young Aboriginal people, families and communities and available support services in the Perth metropolitan area. Substance: AOD	To increase awareness and knowledge of the harms associated with alcohol and other drug (AOD) use.	The Strong Spirit Strong Mind Metro Project (as the document is undated, it is difficult to determine the elements of the campaign at the time it was written).	N/A. Insufficient information provided.	<u>Key messages of strategy:</u> • When our spirit is strong our mind is strong and we make good choices; • Strong inner spirit keep our family strong, our community strong and our culture alive • Drugs and Alcohol messes with your mind and affects your relationships.	Campaign described as very effective. 83% of respondents indicated they were more aware of the harms associated with alcohol and other drug use as a result of the Campaign, with around a quarter naming each harm covered in the Campaign.	Other	Insufficient information provided on data collection methods and campaign. Focussed on harm awareness, not harm minimisation.
Western Australia Mental Health Commission, n.d. [24]	Australia	167 Aboriginal and Torres Strait Islander Young people aged 12-25 in Perth metropolitan area. Substance: AOD	To prevent and delay the early uptake of alcohol and other drug use by increasing awareness and knowledge of the harms associated with alcohol and other drug use; and increase awareness and knowledge of available alcohol and other drug support services.	The Strong Spirit Strong Mind Metro Project. Focus groups collecting qualitative and quantitative data, plus measures of changes (tools not described).	N/A. Focus groups were held. Data produced was qualitative and quantitative. Reference to changes being measured but insufficient detail on the measures.	<u>Key messages of strategy:</u> • Alcohol & drugs mess with your mind and affects your relationships • No alcohol and drugs is the safest choice • Alcohol and drugs can put you in shameful and dangerous situations • Alcohol and drugs can weaken your spirit.	Campaign found to perform above expectations. 65% of respondents were more aware of the harms of alcohol and drug use.	Other	Focussed on harm awareness, not harm minimisation.